

SUPPORTING SOCIAL LEARNING AND KNOWLEDGE MANAGEMENT WITHIN THE ECOLOGICAL INFRASTRUCTURE FOR WATER SECURITY PROJECT

FINAL REPORT

Report to the
Water Research Commission

by

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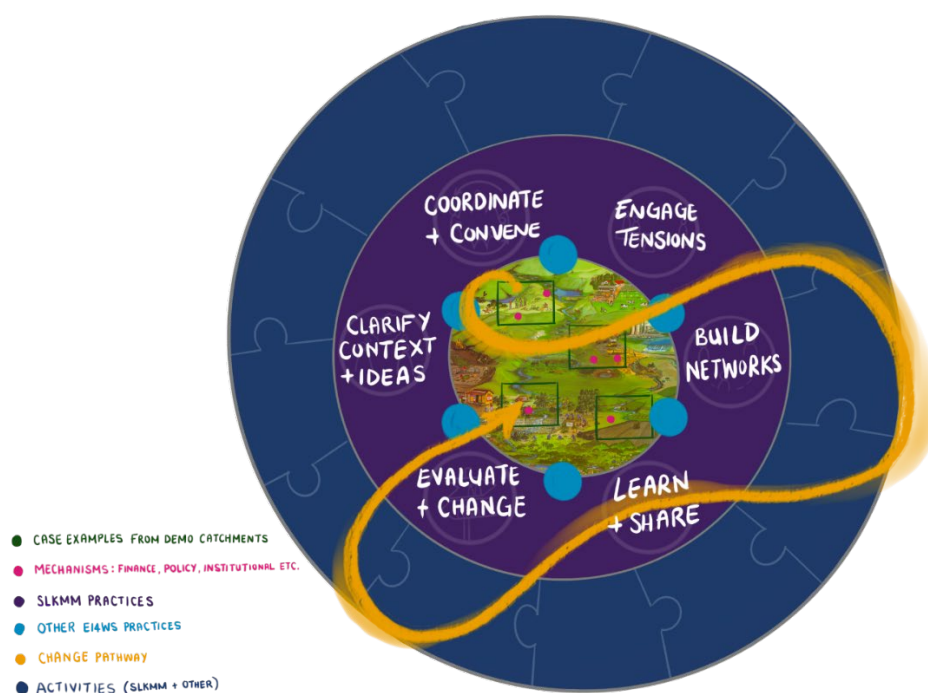
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EXECUTIVE SUMMARY

This is the Final Report of the Water Research Commission (WRC) Project K5/2988 titled “SUPPORTING SOCIAL LEARNING AND KNOWLEDGE MANAGEMENT WITHIN THE ECOLOGICAL INFRASTRUCTURE FOR WATER SECURITY (EI4WS) PROJECT”. The EI4WS project is funded by the Global Environment Facility (GEF 6), implemented by the Development Bank of Southern Africa (DBSA), and executed by the South African National Biodiversity Institute (SANBI), in partnership with the WRC and other implementing partners.

Project K5/2988 was implemented by a cross-organisational team lead by Rhodes University over a five-year period from 2019 to 2023. The core contribution of the project has been the articulation of a strategy-as-practice for **social learning, knowledge management and mediation (SLKMM)** to support the work of Component 3 in the EI4WS project. The diagram below captures the key features of this strategy-as-practice in the form of six core practices grounded in the on-going practices of investing in ecological infrastructure in living catchments.



In this report, we have collated the key outputs of the project in five chapters.

- In Chapter 1 we introduce the overall project context and situate the SLKMM project within the broader EI4WS project and its objectives.
- In Chapter 2 we develop a conceptual framework and methodology to guide the project activities, analyse the stakeholder context and report on stakeholder consultations which informed the early strategy development work.
- In Chapter 3 we present the SLKMM strategy-as-practice, along with an implementation plan and a monitoring, evaluation and learning framework (MEL).
- Chapter 4 is a collation of the four annual progress reports which we submitted reflecting and reporting on the implementation of the SLKMM strategy-as-practice from 2022 to 2023.
- In Chapter 5 we synthesise key lessons and insights and offer recommendations for the way forward.

In our synthesis we conclude that all aims of the project were reached. We then draw out three key insights on the implementation of the SLKMM strategy-as-practice:

- 1) The SLKMM strategy-as-practice has enabled articulation and integration of shared practice
- 2) The SLKMM strategy-as-practice has provided and catalysed important capacity and development
- 3) A lush, deep and wide landscape of SLKMM practice is unfolding

We conclude the report with three recommendations:

- Recommendation 1: The “joined-up” nature of the SLKMM landscape of practice calls for careful and on-going linkages to be developed between the range of partners working in the EI4WS context to expand existing and build new long-term and formal relationships around capacity development for SLKMM practices.
- Recommendation 2: Future projects should be designed to ensure sufficient time for reflection and learning within and across project components. This should include careful design of deliverables which are such important levers for action in large grant-funded projects like the EI4WS.
- Recommendation 3: A “Learning for the Future Programme for young people to participate in the on-going co-evolution of EI4WS and SLKMM practices” should be developed as a key outcome of the EI4WS project.

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ACRONYMS & ABBREVIATIONS

BIOFIN	The Biodiversity Finance Initiative
CLCB	Centre for Learning and Capacity Building
CMA	Catchment Management Agency
CMF	Catchment Management Forum
CMRA	Centre for Municipal Research and Advice
CMS	Catchment Management Strategy
CoP/CoPs	Community/ies of Practice
DBSA	Development Bank of Southern Africa
EI	Ecological Infrastructure
EIIF	Ecological Infrastructure Investment Framework
EI4WS	Ecological Infrastructure for Water Security
ELRC	Environmental Learning Research Centre
GEF	Global Environment Facility
GEF6	Global Environment Facility 6 th funding/programming period
GIHub	Global Infrastructure Hub (G20 Initiative)
IWQM	Integrated Water Quality Management
LCP	Living Catchments Project
M&E	Monitoring and Evaluation
MEA	Millennium Ecosystems Assessment
MEL	Monitoring, Evaluation and Learning
MERL	Monitoring, Evaluation, Reporting and Learning
MERL-T	Monitoring, Evaluation, Reporting, and Learning, and Tracking
NBI	National Business Initiative
NCA	Natural Capital Accounting
NCA & VES	Natural Capital Accounting and Valuation of Ecosystem Services
OECD	Organisation for Economic Co-operation and Development
P4G	Partnering for Green Growth and the Global Goals 2030
PCC	Presidential Climate Commission
PES	Presidential Employment Stimulus
PICC	Presidential Infrastructure Coordinating Commission
PPP	Public Private Partnerships
ProEcoServ	Project for Ecosystem Services
RDI	Research Development and Innovation
SANBI	South African National Biodiversity Institute
SARChI	South African Research Chairs Initiative
SDGs	Sustainable Development Goals
SEBEI	Socio-Economic Benefits of Ecological Infrastructure
SEEA	System of Environmental-Economic Accounting
SES	Social-Ecological System
SLKMM	Social Learning, Knowledge Management and Mediation
SIP 19	Strategic Integrated Project 19
StasSA	Statistics South Africa
TEEB	The Economics of Ecosystems and Biodiversity

UBCEG	Upper Breede Collaborative Extension Group
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VCF	Value Creation Framework
WRC	Water Research Commission
WWF-SA	World Wide Fund for Nature South Africa
YOMA	Youth Marketplace Agency

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND: CONTEXTUALISING THE PROJECT

The Water Research Commission project (K5-2988) which is the focus of this report was a *strategy development process* in support of Component 3 of the larger GEF6 *Ecological Infrastructure for Water Security Project* (EI4WS, full title: Unlocking Biodiversity Benefits through Development Finance in Critical Catchments (SANBI, 2016)). This project is being implemented by a range of partners. It focuses on improving water security by integrating biodiversity and ecosystem services into planning, finance and development in the water sector. The project is organised into three interdependent components (See Figure 1.1 for an overview of the GEF6 EI4WS project and the three components):

1. Systemic changes to better enable biodiversity and ecosystem services to contribute to improved water security;
2. Demonstration of proposed approaches in the Berg-Breede and uMngeni river catchments; and
3. Improving the integration of biodiversity and ecosystem services into the water value chain through social learning, credible evidence and knowledge management.

We refer to our project presented here as the '**Social Learning, Knowledge Management and Mediation within the Ecological Infrastructure for Water Security Project**' (abbreviated as: SLKMM-EI4WS; Contract number: K5/2988). The Terms of Reference for this project outlines the focus of Component 3 as follows:

“Core to this component is knowledge management and exchange, by which value is generated from knowledge-based assets and communities of practice in an effort to address new challenges and develop solutions. Emphasis is also placed on social learning as a process through which key actors and society become aware of the discontinuities they are facing and learn to engage with them to make more informed decisions. This component therefore requires an understanding of how social change comes about, in order for it to strengthen the co-generation and sharing of knowledge, and the likelihood of knowledge being taken up and applied within a range of contexts. Emphasis will be placed on social learning as a core ongoing process both among the partners within the project and with the broader relevant communities of practice. The component is an essential part of the sustainability of the project, working to deepen capacity in existing organisations and networks in the water and biodiversity sectors.”

The purpose of the **SLKMM project** was to develop a strategy to support the activities of Component 3. The strategy set out the conceptual framing, strategic interventions and implementation plan to enable robust knowledge management and social learning necessary for the change sought by the **wider EI4WS project**. It focused on developing a guiding approach and plan to create an enabling environment and supportive process for the wider EI4WS project. Component 3 is implemented by the Water Research Commission (WRC) through a **Knowledge Coordinator** who has been specifically appointed for this task. The Knowledge Coordinator has worked closely with a working group which has been appointed to support implementation of Component 3 (referred to hereafter as the **Component 3 Working Group** or **WG3**). (Note: terms emphasised above will be used throughout the report to refer to the various actors, project levels and components).



Figure 1.1. The wider GEF6 EI4WS Project and its three nested, inter-related components and outcomes. The work of Component 3 for which this project is developing the strategy is about creating an enabling environment for the initiative (SANBI, 2016).

The work of the SLKMM project consisted of two distinct phases:

- Phase 1: A shorter research-oriented phase focusing on strategy development (July 2019-Feb 2020),
- Phase 2: A longer implementation support phase to ensure continuity, provide expert advice and support the ongoing review and adaptation of the strategy to be implemented by the WRC through the Knowledge Coordinator and the Component 3 Working Group (2020-2023).

This final report reports on both phases.

The SLKMM project was co-developed by a Project Team with diverse experience and with important existing stakeholder relations in the two demonstration catchments in which the wider EI4WS project is being implemented (i.e. Berg and Breede in the Western Cape, and the Greater uMngeni in KwaZulu-Natal). The team’s activities are being led by Professor Heila-Lotz-Sisitka (SARChI Chair: Global Change and Social Learning Systems) and managed by Dr. Jessica Cockburn from the Environmental Learning Research Centre (ELRC), and the Department of Environmental Science, respectively, at Rhodes University. They have worked in close partnership with Creating Sustainable Value, Living Lands and the Duzi Umngeni Conservation Trust (DUCT). The Project Team are co-authors on this report. Further details about the Project Team are provided in the Annexure A of the K5/2988 project contract.

1.2 WHY DOES SOCIAL LEARNING MATTER AND WHAT DOES IT MEAN?

The role of social learning in the EIWS GEF 6 Project is outlined in the project document (SANBI, 2016). Social learning is considered an important means of creating an enabling environment for the work which is being done in Component 1 and Component 2 of the wider EI4WS project. It is considered a key part of supporting and understanding the social change processes envisaged as part of the EIWS project. We re-describe the

key role of social learning in the diagram in Figure 1.2 and Figure 1.3 below, highlighting its **mediating role in people-centred knowledge-sharing and social change process.**

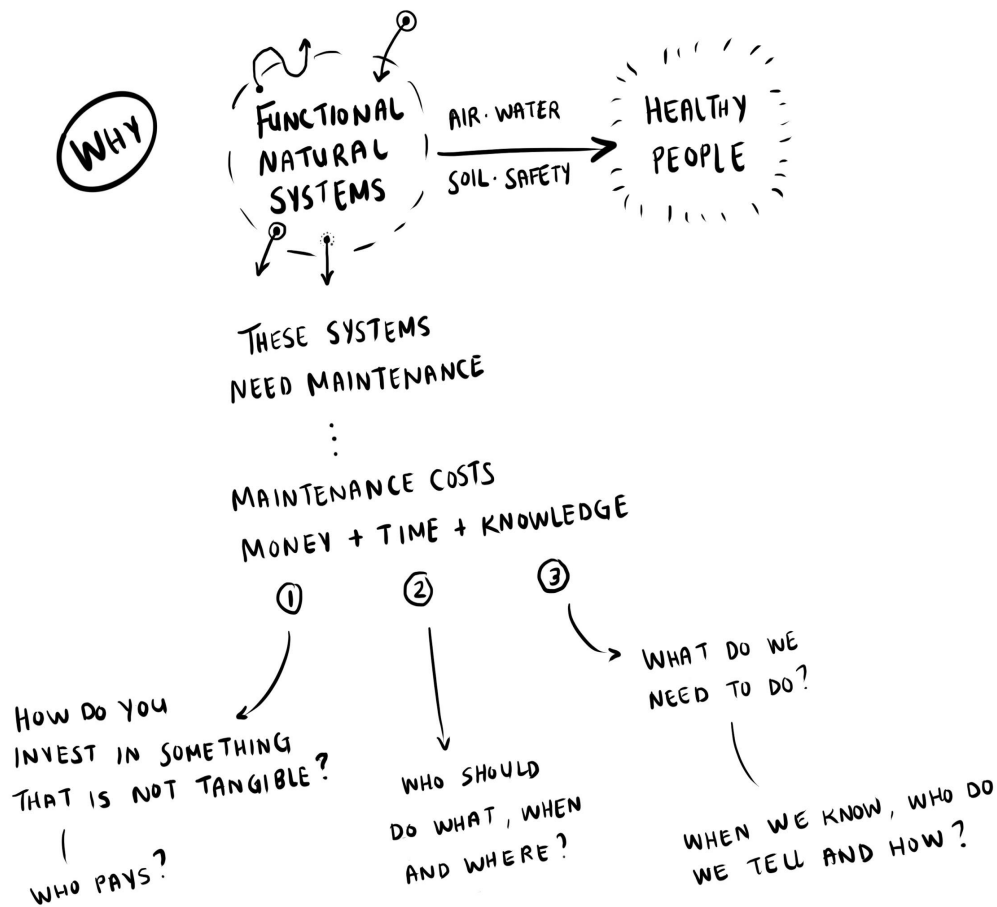


Figure 1.2. Contextualising the EI4WS project by revisiting the ‘Why?’: We need functional natural systems, and these systems need maintenance, which costs money, and requires time and knowledge (Image by Liezl le Roux, Living Lands).

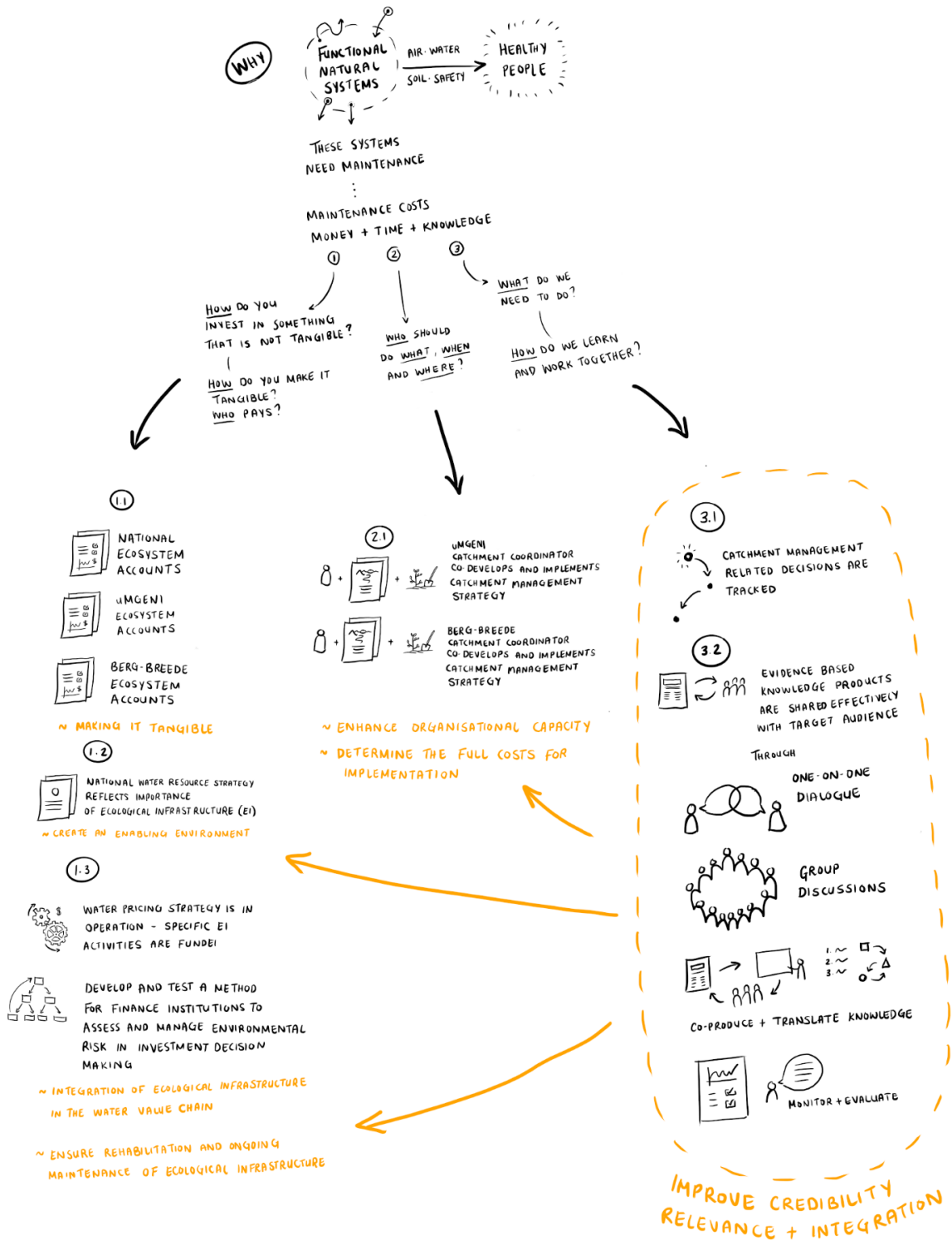


Figure 1.3. Building on Figure 1.2's contextualisation of EI4WS: Contextualising social learning, knowledge management and mediation (SLKMM) within the EI4WS as a means of improving credibility, relevance and integrations across the three components of the project, with 3.1 and 3.2 in the diagram drawing attention to the SLKMM component. (Image by Liezl le Roux, Living Lands).

In extending the framing of social learning in the SLKMM, we present two relevant definitions of social learning:

Social learning refers to co-learning at inter-linked levels of:

- 1) Individual cognitive change,
- 2) cultural values and practice change,
- 3) organizational, institutional and social movement change,
- 4) landscape, and
- 5) systemic change (Lotz-Sisitka, 2012; Reed et al., 2010).

Transformative social learning refers to: critical, transformative and transgressive forms of co-learning and collective agency that can challenge and transgress unsustainable, taken for granted norms, habits, cultural and institutional practices, systems and structures that hold unsustainability and inequality in place (Heila Lotz-Sisitka et al., 2016; Lotz-Sisitka et al., 2015; Macintyre et al., 2018).

There is a risk that social learning could potentially be used in an overly simplistic or instrumental sense to achieve pre-determined goals and outcomes of the EIWS project. From a managerial perspective, successfully achieving the stated objectives of the project and being accountable to funders is critical, and social learning is considered a means to this end. However, after input from the Project Team, discussions at the inception meeting indicated that the Component 3 Working Group recognise that for the social change that is needed to come about, a more open-ended approach to social learning is necessary in which not only the outcomes of social learning are valued, but also the process (Lindley, 2015).

This more open-ended, process-oriented understanding of social learning is captured in a recent article by Lindley (2015: 59), citing Wals (2007):

“social learning is an approach that does not seek to tell people what they should know or be able to do, but rather encourages an understanding of how people learn, and what they want to learn in order to help them recognise, evaluate and think innovatively around existing ways of doing things, preconceptions, social norms and personal biases. It helps people to build on their existing knowledge and skills, and perhaps develop different ways of looking at the world. When viewed in this way, social learning is seen to be a broader, more open-ended approach to learning that is more responsive to a variety of contextual situations, is reflexive in orientation, and is able to support learning in a risk society.”

Holding this **tension between social learning for a particular pre-determined outcome vs. social learning as a form of ‘learning what is not there yet’** (Engeström, 2016) has been a key challenge for the strategy development and its implementation in the wider EIWS project. Numerous such tensions were identified during the inception meeting, and some of these have been more fully explored and developed into contradictions and leverage points in the conceptual framework introduced below (Section 2.2.7).

1.3 PROJECT AIMS

The following are the aims of the SLKMM strategy development project:

1. Develop an appropriate conceptual framework for social learning within the EI4WS project team as well as within the wider set of project stakeholders, supported by review of relevant literature and lessons learned from other initiatives.
2. In conjunction with project partners, design a process for strategy development that includes, as a minimum, situation and communities of practice / stakeholder analysis that builds on and refines the

information contained in the approved Project Document. The focus will be on Communities of Practice (CoPs) in a landscape of practice, around the shared object / activity of EI4WS.

3. Develop a communities of practice / stakeholder database and tracking tool that outlines the project related role-players, their relationship to EI4WS activity and the evidence base/knowledge resources that they can contribute to supporting uptake of the EI4WS project, as well as which tracks their project engagement and social learning (SL) interactions over time.
4. In the design of the strategy, employ an iterative, consultative approach involving field analysis, field interviews and at least one workshop and other stakeholder engagement in order to develop a concise project strategy for social learning and knowledge management that provides an approach and set of methods specifically tailored to the project and its objectives.
5. Develop an accompanying implementation plan that spells out specific activities, resource requirements, responsible project partners/stakeholders, enabling conditions, dependencies and assumptions.
6. Develop a monitoring and evaluation framework for the strategy that feeds into and reinforces the social learning and knowledge management and mediation processes.
7. For a period of three years subsequent to the development of the strategy, enhance continuity between strategy development and implementation by providing support and expert advice to the WRC and component 3 working group on:
 - a. Expansive, transformative social learning and knowledge management and mediation processes as designed and developed within the Strategy with relevant CoPs / stakeholders in the catchment.
 - b. Support decision making around implementation of the strategy;
 - c. Support strategy review and adaptation; and
 - d. Strengthen EI4WS project team capacity for expansive, transformative approaches to social learning and knowledge management and mediation.

We reflect and report on the achievement of these aims in CHAPTER 5: Section 5.1.

1.4 SCOPE AND LIMITATIONS

The aims and scope of developing a strategy for SLKMM in the EI4WS context across two catchments has been an ambitious project, especially given the budget limitations of ZAR 700 000 for the entire task, which includes capacity building of scholars, engagement with stakeholders, conceptual framework development, strategy development, implementation plan development, and ongoing support to the programme. We have found that the development and implementation of the SLKMM Strategy has required high levels of demand for interaction with certain stakeholder groups (especially the other Components in the EI4WS, partners such as NBI, and the related project *Xabisa Indalo for Water* (Participatory Course)). This required more time than was initially budgeted for in the project, and higher levels of running costs than were budgeted for.

The SARChI Chair in Global Change and Social Learning Systems at Rhodes University therefore subvented some of these costs, and added to the programme budget by offering a full-time scholarship for a Masters researcher in 2020, and contributed the time of a Postdoctoral Researcher in 2022-2023. The project management role, in particular, required more time than was anticipated.

1.5 OVERVIEW OF PROJECT ACTIVITIES, DELIVERABLES AND REPORT STRUCTURE

Table 1.1 outlines project team's work plan and key tasks and activities completed. It also lists the iterative, consultative engagements with stakeholders throughout the strategy development process, the details of which are described and reported in CHAPTER 2: Section 2.4. Note that the separate deliverables prepared for the project as listed in Table 1.1 have been compiled and streamlined to produce the chapters of this FINAL

REPORT. While we have made an effort to remove duplications and redundancies, and update all figure and table numbers and cross-references to other deliverables and sections, some errors may have occurred in this final compilation process, for which we take full responsibility.

Table 1.1: Overview of project deliverables, project activities and relevant chapters of this report.

Deliverable No.	Task	Timeline of activities completed per task	Chapter in this final report
1. Inception report	0. Initiate	<ul style="list-style-type: none"> 14 June 2019: Inception Meeting. 1 July 2019: Deliverable 1 submitted to WRC. 30-31 July 2019: Project team inception meeting. 	Incorporated into CHAPTER 1 and CHAPTER 2.
2. a. Conceptual framework including work plan ...	Task 1: Articulate, review and collect.	<ul style="list-style-type: none"> 26-27 August 2019: Task 1 work session and meeting with Knowledge Coordinator. 11 September: Project team meeting to finalise Task 1. 	CHAPTER 2.
2. a. ... and stakeholder analysis tracking tool and database	Task 2: Map and track.	<ul style="list-style-type: none"> 11 October 2019: Project team meeting to work on Task 2. 16 October 2019: Task 2 work session. 	CHAPTER 2.
2. c. Workshop/s with key stakeholders, workshop reports and workshop analysis to deliberate draft strategy	Task 3: Consult and lightly engage.	<ul style="list-style-type: none"> 1 November 2019: Project team meeting to prepare for Task 3. 4-8 November 2019: Task 3 work session and catchment teams learning exchange. Additional consultations and engagements by the project team (See CHAPTER 4: Table 4.1 for details). 	CHAPTER 2.
2. b. Draft strategy framework and implementation plan	Task 4: Synthesise and propose.	<ul style="list-style-type: none"> 22 and 27 November 2019: Project team meetings to prep for Task 4. 2 December 2019: Deliverable 2 – Interim Strategy Report – submitted to WRC, circulated for comment to Component 3 Working Group and wider EI4WS project team. 	CHAPTER 2 and 3.
3. Final Strategy, implementation plan, MEL framework and work plan for post strategy development handover and support	Task 5: Consolidate, finalise and present.	<ul style="list-style-type: none"> 14 January 2020: Strategy Workshop with NBI 22nd January 2020: Strategy Workshop with wider EI4WS project team. 6th March 2020: Final Strategy Report submitted to WRC. 	CHAPTER 3.

Deliverable No.	Task	Timeline of activities completed per task	Chapter in this final report
4. Progress Report 1	Task 6: On-going Support.	<ul style="list-style-type: none"> 10-11 February 2021 SLKMM Annual Strategy Review Meeting for 2020-2021. 5 March 2021: Submitted Progress Report 1 	CHAPTER 4.
5. Progress Report 2		<ul style="list-style-type: none"> 13-14 December 2021 SLKMM Annual Strategy Review Meeting for 2021-2022. 22 February 2022: Submitted Progress Report 2 	CHAPTER 4.
6. Progress Report 3 and Final Report		<ul style="list-style-type: none"> 14th February 2023: Reflective Survey circulates. 28th February 2023: SLKMM Project Team Presentation at EI4WS Component 3 Working Group meeting. 6th March 2023: Submitted DRAFT Final Report and Progress Report 3. FINAL REPORT to be submitted by 31st March 2023. 	CHAPTER 4 and CHAPTER 5.

CHAPTER 2: METHODOLOGY, CONCEPTUAL FRAMEWORK AND STAKEHOLDER CONTEXT

2.1 METHODOLOGY

This methodology presents the overall approach that was taken in developing the SLKMM strategy-as-practice. It lays out how we went about it (i.e. our approach), and includes key concepts which guided the step-by-step development of the strategy. Some aspects of the methodology were also carried through into strategy implementation through the notion of 'strategy-as-practice' discussed in Section 3.2.

2.1.1 Key concepts of the methodology:

The following concepts were used to guide the methodological approach:

- **Formative intervention research:**

This is a form of research which is *designed to facilitate social change*. We drew guidance from the work of Yrjö Engeström (2016) and southern African natural resource management and social learning researchers (Lotz-Sisitka, 2012; Lindley, 2014; Lotz-Sisitka et al., 2016b; Mukute, 2016) who have been working with the SARChI Chair in Global Change and Social Learning Systems at Rhodes University to articulate and test a progressive research programme for expansive, transformative social learning around new objects of activity in and between communities of practice on landscapes of practice (see below for definition).

The approach focuses on identifying those areas of practice that require expanding or transforming and situations where new knowledge is needed and or desired. Based on this, co-learning is pro-actively mediated by formative interventionist researchers (in the case of the SLKMM strategy this was the Knowledge Coordinator, Component 3 Working Group and lead organisations (e.g. Living Lands and DUCT working with stakeholders in the two catchments), offering a transformative social change pathway for those engaged in the shared object of activity. Such a process is necessarily open ended, and is oriented to learning from available evidence, emerging knowledge, and confronting together what is not yet there (i.e. all can potentially learn something new together) (Cockburn et al., 2018). Priorities for this learning are collaboratively set, making this an essentially co-engaged process.

- **Stakeholder relations are conceptualised through the notions of an 'object of activity', 'communities of practice' and a 'landscape of practice':**

The diagram in Figure 2.1 illustrates how we understand stakeholders to be relating to one another around a shared 'object of activity', i.e. the EI4WS project. This understanding informed how we identified, analysed and engaged with stakeholders throughout the 'strategy-as-practice'. The details of the object of activity were co-defined by the various actors involved as the project unfolded. Numerous CoPs (some already in existence, some cultivated through the EI4WS) have begun to interact with one another in new ways, generating new or common knowledge and understandings of themselves, the wider system and the object of activity. They haven't this in a vacuum however: they are embedded in a wider 'landscape of practice' (Wenger-Trayner et al., 2014).

The notion of landscape of practice is a metaphor for the body of knowledge of an activity system, in which individual actors and CoPs' experiences of learning can be considered a journey through this landscape

(Wenger-Trayner et al., 2014). For the EIWS the landscape of practice is the wider field of practice which all the various CoPs are engaged in (across the water, biodiversity and finance sectors), and from which new knowledge (or common knowledge) can emerge through the social learning processes.

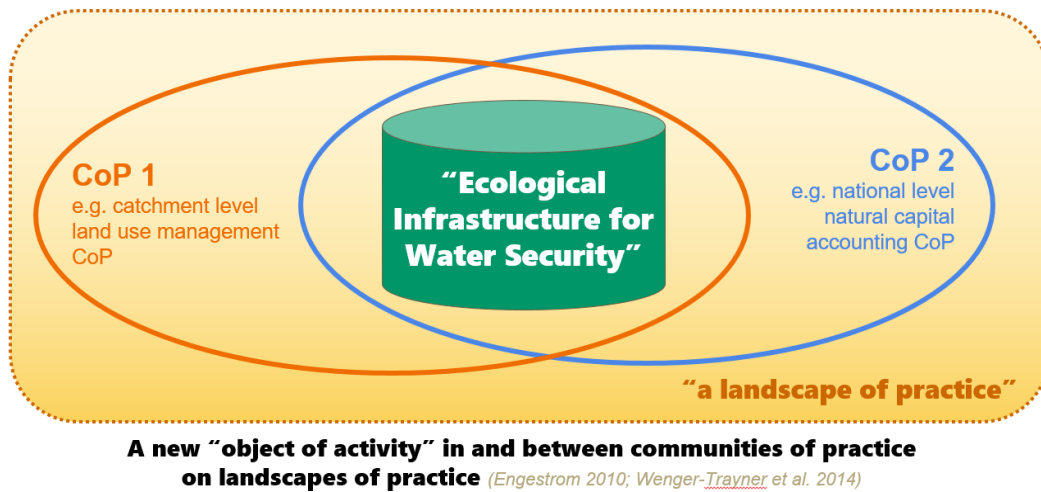


Figure 2.1: Conceptualising stakeholder relations for the methodological approach.

- **Monitoring, Evaluation, Reporting and Learning (MERL) and Tracking (MERL-T) – as the project has unfolded the shorter acronym ‘MEL’ has been used more widely (Monitoring, Evaluation and Learning):**

Monitoring, evaluation and reporting are standard project management processes, used most often for accountability purposes. They also have a critical role in supporting learning, particularly in contexts of complexity (Villanueva et al., 2016; Douthwaite et al., 2017). A MEL approach is important towards the ongoing improvement of project processes, and for meta-level insights about outcomes, impacts and mechanisms, asking ‘what works, for whom and why?’ (Pawson, 2013), in this case, for the management and governance of ecological infrastructure and water security. To optimally support learning, non-standard (but practically feasible) approaches to monitoring and evaluation are needed, in the form of MERL or MERL-T or MEL. Guidelines for developing MEL were part of the SLKMM strategy development process, and were based on a realist evaluation approach (Pawson, 2013), and lessons learnt from implementing MERL systems in complex social-ecological catchment initiatives (Botha et al., 2017; Cockburn et al., 2018; Rosenberg & Human, 2018).

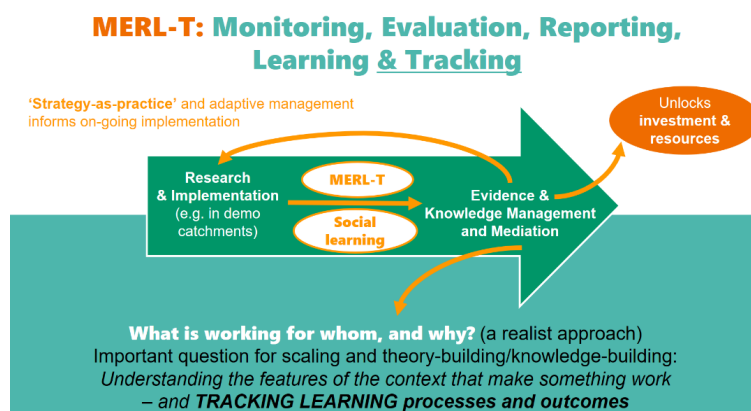


Figure 2.2: Understanding of the role of monitoring, evaluation, reporting and learning and tracking (MERL-T) as part of the methodological approach. Note: as the project has unfolded the shorter acronym ‘MEL’ has been used more widely (Monitoring, Evaluation and Learning)

2.1.2 Feedback from the Component 3 Working Group on the methodology

- Clear linkages should be developed between the SLKMM strategy and the wider MEL system which will be developed for the EIWS – this should be done as early in the process as possible. Service providers for the wider MERL system are still being appointed, and the Component 3 Working Group will assist in making the linkages between the two systems.

Note at project completion: *these linkages were explored and developed in an on-going way by the Knowledge Manager and were discussed in SLKMM annual strategy review meetings. There were tensions between the conventional M&E processes and the SLKMM's MEL approach, as was expected, but some learning has also emerged at this interface.*

- Inside-outside perspective: an important distinction was raised by participants in the inception meeting regarding internal (inside) and external (outside) stakeholder: Internal: project participants, e.g. at the level of working groups for each of the components, and the various organisations implementing the project. External: the wider stakeholder landscape within which the project is being implemented. While this distinction is somewhat 'fuzzy' and not a hard line, it is an important one to keep in mind when designing social learning and knowledge management and mediation tools and processes as these two different groupings of project stakeholders can be viewed as different potential 'target audiences' for such tools and processes, with different needs in terms of communication products, language, evidence base, etc.

Note at project completion: *the SLKMM team noted that most of the SLKMM activities implemented in the EI4WS seemed to focus more on the 'inside' stakeholders. This had a lot to do with the COVID-19 context which limited social interactions, but also indicated the need for relationship-building, engagement and co-learning within the sometimes disparate and constantly evolving project team.*

2.2 CONCEPTUAL FRAMEWORK TO INFORM SLKMM STRATEGY DEVELOPMENT

2.2.1 INTRODUCTION: STRATEGY-AS-PRACTICE APPROACH

In this section we introduce the conceptual framework which guided the SLKMM strategy. We also indicate how important it is to take account of *changing understandings of EI4WS in a SLKMM strategy*, hence we adopted an overall **'Strategy-as-Practice' approach to the strategy development and implementation**. We adopted the notion of strategy-as-practice because it is an approach to strategy development that is not static, but which aligns with the SLKMM intention of Component 3 of the EI4WS. It is an approach to strategy which avoids the pitfalls of pre-determined top-down strategy, or laissez-faire bottom-up strategy. Instead, it provides well contextualized orienting processes and practices for ongoing strategy development *with* people and stakeholders in complex contexts where pre-determined top-down strategies most often are inadequate for the contextual complexities, and where bottom-up strategies are inadequate for engaging policy actors and community stakeholders at the same time.

Strategy-as-practice, as an approach to strategy, focuses on people and the interrelations between people and practice in the emergence and on-going adaptation and evolution of strategy (Jarzabkowski et al., 2007; Jarzabkowski and Paul Spee, 2009; H Lotz-Sisitka et al., 2016). In particular, Strategy-in-practice focuses on:

- Bringing human actors and their actions and interactions to the centre stage of strategy development and research: "Above all, strategy-as-practice provides insights beyond studying organisational processes and embeds strategizing activities in the wider practices of societies".
- Strategizing therefore comprises those actions, interactions and negotiations of multiple actors and their situated practices.

Our intention with this EI4WS SLKMM strategy development processes was therefore to offer a 'start-up-strategy' which has evolved into an ever-changing and adapting 'strategy-as-practice'. Moreover, we

recognise that even the 'startup strategy' was developed in a vacuum or from a blank slate and is itself embedded in the existing practices of Components 1, 2 and 3. **We therefore developed the strategy out of practice, drawing on the project team's existing networks, relationships and knowledge, and building on existing communities of practice in the two demo-catchments and learning and knowledge exchange platforms in the EI4WS project.**

The conceptual framework below points to the need for inclusion of ongoing conceptual framing, along with multi-layered contextual profiling (see below), and engagement with emerging tensions and contradictions in the roll out of the EI4WS-SLKMM. This has implications for the SLKMM strategy, and informs the strategy practices, which are articulated further in CHAPTER 3.

2.2.2 IMPORTANCE OF A CONCEPTUAL FRAMEWORK

A conceptual framework is used to link a diversity of concepts so as to make them workable in practice. It relates concepts to history, context and theory in ways that should allow engagement with, and revision of the conceptual framework. One of the challenges with complex arenas of newly emerging types of environmental work (such as investing in EI4WS), is that the concepts and associated conceptual frameworks in use are often incomplete and are often still in formation. Any conceptual framework in a new arena of environmental practice must therefore take this into account. Concepts gain meaning when they are imbued with, or tested in, practice. Through the practice, their meaning is extended and/or revised.

For a SLKMM strategy focussing on EI4WS across multi-actor groups, it is therefore important to consider, in an ongoing and evaluative manner,

1. how and why the concept of EI4WS has emerged (theoretically and practically),
2. its current status in the field of practice (e.g. how well it is understood or not, whether it is merely rhetorically used, whether it is tension laden, who is championing it and why, whether it is shaping new practice or not), and
3. if it is shaping practice, how are different stakeholders imbuing the concept with meaning (e.g. rural or urban poor communities may have a very different view of, and understanding of investing in EI4WS to what a biodiversity conservationist or a business manager may have).

This approach to thinking about a conceptual framework is informed by cultural historical activity theory (CHAT) (Engeström, 2016, 1987), which provides evidence of how concepts become shared tools for shaping activity and practice; they 'ascend' from the abstract idea to concrete practices, and in this process become more fully formed (i.e. they gain real meaning in activity). Before they become abstracted into a 'concept', concepts are formed out of socio-material engagements in the world. For example, in the case of the EI4WS concept, we can investigate how and why it emerged as a concept that now holds developmental currency in the financing, water and biodiversity governance context. We can also investigate how it is being concretised in practice and via this how the meaning changes or how the concept is imbued with meaning by different stakeholders. Giving attention to concept formation and understanding is an important dimension of social learning, because human life, and therefore also the social change processes associated with human life, are concept and activity dependent (Bhaskar, 1998; Vygotsky and Cole, 1978). **Developing a shared understanding of a concept such as investing in EI4WS is critical for successful realisation via actual activity (where the understanding of the concept is further developed) and is central to any associated SLKMM strategy.**

In reviewing South Africa's 'investment' readiness within a new context of international interest in investment in the SDGs, the Global Infrastructure Hub (GI Hub), working with KPMG, has commended South Africa for its planning (i.e. conceptual) strengths but has critiqued South Africa for its poor implementation capability (Global Infrastructure Hub and KPMG, 2017) – pointing to a **wide policy-practice gap**, which has been widely reported on elsewhere across the South African landscape, including in the water and biodiversity sectors

(Cockburn et al., 2016; Knight et al., 2008). This indicates that we may not be giving enough attention to how ambitious policy and governance concepts such as investing in EI4WS are being understood and translated into activity and practice within a multi-levelled system of co-engagement. Hence, we give attention to this in the SLKMM strategy. **We also recommend that further in-depth social scientific research be done on this aspect given the above international critique, and the widespread knowledge of this problem in South Africa, and especially with the potential shift in scale of national development financing being piloted via the newly launched President's District Development Model¹ in mind.**

2.2.3 Framing and articulating the concept of “Investing in Ecological Infrastructure for Water Security” (EI4WS)

In order to give adequate attention to the concept of EI4WS, it is therefore not just adequate to describe what is known about the concept and how it emerged. It is also important to identify the ‘sites of activity’ where EI4WS knowledge is to be mediated and supported into use within the wider EI4WS value chain and multi-levelled governance system. To address these dimensions, we draw again on cultural historical activity theory (Engeström, 2010), which recommends that one should develop an adequate understanding of the history of the object of human activity, in this case we need an adequate historical understanding of investing in EI4WS. Cultural historical activity theory also proposes understanding the activity systems or communities of practice where the activity of investing in EI4WS is to be developed.

To develop the conceptual framework for the SLKMM strategy, we therefore offer:

2.2.4: An **introductory legacy analysis** which reviews the origins of the concept of investing in EI4WS in South Africa

2.2.5: A **supporting framework of core concepts** which helps to explicate and articulate the EI4WS concept as an object of emerging activity further (See Figure 2.3).

2.2.6: A **multi-layered contextual profile** which helps to frame and locate the different ‘points of mediation’ where knowledge of investing in EI4WS may be needed, and therefore where the activity systems or communities of practice that are engaged with the development of investing in EI4WS activity are likely to be found in the investment and financing and water and biodiversity governance and praxis landscape (see Figure 2.5).

The multi-layered contextual profile also helps to point to the types of stakeholders that need to be included in the stakeholder analysis and tracking tools development work.

2.2.4 Brief Legacy Analysis: Origins of investing in EI4WS

NOTE: This was an initial analysis. We received some feedback at the consultation with the wider EI4WS that it requires further development as the analysis is currently incomplete. We therefore recommended that this be taken forward as part of the contextual profiling of the programme.

Note upon project completion: *The ‘Xabisa Indalo for Water Participatory Course’ played an important role in opening discussion and conversation around the diversity of conceptualisations of the concepts of ‘value’ and ‘investment’. However, it is our impression as a project team that a deeper grappling with the legacy of the EI4WS is still needed.*

For the past 20 years South Africa has been exploring *natural capital accounting, valuing ecosystem services* and, in more recent terminology, *unlocking finance mechanisms for the protection and restoration of ecological infrastructure*. This reflects a global trend towards seeking ways of *valuing environmental goods and services*

¹ <https://www.iol.co.za/news/politics/ramaphosas-district-development-model-to-fast-track-service-delivery-35351170>

in a global context where financial measures are dominant in defining value in almost every sphere of life. More critical scholars would say that the valuing of natural capital, and financial valuing of ecosystems is part of the expansion of, and contemporary dominance of global capitalism (Moore, 2017). They argue that this presents a paradox as it is this same system that has produced many of the environmental issues that the processes of valuing natural capital and using financial instruments are seeking to resolve. **Thus, practices such as investing in EI4WS may therefore be internally contradictory.** For an SLKMM strategy, it is important to understand the multi-dimensional nature of the object of activity (in this case investing in EI4WS) – including the critiques thereof – as the SLKMM will need to engage with a range of actors, some of whom are likely to raise issues such as the above. It is also important to know the history of the object of activity (i.e. EI4WS), as this provides deeper understanding, and also shows the dynamic nature of a concept such as EI4WS. History, while not reproducible in the present, offers perspectives that can assist with building understanding of the concept and associated emerging activity of investing in EI4WS.

In the early 2000s a USAID funded initiative, the Southern African Natural Resources Accounts (NRASA) project, supported the use of natural resource accounts in decision making. In 2005 the National Biodiversity Strategy and Action Plan highlighted the importance of integrating the value of biodiversity into national accounting and reporting systems (Cumming et al., 2017). Between 2011 and 2014 South Africa participated in a GEF funded project on ecosystem services aimed at supporting the use of valuing ecosystem services in national planning and development programmes. In 2014 South Africa joined the Advancing Natural Capital Accounting (ANCA) project funded by the Norwegian Agency for Development Cooperation. In 2015 the Department of Environment Affairs was involved in the global UNDP BIOFIN initiative that had a component focused on developing resource mobilisation strategies for biodiversity finance. Also, around this time the Development Bank of South Africa supported the Green Fund which included projects such as “Enhancing Ecological Infrastructure in the uMngeni Catchment through Private Sector Engagement.” More recently (2017) STATS-SA hosted a high-level inception meeting for the European Union funded Natural Capital Accounting and Valuation of Ecosystem Services in South Africa. And in 2019 STATS-SA and SANBI, who have been involved in nearly all of the initiatives mentioned above, hosted what was billed as South Africa’s first-ever Natural Capital Accounting Forum. It is in this context that the EI4WS project has emerged, which is aimed at taking forward natural capital accounting through demonstration projects in two catchments in South Africa. It is hoped that this project will transform the way that people think about and invest in the management of ecological infrastructure in the future.

This extremely brief and by no means comprehensive list of projects focused on developing policy and capacity for mainstreaming biodiversity and ecosystem values into national and local development policies and financing systems suggests that there is a wealth of knowledge to be shared and built upon. It also indicates that there has been a substantial external influence of international development instruments, programmes and projects in the creation of the current EI4WS concept and activities, and that there are core South African institutions, especially SANBI and StatsSA who are the ‘anchoring’ organisations for the localisation and development of the concept and practice in the South African context. We can therefore see that the concept of investing in EI4WS has an international policy influence which is combining with a localisation process led by national institutions and supported by development institutions such as the Development Bank of Southern Africa.

2.2.5 Supporting Framework of Key Concepts

It is also interesting to note from the brief historical overview above, that the development of the concept of investing in EI4WS in the national landscape has primarily been via a sequence of ‘projects’ over time (i.e. a ‘project-based development approach’, which has expanded and extended the initial core concept of valuing natural resources) in an increasingly sophisticated manner, all of which require understanding in relation to the core notion of investing in EI4WS (see Figure 2.2). We elaborate on this system of associated concepts below,

and note some of the contradictions that are emerging around these associated concepts and their actualisation in practice. As will be explained further below, giving attention to contradictions is a productive space for catalysing collective social learning.

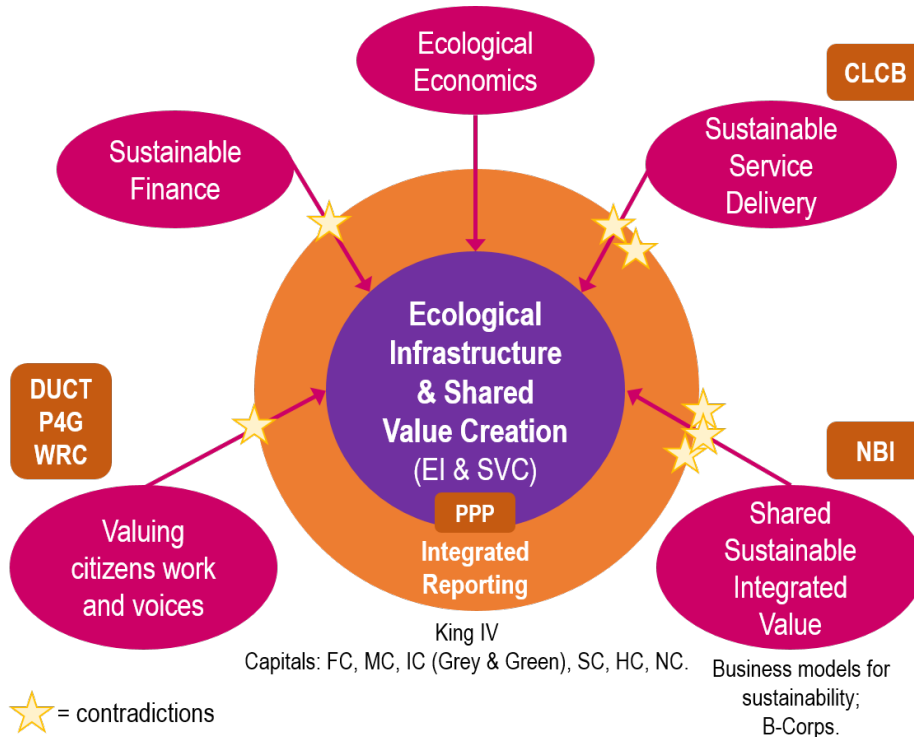


Figure 2.3: Framework of core concepts which frame and articulate the EI4WS ‘object of activity’ with some emerging contradictions highlighted, as well as some of the key stakeholders involved.

Key: DUCT = Duzi Umngeni Conservation Trust; P4G = Partnering for Green Growth and the Global Goals 2030; WRC = Water Research Commission; NBI = National Business Initiative, PPP= Public Private Partnerships; CLCB = Centre for Local Capacity Building. Capitals: FC = Financial Capital, MC =Manufactured Capital, IC= Infrastructure Capital, SC= Social Capital; HC= Human-made Capital, NC= Natural Capital. King IV refers to the King IV framework for institutional governance.

2.2.5.1 Ecological Infrastructure and Ecological Economics

The concept of ‘ecological infrastructure’ suggests a very particular framing of nature and the relationship between nature and humans. It takes as its starting point the recognition that humans derive a multitude of benefits from the ‘ecosystem services’ that flow from natural assets including water, soil, flora and fauna. These natural assets are, within this framing, referred to as natural capital and how these natural capital stocks are organised to produce the ecosystem services is referred to as ‘ecological infrastructure’ (Cumming et al., 2017; SANBI, 2014). As the accumulation of financial capital and built infrastructure have contributed to the depletion of natural resources, some economists began to argue for investing in natural capital and ecological infrastructure (Costanza, 2015; Daly, 2005). Working from the premise that there are boundaries to what the Earth can provide and absorb, these economists suggested that the ability of financial and infrastructure capital to provide services to humanity would be increasingly limited by a decreasing supply of natural capital. In this context they argued that from an economic perspective, investment must shift from human-made capital (including built infrastructure) accumulation toward natural capital (including ecological infrastructure) preservation and restoration. A number of market failures, however, lead to an undervaluing of natural capital that increasingly put both human-made and natural capital at risk. For many ecological economists there is also the growing recognition that some communities are more vulnerable to these risks due to marginalisation, inequality and poverty. This has led to a call for more inclusive and participatory democratic decision-making processes regarding how we invest in human-made capital, natural capital and ecological infrastructure, and

the relationships that exist between these forms of capital and how they have developed over time from a social justice and longer-term sustainability point of view.

Implications for SLKMM: The concept of Ecological Infrastructure is closely linked to a broader international field of Ecological Economics. This boundary object alerts us to the key ideas, practices and contradictions associated with Ecological Infrastructure. The international and national literature in this field needs to be engaged with in the deepening of, and unfolding of the SLKMM.

2.2.5.2 *Integrated Thinking and Sustainable Value Creation*

There is a tendency when working with complex socio-economic-ecological systems to separate out individual components and consider them in isolation. Thus, for example, some economic models ignore planetary boundaries and issues of social justice. Integrated thinking on the other hand seeks to highlight the connections within complex systems. More specifically within the context of the investing in EI4WS project, integrated thinking would encourage a diversity of stakeholders to proactively consider a broad range of 'capitals' beyond just financial and manufactured capital. Other capitals including natural resources (including ecological infrastructure), relationships (networks and communities of practice) and individual capacity development (learning) are also recognised as being important. Integrated thinking, which finds its implementation in integrated reporting, is thus the active consideration by an organisation of the relationships between its operations and the capitals that the organisation uses to create or destroy value of the short, medium and long term (Eccles and Krzus, 2010). Traditional business analysis and investment decisions have tended to emphasise narrow financial returns on investment over short to medium timeframes. Integrated thinking encourages investors to embrace a broader understanding of integrated and sustainable value creation that is reflected and analysed through integrated reporting frameworks. Integrated thinking, in common with ecological economics highlights that financial value, while important, is not sufficient for assessing value creation and investment decisions, given that government, business and communities depend on a wide range of financial, social and natural resources.

Implications for SLKMM: Key to unlocking investment in Ecological Infrastructure is the recognition of the multiple capitals involved and the potential to create value across these capitals. Integrated thinking, integrated reporting and the associated concept of value being created or destroyed linked to economic, social and ecological systems. This 'boundary field' provides a shared space for engagement.

2.2.5.3 *Organisational Models and Sustainable Finance (including Blended Financing and new developments around SDG financing)*

An organisational model can be broadly described as the logic or rationale by which an organisation seeks to create, deliver, capture and sustain value. For many businesses 'value' has in the past, and to a large extent still is, defined as maximising returns or profit for shareholders. Increasingly however this understanding is outdated, insufficient to create value for society, and perhaps even undesirable. Instead there is a movement towards the creation of organisations that build shared and sustainable value across financial, infrastructure, intellectual, social, human and natural capital (Hart and Milstein, 2003; Porter and Kramer, 2011; Schaltegger et al., 2016). Organisations that manage ecological infrastructure with a view to more equitable and secure water provision will also have to develop new models of operation in order to create sustainable value and attract the (diverse) capital inputs required including financial capital. In this regard financial institutions are also considering value creation processes such as cost and risk reduction, reputation management and innovation from more integrated and sustainable perspectives. The Task Force on Climate-related Finance Disclosures (TCFD) and the United Nations Environment Programme Finance Initiative (UNEP FI) Principles for Responsible Banking encourage organisational models and investment decisions that contribute to an inclusive society that uses its natural resources sustainably. The Organisation for Economic Co-operation and

Development (OECD) is also developing the concept of ‘blended finance’ for water, and as the SDGs get more attention, so too is more attention being given to the financial models for the SDGs, and associated investment approaches (OECD, 2019). Further analysis of these trends and developments is required in order to properly inform the relevance of SLKMM activities within the EI4WS programme, and close co-operation between Components 1 and 2 is needed in order to align thinking across the programme, and to inform this dimension of the SLKMM process (Component 3). As a contribution to this, the NBI have recently identified many of these initiatives in their internal report “Business Needs Analysis Report Ecological Infrastructure for Water Security” produced for Component 3 of the EI4WS. These need to be leveraged as part of engaging the business sector in EI4WS activities and SLKMM processes.

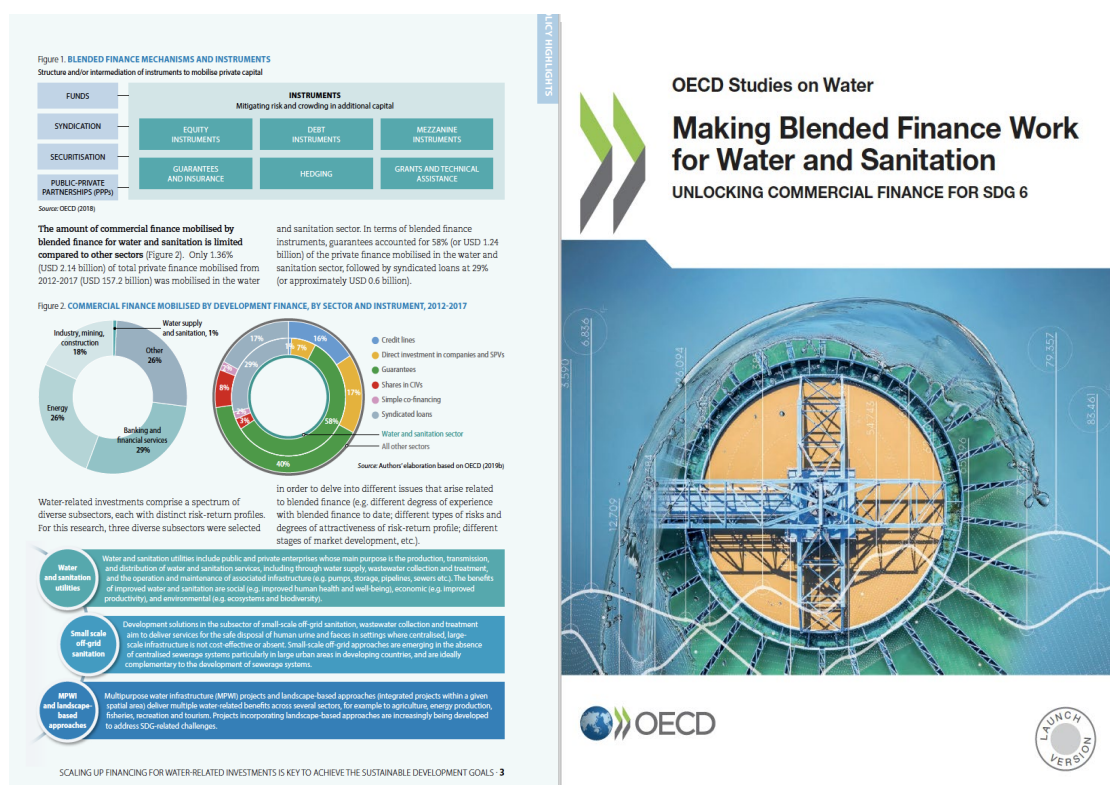


Figure 2.4: Extract from the recent OECD report on ‘Blended Financing’ for Water and Sanitation (OECD, 2019).

The OECD report referred to above, and the extract from it in Figure 2.3 indicates types of financing of water and sanitation which are inclusive of: funds, syndication, securitisation and public-private partnerships, all of which require analysis in the development of investing in EI4WS (we anticipate this to be the work of Component 1 and 2). For example, the key insight described above in Figure 2.3 and in the OECD report is important for SLKMM: there are low levels of private financing of water and sanitation in South Africa, yet there are high levels of guarantees and loans for the financing of water and sanitation services internationally. There is need to constantly update insights into these types of concerns to inform the SLKMM, in order to generate a more accurate picture of this situation in South Africa – i.e. build the evidence base around this, and consider the implications in the two catchments concerned for the wider EI4WS practices and opportunities, and therefore also for SLKMM process.

The area of investment in the SDGs (led by the Global Infrastructure Hub – a G20 institution) as an emerging arena of influence on investing in EI4WS would also appear to require careful analysis as it is emerging rapidly in the international arena with implications for South Africa as indicated above in the comment from the recent GI Hub/KPMG InfraCompass study that conducted the first ever systematic audit of 49 countries for their

‘investment readiness’, especially if we are to move ‘beyond the project’ with EI4WS activity in South Africa (Global Infrastructure Hub and KPMG, 2017). This should also assist with wider social learning and interpretation of the GEF programme and reflexive engagement with the work being done in Component 1 and 2. The GI Hub / KPMG InfraCompass audit (2017) uses the lens of ‘six key drivers’ which allows countries to focus on areas for improved performance in order to ready themselves for ‘bankable’ investment projects in infrastructure development. This study also points out that one of the strongest drivers for investment is the rule of law, and it is stated that “upstream enabling environment reforms are key to unlocking quality infrastructure environment in over 20 of the countries analysed” (Global Infrastructure Hub and KPMG, 2017, pg. 7), but this needs to be accompanied by consistency of implementation capacity and leadership for dealing with complexities of infrastructure developments for ultimate carry through and successful outcomes as well as flexible instruments. To address the balance of governance vs implementation the InfraCompass articulates 3 drivers related to policy: *governance; regulatory; permits*, and 3 drivers related to delivery: *planning; procurement; delivery*, with South Africa being identified to be strong on planning, but weak on delivery (see Figure 2.5).

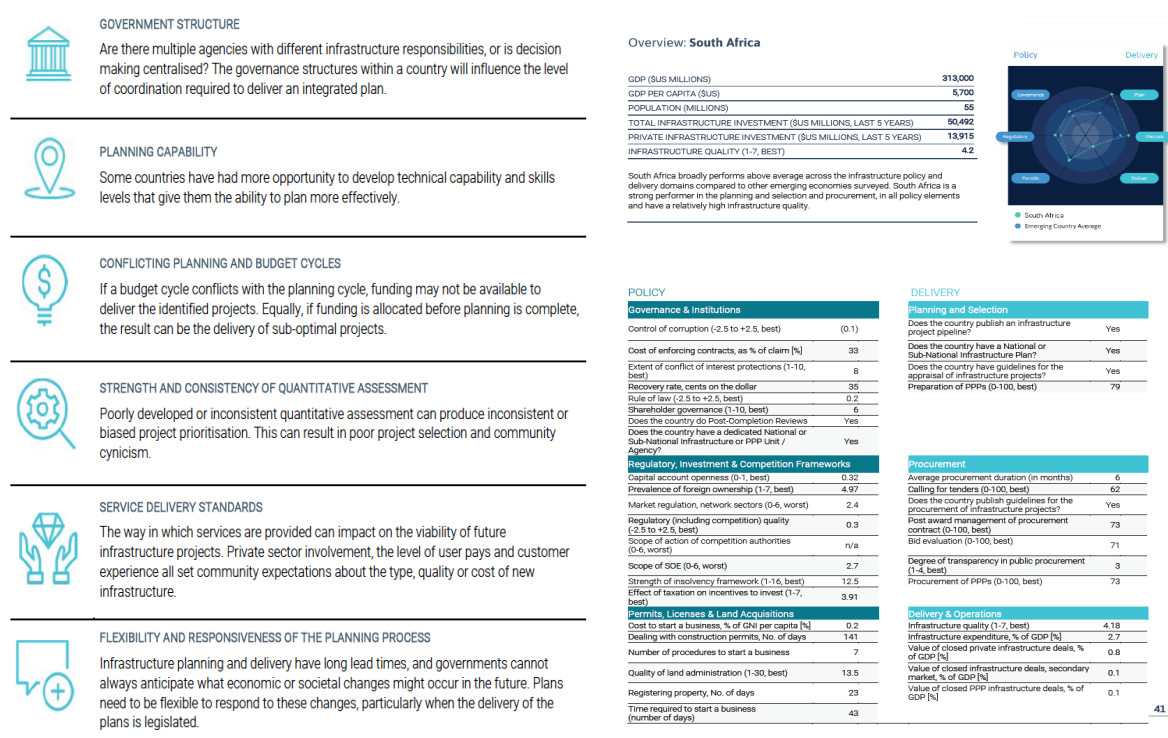


Figure 2.5: Drivers enabling investment confidence, with the South African ‘score card’ (Global Infrastructure Hub and KPMG, 2017, pg. 41).

An important insight gained from the 2017 GI Hub / KPMG study is the finding that there was a disconnect between how respondents perceived the strength of governance frameworks at the macro level (e.g. PICC), and the degree of independence they considered to be good practice at the infrastructure sector level. This shows the need for SLKMM across a multi-levelled system (see the multi-levelled contextual profiling tool suggested below in Figure 2.5).

Implications for SLKMM: Key to unlocking investment in Ecological Infrastructure is the development of ‘bankable projects’. In this regard the notion of ‘bankable projects’ is broadening and current developments in the finance and banking sectors related to ecological economics, integrated thinking and value creation need to be explored in practice.

2.2.5.4 *Sustainable service delivery and valuing citizen engagement and work*

Added to these, and important for the South African context, is to consider how these concepts associated with investing in EI4WS relate to sustainable service delivery, and to processes of valuing citizen engagement and work (e.g. citizen-based water quality monitoring). Here there are a number of studies that are being done on municipal service delivery efficacy that need to be considered (McDonald and Pape, 2015; Muller, 2007), as well as citizen engagement with water security challenges. These require further explication, which needs to be done in the ongoing contextual profiling process to inform the ongoing SKLMM process as it unfolds. Giving attention to the articulation of investing in EI4WS discourse and practice at these two levels, i.e. service delivery at catchment, local government and district levels, with citizen engagement and participation in mind from a social justice perspective, adds further impetus to working with a multi-levelled approach.

Implications for SLKMM: We need a platform for collating and sharing the cumulative knowledge related to key concepts. We need mediation processes to support knowledge flows within and across 'bodies of knowledge'. We need social learning practices within and between activity systems to develop new boundary objects.

2.2.6 Multi-levelled contextual profile: how and where the concepts and activity related to investing in EI4WS are emerging

From the above initial description of the history and emerging contours of the concept of investing in EI4WS it is clear that this is emerging within a multi-levelled system of activity. For example, we have noted the **global influence** on the emerging concept of EI4WS historically via the initial influence of USAID, later carried into the UNDP and the GEF, and most recently into groups that are working with the G20 to assess investment readiness (GI Hub/KPMG), and the OECD that is looking at blended financing of water and sanitation under the umbrella of investment in SDG 6. We have noted that specific instruments such as TEEB, which emerged from the analysis of ecosystem services in the Millennium Ecosystem Assessment have developed the concept in the environmental sector (via UNEP which in turn is influencing national governments and funding instruments such as GEF).

We have noted the engagement of **national** institutions with these international developments, and the role of key organisations such as SANBI, and STATS SA, and the associated development of programmes connections such as the BIOFIN and the GEF EI4WS project currently in focus, and the related links to national planning and infrastructure development instruments and programmes such as the SIPS.

There is also a lot of activity emerging at **regional or catchment level**, especially in the Breede and Greater uMngeni catchments that are in focus, where EI4WS projects are unfolding with new contributors such as the P4G project in the Greater uMngeni catchment emerging to complement and extend the SANBI led work. These projects are particularly focussed on boundary crossing **institution building** for investing in EI4WS.

We have noted that the EI4WS Component 1 and 2 activities are particularly located at the institution building and regional levels in terms of their activity. There is, however, also social movement in the catchments concerned to be more inclusive of **grassroots citizen-led activity** that is contributing to water security and an interest in considering how citizen engagement is valued within the EI4WS system, especially from a social justice and job creation point of view.

We have therefore developed a multi-levelled framework for ongoing contextual profiling and to guide stakeholder analysis work for the SLKMM (see below). This should be ongoing work, as is highlighted by identifying a specific 'Strategy Practice' for this in CHAPTER 3: STRATEGY-AS-PRACTICE FOR SOCIAL LEARNING, KNOWLEDGE MANAGEMENT AND MEDIATION (SLKMM). The stakeholder analysis and

tracking tools that were developed should be used to identify and monitor engagement with unfolding investing in EI4WS activities and practices at the different levels of the multi-levelled system. We have also indicated that it is important also to give attention to SLKMM at the **boundary zones or interfaces** of the multi-levelled system framework, in other words reflexive, adaptive and ongoing SLKMM work must take place at:

- the boundary between community-based and civil society activity systems and social movements who are contributing to EI4WS activity, and the institution building activity systems, so that the latter can be more inclusive;
- the boundary between the institution building activity systems that are operationalising the concept of EI4WS via their practices, and the wider catchment structures (e.g. the CMA structure)
- the boundary between the regional structures and national institutions (e.g. SANBI, PICC, DBSA, etc.), and
- the boundary between national structures and global influences such as the GIHub, OECD, UNEP, UNDP and funders such as the GEF who are interfacing with SANBI and the DBSA.

Figure 2.6 illustrates the multi-levelled contextual profiling framework for guiding ongoing SLKMM processes at the boundary zones / interfaces of different levels of EI4WS activity. This is important for beginning to focus SLKMM work in what can otherwise become an extremely complex context. This contextual profiling framework is also helpful for the stakeholder mapping and tracking work (see below).

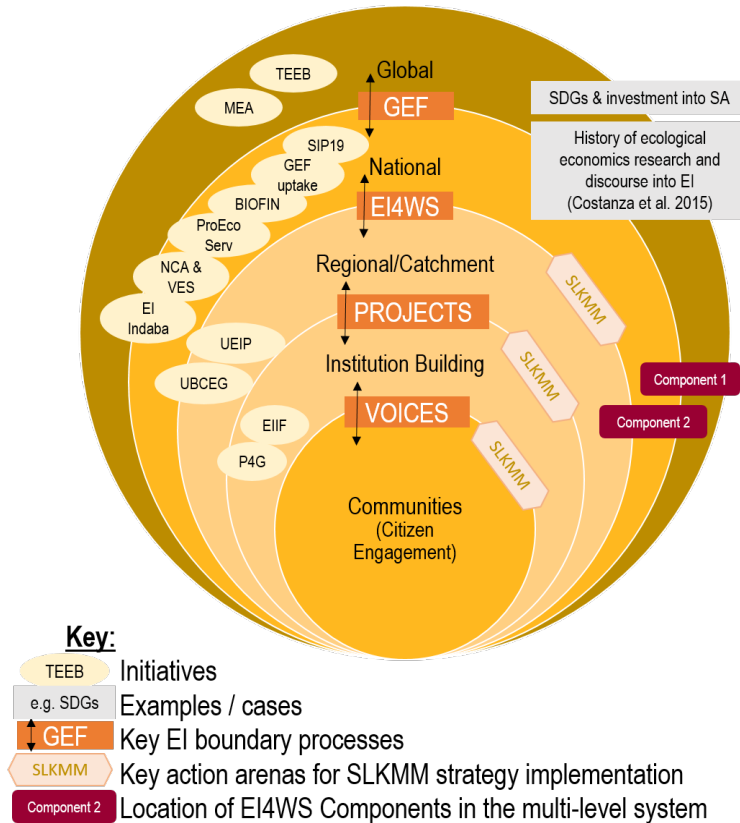


Figure 2.6: Multi-level contextual profile framework for SLKMM in the EI4WS project – with emphasis on boundary crossing SLKMM processes between different TYPES of activity systems (e.g. between citizen engagement activity systems and institution building activity systems, or between institution building and the UEIP initiative).

(Note: See 'ACRONYMS & ABBREVIATIONS' table in the front matter of this report for detail on acronyms used in this diagram).

Giving attention to this multi-levelled system and the boundary zones and interfaces where different types of activity systems meet, can therefore help to focus the SLKMM mediation processes within the wider complexity of the multi-levelled system that is brokering and introducing the concept and associated practices of investing

in EI4WS. The stakeholder analysis and ongoing mapping and tracking is necessary for giving more contextual depth and detail to this wider framing of the multi-levelled system of actors (see below).

2.2.7 Contradictions and tensions as potential spaces of social learning emergence

Knowledge management is often expressed as the “systematic management of an organisation’s cumulative knowledge and experience...” (Stocking, 2018). It is also increasingly being acknowledged that in a complex and dynamic environment knowledge and knowing are both situated and emergent. This has led to a strong connection between knowledge management and learning. There is an increasing recognition that when it comes to knowledge, knowledge production, knowledge management and knowledge use the borders between ‘bodies’ of knowledge (individuals, organisations, disciplines) is extremely porous. Knowledge mediation can support the flow of knowledge as it is produced, transferred, (re)placed, absorbed and potentially rejected across these borders. This is resulting in a greater emphasis on knowledge networks (Back, 2005) and the need to mediate knowledge into use through social learning systems beyond the management of knowledge within organisations and individual learning (Nguyen et al., 2017). A knowledge network consists of people, organisations, resources and the relationships between them that support the accumulation and use of knowledge in the pursuit of a shared interest, or create new links at frontiers that bring together contested ways of knowing (Back, 2005). These processes may lead to the formation of boundary objects such as ‘ecological economics’ and ‘ecological infrastructure’ which create new forms of activity and new ways of knowing and being in the world. We have argued above that this needs to take place within the boundary zones or interfaces of different types of activity systems that are active at different levels of a multi-levelled system.

We now develop this further by giving attention to the importance of working with contradictions and tensions in social learning as these have proven potential to catalyse new learning and knowledge co-creation in boundary zones (Engeström, 2016). In this sense they can be seen as important ‘leverage points’ for knowledge co-creation and social learning. This can further help to focus the engagement points for SLKMM processes within the boundary zones outlined above.

Identifying and collating key contradictions can help to identify underlying mechanisms that are producing the contradictions. Through this leverage points and tools as well as new rules, practices and stakeholders/communities of practice that need to be engaged with in order to ensure the achievement of enduring outcomes and impacts at scale can be identified. This collation could point towards key strategic scaling pathways for the current project. It should also alert the project partners to potential challenges that may require adaptive learning and even changes within the current project plan.

As indicated in the legacy analysis above, the emergence of investing in EI4WS has resulted from national level engagement with development organisations, but most of it has been in the form of development aid supported pilot projects – initiated in different but related systems with oftentimes the same stakeholders. A big question that would seem to arise from this is **how, in relation to the activity of investing in EI4WS, South Africa can begin to move beyond the pilot?** We can ask if there is a contradiction in relying on developmental pilot projects in securing one of the country’s most important resources for development, namely water.

Related to this, a key question that should also be raised in light of the above brief history is **“What are the contradictions or even immobilising factors that restrict the integration of ecosystem service values into accounting systems and development planning?”**

To begin to consider these questions, we focus on identifying contradictions in the landscape of practice (Wenger-Trayner et al., 2014), because these have been shown to have proven value for catalysing co-

engaged collective learning in the service of developing new forms of activity such as investing in EI4WS. The follow up question from the identification of the contradictions, relevant to the roll out of the SLKMM is then, **“What knowledge management and learning strategies could facilitate multi-actor groups to move beyond the current contradictions and immobilising factors?”**

The contradictions pointed to below, are based on a first scan of the field, and are articulated at a ‘broader conceptual level’ and will need to be ‘ground-truthed’ and verified in the two catchments. The purpose is not to use the contradictions as framed here, but rather to examine field-based examples of tensions with these in mind as they may help to deepen engagement and co-learning. The purpose here is to point to their potential for generative co-learning, not to point fingers at problems. The purpose is also to point to how an analysis of contradictions can help to strengthen SLKMM roll out amongst multi-actors.

2.2.7.1 *Contradiction 1: Economic framing – Narrow vs. broad*

A central tenant of classical economics is the portrayal of humans as well-informed individuals acting in rational self-interest and the assertion that within the context of a competitive free-market economy these self-interested actions would lead to the efficient distribution of resources and economic-wellbeing of all in society. A central interest for economics is how to satisfy these individual interests as efficiently as possible. This focus on individual interests as the basis for efficiency and collective well-being, is reflected at the company level in the assertion that the only legitimate focus of business is to maximise profit for shareholders. As this narrow view of humans as ‘*Homo Economicus*’ has been critiqued for lacking adequate alignment with the social nature of communities, and our reliance on ecological life-support systems, notions of efficiency, *distribution* and particularly *sustainable scale* have come to the fore in economic thinking, which is broadening mainstream economic thinking (Raworth, 2017). The emerging contradiction is not that individualistic trading in the market will not allocate scarce resources and rights efficiently, but rather that allocative efficiency without considerations of distribution and scale will not guarantee sustainability. In other words, the scale of resource use should not be set by price but a social decision reflecting *safe planetary boundaries* (Raworth, 2012). Similarly, distribution of resources should not be determined by price but by a social decision reflecting a *just distribution of social assets*. Within this wider framing, market mechanisms would then have a different, broader and more accountable role to play in creating safe and just pathways for humanity by allocating resources efficiently towards this in ways that are democratically deliberated and that support social justice and sustainability. For EI4WS, this means that ecological infrastructure should be recognised as being part of the economy within a broader framing of economy. The contradiction between narrow and broader framings of economy as it relates to investing in EI4WS should be discussed in all of the boundary zones in the multi-levelled system, and must be related to actual practices where the contradiction will be visible (e.g. the lack of payment (i.e. valuing of work) done by communities who are doing important and valuable work monitoring water quality).

2.2.7.2 *Contradiction 2: Sustainability framing – Weak vs. strong sustainability*

When considering the relationship between built infrastructure and ecological infrastructure issues of substitutability and complementarity are important and are often embedded within the framing of weak sustainability versus strong sustainability (Hediger, 2006). Proponents of weak sustainability suggest that built infrastructure (manufactured capital) and ecological infrastructure (natural capital) are essentially substitutable. Thus, a wetland could be replaced by a dam so long as the total value of the aggregate stock of capitals (financial, built, social, natural, etc.) is maintained or increased for current and future generations. Proponents of strong sustainability have put forward a number of arguments to support the idea that in most, if not all situations, built infrastructure and ecological infrastructure are not substitutable. The first is that built capital and infrastructure is made from natural capital. Thus, for example, a dam may be made of earth or cement. This means that nature can exist without built infrastructure but built infrastructure cannot exist without nature.

The second argument is that while built infrastructure (e.g. dams and water reticulation systems) may once have been the limiting factor on water services, degradation of catchments and reduced run-off may mean that dams do not fill and that natural capital becomes the limiting factor. *This suggests that built infrastructure and ecosystem infrastructure are complementary rather than substitutable.* A third argument against substitutability is that built capital and infrastructure is created almost entirely for the benefit of humans while ecological infrastructure (nature) is populated by countless species thus thinking of built capital and natural capital as substitutes is not appropriate. Strong sustainability therefore argues that natural capital is ultimately non-substitutable. *This requires that if we wish to continue benefiting from ecosystem services that we live off the sustainable yields generated by natural capital without depleting the capital itself, and see built infrastructure as complementary to natural capital rather than substitutable.* This is the fundamental argument that is built into the very concept and intention of investment in EI4WS, and there is therefore need to engage with the contradiction that emerges when weak forms of sustainability are used to motivate for EI4WS, rather than strong forms of sustainability.

2.2.7.3 *Contradiction 3: Competencies framing – Planning competence vs. action competencies*

Another contradiction on the landscape of EI4WS practice – already pointed to above, is the contradiction between planning competence and action competence. As noted by the GI Hub / KPMG study (Global Infrastructure Hub and KPMG, 2017), and as indicated in the PICC's SIPs and other policies and plans in South Africa (e.g. the National Water Act itself, and recent IWQM policy), are of a high quality and are sophisticated and ambitious in scope. However, across the national landscape there is a realisation that our planning and policy making capabilities and competences are not matched by implementation competences (i.e. action competence). This has shown up in wide-spread service delivery protests, inadequate action competences to prepare adequately for water infrastructure degradation and drought, and inadequate action competences to distribute water resources equitably as yet. It is therefore useful to consider this contradiction at all levels of the investing in EI4WS system, and to give attention – not to more planning competence – but to **the development of action competence** in a SLKMM roll out process.

2.2.7.4 *Contradiction 4: Environment and development framing – Narrow vs. broad views on development and environment*

Developmental initiatives which focus on human well-being are often underpinned by an assumption that economic aspects of well-being are the most important. This has been strongly influenced by 'Mazlow's hierarchy of needs' thinking which posits that individual material needs pre-suppose all others (Gambrel and Cianci, 2003). This focus on economic well-being can be seen as a 'narrow' understanding of development, and has resulted in what appears to be a conflict between developmental and environmental initiatives, where environmental initiatives are seen to be in tension or contradiction with developmental initiatives, especially where both draw on the same resource base. This is often seen, for example, in agricultural development initiatives which focus on increasing commercialisation of agriculture for profit-making, at the expense of the long-term health of the natural resource base which underpins agricultural productivity.

On the other hand, there is now growing support for a broader, more integrated understanding of human development, the environment and the links to human well-being, as being more than just economic factors (Raworth, 2017). This has emerged out of recognition of the interconnected nature of social, ecological and economic systems, and that these are all reliant on the health of planetary ecosystems as a whole (Folke et al., 2016). In this broader framing of human well-being and development, the health of the environment is seen as a fundamental underpinning for human well-being, and indeed, social and environmental justice are one and the same outcome (Masterson et al., 2019).

2.2.7.5 *Contradiction 5: Development projects framing – Instrumental vs. reflexive mode of development (as manifest in M&E approaches)*

Development projects can be framed as either more instrumental or more reflexive. An instrumental approach is suitable for a simple context in which the pathway to impact is linear and well known beforehand. For example, pumping water from a river uphill, will require a set of clear technical steps and resources and can be done quite quickly and without the need for feedback, until such time as the pump is switched on and we know whether it is working, or not. The pump and pipes are the clear-cut instruments; the process of connecting them up requires an instrumental approach, which can be reliably repeated time and again. Most social-ecological contexts and issues, such as ecological infrastructure for water security, are not of this simple nature. We do not know beforehand exactly how best to achieve the desired outcomes and impacts, and even if we do have a good idea based on past learning, conditions might change along the way, requiring adjustments. The reason is the open and dynamic nature of coupled social-ecological systems, the complexity including large number of interacting variables and (often hidden) mechanisms involved, the role of the context, and emergence, e.g. unforeseen outcomes and contextual changes (Preiser, 2019). Furthermore, for the most part EI4WS initiatives are innovative and pioneering in nature; no blueprints exist. And even where we have examples of successes in other contexts, the range of new variables in new contexts mean we cannot be assured that the same process will roll out in the same way in a different context (e.g. a different catchment, or with different groups in a catchment).

This complexity and associated uncertainty does not mean we cannot act or undertake development programmes. It simply calls for reflexivity. Reflexivity here refers to humans' ability to act, reflect on the outcomes of their actions, and change course if necessary (Bolton, 2010; Moore et al., 2018) (Bolton, 2010; Moore et al., 2018). Some call this 'strategic adaptive management' (Roux and Foxcroft, 2011). Instrumental approaches to development require a detailed, foolproof description of the implementation plan beforehand, along with monitoring to ensure the plan is being followed. Reflexive approaches to development require strong attention to knowledge creation, management and mediation, during programme implementation, as changes must be informed by credible knowledge and insights. In addition and complementary is the need for formative evaluation systems that inform development programmes *as they roll out*, and not just at the end (Patton, 2011). A key contradiction in our field is that we conceive of problems and contexts as complex, but design interventions as if they are simple (Douthwaite and Hoffecker, 2017; Rogers, 2008), i.e. we impose an instrumental approach. Table 2.1 below contrasts the two approaches summatively.

Table 2.1. Instrumental vs. reflexive mode of development as manifest in M&E approaches.

Instrumental Approach to Development	Reflexive Approach to Development
Implement a blueprint	Act, reflect and adjust where necessary
Ignore context, focus on narrow set of variables	Take context and complexity into account
Intervention often takes the form of a 'silver bullet'	Interventions are often more tentative and diverse
Monitor whether the plan is being followed	Monitor the outcomes of actions to inform adaptive responses
Evaluate at the end	Evaluate and learn along the way (developmental and formative evaluation)

2.2.7.6 *Contradiction 6: Planning and development framing – Atomistic and dualist planning and development vs. integrative approaches to planning and development.*

When confronted with water security risks and challenges, those involved in development and planning often do not sufficiently consider underlying complexities and systems. Our organisations often have very clear divisions in terms of roles, responsibilities and decision making within which we operate. When capacity and resources are limited, the ability to cross boundaries within and between organisations becomes difficult. When it comes to water, all role-players in a catchment must be considered and involved. Downstream water users are affected by upstream water use. Role-players from agriculture, private sector, finance, government and civil society need to be involved in planning and development in the catchment. When a decision is made it has consequences for all water users. An integrative approach to decision making allows for reflexivity and responsiveness, allowing for planning that can respond appropriately to change. However, atomistic and individualistic approaches persist in the system, contradicting the complexity of the system itself, and making integrative approaches difficult to implement.

2.2.7.7 *Contradiction 7: Sustainability intervention responses – Technical responses vs. systemic responses*

In responding to sustainability challenges such as water shortages or climate change, a common response is to develop new technologies, a practice also labelled ‘techno-optimism’ and characterised by a desire for ‘silver bullet’ solutions. This emerges from increasing technological sophistication of society, as seen in the growth of information technology businesses in Silicon Valley in the United States of America, and in the enthusiasm for the “Fourth Industrial Revolution”. For example, ‘geo-engineering’ has been proposed in response to concerns about ever-increasing anthropogenic emissions of carbon dioxide and the desire to control global weather patterns and to sequester carbon to reduce global warming. These technical or technological responses or sustainability interventions are often narrowly focused on short-term solutions, and do not account for the interconnected nature of social-ecological systems and the planetary system as a whole. On the other hand, broader systemic responses to sustainability challenges recognise the need for deeper change in the earth’s social, economic and governance systems in response to the growing number and scale of sustainability and social justice issues. An example of a more systemic response to climate change is ‘climate smart agriculture’ which often builds on ancient practices such as agro-ecology, incorporating local people’s knowledge and taking into account the need for solutions that have multiple social-ecological-economic benefits. These may indeed also incorporate new technological innovations, but they do this in an integrated and systemic way.

2.2.7.8 *Contradiction 8: Decision-making framing – Individualistic and hierarchical vs. collective and distributed decision-making*

Decision-making, across the spheres of government, business and NGOs, has come to be characterised by hierarchical models in which the views of a wide base of constituents is fed through a pyramid-like model of governance to reach the most powerful at the top of the pyramid who make the final decision. This is typical in democratic modes of governance. Whilst these models aim to distribute and share decision-making by structuring it this way, it often does concentrate power at the top of the pyramid, and doesn’t allow for sufficient two-way flow of information within the governance system. It also results in more individualistic decision-making. On the other hand, in order to address the complex and inter-connected sustainability and social justice concerns facing humanity, incorporating a wider set of perspectives and shifting towards more collective, equitable and fair processes of decision-making is necessary. These two modes of decision-making seem to be in contradiction with one another, particularly as they may be seen to dilute the control of those currently in power at the top of the pyramid. There is a need for a stronger alignment of vertical governance structures (e.g. national to provincial to local) and more horizontal and participatory forms of governance (e.g.

via local networks of practice). A more facilitating vertical structure of governance needs to meet with horizontally engaged structures of governance. The Presidential pilot using a district development model appears to have this in mind, as does the NDP intention to facilitate governance WITH the people, not for them.

2.2.7.9 Contradiction 9: Social learning and social change framing – Instrumentalist vs. emancipatory view of social learning and social change

Another contradiction that can be used productively to shape SLKMM for investing in EI4WS lies in the way in which social learning itself is conceptualised. Some, drawing on behavioural economics, conceptualise social learning in behavioural modelling or nudging of behavioural change terms and argue that human beings have two types of thinking – i.e. they think slowly and rationally about some things, and don't think about others (Leggett, 2014; Sunstein, 2017). Interventions are planned to compensate for assumed types of 'non-thinking' practices (e.g. emotional responses). However, this kind of thinking can easily shift into instrumentalist forms of social engineering as one group of people take it upon themselves to compensate for another's apparent or assumed lack of thinking (See Gane (2021) for a recent critique of nudge theory). There is need therefore to broaden concepts of social learning to include reflexive and emancipatory forms of co-engagement by people concerned with the assumptions that others have of their reasoning (be it their assumptions of fast or slow reasoning). For example, we may assume that people don't think about their water usage patterns, and therefore put policy measures in place to govern these (e.g. the water meters used to govern access to water for people in townships in the Western Cape), yet people in these contexts are highly reflexive about this measure, and are in fact, highly critical of the assumptions of the planners who put these water meters in place; they argue that the planners should rather fix the many leaks that are prohibiting an equitable share of water for all in the city! There is also a need to give adequate attention to *how* people learn and reason and how people are able to develop reflexive competence, rather than assume that we know how they think, and that we have the capacity to pre-determine what they ought to know and do, even if it is via 'nudging' them in particular ways. The nudging practices that are gaining popularity out of behavioural economics, must be made explicit by 'the nudgers', in order for people to evaluate their relevance and validity critically and reflexively in the social context/s concerned, in this way approaches to social learning can remain open and reflexive, and potentially emancipatory rather than become instrumentalist (Leggett, 2014). In South Africa this requires us to also develop in-depth cultural co-exchange competences for more fully understanding a variety of complex patterns of reasoning that are embedded in cultures, languages and histories that for too long have been 'assumed away' on behalf of others.

2.2.7.10 Contradiction 10: Water governance institutions – Working within existing formal water governance institutions vs. building and supporting parallel institutions

This contradiction was identified during the Strategy Workshop to deliberate the SLKMM strategy in January 2020. It relates to the fact that there is a governance tension in the EI4WS project. On the one hand, the project was designed to work closely with the Department of Water and Sanitation and its existing water governance institutions and structured as mandated by the National Water Act (e.g. CMFs, CMAs, etc.); however, these institutions are facing a range of challenges and are not functioning well (Schreiner, 2013). The water governance landscape in South Africa is in flux and is ever-changing, resulting in significant uncertainties about the ability of these institutions to be able to support and implement the objectives of the EIWS. On the other hand, a number of so-called 'parallel structures' and structures are emerging, somewhat in response to concerns about the failure of the formalised governance structures. These include, among others, Water Funds, and other multi-stakeholder platforms facilitated by NGOs or the private sector. In order to realise the objectives of the EI4WS, it is tempting to work within these parallel institutions which seem to have good stakeholder support and function well. But doing this might undermine the ability of the formal structures to function even further, and could undermine the democratic values enshrined in South Africa's progressive and

aspirational water legislation. The EI4WS needs to manage and navigate this tension carefully, possibly by working in both structures, and/or working carefully towards 'hybrid governance formations' (Pahl-Wostl, 2019).

2.3 STAKEHOLDER ANALYSIS

2.3.1 INTRODUCTION

In this section, we outline processes relating to stakeholder engagement relevant to the SLKMM strategy, which include stakeholder analysis, a stakeholder tracking tool and a stakeholder database. These processes and products required on-going refinement during implementation of the SLKMM strategy. The implications of the stakeholder analysis work in developing the SLKMM strategy are articulated further in CHAPTER 3: STRATEGY-AS-PRACTICE FOR SOCIAL LEARNING, KNOWLEDGE MANAGEMENT AND MEDIATION (SLKMM)

2.3.2 Stakeholder analysis: understanding the stakeholder context

In order to implement a SLKMM strategy effectively, equitably and sustainably for the EI4WS, a good understanding of the stakeholder context is necessary. The conceptual framework introduced above in Section 2.2 highlights the multi-scalar nature of this context – in both time and spatial scales. The full range of stakeholders relevant to EI4WS spans all five levels of the context illustrated in Figure 2.5.

We also advocated the use of an 'extended water value chain' (across the blue and grey infrastructure boundaries) understood to operate across levels (Figure 2.6) To map out the full possible extent of stakeholders who should or could be involved in the EI4WS project process. However, this could result in a potentially very large and unmanageable scope of stakeholders.

While the full scope is important to bear in mind, we use the objectives of the EI4WS project's Component 1 and 2 as a means of bounding the stakeholder context. Furthermore, it is important to recognise that much of the innovation proposed in the EI4WS project will be taking place at the boundaries of usual stakeholder groups or communities of practice (Figure 2.5), when they come together to work on the shared object of activity, i.e. the objectives and activities of the EI4WS project (Figure 1.1, Figure 2.2).

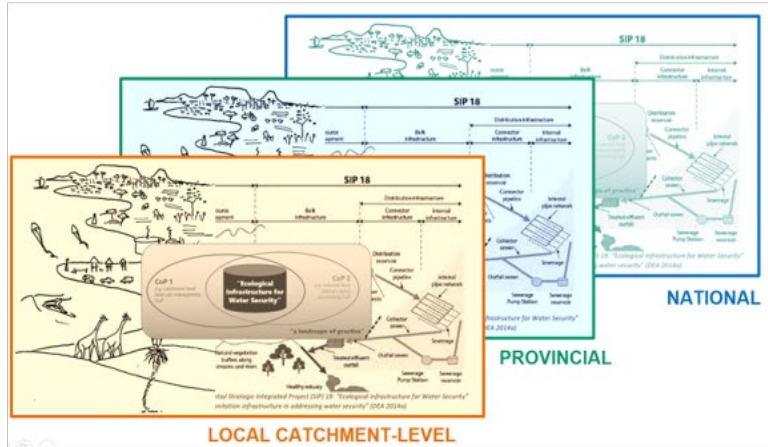
Three key considerations for stakeholder analysis informed the stakeholder analysis and database design proposed here (Figure 2.6). Moreover, the SLKMM strategy was intended to be implemented in three layers of the project context: internal, internal-external, and external (Figure 2.7). The purpose of this aspect of strategy development was to:

Develop a stakeholder database, map and tracking tool that outlines the project related role-players, their relationship to the project activities and the knowledge resources that they can contribute to supporting the realisation of the project aims, as well as which tracks their project related engagement and Social Learning interactions over time.

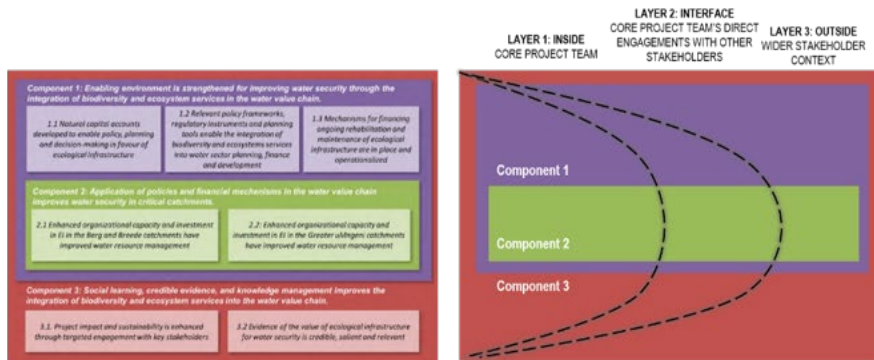
The National Business Initiative (NBI) were appointed to contribute to the work of Component 3 of the EI4WS with a focus on "Working with the private, public and civil society sectors to develop and implement catchment-wide solutions to water security" (WRC Project K5-2985). The NBI work and the SLKMM are mutually supportive. The NBI is strengthening the SLKMM strategy development process by bringing in insights and perspectives from the private sector, while the SLKMM process strengthens the social learning processes NBI will be supporting in the EI4WS project. Moreover, NBI have a significant role in implementing Component 3 beyond the strategy development process, as they are providing support to the Knowledge Coordinator both

in terms of informing the strategy development process, and in on-going stakeholder engagements and SLKMM processes as the strategy is implemented. The NBI work has particular implications for stakeholder analysis, database development and tracking. These are currently being explored between the two teams and will be concretised during the ongoing roll out of the SLKMM.

A: EXTENDED, MULTI-LEVEL VALUE CHAIN: Using an extended water value chain across multiple levels to identify stakeholders.



B: INSIDE, INTERFACE, OUTSIDE: Key stakeholders are located in three layers, i.e. Layer 1: inside the EI4WS project team, Layer 2: at the interface of the EI4WS and other stakeholders, and Layer 3: outside in the wider stakeholder context..



C: INTERSECTING COMMUNITIES OF PRACTICE: The EIWS landscape of practice, on which multiple communities of practice (CoP) come together and intersect around a shared object of activity.

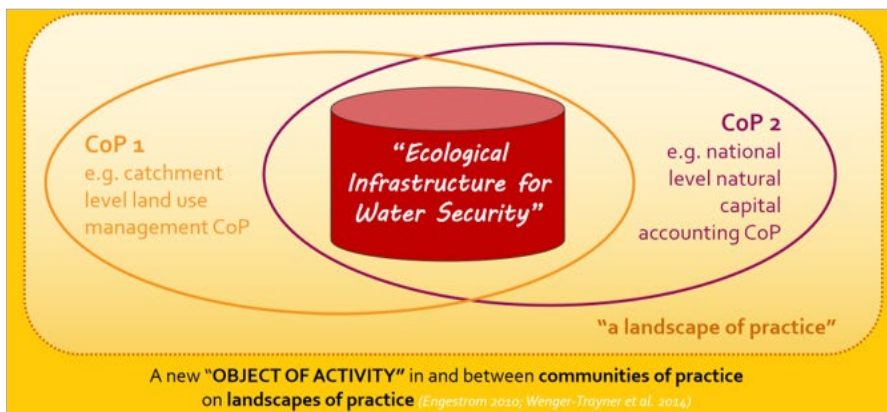


Figure 2.7: Three key considerations for understanding the stakeholder context of the EI4WS project for SLKMM: A: Extended, multi-level water value chain, B: Inside, interface, outside (See Figure 3.2), C: Intersecting communities of practice (Engeström, 2016; Wenger et al., 2002; Wenger-Trayner et al., 2014).

For example, one of the NBI's early reports to the WRC included a stakeholder database and tracking tool which were integrated into the SLKMM database and tracking tool. The structure of the draft database and tracking developed for SLKMM allowed for this additional information to be easily incorporated.

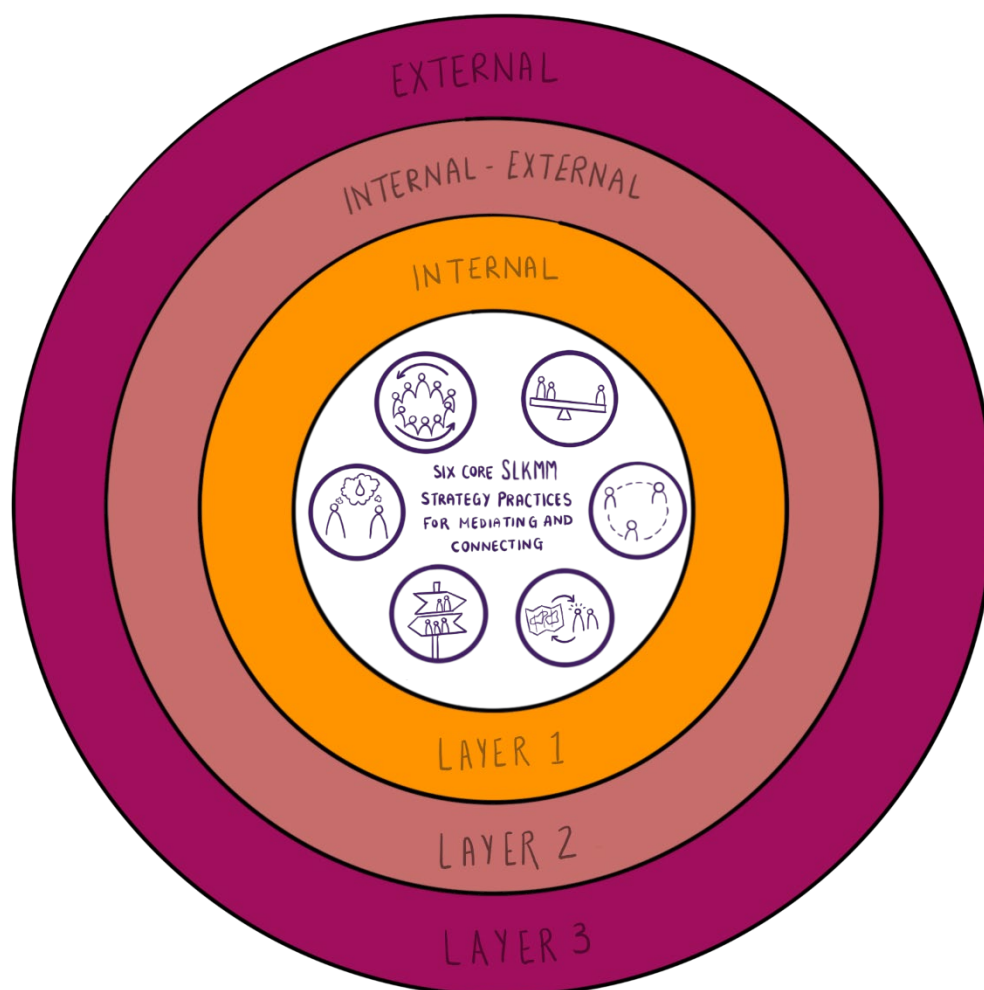


Figure 2.8: Three layers in which the SLKMM strategy was intended to be implemented: internal, internal-external, and external.

2.3.3 Stakeholder database

The stakeholder database for the SLKMM strategy needs to be continually updated as the SLKMM strategy continues to be implemented in the final stages of the project, and should be incorporated into post-project roadmap planning as a key resource for the sector at large. It was set up as a Google Sheets workbook which was securely stored on the Rhodes University Shared Google Drive set up for the SLKMM project (Figure 2.8). This workbook collated the stakeholder information relevant to the SLKMM strategy for the EI4WS. It includes a landing page with information on how to use the database, and various tabs for capturing stakeholder information and tracking engagement.

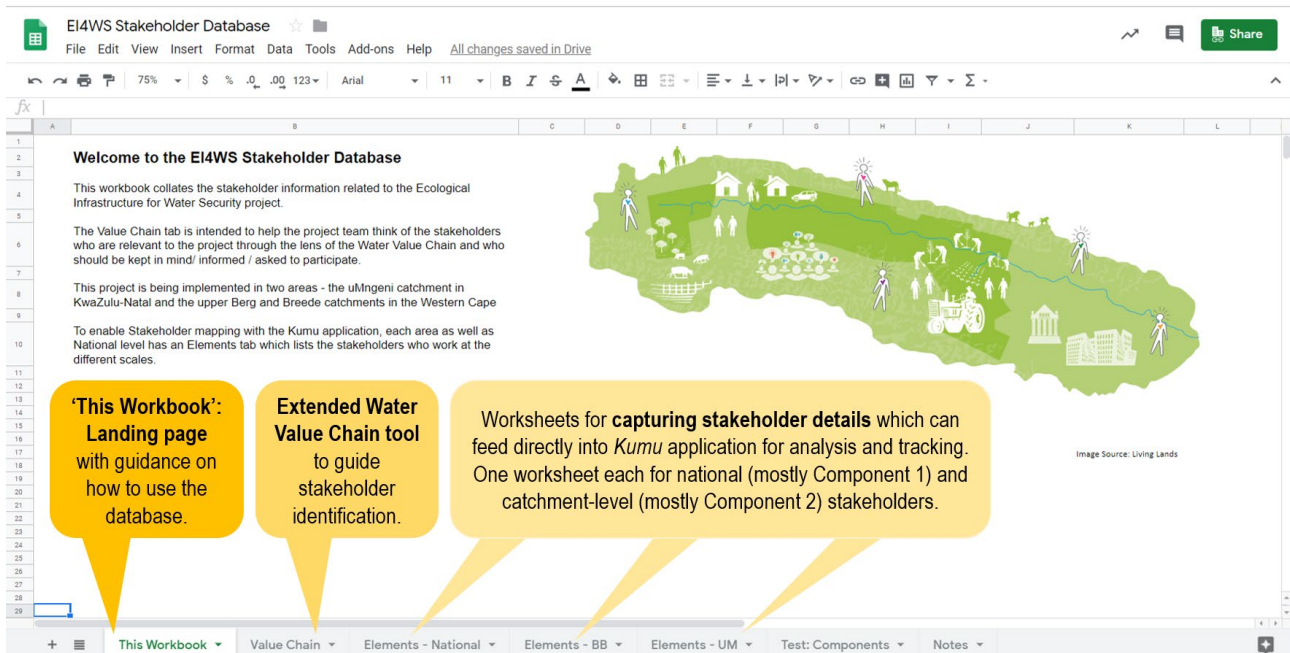


Figure 2.9: Annotated screenshot of the EI4WS stakeholder database currently under development to support implementation of the SLKMM. Speech bubbles indicate key features of the database. The link to the Database on Google Drive will be shared with the Knowledge Coordinator. The database needs to be password-protected to ensure privacy of stakeholders’ personal information.

The Value Chain tab is intended to help the SLKMM project team and the Knowledge Coordinator to identify stakeholders who are relevant to the project through the lens of the extended water value chain (See Figure 2.7A) and who should be kept in mind / informed / asked to participate. The database is designed so that it can be used as input into the online application ‘Kumu’ (<https://kumu.io/>). Kumu is a simple yet powerful tool to visualise a wide variety of stakeholder network data. It can be used to display the relationships between projects, stakeholders, organisations and other variables. It also includes basic network analysis tools.

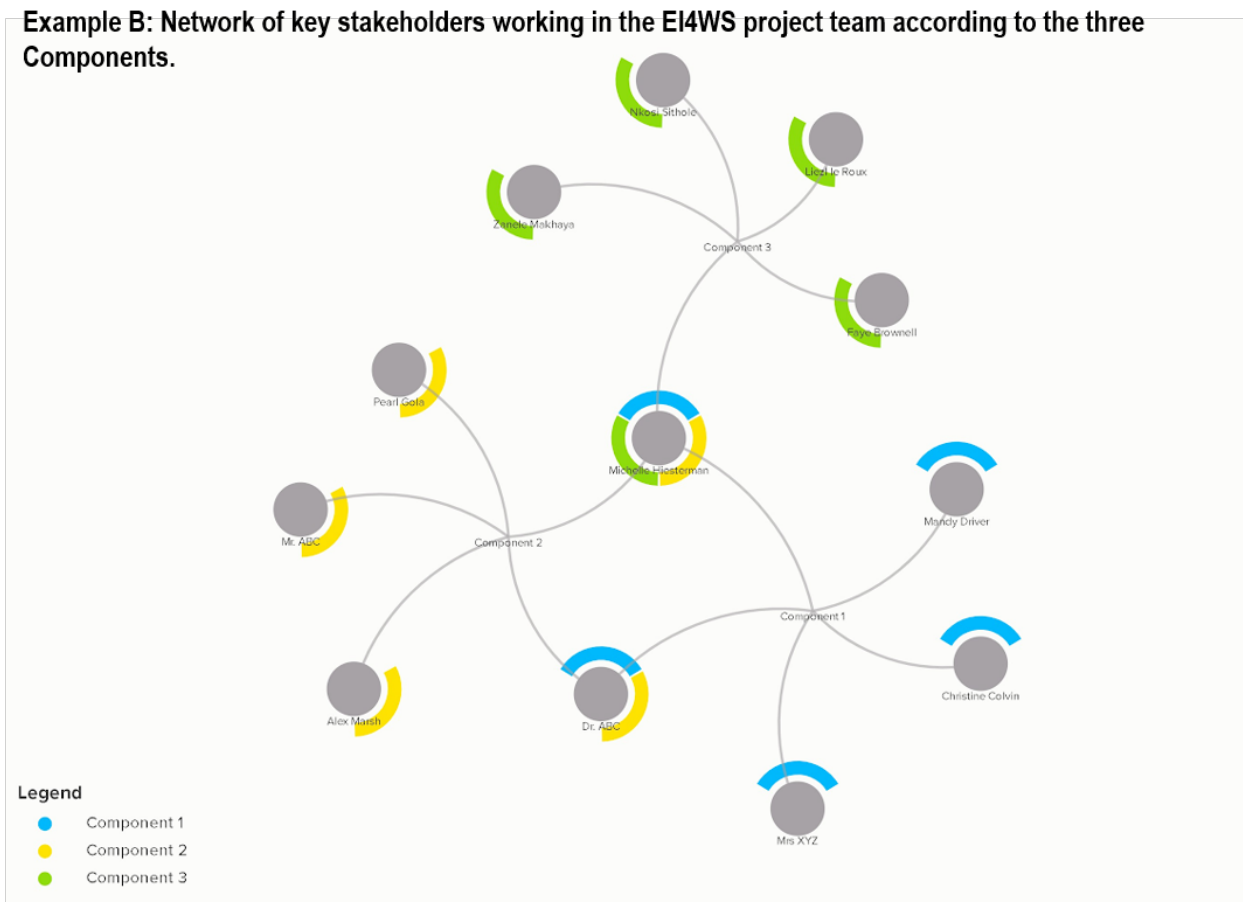
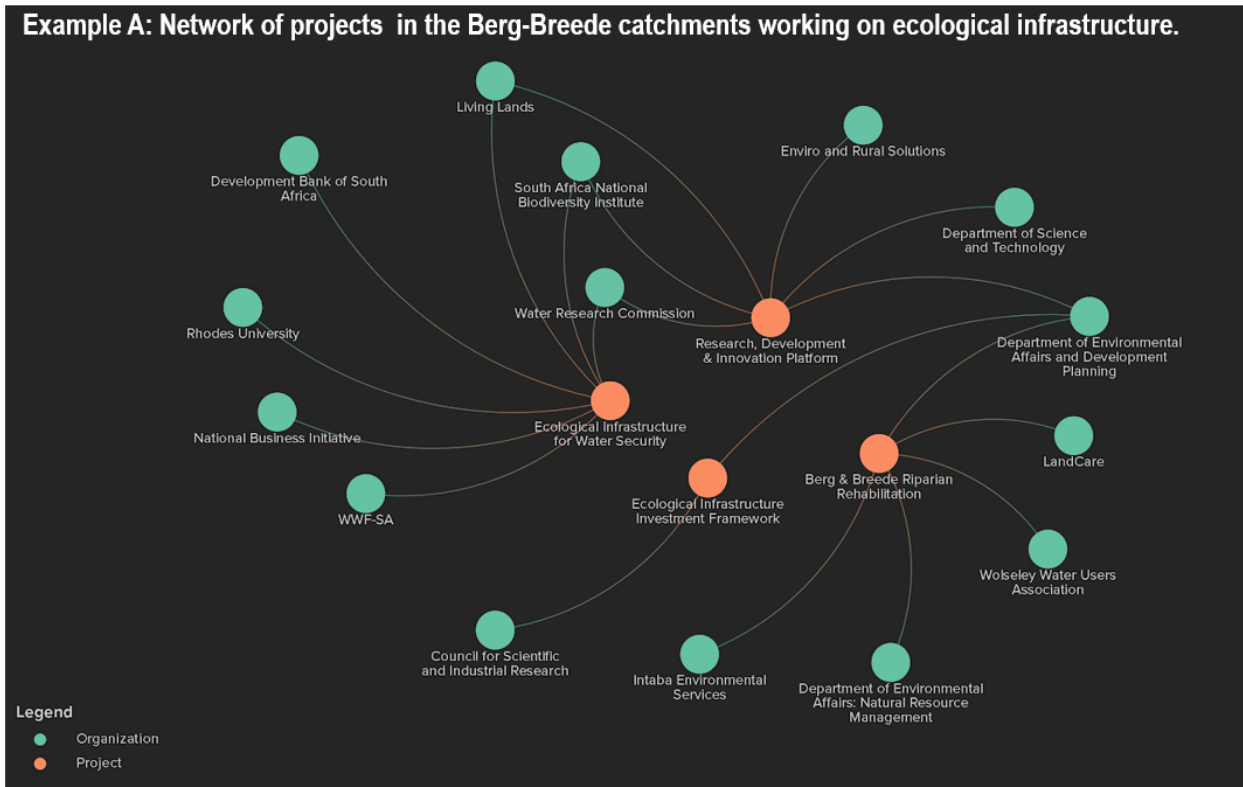


Figure 2.10: Examples of visual stakeholder network produced using the Kumu application: A: Berg and Breede Catchment projects. B: EI4WS project Components (Note: networks are incomplete and for illustrative purposes only). (Images by Liezl le Roux, Living Lands)

The visual maps produced in Kumu can be used to track and communicate about changing stakeholder networks over time (see examples in Figure 2.10). They can also be used for monitoring changes in stakeholder engagement and roles over time.

To enable stakeholder mapping with the Kumu application, each area/scale (catchment/national) has an 'Elements' tab which is a list of stakeholders with associated descriptors. The tag descriptors can be used to cluster stakeholders according to role, sector and even the specific project component to which they contribute. In line with the Protection of Personal Information Act, names and contact details will be excluded from the stakeholder mapping.

2.3.4 Stakeholder tracking tool

From the perspective of SLKMM processes, tracking stakeholder engagement includes two key aspects:

1. tracking the *involvement* and degree of involvement of stakeholders in project activities, and
2. tracking the *learning* of stakeholders through project activities.

This section of the report focuses on tracking *involvement*, through the use of stakeholder network mapping tools. The degrees of involvement described in Table 2.2 below can be used as a tool to categorise and track involvement. Using stakeholder network tools to map, visualised and track stakeholder involvement is recognised as a key tool for working in complex multi-stakeholder contexts (Buckingham et al., 2018; Schiffer and Hauck, 2010). There is also potential for use of these tools in a more participatory way. For example, the Knowledge Coordinator could involve the Component 3 Working Group in on-going tracking of stakeholder engagement during Quarterly Planning Meetings of the EIWS project.

The *learning* of stakeholders through project activities will be tracked through the Value Creation Framework (VCF) designed by Wenger et al., (2011) and applied by a number of scholars in South Africa. The framework is useful for tracking non-linear and somewhat open-ended processes like learning in complex systems (Wenger-Trayner and Wenger-Trayner, 2019). Three levels of monitoring and evaluation of stakeholder learning is proposed. Please refer to CHAPTER 3.

The workbook set up for the stakeholder database also enables tracking of *involvement* by organisation (Table 2.2). This is done by including a column in which the degree of involvement is noted.

Table 2.2: Tool used to categorise stakeholder involvement to enable tracking (Note: this tool is built into the database illustrated in Figure 2.8.

Degree of Involvement	Description
Active (4)	Attends gatherings and actively contributes during and between gatherings.
Passive (3)	Attends gatherings
Inactive (2)	Does not attend gatherings
Unaware (1)	Not aware of gatherings and initiatives

The degree of involvement can be connected to a numerical value which then enables you to visualize this descriptor on a Kumu Map, i.e. larger circles means greater involvement. The following social network

analysis metrics can be calculated in Kumu to enable a more nuanced understanding of stakeholder connectedness and involvement:

1. Degree: number of connections attached to each element
2. Betweenness: number of times an element is the bridge or bottleneck between other elements in the network
2. Closeness: how close one element is to all the other elements which gives insights to how fast information can spread through different parts of the network

2.3.5 Evidence base for SLKMM processes

The EI4WS project has a strong emphasis on generating, synthesising and sharing evidence to support investment in ecological infrastructure. This is a particular focus for Component 1 of the project, and is also a feature of the catchment-level work in Component 2. For example, in Component 1, Natural Capital Accounts and accompanying maps are being produced. These need to be mobilised into decision-making and planning processes planned for the Component 2 work in each of the demonstration catchment. Another example are the financial mechanisms and tools which will be developed in the Component 1 work: they will need to be managed, mediated and mobilised so that the relevant stakeholders are involved in their development and testing in demonstration catchments through the implementation, for example, of Catchment Management Strategies.

It becomes evident therefore, that the SLKMM processes which the strategy is recommending will need to bring together the various forms of evidence and knowledge generated in the project and beyond to enable social learning, knowledge management and mediation as reflected in the accompanying Strategy Document. However, it is also important that the knowledge base for this project goes beyond just the tangible outputs of the work in each of the Components: all people involved in the project across all levels shown in Figure 2.4 must be acknowledged as legitimate knowledge holders and contributors into SLKMM processes, and existing knowledge – both tangible and intangible – must be mobilised and made accessible to support the work of the project. The Value Creation Framework proposed for the Monitoring, Evaluation and Learning in the Strategy can be used to track the evidence base for SLKMM outcomes. These are necessarily related to outcomes of EI4WS practices, but are not reducible to them, as the social learning process must lead to and help to create tangible EI4WS outcomes.

2.4 CONSULTATION AND STAKEHOLDER ENGAGEMENT TO CO-DEVELOP STRATEGY

2.4.1 INTRODUCTION

The purpose of this chapter of the report is to describe the processes of consultation and deliberation with key stakeholders to inform the SLKMM strategy development process. This process focused on engaging stakeholders in the three layers described in Figure 2.7, i.e. in Layer 1: inside the EI4WS project team within the three components, in Layer 2: the interface where the project team engages directly with a wider range of stakeholders outside the direct project team, and in Layer 3: the wider stakeholder context 'outside' the direct focus of project activities. The purpose of this process is to enable a wide range of stakeholders to contribute to the co-creation of the SLKMM strategy. There were three specific objectives for this process:

1. to pilot and test social learning tools such as dialogue interviews, the value creation framework, and tools for social learning workshops,
2. to explore stakeholders' individual/personal experiences and expectations of social learning and knowledge management processes, and
3. to gather insights and feedback from stakeholders on the SLKMM strategy development process.

A key lesson that emerged early on in this process of consultation and deliberation is that stakeholder fatigue was a risk to the project: both for the strategy development of the SLKMM work, and to the wider EI4WS project. As a project team we therefore took a decision to take a 'light' approach to engaging stakeholders in the SLKMM strategy development process, taking an approach based on three forms of engagement:

- 1. consulting and engaging directly with EI4WS through three means:** i. engaging actively in EI4WS Quarterly Planning Meetings, ii. engaging in Component 3 Working Group Meetings, and iii. hosting a focused 1-day *SLKMM Strategy Workshop* (22 January 2020) to present the strategy under development and gather feedback and inputs from the project team (Layer 1 stakeholders);
- 2. consulting and engaging with individual stakeholders in demonstration catchments:** Targeted one-on-one dialogue interviews with selected stakeholders in the Berg-Breede and Greater uMngeni catchments (Layer 2 and 3 stakeholders); and
- 3. consulting and engaging with a wider range of stakeholders through existing events:** Engagement and participation in existing meetings, forums, and events to informally engage stakeholders on SLKMM (Layer 2 and 3 stakeholders).

The methods used for these engagements and the outcomes and implications for the SLKMM strategy development process are described according to these three forms of engagement below.

This SLKMM strategy has also been developed in close collaboration with the Knowledge Coordinator, Michelle Hiestermann. A focused workshop for consultation and deliberation with the EI4WS project team and the Component 3 Working Group was held on 22 January 2020 in Pretoria. Participants of that workshop were provided with an Interim Report (Deliverable 2) to engage with the content of the strategy. In addition, a workshop was held with the NBI team to synergise the work of the SLKMM strategy development team and that of the NBI and to get their input for the strategy development process (14th January 2020).

In addition to the three face-to-face engagements outlined above, the strategy development team shared drafts of strategy deliverables with the Component 3 Working Group (Deliverable 1: Inception Report, and Deliverable 2: Interim Strategy Report) with the wider EI4WS project team (Deliverable 2: Interim Strategy Report) via email for comment. Comments were received via email from all three rounds of deliverables, and were addressed by the strategy development team in revising the strategy documents.

2.4.2 WORKSHOPS AND ENGAGEMENTS WITH KEY STAKEHOLDERS TO DELIBERATE STRATEGY

2.4.2.1 Overview of workshops and engagements

Table 2.3 shows details on the various methods and events used to consult and deliberate with stakeholders on the development of the SLKMM strategy. Details of the methods used for the individual dialogue interviews in the demo catchments are described in Appendix 1.

Table 2.3: Events and methods for consultation and deliberation of SLKMM strategy development.

Form of engagement	Methods	Dates and events
1. Consulting and engaging directly with EI4WS actors and teams	<ul style="list-style-type: none"> ● Updates and presentations on the SLKMM strategy under development. ● Facilitated discussions to elicit feedback on strategy: focus on 	<ul style="list-style-type: none"> ● 25-26 July 2019: EI4WS Quarterly Planning Meeting & WG3 meeting (KZN Midlands) ● 23-25 October 2019: EI4WS Quarterly Planning Meeting & WG3 meeting (Pretoria)

Form of engagement	Methods	Dates and events
	<p>stakeholders' <i>expectations</i> and <i>feedback</i> re. the strategy.</p> <ul style="list-style-type: none"> • Informal discussions with project team members on strategy • Field notes on the WHAT? WHO? HOW? of SLKMM, i.e. WHAT are the evidence base and knowledge needs, WHO are stakeholders who should be involved in SLKMM, and HOW – what are the learning processes and platforms for SLKMM. 	<ul style="list-style-type: none"> • 14 January 2020: Workshop with NBI and SLKMM strategy development team to deliberate strategy and work synergies (Rhodes University, Makhanda) • 22 January 2020: SLKMM Strategy Workshop hosted within the EI4WS Quarterly Planning Meeting – see further details below in Section 4.2 (Pretoria).
<p>2. Consulting and engaging with individual stakeholders in demo catchments</p>	<ul style="list-style-type: none"> • Dialogue interviews to gather experiences and expectations of SLKMM processes. 3 interviews were held in each demo catchment, with the aim to reach a wide range of different catchment-level stakeholders to gain a diversity of insights on SLKMM. • Testing the Value Creation Framework: the dialogue interviews included questions based on the VCF which enabled the team to test the framework in the process. 	<ul style="list-style-type: none"> • 4-15 November: Greater uMngeni stakeholder dialogue interviews • 4-15 November: Berg-Breede stakeholder dialogue interviews
<p>3. Consulting and engaging with a wider range of stakeholders through existing events</p>	<ul style="list-style-type: none"> • Informal discussions with stakeholders on EI4WS and the SLKMM strategy. • Testing the Value Creation Framework: informal conversations sometimes included questions based on the VCF which enabled the team to test the framework in the process. • Field notes on the WHAT? WHO? HOW? i.e. WHAT are the evidence base, and knowledge needs, WHO are stakeholders who should be involved in SLKMM, and HOW – what are the learning processes and platforms for SLKMM. 	<ul style="list-style-type: none"> • 25-28 Sept: Society for Ecological Restoration Conference (Cape Town) • 18 Oct: Water Stewardship Conference (Johannesburg) • 21-23 Oct: Catchment-based Ecological Infrastructure Indaba (Matatiele) • 7-8 Nov: Citizen-based Water Quality Management Workshop (KZN). • 20 November: SEBEI Workshop (Cape Town).

2.4.2.2 Details of Strategy Workshop held on 20 January 2020

A Social Learning, Knowledge Management & Mediation Strategy Workshop was facilitated at the EI4WS Quarterly Planning Meeting held in Pretoria on the 22 January 2020 by the SLKMM strategy development team: Heila Lotz-Sisitka, Jessica Cockburn, Eureta Rosenberg, Mike Ward, Liezl le Roux, Faye Brownell, Nkosingithandile Sithole, and Zanele Makhaya; with support from the Knowledge Coordinator Michelle Hiestermann (WRC). Graphics were developed by Liezl le Roux (Living Lands). The workshop was designed to test and model some of the SLKMM tools proposed in the strategy, in order to engage participants in an actual SLKMM process so that they could provide feedback and input based on their own experiential learning (See Table 2.4 for an outline of the workshop process).

Table 2.4: Outline of the SLKMM Strategy Workshop held on 20 Jan 2020 in Pretoria.

08h30	Tea on arrival	
09h00	Day 1 Recap, introductions and interest	Michelle Hiestermann
09h30	EI4WS SLKMM Strategy Introduction	Jessica Cockburn & Liezl Kruger
10h00	Workshop Activity 1: EI4WS Scenarios and Finance Instruments Group Feedback & Discussion	Group work Facilitated by Mike Ward
11h15	Tea Break	
11h30	Workshop Activity 2: SLKMM Strategy Practices Group Feedback & Discussion	Group work Facilitated by Heila Lotz-Sisitka
13h00	Lunch	
14h00	Partnership for growth (P4G) Presentation	Mike Ward & Faye Brownell
14h30	Implementation Plan	Jessica Cockburn
15h00	Monitoring & Evaluation	Eureta Rosenberg
15h30	Reflections and Way forward	Jessica Cockburn & Heila Lotz-Sisitka
16h00	Close for the day and Tea	

The purpose of the workshop was outlined to participants as follows:

1. Consult, engage and deliberate: an opportunity for co-development of the SLKMM strategy
2. Ground and elicit: to ground the strategy in the context of EI4WS practices and realities by eliciting these from participants
3. Model and pilot: to demonstrate and test SLKMM practices, tools and processes
4. Co-plan: to co-develop the implementation plan and activities for SLKMM.

In introducing the workshops, the framework of *six core strategy practices* was introduced to participants, as shown below in Figure 2.10.

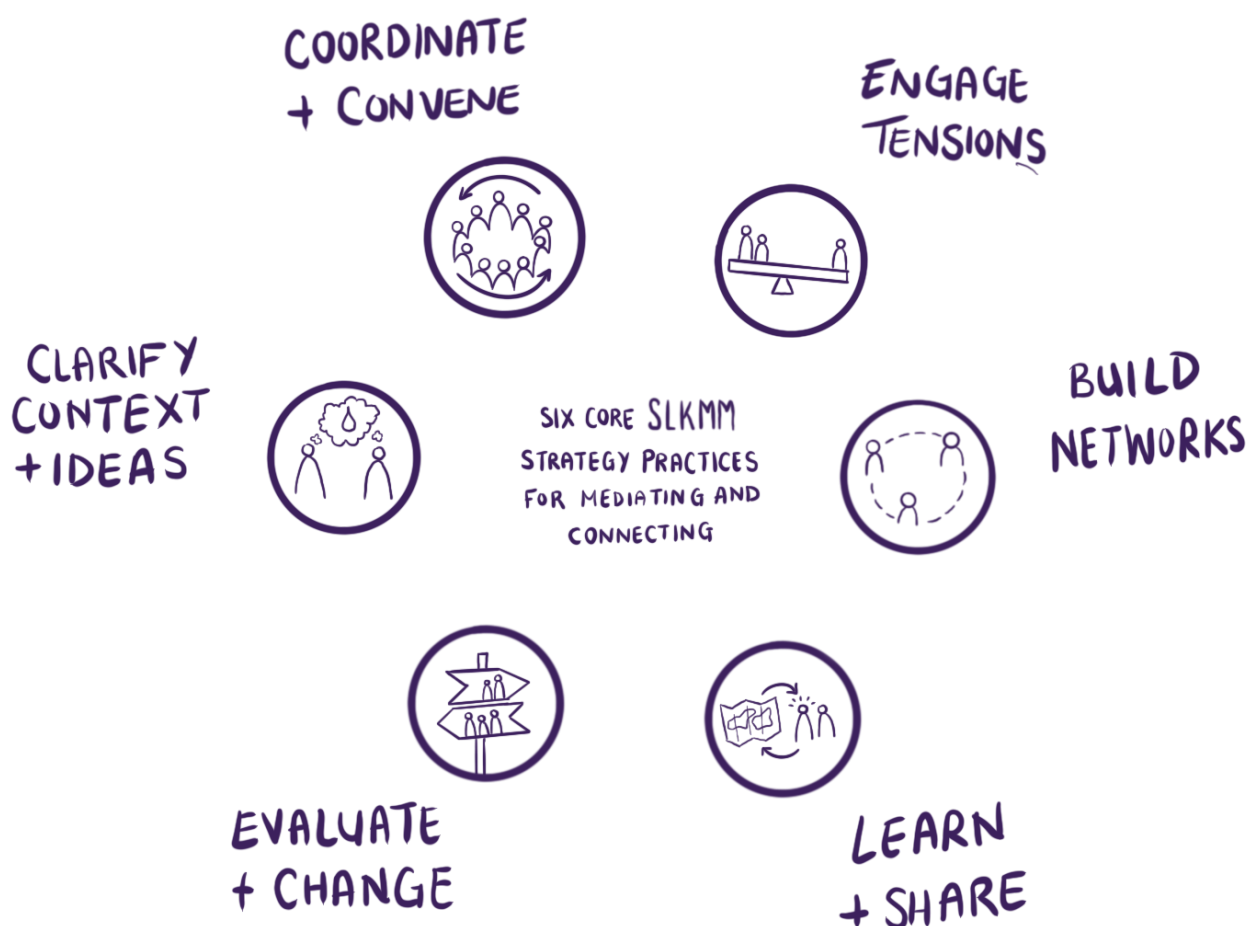


Figure 2.11: The six core strategy practices of the SLKMM strategy which mediate and connect learning and knowledge across the EI4WS project.

In order to ground the strategy practices within the wider EI4WS project, the diagram Figure 2.11 was presented. The diagram should be interpreted as follows:

- Central green circle: actual demo catchment context, in which *case examples* (or scenarios, black boxes) of EI4WS practices can be identified, within which specific *finance mechanisms* (pink dots) are located. Feedback from the workshop suggested we use the term ‘case examples’ rather than scenarios. It was also raised that these pink dots should not only be finance mechanisms, but also other mechanisms and instruments within the EI4WS such as policies, institutions, etc.
- Purple dots on next ring out from centre: *Other EI4WS practices* through which the EI4WS work is done, i.e. the practices in Components 1 and 2 of the project. These can include for example the practices involved in development of natural capital accounts (Component 1), those involved in setting up water governance institutions such as CMSs in the demo catchments (Component 2), etc.
- Next ring of blue dots with white text labels: *SLKMM strategy practices* such as ‘learn and share’ and ‘engage tensions’ which mediate and connect the other EI4WS practices.
- Outer ring of puzzle pieces: *activities* within the project through which it is implemented – SLKMM practices mediate into these as well.
- Yellow arrow: this is the *change pathway* along which the project unfolds. It starts in the context of the demo catchments, moves through various EI4WS practices, SLKMM practices, comes to life in various activities across the project, and then influences the actual demo catchment context once again. The

change pathway can be used to locate key Monitoring, Evaluation and Learning (MEL) activities and processes.

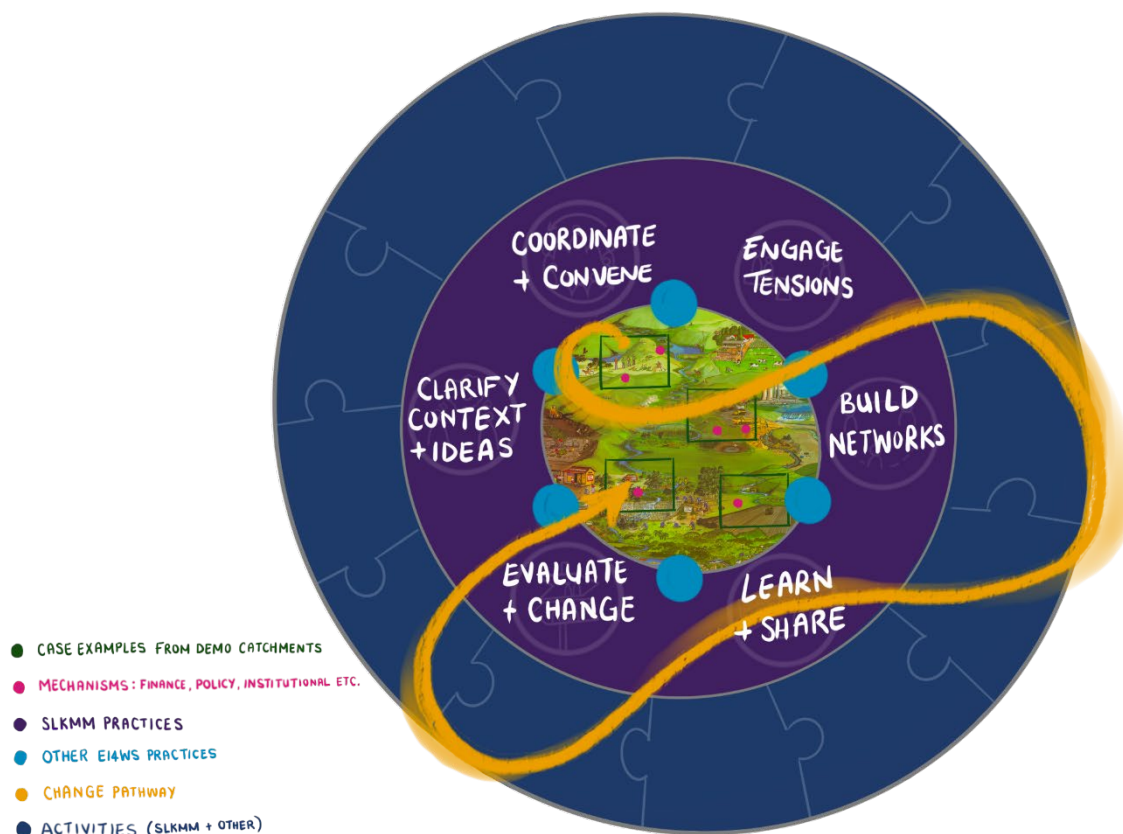


Figure 2.12: Grounding the six core SLKMM practices in the work of the wider EI4WS project.

After the introduction, two main group-work based workshop activities were facilitated to model SLKMM tools, namely:

- Workshop Activity 1: EI4WS Scenarios and Finance Instruments: exploring EI4WS practices and scenarios to identify potential finance instruments and mechanism to enable the work of the EI4WS project. Identify scenarios and finance mechanisms and instruments to ground and model the SLKMM strategy practices.
- Workshop Activity 2: SLKMM Strategy Practices: Using scenarios and finance mechanisms: Work with SLKMM Strategy Practices to identify activities towards an implementation plan for SLKMM.

These activities were followed by a presentation on the Partnership for Growth (P4G) project happening in the Umngeni catchment which was useful to ground some of the thinking in an actual case example of the development of finance and institutional mechanisms for EI4WS. The last three sessions of the day were on the SLKMM implementation plan (based on feedback on the activities), Monitoring & Evaluation of SLKMM, and reflections and way forward during which the team collected collecting feedback, comments and suggestions from participants to refine the strategy.

2.4.3 ANALYSIS OF WORKSHOPS AND ENGAGEMENTS: IMPLICATIONS FOR SOCIAL LEARNING, KNOWLEDGE MANAGEMENT AND MEDIATION STRATEGY DEVELOPMENT

Below we provide some details on the insights gathered through the three forms of engagement outlined in Table 2.3. These have been considered by the project team in developing the details of the strategy presented in CHAPTER 3.

Across these different forms of engagement, we identified the following cross-cutting considerations.

1. **Clear and effective communication about EI4WS is urgently needed:** there is lots of confusion, uncertainty and misperceptions among stakeholders.
2. **Engaging a wide range of stakeholders in appropriate ways:** i.e. there is no one-size-fits-all SLKMM. This includes creating spaces to include marginalised voices and engaging beyond the 'usual suspects' (i.e. identify and enable engagement with new stakeholder groups currently not in mainstream EI processes and platforms).
3. **Develop a practical, accessible strategy:** this is for use by the Knowledge Coordinator but also by other stakeholders involved in leading SLKMM processes (e.g. NBI, catchment coordinators, etc.)
4. **Don't neglect Layer 1 and find opportunities for SLKMM skills development within the project team:** Using Layer 1, i.e. inside EI4WS to test out and experiment with SLKMM tools and approaches, and develop skills in SLKMM beyond just the Knowledge Coordinator, e.g. at Quarterly Planning Meetings.
5. **Build on existing knowledge and mobilise/mediate it:** the existing knowledge resources, lessons learnt and evidence base need to be synthesised and shared widely to ensure we learn from previous pilots and projects, e.g. BIOFIN, GEF5, etc.

2.4.3.1 *Insights on SLKMM strategy development from consulting and engaging directly with EI4WS*

The following are the most significant and widely-cited comments received by the project team during engagements with the wider EI4WS project. Box 2.1 outlines specific insights gathered from the Strategy Workshop held on 22 January. They are highlighted here as this was one of the opportunities in which stakeholders engaged most actively and directly with the strategy, and the feedback from this process is considered very important.

1. Need for a clear, accessible and practical strategy that is implementable across the different levels and components of the EI4WS project (e.g. be careful of inaccessible discourse, text-heavy power point slides, and build on existing understandings of social learning processes). More specifically, there is a need for *SLKMM processes to be facilitated within the project team at quarterly planning (QP) meetings*, i.e. we need to model and pilot the strategy within the EI4WS QP meetings (and possibly also other activities and events within Comp. 1 and 2) to try out tools and help facilitate SLKMM within the project team.
2. *Stakeholder mapping, engagement and coordination across the various levels and components of the project is a key challenge for SLKMM* and Component 3 work: need to identify specific intervention points (influential stakeholders, decision-makers, esp. in finance) for the SLKMM work (e.g. can Michelle convene a working group or Change Lab process for Comp. 1.3 work with the finance sector?); need to work alongside existing stakeholder analysis and engagement processes and tools (e.g. UEIP work; 'Window on our World' maps and Berg-Breede maps from Living Lands, etc.); need to identify specific SLKMM tools/processes/platforms suited to the diverse stakeholder contexts; and need for effective communication tools to engage with stakeholders about the EI4WS project. This will result in a 'network of networks' (or CoPs), rather than one single 'knowledge network'.

Box 2.1 Insights gathered from SLKMM Strategy Workshop held on 20th January 2020 in Pretoria

Feedback collected from participants in the workshops was organised into four main themes, as follows:

1. Stakeholders: who is involved, how do we support collaboration, how to we identify and engage key players, etc.

There is a need to pay attention to equity in terms of who to involve or engage in the EI4WS project.

It is important to work carefully with those people who are 'not yet around the table', e.g. finance sector, water sector: engage them in 'their spaces', learn their language, identify key actors who can help bring about change from those sectors.

There is a need for effective coordination within and across the project's components to support networking and convening processes.

The work of the EI4WS and SLKMM needs to be grounded in the demo catchments, and catchment representatives need to be present at quarterly planning (QP) meetings.

Engaging the relevant government structures in the water sector is critical, and we need to pay attention to the tension of engaging these, despite the challenges they face, versus building or engaging with parallel institutions that are stepping into the water governance void.

2. Engaging tensions: this core SLKMM practice appears to be very useful as a dialogue and learning tool, and there are indeed many tensions inherent in the project:

Participants are eager to identify and engage tensions inherent in the project

There are some tensions in how the history of EI has been represented in the SLKMM Interim Report: it has been oversimplified and misrepresented and needs to be carefully revised.

There is a tension between needing to engage with existing formal governance structured in the water sector (which are not functioning well, e.g. CMFs and CMAs), versus building or engaging with parallel institutions that are stepping into the water governance void (e.g. Water Funds, UEIP, etc.)

3. Importance of developing practical tools and support mechanisms for implementing SLKMM:

There is a strong desire for accessible tools and practical skills development around SLKMM work.

There is a lot of interest in understanding change processes (e.g. through Theory of Change), investigating our assumptions about how change happens, and working more carefully to demonstrate the impact of the project – all of these relate to monitoring, evaluation and learning (MEL) processes being key within SLKMM.

Participants also provided practical feedback on the details of the actual SLKMM tools which were piloted in the workshop.

Many participants asked for clarity on the next steps of SLKMM and how it will be implemented in practice in the project.

4. Communication and knowledge-sharing:

As observed in all previous engagements, the issue of different kinds of 'language' was raised: the bringing together of different sectors (finance, water, conservation) in this project makes careful use and definition of terminology important.

The importance of access and sharing of data and other forms of information and evidence within SLKMM process was raised: data quality, data access, and data management all require attention.

The need for carefully crafted communication briefs, including examples of successful EI investment, success stories from the EI4WS project, etc. was identified by many participants as crucial for effective SLKMM.

3. There have been repeated calls to *ground SKLMM in demo catchments* and for more presence from catchments at quarterly planning meetings and higher-level EI4WS project processes.
4. There is a strong desire for *accessible tools, skills training and on-going support for SLKMM* across the components of the wider EI4WS project. In particular, the SLKMM work needs to help us to *track change and social learning processes* which are often difficult to make tangible and show the value of.
5. *Participants responded well to the idea of 'engaging tensions'*: the idea was mentioned frequently throughout the workshop and people identified many tensions. There is recognition that the inherent tensions in the project are key opportunities for learning and change, with potential for transformative change.
6. There is an *urgent need for short comms briefs communicating various aspects*: QP updates, success stories of EI investment, success stories of SLKMM, case studies of EI/ Business cases, etc.
7. DBSA are happy with the SLKMM strategy and the progress. They like that it is organised, clearly framed, yet creative and innovative.

2.4.3.2 Insights on SLKMM strategy development from consulting and engaging with individual stakeholders in demo catchments

Berg-Breede dialogue interviews: Implications for SLKMM

1. Value of field trips focused around a shared challenge receive more participation.
2. The ratio of officials: researchers: landowners is critical: the 'end-users' need to be the majority.
3. Information must be tailored to the audience and made accessible.
4. People need to feel they are on the same level to achieve full participation.
5. The pace at which knowledge is exchanged needs to be set by the group.
6. The intention and expected outcomes of an engagement needs to be clear.
7. Without follow up (meetings, calls, information sharing, implementation) people lose trust and the sense of accountability.
8. Project actions are remembered above project names.

Greater uMngeni dialogue interviews: Implications for SLKMM

1. The interviewees highlighted how important it is to create platforms that are inclusive for both cultural (traditional leaders) and environmental professionals to exchange knowledge and raise environmental awareness and concern.
2. They also highlighted how social learning platforms such as UEIP and the CMF should be held in places that are accessible to both the urban and marginalized communities.

2.4.3.3 Insights on SLKMM strategy development from consulting and engaging with a wider range of stakeholders through existing events

1. There is a need to communicate more widely and effectively from the EI4WS core project team: stakeholders are confused about what the project is about, what progress is happening, and what is expected of stakeholders, e.g. 1. A standard, up to date, refined policy piece on EI is needed, 2. Regular updates / comms briefs after EI4WS Quarterly Planning Meetings need to be circulated.
2. Stakeholder fatigue is a concern: the SLKMM process should align as much as possible with existing platforms and processes, and avoid duplication or 'reinventing the wheel'.
3. Stakeholders appear to learn the most, and learn in a more transformative way, when brought together in new constellations in safe spaces, i.e. to succeed, the SLKMM needs to bring new groups of stakeholders together, but this needs expert facilitation and attention needs to be paid to differences such as language, culture, knowledge system, power, etc.

4. There is a significant amount of existing information and knowledge related to investing in EI: somehow the project needs to support and improve mobilisation, sharing and accessibility of this knowledge.
5. The stakeholder context is multi-layered, multi-faceted and nuanced: e.g. there is a need to map out the 'finance sector landscape' more carefully so that EI4WS project teams can engage more carefully in this space and use the language correctly.
6. The language and terminology within EI4WS is confusing and ambiguous: there is a need for a glossary of terms, which recognises that the same term can be used to mean different things by different stakeholders in the wider EI4WS context, e.g. what an ecologist means by 'asset' is not the same as what a banker means by 'asset', etc.
7. Engaging effectively with the Department of Water and Sanitation (DWS) across all Components of the project is one of the biggest challenges: this will require a careful strategy and coordination to reduce the risk of stakeholder fatigue, build on existing relationships and ensure effective engagement across the various relevant divisions and levels within DWS.

2.5 CONCLUSION

This chapter on the development of the SLKMM strategy for the EI4WS programme's Component 3 provides insight into the conceptual and contextual background work that has been done to underpin the SLKMM strategy. Some of the key contours of the work covered and reported on in this deliverable include:

2.5.1 A conceptual framework, with the following key features:

- A conceptual framework has been developed to guide the Strategy-as-Practice approach that is being proposed for the roll out of the strategy. The conceptual framework indicates that the concept of EI4WS is a new concept in environmental and financial sector work in South Africa, and the SLKMM must therefore give adequate attention to the formation of the concept, and how it is being understood in the sector, and how it is being developed via and through emerging practice.
- The history of the concept shows strong influences from international organisations, and project-based uptake by a few key organisations in South Africa. Stakeholder engagement in the catchments show emerging practice in relation to the concept, but also an exclusion of key stakeholders that will need to be engaged in the processes and activity of investing in EI4WS over time. The history of the concept also shows diverse meanings and dimensions of the concept and how it is interpreted in practice.
- We identified the need for multi-levelled contextual profiling for tracking and engaging a diversity of stakeholders who are engaging or who ought to engage with EI4WS activity, and we noted that component 1 and 2 are mainly engaged at national, regional and institution building levels, and that there is need to give more attention to citizen engagement levels, as well as newly emerging tools and concepts (e.g. blended finance) emerging internationally especially as discourses around investing in the SDGs emerges. We proposed that a good starting point for SLKMM is at the boundary zones or interfaces in the multi-levelled system, and that there is need to engage a diversity of activity systems at different levels. This framework has also helped us to consider who to include in the stakeholder mapping exercise. As a way forward, we have identified three specific layers within the multi-layered system for the SLKMM engagement work: inside the EI4WS project team, at the interface between the project team and other key stakeholders, and in the wider stakeholder context.
- We also identified the need to give attention to contradictions and tensions that are already evident within the arena of SLKMM for EI4WS, and we noted what these are at a broad level, indicating that there would be need to monitor these as they may emerge at more local levels in embedded practices or stakeholder engagements, absences or tensions in practice. These, we recommended are useful

tools for reviewing SLKMM work, and also for identifying leverage points for co-engagement in the SLKMM boundary zones.

2.5.2 Stakeholder analysis, tracking and engagement in strategy development:

- We have proposed tools for analysing stakeholders, and a draft database for gathering stakeholder information and tracking their engagements with the project.
- We have also started a process of stakeholder engagement in the demo-catchments and have been involved in a number of consultative processes including with Working Group 3 and the EI4WS stakeholders and associated projects and programmes. We established a good working relationship with the Knowledge Coordinator who attended some of our working meetings, and who we have been communicating closely with on the tenets and directions of the SLKMM strategy development. Further work needs to take place with these core partners to develop the implementation plan, and for now we have scoped the contents of this plan at a broad level.

2.5.3 Co-development of the strategy through consultation and engagement with relevant stakeholders in three layers (See Figure 2.7):

- Directly with EI4WS through three means: i. engaging actively in EI4WS Quarterly Planning Meetings, ii. engaging in Component 3 Working Group Meetings, and iii. hosting a focused 1-day SLKMM Strategy Workshop (22 January 2020) to present the strategy under development and gather feedback and inputs from the project team (Layer 1 stakeholders);
- With individual stakeholders in demonstration catchments: Targeted one-on-one dialogue interviews with selected stakeholders in the Berg-Breede and Greater uMngeni catchments (Layer 2 and 3 stakeholders); and
- With a wider range of stakeholders through existing events: Engagement and participation in existing meetings, forums, and events to informally engage stakeholders on SLKMM (Layer 2 and 3 stakeholders).

Through these engagements we have been able to ground the strategy more carefully in the context of the project, and have been able to elicit important feedback from stakeholders on how the strategy can best support the work of the EI4WS. These are some of the key points of feedback received during this process:

- Clear and effective communication about EI4WS is urgently needed
- A wide range of stakeholders needs to be engaged in appropriate ways which will differ according to context
- A practical, accessible SLKMM strategy is needed which can be used not only by the Knowledge Coordinator but also by other stakeholders involved in the EI4WS
- The Knowledge Coordinator needs to find opportunities for SLKMM skills development within the project team and facilitate SLKMM within Quarterly Planning meetings of the EI4WS
- SLKMM processes need to build on existing knowledge and mobilise/mediate it, paying particular attention to accessibility and sharing of knowledge in the form of data, information, evidence, case studies, etc. across the project.

CHAPTER 3: STRATEGY-AS-PRACTICE FOR SOCIAL LEARNING, KNOWLEDGE MANAGEMENT AND MEDIATION (SLKMM)

3.1 INTRODUCTION

In this chapter we present a strategy framework for SLKMM in the EI4WS project, drawing on the notion of ‘Strategy-as-Practice’, elaborated in the CHAPTER 2 and below, but which, in brief, involves an approach to strategy which avoids the pitfalls of pre-determined top-down strategy, or laissez-faire bottom-up strategy. Instead, it provides well contextualized orienting processes and practices for ongoing strategy development *with* people and stakeholders in complex contexts where pre-determined top-down strategies most often are inadequate for the contextual complexities, and where bottom-up strategies are inadequate for engaging policy actors and community stakeholders at the same time.

With this as background, the framework is composed of a set of six core SLKMM practices. The strategy framework builds on the conceptual and contextual research presented CHAPTER 3, and has been co-developed through the engagements with a variety of stakeholders described in Section 2.4 of CHAPTER 2.

3.2 STRATEGY FRAMEWORK: INTRODUCTION TO ‘STRATEGY-AS-PRACTICE’

The notion of Strategy-as-Practice is a key starting point for how we are developing the strategy and support its implementation. Strategy-as-Practice is an approach which focuses on people and the interrelations between people and practice in the emergence and on-going adaptation and evolution of strategy (Jarzabkowski and Paul Spee, 2009; H Lotz-Sisitka et al., 2016). We have developed a similar approach in another WRC-funded project: Amanzi for Food, where the strategy was developed in practice with the active participation and engagement of project stakeholders (Lotz-Sisitka et al., 2016). Strategy-in-practice focuses on:

- Bringing human actors and their actions and interactions to the centre stage of strategy development and research by going beyond studying organisational processes to embed strategizing activities in the wider practices of society and relevant stakeholders.
- Strategizing therefore comprises those actions, interactions and negotiations of multiple actors and their situated practices (Jarzabkowski and Paul Spee, 2009).

Our intention with this strategy is therefore to offer a ‘start-up-strategy’ which will then evolve into an ever-changing and adapting Strategy-as-Practice. Moreover, we recognise that even the ‘start-up-strategy’ has not been developed in a vacuum or from a blank slate and is itself embedded in existing practices. It is being developed out of practice, drawing on the project team’s existing networks, relationships and knowledge, and building on existing communities of practice and knowledge exchange platforms in the biodiversity, water and finance sectors, with specific reference to the EI4WS programme and its partners. Moreover, the strategy was developed in close collaboration with the Knowledge Coordinator who is tasked with implementing it, Michelle Hiestermann, and with other key partners in the Component 3 work such as the NBI and SANBI.

3.2.1 What are practices?

A practice is “an organised constellation of different people’s activities”. A practice is a social phenomenon in the sense that it embraces multiple people. The activities that compose it, moreover, are organised.” (Schatzki, 2012: 13). In this strategy, we use the term practice in two distinct ways:

- **EI4WS practices:** these are the practices, i.e. the organised constellation of multiple different people’s activities, located within the wider EI4WS project. These could include for example the investigation of finance mechanisms, the development of new policy tools, and the development of Natural Capital Accounts.
- **SKLMM practices:** these are a specific type of EI4WS practice which relate to social learning, knowledge management and mediation. These could include, for example, convening stakeholders, facilitating social learning or building a knowledge hub.

In this strategy we have identified six core, interconnected SLKMM strategy practices through which the SLKMM strategy will be implemented. Implementing these practices will take the shape of an organised constellation of multiple people’s activities, i.e. it will require the coordination of multiple people’s activities. Therefore, although it is the Knowledge Coordinator who will be responsible for implementing the strategy, she will only succeed by working closely with others within Component 3 but also within Component 1 and 2 of the project, and with a wider set of stakeholders relevant to the project.

In this report we also refer to ‘**SLKMM processes**’, with which we mean the various social engagement processes (often carefully designed and facilitated, but also informal and emergent) through which the SLKMM strategy will be implemented. These processes bring together different practices, drawing on various tools in different combinations. These processes might include, for example, convening a community of practice, hosting a learning exchange or learning journey, running a social learning workshop, facilitating a dialogue to engage tensions, building a knowledge hub, etc.

3.2.2 Six interconnected ‘Strategy Practices’ form the strategy framework

Based on the strategy-as-practice approach described above, we have identified six core strategy practices for the SLKMM strategy (Figure 3.1, Table 3.1). The objectives and some of the early outcomes of these practices are reported below in Table 3.1. We have also developed an initial set of tools to assist the Knowledge Coordinator, with support from Working group 3, the NBI and others, in implementing these practices. Below the table we describe each of the practices, and give additional detail to describe the suggested tools for on-going work with the practices. Where necessary, additional details about the tools are provided in the Appendices.

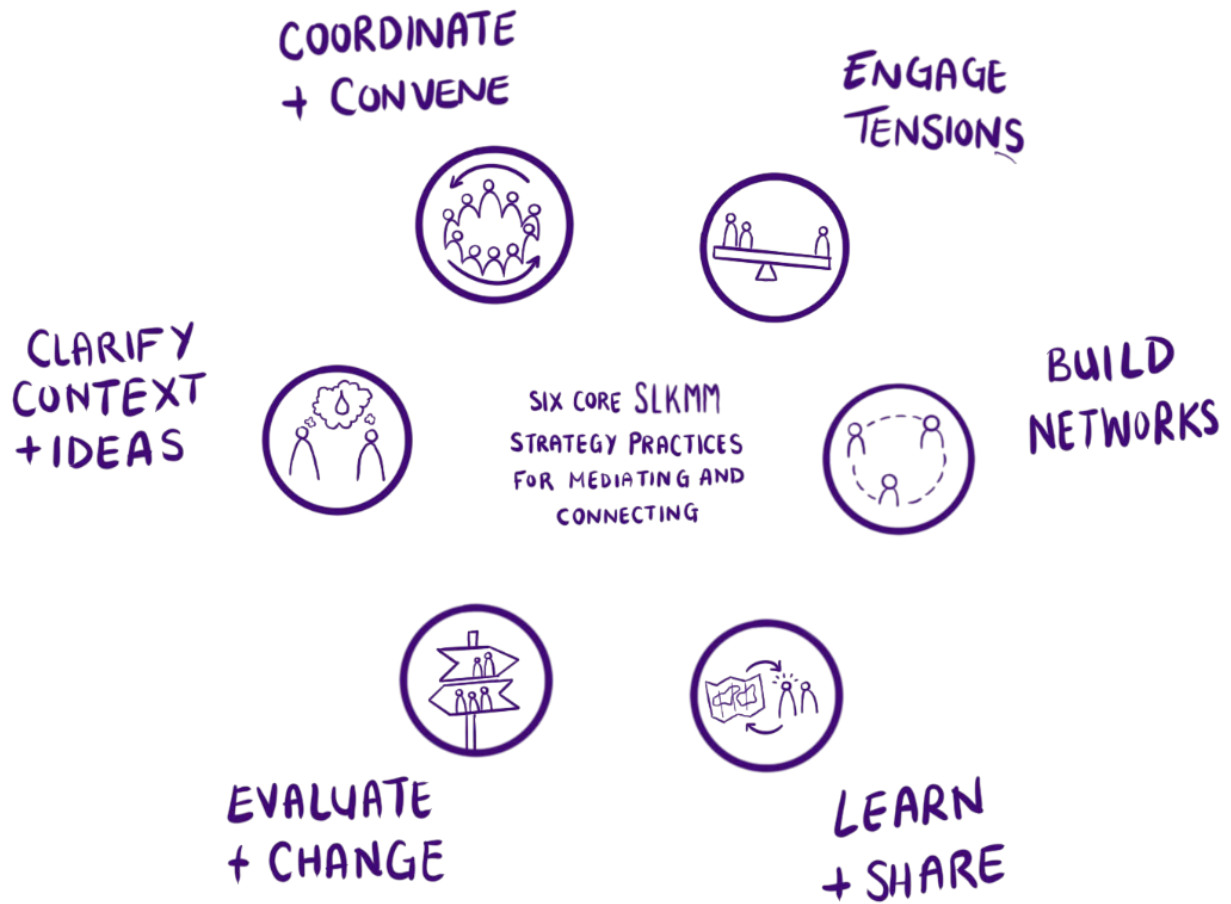








Figure 3.1: Six core 'Strategy Practices' which together form the strategy framework for SLKMM in the EI4WS (Image by Liezl Kruger (le Roux), Living Lands).

Table 3.1: SLKMM STRATEGY FRAMEWORK: a set of six inter-connected strategy practices which will form the core of the SLKMM and knowledge coordination work in the EI4WS project.

Strategy practices	Objectives of the practice	Tools for implementation (See Appendix 2 for details)	Early outcomes
<p>Strategy Practice 1: Coordinate and Convene</p> 	<ul style="list-style-type: none"> • To coordinate social learning and knowledge management and mediation processes across the project; • To convene SLKMM processes and platforms across the various stakeholder layers; • To connect stakeholders to one another and enable collaboration and sharing across the Components and stakeholder layers 	<ul style="list-style-type: none"> • Careful work planning and prioritisation to support and coordinate across the wide scope of the project. • Effective communication tools (See Strategy Practice 5). • Social learning facilitation tools (See Strategy Practice 5). • Carefully designed and facilitated annual Knowledge-Sharing/Learning event or 'Indaba' to be hosted by SLKMM team 	<ul style="list-style-type: none"> • The Knowledge Coordinator is already playing a key role in connecting people across Components and levels of the project. • The SLKMM team is actively lobbying, together with the Knowledge Coordinator for more effective branding and communication tools for the EI4WS.
<p>Strategy Practice 2: Engage Tensions</p> 	<ul style="list-style-type: none"> • To identify contradictions and tensions in the system which could be used as leverage points and opportunities for learning and transformational change. 	<ul style="list-style-type: none"> • Supporting framework of core concepts • Questions to guide identification of contradictions; start up framing of some core contradictions that are visible on the landscape of EI4WS praxis (to be confirmed in situ and given practical meaning as they are identified); also to be expanded. 	<ul style="list-style-type: none"> • Supporting framework of core concepts which help with the identification of tensions and contradictions (See Appendix 2: Tool 1). • 10 contradictions identified (See CHAPTER 2: Section 2.7).
<p>Strategy Practice 3: Clarify Context and Ideas</p> 	<ul style="list-style-type: none"> • To critically review and understand the framing of the EI4WS concept and how it works in practice at multiple levels; • To locate the concept in the discourse and literature; and to articulate the 'object of activity' that is EI4WS as it emerges via practice. 	<ul style="list-style-type: none"> • Multi-layered framework for contextual profiling (See Appendix 2, Tool 2). • Legacy analysis tool: bibliography of literature and understanding of how concepts are formed and emerge via and through activity (to be further developed with support from Component 1 and 2 stakeholders). 	<ul style="list-style-type: none"> • Initial multi-level contextual profile which helps to frame and locate the EI4WS object of activity. • Supporting framework of core concepts which helps to frame and articulate the EI4WS 'object

Strategy practices	Objectives of the practice	Tools for implementation (See Appendix 2 for details)	Early outcomes
		<ul style="list-style-type: none"> • Murals or other forms of public art could be developed in public areas in the demo catchments to visually communicate and engage residents in the context and core ideas of the project (See Appendix 2: Tool 3). • Tools to ground the SLKMM practices in the work of the wider EI4WS project, clarifying context and core ideas (See Appendix 2: Tool 4, which was piloted in the SLKMM workshop held in Pretoria in January). 	<p>of activity' (see <i>CHAPTER 2: Section 2.5</i>).</p>
<p>Strategy Practice 4: Build Networks</p> 	<ul style="list-style-type: none"> • To identify, map and track engagements with relevant stakeholders; • To build nested and interconnected knowledge networks or communities of practice to support and implement the work of the EI4WS project. 	<ul style="list-style-type: none"> • Multi-levelled extended value chain framework (to go beyond 'the usual suspects') • Clarify evidence base to identify relevant stakeholders • Net-Mapping and Kumu (See <i>CHAPTER 2: Section 3.3, 3.4</i>, and Appendix 2: Tool 5). • Google Sheets Spreadsheet template for database (See <i>CHAPTER 2: Section 3.3, 3.4</i>, and Appendix 2: Tool 5). 	<ul style="list-style-type: none"> • Demo catchment stakeholders and CoPs are fairly well understood • NBI work has identified private sector and business stakeholders • National-level stakeholders especially in public sector and finance needs more nuanced work (e.g. 'understanding the finance ecosystem'); Note: CMRA/CLCB work key for this.
<p>Strategy Practice 5: Learn and Share</p> 	<ul style="list-style-type: none"> • To develop and facilitate suitable communication, learning, and knowledge processes and tools to support the EI4WS. • To build a knowledge and evidence sharing platform for both internal and external sharing of data, information, 	<ul style="list-style-type: none"> • A set of additional tools recommended for communication, knowledge sharing and learning (See Appendix 2, Tool 6). • Knowledge mediation and social learning tools, for example the 'visual learning materials' developed by WESSA like the 'Window on our World' series (See Appendix 2: Tool 7). 	<ul style="list-style-type: none"> • Suite of tools suggested (see details in Appendix 2: Tool 6). • Exploring procurement for branding and comms tools.

Strategy practices	Objectives of the practice	Tools for implementation (See Appendix 2 for details)	Early outcomes
	<p>cases, success stories, research, etc. across the project.</p>	<ul style="list-style-type: none"> • Conceptual communication branding tools, e.g. images, colours, tag lines, design elements, etc. (See Appendix 2, Tool 8). • Principles of engagement to guide social learning and knowledge mediation processes (See Box 3.1). • A participatory course design framework for supporting course activated learning networks and changing practices in communities of practice (see Appendix 2, Tool 9) • An annual event to share knowledge and learning across the project, and invite all interested stakeholders, would enable more effective communication and knowledge-sharing. 	
<p>Strategy Practice 6: Evaluate and Change</p> 	<ul style="list-style-type: none"> • To develop a monitoring, evaluation, learning (MEL) tracking tool for SLKMM • To integrate the SLKMM MEL to the wider project Monitoring & Evaluation framework and process. 	<ul style="list-style-type: none"> • Value Creation Framework (VCF), and supporting tools for implementation (see Appendix 2, Tool 10). • Participatory Monitoring, Evaluation, Reflection and Learning (PMERL) framework and tools, e.g. drawing on AWARD & Tsitsa Project (as discussed for example in Cockburn et al. (2018)). • Theory of Change tools (Funnell and Rogers, 2011). • Use annual knowledge-sharing/learning event as an opportunity for reflection on SLKMM processes. 	<ul style="list-style-type: none"> • Piloting VCF in demo catchments and at EI4WS QP Meetings. • Engaging with EI4WS M&E process. • Started a Theory of Change process to support stakeholder work (linked to EI4WS M&E).

Strategy Practice 1: Coordinate and Convene

The core enabling practice of SLKMM and the work of Component 3 in the EI4WS is to coordinate social learning, knowledge management and mediation across the EI4WS, involving Component 1 and 2, situating this work in the demo-catchments. All the other strategy practices depend on the convening and connecting work of the Knowledge Coordinator and the associated convenors and co-ordinators in the demo-catchments. Regular interactions between these actors is therefore crucial for the success of the SLKMM as will be the leadership provided by the Knowledge Coordinator in supporting an understanding of SLKMM and SKLMM practices in the EI4WS project overall. Time and adequate resources should therefore be allocated to this role and the support systems required for the success of this role, and Components 1 and 2 should allow enough engagement time with Component 3 and stakeholders involved in the SLKMM practice of coordinating and convening.

Co-ordinating and convening is also an important SLKMM practice to value in the demo-catchments and in smaller clusters of activity around key EI4WS practices. However, convening and co-ordinating should not just be for the sake of convening and co-ordinating but must be linked to stakeholder engagement and implementation processes associated with EI4WS practices such as mobilising Natural Capital Accounts, or generating work stream income for citizen sciences and water quality monitoring. Managers and practitioners involved in Components 1 and 2 should therefore also give time to conceptualising who can be convened and co-ordinated around which specific EI4WS practices, and keep the Knowledge Coordinator informed of their support and co-learning needs.

Strategy Practice 2: Engage Tensions

As indicated above and as articulated in the CHAPTER 2, an emerging new activity such as investing in EI4WS is likely to be characterised by a number of tensions and contradictions. These need to be seen not as problems, but rather as possibilities for expanding EI4WS activity and for co-engaged learning in boundary zones.

To support this work, we have identified a few 'high level' contradictions that are influencing the emergence of investing in EI4WS, and approaches to social learning. These can be used as a 'mirror tool' to focus in on emerging tensions and contradictions and to probe these more carefully at the various levels of SLKMM interaction within the multi-levelled framework. These can help to focus where to start with SLKMM activities, and importantly, they could be used as leverage points and opportunities for learning and transformational change. The 'high level' contradictions and tensions are likely to manifest in different ways in the demo-catchments, and other contradictions and tensions are also likely to arise in the demo-catchments where EI4WS practices are being conceptualised and implemented. SLKMM facilitators and EI4WS practitioners should be alert to these, and see these as potential leverage points for expanding SLKMM processes.

The 'high level' contradictions and tensions identified in the scoping, which would have local manifestations include (but are not limited to):

- Narrow vs broader framings of economy
- Weak vs strong framings of sustainability
- Emphasis on planning vs action competences
- Narrow vs broader framings of development and environment
- Instrumental vs reflexive and adaptive approaches to development
- Atomistic and dualist framings of development vs integrative and inclusive approaches to planning and development
- Technical vs systemic responses
- Individual vs collective and distributive decision making
- Instrumentalist vs emancipatory views of social learning and social change

- Working within existing water governance institutions vs building and supporting parallel institutions

(Further discussion on these can be found in CHAPTER 2).

The monitoring of arising tensions and contradictions must be done in an ongoing manner, as new tensions may arise as EI4WS practices change, and new leverage points can emerge. These are also likely to manifest differently at the different boundary zone interfaces. The Knowledge Coordinator would need to guide stakeholders carefully in engaging these contradictions, especially **to assist them to maximise these as leverage points for co-learning, and not as 'blame shifting' platforms.**

Strategy Practice 3: Clarify Context and Ideas

EI4WS is a new practice in South Africa. For a SLKMM strategy to be operationalised and gain traction, there is need to iteratively frame and articulate understandings of EI4WS as a shared activity that is in development. EI4WS involves a range of past, contemporary and future stakeholders, and an associated system of ideas that have been developing over time as discussed in more detail in CHAPTER 2. We also noted that new concepts such as EI4WS gain their meaning through engaged implementation in practice, and in this process the concept itself develops.

Based on the legacy analysis in CHAPTER 2, we have identified some of dimensions of the emerging concept of EI4WS and how it is being put forward and understood by key actors on the multi-levelled landscape to date. We identified (in brief) that for the past 20 years South Africa has been exploring *natural capital accounting, valuing ecosystem services* and, in more recent terminology, *unlocking finance mechanisms for the protection and restoration of ecological infrastructure*. This reflects a global trend towards seeking ways of *valuing environmental goods and services* in a global context where financial measures are dominant in defining value in almost every sphere of life. Important for the SLKMM Strategy is the insight (reported on in more detail in CHAPTER 2) that there have been a number of projects focused on developing policy and capacity for mainstreaming biodiversity and ecosystem values into national and local development policies and financing systems and this suggests that there is a wealth of knowledge to be shared and built upon in the EI4WS. We also noted that that the concept of investing in EI4WS has an international policy influence which is combining with a localisation process led by national institutions, supported by development institutions such as the Development Bank of Southern Africa. CHAPTER 2 also begins to unpack some of the dimensions of the EI4WS concept, elaborating on the following:

- Ecological infrastructure and ecological economics
- Integrated thinking and sustainable value creation
- Organisational models and sustainable finance (including blended financing and new developments around SDG funding)
- Sustainable service delivery and valuing citizen engagement and work (see Appendix 2: Tool 1)

For SLKMM focussed on a new area of activity, it is therefore important to give attention to the history of EI4WS and how it has emerged in South Africa, how people are currently understanding EI4WS in different contexts, and how people are developing a shared understanding of EI4WS.

The development of the concept of EI4WS will need to be further monitored in the Strategy-as-Practice process. The reason for this is that human life is concept and activity dependent, if we want to change a practice (e.g. improving water security with an investment focus) then we have to give attention to the concept(s) of EI4WS and how they are understood by people, and how they are also being formed via the activity of EI4WS.

This is also core to tracking emerging social learning, e.g. using the value creation framework we can monitor if people have reframed the way that they understand water security by including actual practices of investing in water security – rather than leaving it to others. This will allow us to see ‘reframed value’ which is reflected in a shift in understanding that is realised in the actual activities and practices of EI4WS.

Strategy Practice 4: Build Networks

Investing in EI4WS is a multi-levelled activity that requires boundary crossing across different levels of activity. It involves diverse stakeholders, some of which are yet to be identified and included in the emerging practice of investing in EI4WS. There is therefore need to develop a baseline of existing activity and stakeholders, and then, via the boundary zone engagements, identify new stakeholders and also potentially support and help to develop action competence of newly emerging communities of practice that can support the overall intentions of EI4WS activity development. For this to occur, there is need for ongoing stakeholder analysis, mapping and tracking to inform SLKMM practice across the multi-levelled system. Appendix 2: Tool 2 and 5 offer approaches for stakeholder mapping and network building in the roll out of the SLKMM.

Strategy Practice 5: Learn and Share

A key aspect of SLKMM process is to develop and support the development of appropriate tools for knowledge mediation and communication across the diversity of stakeholder groups. This involves giving attention to:

- Acknowledging the need for, and providing **spaces, methods and opportunities for open and dynamic co-learning where multi-stakeholders need to engage each other** on learning what is not always known beforehand. This involves sharing knowledge of practices that are already known and tried out, but also allowing for co-production of knowledge and practice around that which may not yet be there, i.e. learning what is not yet there. This is because knowledge of EI4WS practices may not (yet) be in the system. This requires giving attention to social learning of the transformative kind (cf. definitions of social learning above). Collaborative learning is necessary to learn *about* EI4WS, but is also necessary *for* EI4WS investments to emerge.
- Creating an environment that is conducive to co-learning both **within and across diverse knowledge generation processes, knowledge forms, knowledge sources, and knowledge users and contexts** within a multi-levelled system.
- Giving attention to the **process of knowledge mediation**, in order to avoid simplistic assumptions of knowledge transfer and uptake.
- Recognising that that there is nothing transformative about social learning *per se*. Social learning can be a deeply conservative process and can lead to internal ‘lock in’ or exclusions if not well supported to be ***inclusive, expansive and transformative***.
- **Supporting development of a unified understanding of the complex and emerging concept of EI4WS.** Here it should be noted that EI4WS as used in the technical project documents and in the project itself and in this SLKMM strategy thus far, is a complex and potentially alienating concept. **There is urgent need to develop a more accessible version of this concept as this is important for facilitating access to the intention of the programme.**
 - For example, ‘investing in catchments for water security’ is more accessible than ‘investing in ecological infrastructure’ but is still technical in orientation.
 - Something more accessible would be ‘invest in nature & nature will invest in us’ – this is more accessible than the two above.
 - We propose that the project undertake a communications exercise with an experienced communications specialist to assist the programme to come up with a more accessible ‘catch all

name'. The more technical name can be included below. Appendix 2, Tool 8, provides examples of conceptual communication branding. This does not mean that it 'over brands' or takes over the identity branding of the core partner brands, it just means that it makes the core concept more accessible and therefore it is easier to engage a diversity of stakeholders around the concept. There is also strong evidence that images are also integral to communication of concepts, especially in societies where literacy levels are differentiated, and careful attention should be given to image branding, alongside concept communication.

- Designing and developing specific courses, learning materials and tools that help to mediate learning and understanding of EI4WS practice in a range of contexts. Some examples of such learning materials and tools for learning and sharing to support Strategy Practice 5 are described in Appendix 2: Tool 6.
- Developing a **participatory course that allows for multi-actor participation** and that facilitates mediation of learning and activation of EI4WS communities of practice and EI4WS learning networks can also be considered. Such a course should not just be focussed on 'knowledge transfer' but on collaborative **concept development, changing practice and developing action competence** for EI4WS. An example of such a course is the Amanzi for Food Training of Trainers course that has supported new knowledge uptake, concept formation, changed practices, action competence development and learning network formation (Lotz-Sisitka et al., 2016). It is strongly recommended that a customised EI4WS SLKMM participatory course be developed as a tool for mediated co-engaged transformative SLKMM for the programme as it is a mechanism that can fast track co-engaged learning in a project of short duration. Appendix 2: Tool 9 offers an example of a course framework that can be adapted into an EI4WS context.

Strategy Practice 6: Evaluate and Change

This practice centres on activities related to monitoring, evaluation and learning (MEL) in relation to the implementation of the SLKMM strategy. We recommend a MEL framework that fosters and tracks learning, at three levels, the first of which also refers to knowledge management and mediation:

1. Monitor the creation of conditions for social learning.
2. Track social learning and knowledge management and mediation taking place.
3. Evaluate the impacts of learning, knowledge management and mediation.

Monitoring, evaluating and learning within SLKMM can support change processes within the wider EI4WS, and should be closely linked to the Monitoring and Evaluation (M&E) framework for the wider EI4WS project. See Chapter 4 below for additional details on the MEL framework and approach for the SLKMM strategy, and Appendix 2: Tool 10.

3.3 IMPLEMENTATION PLAN

3.3.1 INTRODUCTION

In this section we propose an implementation plan for the SLKMM strategy presented above. A key tenet of ‘strategy-as-practice’ is that strategy must be embedded and evolve within a set of living practices. Therefore, the implementation of the six strategy practices described above need to be grounded in the context of the EI4WS project (Figure 3.2).

In Figure 3.2 we illustrate how implementation of the SLKMM practices can support the works of the EI4WS (for a more detailed description of the diagram, refer to CHAPTER 2). The strategy practices (blue circles) mediate engagement between the catchment-based context of the project (middle green circle), and the wider EI4WS practices (purple dots), through a set of SLKMM-activities (dark blue puzzle pieces). This process unfolds as a change pathway through the implementation of the project (yellow arrow), which can be tracked through monitoring, evaluation and learning (MEL) tools and processes.

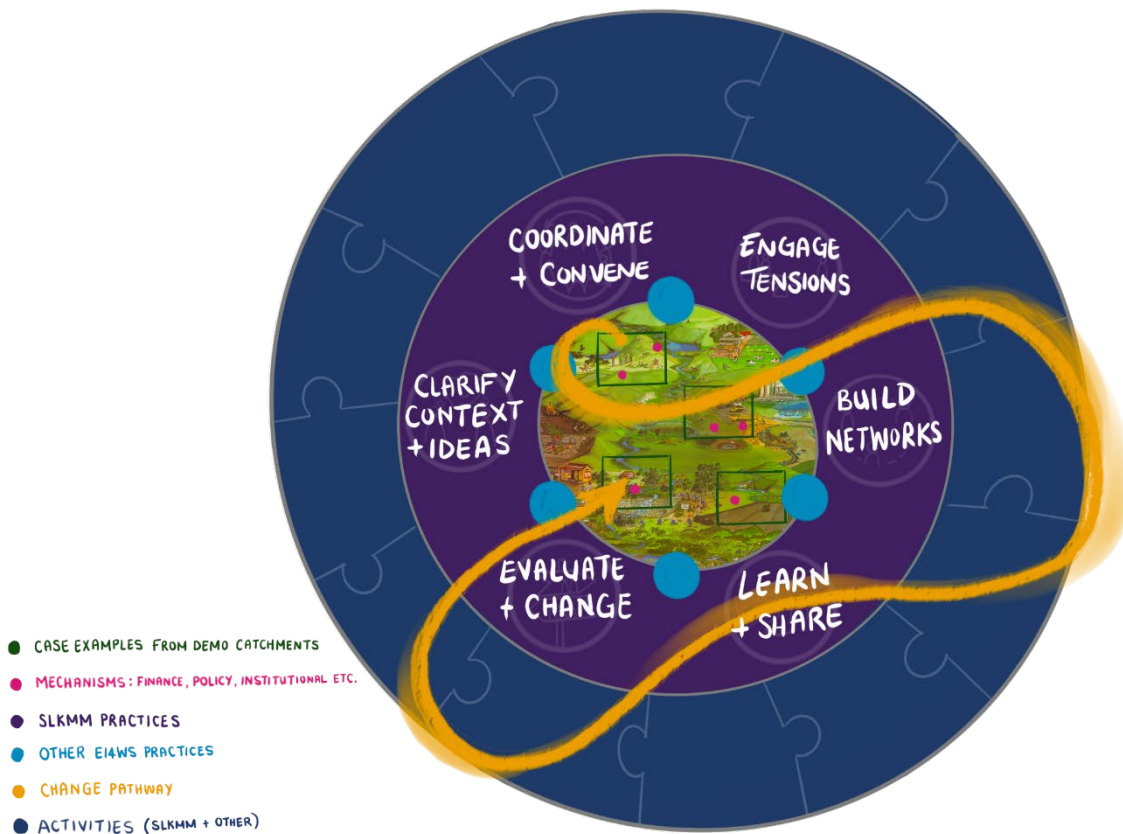


Figure 3.2: Grounding the six core SLKMM practices in the work of the wider EI4WS project (Image by Liezl Kruger (le Roux), Living Lands).

We now outline the SLKMM implementation plan, which is accompanied by a set of guiding principles for engagement in the project and SLKMM processes.



3.3.2 IMPLEMENTATION PLAN



The implementation plan for the SLKMM strategy (Table 3.1) is organised according to the strategy framework of six core practices introduced above in Chapter 2 (Table 2.1). The plan lays out **recommended short-term activities for implementation which should be started during 2020, and indicates more medium- and long-term directions** which these activities contribute to. The plan also discussed **additional considerations for implementation related to partners, resources and assumptions**. The details of implementation beyond 2020 will be developed in partnership with the strategy team and the Knowledge Coordinator on a yearly basis during reflection sessions as laid out in the project proposal and detailed below in the post-strategy handover 'Work Plan for On-going Support' (Chapter 5).


Implementation of the SLKMM strategy should take place across **three distinct stakeholder engagement layers** in the project (Figure 2.7). The Knowledge Coordinator and other Component 3 team members will need to manage time and resources carefully in terms of the different SLKMM needs and opportunities within each of these layers. The most immediate opportunities and needs lie within Layer 1, and with those specific component leads already actively engaging in Layer 2, especially with the finance, natural capital accounting, and catchment coordination work (see suggested activities in Table 3.2).


There are a large number of short-term activities for implementation described in the table below (+26 activities, Table 3.2). While we have made an initial attempt to list these in order of priority, and have highlighted the most important and urgent activities with an asterisk, it will be up to the Knowledge Coordinator and the project leadership team from SANBI, in consultation with the component leads of the EI4WS project, to determine the priorities in more detail.

Table 3.2: SLKMM IMPLEMENTATION PLAN: based on six core strategy practices (refer to Table 3.1 above for details on the strategy practices including objectives and tools to support implementation activities).

Strategy practices	Short-term activities (start in 2020) (*Note: The most important and urgent activities are indicated with an asterisk)	Medium- and long-term directions (up to 2023)	Additional considerations: resources, partners, assumptions.
<p>Strategy Practice 1: Coordinate and Convene</p> 	<p>*1. Help with convening working groups within and across the project components, e.g. a working group for Component 1.3 (finance) to include private and public sector actors in the project's work, e.g. banks, treasury, etc.; support Component 1.1. (Natural Capital Accounting) with convening stakeholders.</p> <p>*2. Work closely with SANBI project leadership to improve internal coordination and communication within and across the project components (see also Strategy Practice 5 for more on communication and knowledge-sharing).</p> <p>*3. Support the new Catchment Coordinators to identify key coordination tasks, opportunities, tools and build their capacity to do this work.</p>	<ul style="list-style-type: none"> Support improved coordination and communication within and across the work of Components 1 and 2, e.g. through development of working groups, improved cross-project communication, etc. Support and build capacity for convening skills for all EI4WS participants, but especially component leads. 	<ul style="list-style-type: none"> Partners: Draw on NBI's expertise in convening private sector and relevant government actors in the finance work. Partners: work with other initiatives which focus on convening, e.g. WWF course with David Lindley, Living Catchments with Tanya Layne. Resources/Partners: Knowledge Coordinator needs to work closely with SANBI project leadership on internal communication and coordination as some overlap here in mandate.
<p>Strategy Practice 2: Engage Tensions</p> 	<p>1. Co-develop a database and communication tools of core tensions and contradictions in the project to draw on during SLKMM activities; add to the database as additional tensions are identified.</p> <p>2. Facilitate dialogues that focus on engaging the core tensions in the project.</p>	<ul style="list-style-type: none"> Create evidence base and opportunities for project participants to engage tensions in a carefully facilitated way so that the process is generative and connective, rather than divisive and destructive. 	<ul style="list-style-type: none"> Assumption: there is sufficient willingness and open-mindedness across the project to tackle the tough issues that emerge when engaging tensions and contradictions. Resources: Identify opportunities to fund further research into the tensions in EI4WS.

Strategy practices	Short-term activities (start in 2020) (*Note: The most important and urgent activities are indicated with an asterisk)	Medium- and long-term directions (up to 2023)	Additional considerations: resources, partners, assumptions.
<p>Strategy Practice 3: Clarify Context and Ideas</p> 	<p>*1. Start developing glossary of terminology to use across project (Note: allow for multiple definitions of the same term, e.g. 'capital' has various interpretations).</p> <p>2. Work with component leads to refine multi-level contextual profile for their part of the project.</p> <p>3. Support project-wide clarification and updating on the 'water governance context', e.g. through CLCB work, links to WWF/Anton Cartwright's work, etc.</p> <p>4. Develop research proposal for critical engagement with EI4WS object of activity, legacy and discourse.</p>	<ul style="list-style-type: none"> ● Put in place processes to build a shared understanding of the origins and discourse of EI4WS object of activity across the project. ● Create a glossary of terms that is accessible and editable by all project participants. ● Collate up-to-date information on the SA water governance context across the project. 	<ul style="list-style-type: none"> ● Assumption: component leads have time and interest to contribute to contextual profiling work. ● Partners/resources: work closely with CLCB and other partners engaged in research into the water governance landscape in South Africa. ● Resources: Identify opportunities to fund further research into the multi-level contextual profiling, and possibly also on the water governance landscape in SA.
<p>Strategy Practice 4: Build Networks</p> 	<p>*1. Develop tools for project participants and leads to share and collate info on stakeholder engagements: before and after events, e.g. Google Form, Shared Google Calendar/Sheet. This is key to avoiding duplication and stakeholder fatigue.</p> <p>*2. Build a finance working group/community of practice: support Comp 1.3, together with NBI, to develop a Community of Practice / stakeholder network in the finance sector.</p> <p>*3. Coordinate engagements with DWS across the project.</p> <p>4. Use and further develop stakeholder database and tracking tools (See Appendix 2, Tool 5 and <i>CHAPTER 2: Chapter 3, Section 3.3, 3.4</i>).</p>	<ul style="list-style-type: none"> ● Identify, analyse and track stakeholder engagement internally, externally, and at the internal-external interface of the EI4WS project. ● Support the development of stakeholder networks, e.g. through the development of 'Communities of Practice' within different thematic areas of the project. 	<ul style="list-style-type: none"> ● Partners: Work closely with NBI to support stakeholder engagement, network-building, and tracking of engagements in the private sector, but also with finance and water sectors in government. ● Resources: stakeholder identification, mapping and tracking is a potentially huge task: the Knowledge Coordinator may require additional human resources to support this work (e.g. an intern/apprentice).

Strategy practices	Short-term activities (start in 2020) (*Note: The most important and urgent activities are indicated with an asterisk)	Medium- and long-term directions (up to 2023)	Additional considerations: resources, partners, assumptions.
	5. Participate in learning and knowledge exchange in various water, finance and biodiversity stakeholder events beyond the EI4WS project.	<ul style="list-style-type: none"> Support links with partners projects, e.g. Living Catchments, GEF5. 	
<p style="text-align: center;">Strategy Practice 5: Learn and Share</p> 	<p>*1. Help to ease and clarify communication in the project by putting in place conceptual communication branding tools, e.g. simple names for the components and their work, images, colours, tag lines, design elements, etc.</p> <p>*2. Support and coordinate development of various 'communication briefs' (comms briefs), e.g. regular EI4WS newsletters/updates, success stories, cases of EI investment, SLKMM success stories, etc.</p> <p>*3. Develop training and capacity development opportunities for SLKMM and facilitation skills across the project, starting with Catchment Coordinators, including a participatory course to activate EI4WS learning networks (see Appendix 2: Tool 9)</p> <p>*4. Build a knowledge and evidence hub for sharing documents, resources, and evidence across the project which needs to enable both internal and external sharing, e.g. website (external) or applications like Mendeley or Dropbox (internal) can be used to share literature and documents. This may require some form of 'quality control'/'peer review' to ensure we are using the best available knowledge and evidence.</p> <p>5. Support the component leads and other project participants to co-produce evidence and</p>	<ul style="list-style-type: none"> Improve and clarify conceptual communication within the project and with external stakeholders. Develop a regular project communication process both for internal and external communication, e.g. through newsletters, comms briefs, website, twitter, etc.; enable and build practices of internal sharing and reviewing of project deliverables and documents across the components. Create and identify training and capacity development opportunities for SLKMM and facilitation skills for project participants and interested partners. 	<ul style="list-style-type: none"> Partners: Work closely with NBI to develop comms briefs suited to private sector and finance audience. Partners: Partner with other initiatives offering SLKMM-type training (e.g. WWF, SANBI Living Catchments, RU-ELRC, etc.) Assumption: it is possible to influence conceptual communication in the project (discussions about 'project branding' have indicated there are barriers to this). Assumption: resources and technical expertise are available for building and managing a large, complex knowledge hub. Assumption: resources are available for training and skills development for SLKMM (not just for 'implementation' of SLKMM practices).

Strategy practices	Short-term activities (start in 2020) (*Note: The most important and urgent activities are indicated with an asterisk)	Medium- and long-term directions (up to 2023)	Additional considerations: resources, partners, assumptions.
	<p>knowledge needed for the project through experimentation, piloting and social learning processes.</p> <p>6. Use EI4WS QP meetings as opportunities for modelling, piloting and experiential learning about SLKM tools and principles.</p>		
<p>Strategy Practice 6: Evaluate and Change</p> 	<p>*1. Start using the Value Creation Framework (VCF) to support Monitoring, Evaluation and Learning (MEL) learning (especially tracking of learning) in the various layers of the project's work/.</p> <p>*2. Develop easy-to-use VCF tools for component leads and other project participants to use the VCF as a reflective tool to track learning in their work.</p> <p>*3. Engage actively with the team doing the M&E work for the wider EI4WS project to ensure alignment between SLKMM MEL and wider M&E.</p> <p>4. Provide training for component leads and other project participants on the use of the VCF to track learning (can also be integrated into the Course recommended in Strategy Practice 5 above).</p> <p>5. Facilitate reflection processes to make MEL an explicit practice within the EI4WS project.</p> <p>6. Support on-going reflection on and revision of the Theory of Change for the project.</p>	<ul style="list-style-type: none"> ● Continue developing the Monitoring, Evaluation and Learning (MEL) framework for the SLKMM work. ● Facilitate and build a practice/culture of reflection and tracking of learning within the EI4WS project. ● Integrate the SLKMM MEL work closely with the M&E work for the wider EI4WS project. ● Support on-going reflection on and revision of the Theory of Change for the project. 	<ul style="list-style-type: none"> ● Assumption: Component leads and project participants have the time and interest to build reflective practices into their work. ● Resources: Identify opportunities to fund further research into the MEL aspects of the SLKMM work. ● Resources: consider identifying resources to employ additional capacity to help with managing data from MEL work – both for the Knowledge Coordinator, but also across the project as a whole (e.g. an intern). ● Partners: Engage NBI in the MEL and stakeholder tracking processes.

Many of the activities, particularly relating to *Practice 1: Convene and Coordinate* overlap with the responsibilities of the SANBI team leading the overall coordination of the project. It will thus be important for the **Knowledge Coordinator to work closely with the project leadership team** to clarify roles and responsibilities of coordination and communication within the wider project. There is an urgent and important need to improve cross-project communication and knowledge sharing, both internally and externally. Another key set of internal project stakeholders for the Knowledge Coordinator to work with in implementing the SLKMM strategy are the “**component leads**”. These are individuals who are leading implementation within the three components of the project, and include people focusing on work around Natural Capital Accounting (Component 1.1), policy advice and development of regulatory frameworks (Component 1.2), finance mechanisms (Component 1.3) and catchment coordination (Component 2.1 and 2.2). Convening and co-ordinating roles should at the wider EI4WS project level should also connect with and integrate with convening and co-ordinating roles in the demo-catchments to mobilise the SLKMM activities and practices.

Some of the additional considerations related to resources and partnerships highlighted in the implementation plan in Table 3.1 point to **opportunities for additional research and capacity development** to be leveraged through this project. The work of the Knowledge Coordinator could be usefully supported by the appointment of a support person, for example an intern (or a team of PhD scholars), who could gain valuable new skills and leadership emerging in the EI4WS-SLKMM space. Large volumes of data need to be generated, managed and analysed with respect to stakeholder engagement and analysis across the project, and to monitor the SLKMM process through the value creation framework. There is growing interest in SLKMM within the wider context of ecological infrastructure and catchment restoration, and building these specialist skills through engaged work within the framing of this project is critical.

Furthermore, the conceptual and contextual research presented in CHAPTER 2 highlights significant opportunities to build knowledge through further and more detailed research in this space. This research would have to take the form of carefully designed engaged, action-oriented research which would directly support implementation of the project and build capacity to ensure sustainability of the project’s outcomes, while also adopting a critically reflexive orientation to the emergence of the EI4WS concept and praxis in South Africa. Some of the topics which should be considered for a research agenda to support SLKMM in the context of ecological infrastructure would include:

- Deeper analysis of the multi-level contextual context of the EI4WS project to identify contradictions and leverage points for SLKMM.
- Understanding the use of the value creation framework to track learning and change in a large multi-layered social-ecological project.
- Exploring SLKMM tools to support generative cross-sectoral dialogues on deep contradictions emerging within the EI4WS context, and how these emerge as SLKMM learning opportunities in the demo-catchments.
- Exploring in more depth the SLKMM co-engaged learning processes and how these relate to knowledge management and mediation (e.g. via the course activated learning network proposed in Appendix 2: Tool 9).

3.3.3 PRINCIPLES OF ENGAGEMENT TO GUIDE IMPLEMENTATION

During the development of the SLKMM strategy, the need for a set of shared values in the form of guiding principles became apparent. An initial set of such principles is presented below in Box 3.1. These should be kept in mind by all project participants facilitating SLKMM and stakeholder engagement processes within the scope of the project. There should also be a process put in place to reflect on, revisit and revise this set of principles in an on-going manner, for example at an annual knowledge-sharing and learning event.

Box 3.1. The following principles to guide SLKMM were co-developed during the development of this project:

1. an understanding of 'strategy-as-practice',
2. transformative social learning and knowledge management and mediation,
3. reflexivity and recognition of change as an open, emergent and on-going process,
4. relational ways of working that promote and value connections, synergies, and linkages,
5. a people-centred approach that enables inclusivity and multi-voicedness,
6. practicality and pragmatism,
7. recognition and management of the tensions inherent in the project's objectives and approach,
8. internal-external learning processes,
9. development of shared language and accessibility of language, and
10. an extended understanding of the water value chain.

3.4 MONITORING, EVALUATION AND LEARNING (MEL) FRAMEWORK

3.4.1 INTRODUCTION

In this Chapter we discuss further details on one of the core strategy practices recommended for the SLKMM strategy, namely 'Evaluate and Change' (Strategy Practice 6, Table 3.1). This practice is critical as it will enable a reflexive and adaptive approach to the implementation of the SLKMM strategy, and will help to support the change-oriented approach which the EI4WS project seeks.

The approach we recommend for monitoring and evaluation of the SLKMM strategy and its implementation is 'monitoring, evaluation and learning' (MEL). This is an approach which includes, but also goes beyond the focus on accountability and performance management which is the purpose of conventional monitoring and evaluation (M&E) approaches. MEL approaches have emerged in response to critiques of conventional M&E approaches (Gasper, 2000). MEL practitioners seeking to build both accountability and learning into organisational development processes (Botha et al., 2017; Stone-Jovicich et al., 2019).

Through the project team's engagements with the EI4WS project, it became clear that a further key purpose of MEL would be to support change processes within the project, both in terms of articulating theory of change (Funnell and Rogers, 2011), and in tracking change pathways or processes which emerge through SLKMM (See Figure 3.1). Theory of change processes and tools are important complements to MEL frameworks as they help organisations or projects to articulate their programme theory and clarify their assumptions, expectations and intentions for how the project will bring about certain outcomes and ultimately change in the system of focus (Funnell and Rogers, 2011). The Knowledge Coordinator arranged an extension of the SLKMM project team's budget from the Water Research Commission to facilitate a Theory of Change process for the EI4WS in February 2020.

3.4.2 MONITORING, EVALUATION AND LEARNING FRAMEWORK TO TRACK LEARNING

To support the implementation of the SLKMM strategy, we recommend a monitoring, evaluation learning (MEL) framework that fosters and tracks learning, at three levels, the first of which also refers to knowledge management and mediation:

1. Monitor the creation of conditions for SLKMM,
2. Track learning and knowledge management and learning taking place, and
3. Evaluate the impacts of learning and how it relates to knowledge management and mediation.

The understanding of social learning outlined in CHAPTER 2 and in the definitions provided above, will guide the M&E and reporting. Examples of potential indicators to track learning within the three levels are given below.

3.4.2.1 *Monitor the extent to which conditions for social learning are being created:*

To what extent ...

- have knowledge needs been identified?
- has relevant knowledge been produced?
- have relevant knowledge resources and networks been identified and mobilised into use?
- has relevant knowledge been shared?
- have user needs been taken into account? (e.g. language, power differentials)
- have people convened to exchange questions and insights?
- has knowledge been applied to practical situations?
- have earlier understandings been revised?
- have new insights been taken up in institutions? (e.g. in new management plans, practices).

3.4.2.2 *Track the learning that is taking place:*

Look for, document and reflect on instances where (for individuals and collectives) ...

- information has been shared and sensemaking has taken place with emphasis on meaning making in contexts of practice
- problems have been identified based on new understanding
- there is a growing understanding of the relevance of EI4WS
- new solutions have been formulated
- problems have been reformulated / the nature of the shared object has been refined and/or re-defined
- learning has been applied to address identified issues
- reflection on action has taken place
- insights have been co-generated
- new knowledge has been embedded in institutions.

3.4.2.3 *Evaluate the impacts of this learning:*

Broadly, these impacts may be ...

- greater willingness to support EI4WS
- more resources for EI management and restoration mobilised
- effective actions taken to address EI-related water security challenges.

3.4.3 Methodology

The Value Creation Framework (VCF) (Wenger et al., 2011; Wenger-Trayner and Wenger-Trayner, 2019) is proposed as a tool to guide the MEL of the SLKMM. The VCF looks at: immediate; potential; applied; realised; and transformative or reframing value (see Figure 3.3 below). It does not imply a linear process and can trace feedback loops and reinforcements, that is, a systemic approach to learning and the multiple and interconnected outcomes of social learning.

Additionally, to gain evaluative insights *across catchments* a comparative case study methodology is recommended. A useful approach to support this is the Context-Mechanism-Outcomes framing used in realist evaluation methodologies (Pawson, 2013), which asks the question: Which interventions created which outcomes for whom under what circumstances?

An important first step in the implementation of the MEL system for the SLKMM will be to develop easy-to-use tools for the component leads and other project participants to use the VCF to support reflections in their everyday work. This would assist in generating important monitoring data for the Knowledge Coordinator to enable tracking of SLKMM across the wide scope of the project. These tools would need to be accompanied by a training session with potential users to develop their skills in using the tools. The tools can also be integrated into a participatory course in which EI4WS actors co-monitor and evaluate their own praxis.

The level of detail and depth at which the MEL framework can be implemented will depend significantly on how much in the way of human resources can be allocated to support the work of the Knowledge Coordinator, as discussed above in the Implementation Framework (Chapter 3). Additional capacity in terms of MEL support (e.g. an intern) and through postgraduate research would be a strategic investment in supporting the implementation and MEL of the SLKMM strategy.

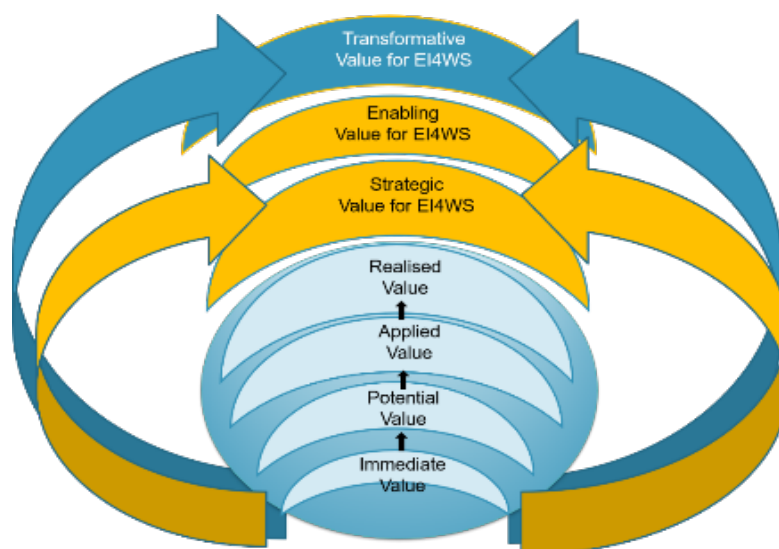


Figure 3.3: The Value Creation Framework for evaluating the emergence of types of value from, and outcomes of social learning over time (Wenger et al., 2011; Wenger-Trayner and Wenger-Trayner, 2019).

Careful coordination between the Knowledge Coordinator, the component leads, SANBI project leaders, the NBI team and the consultants developing the M&E for the wider EI4WS project will also be important to align the SLKMM with related process and make the most of existing capacity in the project to implement and embed MEL in a systemic and meaningful way.

An example of the application of the VCF in an EI4WS event is shown in Appendix 2, Tool 10. This is just one way in which this framework can be adapted to track value and change in the EI4WS project.

3.5 WORK PLAN FOR ON-GOING SUPPORT

3.5.1 INTRODUCTION

In the spirit of strategy-as-practice, and to fulfil the commitments of the project contract, the project team will remain involved in supporting the implementation of the SLKMM strategy in a 'light-touch' way during a three-year period from 2020-2022. This is articulated in the project proposal as Aim 7:

“For a period of three years subsequent to development of the strategy, enhance continuity between strategy development and implementation by providing support and expert advice to the WRC and component 3 working group on:

- a. Expansive, transformative Social Learning and Knowledge Management and Mediation processes as designed and developed within the Strategy with relevant CoPs / stakeholders in the catchment*
- b. Support decision making around implementation of the strategy;*
- c. Support strategy review and adaptation; and*
- d. Strengthen project team capacity for expansive, transformative approaches to social learning and knowledge management and mediation”.*

In this chapter we therefore briefly outline the workplan for post strategy development handover and support.

3.5.2 ON-GOING SUPPORT ACTIVITIES

The on-going support to the Knowledge Coordinator and others involved in implementing SLKMM will be conducted through the following three key activities, which will be implemented according to the work plan and timeline in Table 3.1:

3.5.2.1 *Activity 1: Attend EI4WS Component 3 Working Group meetings*

Two members of the project team (most likely the Project Lead (Prof Lotz-Sisitka) and Principal Researcher / Project Manager (Dr. Cockburn)) will participate in the Quarterly Planning meetings of the Component 3 Working Group. Due to limited travel funding, most of this will take place via remote platforms such as Skype or Zoom.

Once a year one of the project team members will attend an EI4WS meeting in person. Above we have recommended the initiation of an annual Knowledge-Sharing/learning Event/Indaba (See Table 2.1 and Table 3.1). This would be an ideal opportunity for the project team participant in person to support facilitation of reflection and learning on SLKMM. At this annual SLKMM event, we also recommend that the Component 3 Working Group reflect on the implementation of the SLKMM strategy.

3.5.2.2 *ACTIVITY 2: Provide on-going advice and support*

On an on-going basis, members of the project team will make themselves available to provide advice and support to the Knowledge Coordinator and the Component 3 Working group on issues related to social learning facilitation, knowledge management and mediation. This will take the form of regular 'checking in' Zoom/Skype calls with the coordinator, and an openness to 'being on call' for the working group and co-ordinator to discuss any issues that might arise and reflect on the progress of implementation. Another way in which this on-going advice and support could be provided would be for the Knowledge Coordinator, and possibly also other members of the Component 3 Working group, to visit the project team members based at Rhodes University. The Principal Researcher and Project Leader (Dr. Cockburn and Prof Lotz-Sisitka) will be the first point of contact for this and will then field specific questions to project team members depending on expertise. Part of

this on-going advisory support and participation will include project team members based in each of the local catchments becoming active participants in EI4WS stakeholder engagement processes as far as resources and time allow, i.e. Living Lands in the Berg-Breede catchments and DUCT in the uMngeni catchment.

3.5.2.3 ACTIVITY 3: Co-reflect and report

The project team will write reflective learning and progress reports which capture experiences and exchanges from Activity 1 and Activity 2 of Phase 2 to provide feedback to WRC and other project leaders for the EI4WS process. They will also participate, whenever possible, in facilitating reflections within the EI4WS project team to generate reflection data in a collaborative way. This process will be led by the Principal Researcher (Dr. J. Cockburn) and Project Leader (Prof Lotz-Sisitka) with input from the wider project team.

3.5.3 Work plan and proposed timeline of support activities

Table 3.3: Work plan and timeline of activities for on-going support for implementation of the SLKMM strategy.

Date	Activity
April-June 2020	Attend EI4WS Component 3 Working Group Quarterly Planning meetings (via Zoom/Skype).
July-Sept 2020	
Oct-Dec 2020	
Once during 2020	Attend 1x EI4WS meeting in person (ideally an annual project-wide SLKMM reflection event)
31 Jan 2021	Deliver Annual report on engagement on SLKMM strategy with Knowledge Manager and Component 3 Working Groups (Deliverable 4: Progress Report 1)
April-June 2021	Attend EI4WS Component 3 Working Group Quarterly Planning meetings (via Zoom/Skype).
July-Sept 2021	
Oct-Dec 2021	
Once during 2021	Attend 1x EI4WS meeting in person (ideally an annual project-wide SLKMM reflection event)
31 Jan 2022	Deliver Annual report on engagement on SLKMM strategy with Knowledge Manager and Component 3 Working Group (Deliverable 5: Progress Report 2)
April-June 2022	Attend EI4WS Component 3 Working Group Quarterly Planning meetings (via Zoom/Skype).
July-Sept 2022	
Oct-Dec 2022	
Once during 2022	Attend 1x EI4WS meeting in person (ideally an annual project-wide SLKMM reflection event)
31 Jan 2023	Deliver Annual report on engagement on SLKMM strategy with Knowledge Manager and Component 3 Working Groups (Deliverable 6: Progress Report 3 = Final Report)

CHAPTER 4: REPORTS AND REFLECTIONS ON ON-GOING SUPPORT (INCLUDES PROGRESS REPORT 1,2 & 3)

4.1 ON-GOING SUPPORT IN 2020-2021

4.1.1 INTRODUCTION and key activities

The first set of activities which the SLKMM engaged in to support implementation of the strategy was through on-going engagements with the EI4WS project, specifically with the Component 3 Working Group, and through provision of advisory support to the Knowledge Coordinator. These are the key actors driving implementation of the SLKMM strategy.

In Table 4.1 we list the events through which the SLKMM team engaged in an on-going way with the EI4WS Project and Component 3 Working Group. All of these events took place online due to the COVID-19 pandemic. Through these events, the SLKMM team was able to stay in touch with the work of the EI4WS project, and to track and support the implementation of the SLKMM strategy. We were able to reflect on and identify some of the opportunities and constraints which are faced in implementation of the SLKMM, which we discuss further in the sections below.

Table 4.1: List of events through which the SLKMM team engaged in an on-going way with the EI4WS Project, Component 3 Working Group and the Knowledge Coordinator (Note: all meetings took place online via Microsoft Teams or Zoom).

No.	Date	Event	Type of meeting
1	28 April 2020	Quarterly Planning Meeting: EI4WS Component 3 Working Group.	Component 3 Working Group Meeting
2	21 May 2020	Component 3 Working Group Meeting on Analysis of Major Activities.	Component 3 Working Group Meeting
3	4 August 2020	Quarterly Planning Meeting: EI4WS Component 3 Working Group.	Component 3 Working Group Meeting
4	27 October 2020	EI4WS Quarterly Planning Meeting (Day 1): Focus on updates and mid-term review of progress and Strategic Results Framework (SRF).	EI4WS Quarterly Planning Meeting
5	30 October 2020	Quarterly Planning Meeting: EI4WS Component 3 Working Group.	Component 3 Working Group Meeting
6	27 November 2020	Meeting between SLKMM Project Manager and EI4WS Knowledge Coordinator to reflect and plan for Strategy Review.	SLKMM Project Team Meeting
7	4 December 2020	Meeting between SLKMM Project Manager and Pienaar du Plessis from Living Lands to reflect and plan for Strategy Review.	SLKMM Project Team Meeting
8	29 January 2021	Quarterly Planning Meeting: EI4WS Component 3 Working Group.	Component 3 Working Group Meeting
9	10-11 February 2021	SLKMM Annual Strategy Review Meeting: Reflection and planning meeting for the <i>Social Learning, Knowledge Management and Mediation Strategy</i> and the <i>Participatory Course to Activate Ecological Infrastructure for Water Security Learning Networks</i> .	SLKMM & Participatory Course Project Team Meeting

In addition to these events, the SLKMM team continued working closely (although remotely) with the Knowledge Coordinator, Michelle Hiestermann, to provide on-going support and advice in an ad-hoc manner. This revolved around a few key areas:

- Development of a 'Participatory Course' for building capacity for SLKMM in the wider network of the EI4WS project,
- Recruitment and appointment of a Postdoctoral Fellow, with potential for this person to become a Research Associate at Rhodes University,
- Reflection on the on-going implementation of the SLKMM strategy, and the opportunities and constraints in this work.

On-going communication between the SLKMM project manager and lead with the Knowledge Coordinator via WhatsApp has also been an important avenue of discussion and support, especially in the context of the disconnectedness imposed on us by the COVID-19 pandemic.

In the next section, we identify a number of key outcomes and insights from these on-going interactions.

4.1.1.1 Key outcomes and insights from on-going engagement and support

The on-going engagements continued to grow the team's understanding of the EI4WS project context and partners, and especially the SLKMM-related opportunities, constraints, and insights (as outlined in Box 4.1.1). Moreover, participating in the Component 3 Working Group meetings smooth transition between SLKMM team (which has now moved into a less intense engagement in Phase 2) and the Participatory Course team (which is now preparing to launch their project on development of the course). Finally, these activities have enabled the SLKMM team to provide on-going support for Knowledge Coordinator, e.g. contributing questions, reflections and insights to discussions from the SLKMM perspective; and we also assisted with note-taking where needed.

Box 4.1.1: Opportunities, constraints and insights around the realisation of the SLKMM strategy as identified through on-going engagements

Constraints:

- Vastness and complexity of the project and its multi-layered network of stakeholders: endless and multiple opportunities for building networks, and supporting learning and knowledge exchange – identifying priorities within this context is an on-going activity.
- COVID-19 constraints: facilitating relational processes remotely is challenging, and this has slowed down a number of network-building, learning and sharing, and monitoring and evaluation activities which were envisaged for 2020.
- Heavy load of 'coordinate and convene' and overlap with central project team
- Bureaucratic and other related administrative constraints which have slowed down the project, e.g. in the recruitment and appointment of a Postdoctoral Researcher, the setting up of a Knowledge Hub website, etc.
- Some difficulties of engaging with some key stakeholders, e.g. DWS.

Opportunities:

- Support and enthusiasm from the EI4WS component leads to 'take on' some of the SLKMM work within their projects.
- Important network-building, communication and engagement work is being done through partners such as NBI, CLCB and the Living Catchments Project.
- Synergies and alignment with other projects and initiatives (particularly evident in various WRC and NBI platforms and partnerships, and also in the SANBI Living Catchments project).
- Support from SANBI via Research Assistant.

- There is enthusiasm and interest in the use of *case studies and stories* and *webinars* as a key space for learning, communication and change.
- There is also interest in the participatory course that has been proposed and approved and it is already beginning to offer a platform for bringing experience, expertise and knowledge resources together for wider sharing; this should also offer a mechanism for bringing the diversity and broad networked environment closer together in the next reporting period.

General insights – these are organised around the six core SLKMM strategy practices (Figure 3.2):

- **Strategy Practice 1: Coordinate and Convene:** There is a strong overlap between the mandate and work of the Knowledge Coordinator and the higher-level EI4WS project coordination team in this practice. The Knowledge Coordinator is working closely with the EI4WS project coordination team.
- **Strategy Practice 2: Engage Tensions:** Key tensions exist in the water governance institutions, and on-going research on transformation of Irrigation Boards is a key opportunity to better understand and engage these. Another key tension, as identified early on in the strategy process is between the open-ended nature of transformative learning processes, vs. the highly structured ‘log-frame’ nature of the project and its monitoring and evaluation process (below we come back to this calling it the ‘Spreadsheet Life’ lived by the EI4WS project team).
- **Strategy Practice 3: Clarify Context and Ideas:** This practice seems to be less visible than most of the others – it will be important to reflect on why this is. One reason might be that internal EI4WS project participants have become comfortable with their understanding of the context and ideas of the project, but the difficulty of articulating and sharing these becomes apparent when engaging beyond the boundaries of the project team, e.g. NBI have identified that the concept of ‘nature-based solutions’ is more relevant for the private sector. This is also likely to come more sharply into focus as the Participatory Course starts up as it will also focus in on contexts. Another reason for the lack of obvious visibility of ‘contexts’ at this point may also be because most people have been working in an online environment as a result of COVID-19 which in itself is highly decontextualised.
- **Strategy Practice 4: Build Networks:** Building networks through the EI4WS component leads and teams, and partner organisations (e.g. NBI, CLCB, Living Catchments Project, etc.) is a key opportunity for deepening and expanding SLKMM in the wider EI4WS network. Since her appointment (which more or less took place when the SLKMM Strategy as Practice was being finalised) the Knowledge Coordinator has developed excellent insight into, and also links and relationships with many of the main stakeholders in the project. This is already informing the development of the SLKMM work (e.g. useful identification of case studies, knowledge needs, etc.)
- **Strategy Practice 5: Learn and Share:** Case studies seem to be a key area of interest and opportunity for learning and sharing – both through the process of developing these case studies, and then through sharing them through various learning processes. Another area of learning and sharing that has also surfaced is the need to share knowledge resources that are being developed across different components into Component 3 practices, and the emerging course. Within the SLKMM core team, we have also identified the need to strengthen our own economics knowledge, and Prof Mbatha from ISER (who will lead the EI4WS participatory course) has offered to run a training programme / workshop for the core team. This could also potentially be opened up for Component 3 partners should there be an interest.
- **Strategy Practice 6: Evaluate and Change:** Implementation of this practice has sought alignment with the monitoring and evaluation activities for the EI4WS project as a whole. Monitoring of SLKMM, specifically, using the Value Creation Framework has started, but has been constrained due to COVID-19 limitations on social interactions.

4.1.2 ANNUAL STRATEGY REVIEW

4.1.2.1 INTRODUCTION and overview of annual strategy review meeting

On the 10th and 11th February, the SLKMM project team, together with the Participatory Course team (both based at Rhodes University), coordinated a meeting to support annual review of the SLKMM strategy. We used the opportunity to meet with the Knowledge Coordinator to discuss the work of both these teams in implementation of the SLKMM strategy. Accordingly, the meeting was titled as follows:

“Reflection and Planning Meeting for the *Social Learning, Knowledge Management and Mediation Strategy* and the *Participatory Course to Activate Ecological Infrastructure for Water Security Learning Networks*”.

The meeting attendees are listed in Table 4.2 below. The meeting was held online via Zoom. The purpose of the meeting was three-fold:

1. to reflect on and review the implementation of the SLKMM strategy in the EI4WS project (specifically Component 3) over 2020,
2. to plan ahead for the EI4WS Component 3 for 2021 (through the lens of the SLKMM strategy-as-practice),
3. with a specific focus on the role of the *Participatory Course* (coordinated by Institute for Social and Economic Research at Rhodes University).

Table 4.2: List of people who attended the Annual Strategy Review Meeting

No.	Name	Organisation
1	Jessica Cockburn	Rhodes University: Department of Environmental Science (DES)
2	Pienaar du Plessis	Living Lands
3	Michelle Hiestermann	Water Research Commission: EI4WS Project
4	Ayanda Kwali	South African National Biodiversity Institute (SANBI)
5	Mzukisi Kuse	Rhodes University: Environmental Learning Research Centre (ELRC)
6	Heila Lotz-Sisitka	Rhodes University: Environmental Learning Research Centre (ELRC)
7	Nhlanhla Cyril Mbatha	Rhodes University: Institute for Social and Economic Research (ISER)
8	Maletje William Mponwana	Rhodes University: Environmental Learning Research Centre (ELRC)
9	Reuben Thifhulufhelwi	Rhodes University: Environmental Learning Research Centre (ELRC)

During Day 1 of the meeting, we focused primarily on reflections on the Knowledge Coordinators' work over 2020, and how the strategy was implemented through this. We used the six core strategy practices (Figure 3.2) as a lens to reflect on this work. The Knowledge Coordinator gave a useful overview of the work of all the components in the EI4WS project. This was especially important for the new team members of the Participatory Course project. Interwoven throughout the conversations in Day 1 were discussions about how the participatory course interfaces with the strategy, and how it might be implemented to strengthen SLKMM across the EI4WS project. A recurring theme in these conversations was the importance of understanding and grappling with the political economy of investment in EI, and how this should influence the design of the course. It also speaks to some of the key tensions within the EI4WS project (Strategy Practice 2, Figure 3.2).

We spent time in the afternoon of Day 1 clarifying the 'object of activity' in order to set the scene for the participatory course (led by Prof Heila Lotz-Sisitka, lead of the SLKMM project team). The guiding questions for this were: *What is EI4WS in plain language? How would you tell your grandmother what this thing is? How might your child explain it, and how might we explain it in other languages?* This was an important activity in helping the team to clarify key ideas in the EI4WS project (Strategy Practice 3, Figure 3.2). This activity of

clarifying the object resulted in a proposed name and by-line for the Participatory Course, namely: ***Xabisa Indalo for Water – Let’s learn to invest for Ecological Infrastructure for Water Security Together***. This will be discussed further in the Inception Report of the Participatory Course project. The last activity of the day was an overview of the Participatory Course project plans, which were presented by Reuben Thiffulufhelwi, the Project Manager.

Day 2 of the meeting started with a recap of Day 1 (Figure 4), and then the Knowledge Coordinator presented her work plan for the year. This enabled discussion about the on-going implementation of the strategy, which moved into focused discussions around the Participatory Course. An interesting focus of this discussion was a series of steps suggested by Prof Nhlanhla Cyril Mbatha (the lead of the Participatory Course team) on how one might set up the course in a way that takes into account the political economy of the context. Prof Mbatha also noted the absence of a clear focus on legislation and policy in the current focus areas of the project. More details on this will be discussed in the Inception Report for the course. There was also an interesting discussion about the development of case studies as key learning processes and outcomes. An agreement was made by the group to re-convene in April to draft case studies in preparation for the course, and also as a key output of the SLKMM strategy more broadly; we thought that this could also offer an approach to working with case studies for monitoring and evaluation purposes as well as co-learning purposes. The final activity in Day 2 was practical action planning around deliverables and activities for the two project teams, working to align this with the Knowledge Coordinator’s work plan.

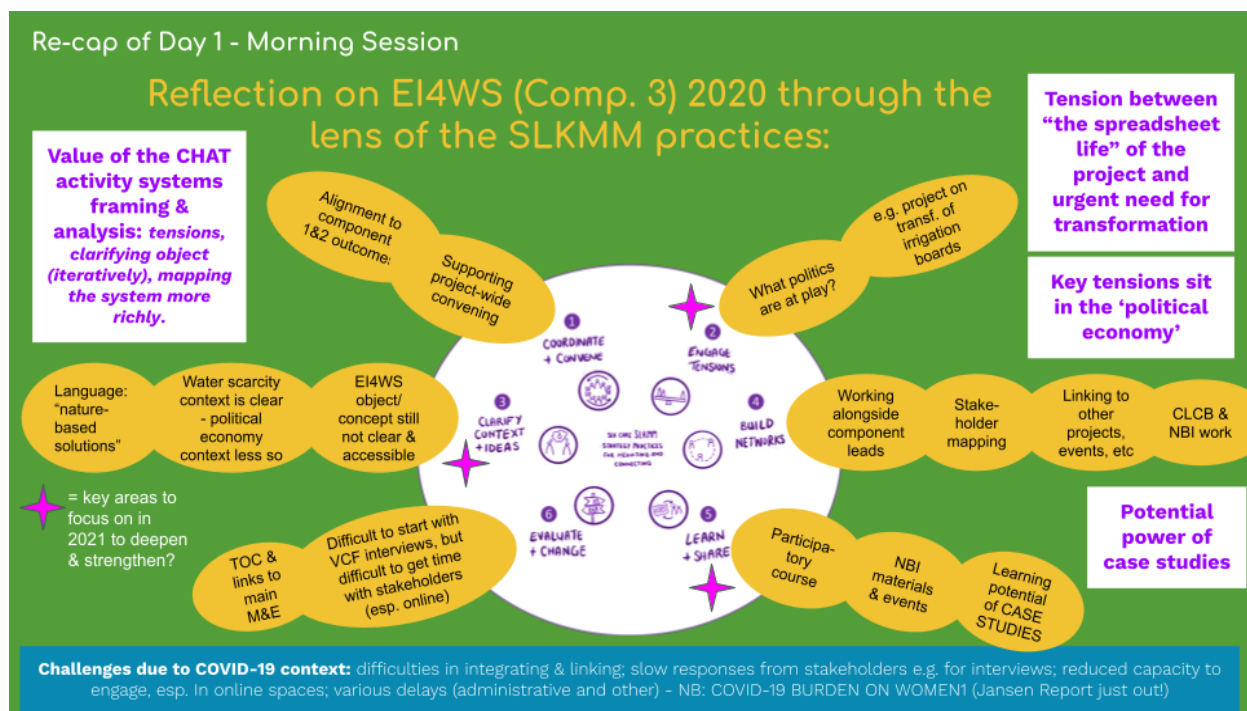


Figure 4.1: Diagram highlighting some of the key discussion points around the implementation of the SLKMM strategy which was the focus of discussions on Day 1 of the meeting (Day 2 focused more on the Participatory Course and forward planning).

In order to facilitate communication, learning and reflection via the online platform, we worked with the tools available in Zoom, and also tried out an innovative online platform called ‘Padlet’ (www.padlet.com). Padlet was a way for us to capture ideas, discussion points, resources, and the connections between them, in a way that one might ordinarily use a whiteboard and/or post-it notes in a face-to-face meeting context. A screenshot of one of our Padlets is shown here in Figure 4.1 for illustrative purposes.

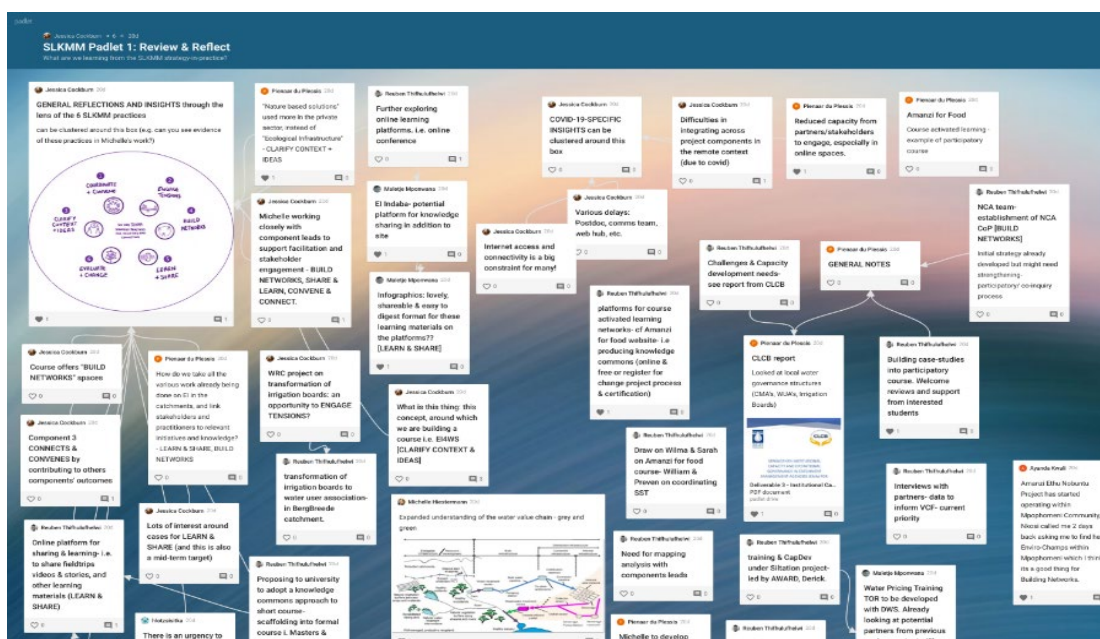


Figure 4.2: Screenshot of a 'Padlet', an online platform used in the Annual Strategy Review Meeting to capture and share reflections and learning among meeting participants.

4.1.2.2 Key outcomes of the meeting:

The following emerged as key reflections and insights on the implementation of the SLKMM strategy from the Annual Strategy Review meeting:

1. There are **strong synergies between the work of the SLKMM strategy team and the Participatory Course team**, as was intended when the course was recommended as one of the tools to support implementation of the strategy. These strategy review sessions will be an important way to keep an eye on how these synergies continue to develop, as the course is a key part of continued implementation of the strategy.
2. Through the discussions in the meeting, the **value of the activity systems or CHAT framing was confirmed (CHAT: Cultural Historical Activity Theory (Engeström, 2010))**. Through this framing, we are beginning to see the system of the EI4WS project more clearly, as we continue to engage tensions (e.g. the question of the political economic context of the EI4WS project), iteratively clarify the object of activity, and engage in a rich mapping of the system (as demonstrated by Mr. Reuben Thifulufelwi in his introduction to the Participatory Course) (note: these ideas are also captured in some of the strategy practices).
3. There is significant potential for **case studies to enable implementation of the SLKMM strategy**. These can be viewed as an additional tool to enable a number of the strategy practices to be enacted. Importantly, the process of developing the case studies is likely to be as important as the outputs of actual case studies themselves. The cases will be a central teaching resource in the Participatory Course, and will also be used to catalyse new case studies in and through the course
4. Overall, **implementation of the SLKMM strategy is on track**, and there is evidence of all six strategy practices being brought to life in the EI4WS project (Figure 4.2). However, careful attention will need to be paid to 3 of the strategy practices which appear to be more challenging to implement, and we discuss these further below in the recommendations.
5. **The multi-faceted impacts of the COVID-19 pandemic are being felt in this project**. They have impacted project team members at a personal level, and continue to make it difficult to convene stakeholders and facilitate meaningful learning processes.

4.1.3 CONCLUSION: KEY INSIGHTS AND RECOMMENDATIONS FOR STRATEGY-AS-PRACTICE

In conclusion, the SLKMM project team is encouraged by the tenacity and enthusiasm with which the SLKMM strategy, through the framework of the six strategy practices, is being brought to life in the EI4WS project. Indeed, it seems that the strategy is taking shape as a 'strategy-as-practice', as we see evidence of strategising around learning and knowledge in the form of the "actions, interactions and negotiations of multiple actors and their situated practices" (Jarzabkowski & Spee, 2009) within the EI4WS project.

Out of our reflections through the on-going engagements with the Knowledge Coordinator and Component 3 Working Group, and from the Annual Strategy Review meeting, we propose the following recommendations for on-going implementation of the SLKMM strategy-as-practice:

1. **Implementation of the SLKMM strategy is proceeding well.** The six strategy practices seem to be providing a useful guiding framework for this work, and there is evidence of all six strategy practices being implemented in the EI4WS project (Figure 4.2). Nonetheless, we have identified **three of the six core practices to which careful attention will need to be paid in the next year.** These three strategy practices appear to be more challenging to implement in the current context of the project, and we provide illustrations for each here:
 - **Strategy Practice 2: Clarify Context and Ideas** – there is a need for on-going, iterative engagement around clarifying the object of activity, and focused attention on gaining a richer understanding of the multi-faceted political-economic context of the project. The Participatory Course could be a venue for this, but other opportunities should also be sought, particularly with project participants working more on the periphery of the project who may not be familiar with core concepts and ideas, and who can bring important perspectives into an expanded understanding of the object in different contexts.
 - **Strategy Practice 3: Engage Tensions** – e.g. the following tensions require further attention: 1) the tensions between the 'spreadsheet life' of the project team (whereby almost all project implementation comes down to what can be captured in a spreadsheet) and the more open-ended nature of transformative social learning processes, 2) the tension between the ambitious nature of the project and the deeply embedded political and economic realities that shape the context of project implementation.
 - **Strategy Practice 6: Evaluate and Change** – while the constraints of the COVID-19 pandemic have made it difficult to generate monitoring data through stakeholder interviews, it is important for the Knowledge Manager to continue work closely with the EI4WS project team, Component 3 Working Group and the SLKMM team to continue pursuing this, possibly finding other means of generating data to monitor and evaluate the learning and knowledge processes in the project.
2. **Case studies as a powerful, cross-cutting learning process and product:** There is a lot of interest in the potential of case studies across the EI4WS project. This requires quick action, not only as a project deliverable for Component 3 in time for the Mid-Term Review, but also as a means towards generating shareable learning materials to mediate learning widely across the project and specifically within the Participatory Course. For various reasons, development of shareable communication and knowledge exchange materials in the project has been slow, and the case study development can be a means of addressing this shortcoming. Carefully crafted case studies can be a powerful way of enacting a number of the strategy practices, as they can be used as a multi-tool to convene stakeholder dialogues, clarify context and ideas, engage tensions, build networks, learn and share, and evaluate and change course where needed.
3. **The COVID-19 pandemic has constrained the work of the Knowledge Coordinator, and has an impact on implementation of the SLKMM strategy.** The SLKMM team would like to commend the Knowledge Coordinator for the impressive progress she has made despite the multiple limitations

experienced by her and her teams (ranging from family demands, to personal health, to lack of opportunities for face-to-face meetings, and academic and bureaucratic bottlenecks). The SLKMM team will continue to support the Knowledge Coordinator and the Component 3 Working Group to find creative ways to continue this important work.

The launching of the Participatory Course is indeed an exciting development towards creating more purposeful and explicit opportunities for social learning, knowledge management, and mediation in the EI4WS project and beyond. The course offers a key means to building a community of practice and knowledge base which can potentially ensure sustainability of the EI4WS beyond the life of the funded project. This team is co-mentoring the co-ordinator of the EI4WS course, and we will be working closely with Prof Mbatha and Reuben Thifulufelwi on the course. We have identified that this can add a lot of internal strength to our work on supporting the EI4WS strategy-as-practice work, and the SKLMM strategy implementation work itself. We are excited to be working with Prof Mbatha, who brings strong environmental, water, and land related (EI) economics expertise directly into the core SKLMM group.

4.2 ON-GOING SUPPORT IN 2021-2022

4.2.1 INTRODUCTION and key activities

The first set of activities which the SLKMM team engaged in to support implementation of the strategy was on-going engagements with the EI4WS project, specifically with the Component 3 Working Group, and through provision of advisory support to the Knowledge Coordinator. These are the key actors driving implementation of the SLKMM strategy. In 2021, this also included on-going liaison and engagement with the team responsible for the participatory training course – *Xabisa Indalo for Water*² – also based at Rhodes University out of the Institute of Social & Economic Research (ISER), led by Professor Nhlanhla (Cyril) Mbatha and Reuben Thifulufelwi (the ‘Xabisa course team’).

In Table 4.3 we list the events through which the SLKMM team engaged in an on-going way with the EI4WS Project, the Component 3 Working Group, the Xabisa course team, and the broader project context. All of these events took place online due to the COVID-19 pandemic.

Table 4.3: List of events through which the SLKMM team engaged in an on-going way with the EI4WS Project, Component 3 Working Group and the Knowledge Coordinator (Note: all meetings took place online via Microsoft Teams or Zoom).

N o.	Date	Event	Type of meeting
1	3-4 March 2021	Ecological Infrastructure Indaba – Online Conference Event	Broader EI4WS Project Event
2	8-9 April 2021	EI4WS SLKMM Strategy and Xabisa Indalo for Water course: WRC, NBI and Rhodes University workshop, 9 April 2021, Makhandla ("Case Study Workshop").	SLKMM & Participatory Course Project Team Meeting
3	7 June 2021	EI4WS SLKMM Component 3 Working Group Meeting	EI4WS Component 3 Working Group Meeting

² Note: this is the new name for the “participatory course” which was developed during the previous annual reflection and review meeting of the SLKMM and Xabisa teams with the Knowledge Coordinator. Xabisa Indalo means ‘valuing nature for water’.

No.	Date	Event	Type of meeting
4	18 August 2021	Online Workshop / Webinar: Social Learning Strategy in Practice to Unlock Investment in Ecological Infrastructure: a tool for monitoring value-creation in networks (WRC Event)	Broader EI4WS Project Event
5	5 October	Guest Lecture at Rhodes University Department of Environmental Science by Michelle Hiestermann and Dan'sile Cindi from the EI4WS project.	Rhodes University Teaching event
6	2-4 November	Catchment-based Ecological Infrastructure Indaba: Hybrid Event hosted at Didima and Online	Broader EI4WS Project Event
7	6-8 December	Small group workshop with Prof Sisitka, Reuben Thifulufhelwi and Maletje Mponwana to scope out the materials for the Xabisa Indalo for Water course	SKLMM & Participatory Course core team
7	13-14 December 2021	SLKMM Annual Strategy Review Meeting: Reflection and planning meeting for the <i>Social Learning, Knowledge Management and Mediation Strategy</i> and the <i>Participatory Course to Activate Ecological Infrastructure for Water Security Learning Networks</i> .	SLKMM & Participatory Course Project Team Meeting

In addition to these events, the SLKMM team continued working closely (although remotely) with the Knowledge Coordinator, Michelle Hiestermann, to provide on-going support and advice in an ad-hoc manner, with attention to expanding capacity for this work, alignment of the work with the Xabisa Indalo for Water course, and recruitment and support of post-doctoral fellows and PhDs. This revolved around a few key areas:

- Collaborating with the Xabisa course team in the development of the 'Participatory Course' for building capacity for SLKMM in the wider network of the EI4WS project,
- Aligning the work of Postdoctoral Researcher, Dr Roderick Juba, and appointment of another post-doctoral fellow Dr Robson Mukwambo who are collaborating on a Water Fund Feasibility Study and stakeholder analysis process (the latter post-doctoral fellow is funded with SARChI Chair funding) that will inform the SKLMM and the Xabisa Indalo for Water course.
- Working with the DUCT, WRC, and Amanzi Ethu Nobuntu team which included collaborative fundraising of the release of R 25 Million for Amanzi Ethu youth employment for Community-Based Water Quality Monitoring and advancement of the training for the DSI/PES Funded youth programme. This programme is also developing a blended finance model for advancing Community-based Water Quality Monitoring (CBWQM) at scale. Prof Lotz-Sisitka and the Xabisa course team have been actively involved in this process and have iteratively been pilot testing and putting course processes in place to support Stream 3 of the Xabisa Indalo for Water course. Maletje Mponwana will undertake his PhD on the learning pathways of the Amanzi Ethu youth (CBWQM), with SARChI Chair bursary support. Additionally, we have recruited a second PhD scholar (Wandile Mvulane) who is assisting with the data analysis in the CBWQM process. A PhD scholarship, and linked international River Commons 'living lab' fund has been mobilised for this study to expand, and to take in aspects of the PMERL research component. These funds have been raised through the SARChI Chair, and Mvulane will be co-supervised by Prof Rosenberg (PMERL advisor), Dr Cockburn (SLKMM manager) and Prof Lotz-Sisitka.
- Reflection on the on-going implementation of the SLKMM strategy, and the opportunities and constraints in this work.

In the next section, we identify a number of key outcomes and insights from these on-going interactions.

4.2.1.1 Key insights from on-going engagement and support

The on-going engagements continue to grow the team's understanding of the EI4WS project context and partners, and especially the SLKMM-related insights and lessons learnt. Participating in the various activities has enabled the SLKMM team to provide on-going support for Knowledge Coordinator, e.g. contributing questions, reflections and insights to discussions from the SLKMM perspective. Moreover, the engagements

alongside the Xabisa course team have highlighted the importance of the participatory course as a key space in which to implement the SLKMM strategy and support its explicit application in practice to enable learning across the EI4WS project and its wide range of stakeholders. Below we discuss some of the insights and lessons from on-going engagement with the Knowledge Coordinator, Xabisa course team, and the broader EI4WS project according to three key themes.

1. The COVID-19 pandemic continues to pose significant challenges to meaningful facilitation, support and monitoring of social learning processes in the EI4WS project and has also created unexpected opportunities for learning and innovation.

While we are all now very familiar with working in online spaces and have learnt to use innovative means of engaging people in online engagements, these are no replacement for in-person interactions. We are being reminded how much learning takes place in the 'spaces in between' which are lost in online meetings (e.g. tea breaks, lunches, evening drinks or dinner). In addition, the element of human warmth and interpersonal interaction is missing, and this is also a key enabler of meaningful conversations and learning processes.

The pandemic also continues to place a strain on people in terms of online fatigue, the ever-increasing pace of work in the online context, burdens of child and family care at home, mental and other personal health constraints, all of which contribute to a range of well-being challenges. All of these are being experienced in the EI4WS project and need to be acknowledged as significant constraints to effective and stimulating work processes and outcomes.

On the other hand, the pandemic context and the shift to online collaboration and learning has also come with unexpected opportunities for innovation and learning. For example, the use of online collaboration tools and platforms like Miro Board, Padlet and Jamboard (see examples in Figure 4.2) has enabled collaborative reflection, learning and sharing in new ways. Another example is that mobile journalism (or MOJO) has shown significant potential to use video and other multimedia tools to gather and share the voices of youth and catchment-based partners experiences and practices. This will be a key tool to explore further in the Xabisa course. The SLKMM team and the Knowledge Coordinator have seen significant interest from participating stakeholders in trying these new ways of connecting and learning in an online world, and we need to look further into the potential these tools and platforms hold for enabling and also capturing learning.

2. The reporting and bureaucratic pressures of the EI4WS have been exacerbated by the COVID-19 pandemic and continue to be experienced as a constraint to meaningful learning.

The EI4WS team are under significant pressure in terms of reporting and the significant administrative and bureaucratic load that comes with a project of this size and scope. The challenges of the pandemic described above have exacerbated these issues. Moreover, the constant pressure to report according to conventional log frames and pre-determined deliverables and outcomes is making it difficult to find space and time for real conversations and open-ended learning processes which are such a key part of the SLKMM strategy.

As suggested in the SLKMM strategy, the Knowledge Coordinator is working with the Value Creation Framework (VCF) (Wenger-Trayner et al., 2014) as a way of complementing the conventional monitoring and evaluation (M&E) requirements of the project. This is assisting in bringing in a different perspective and creating opportunities for monitoring learning. However, here too, the online context is making it difficult to realise the true potential of this tool. Nonetheless, there is a lot of interest in the VCF and the EI4WS is well placed to lead in the further development of this novel approach to M&E. Of interest is the fact that the tool and approach are being appreciated further than just the project, and are being taken up more broadly in the Living Catchments context (e.g. through the PhD research of Mzukisi Kuse), in the Tsitsa Project, and WRC webinars led by Michelle Hiestermann.

3. Increasing opportunities for collaboration between EI4WS and broader catchment management context and researchers at Rhodes University and other institutions.

Bridging the research-policy-practice gaps is an on-going challenge in the environmental sector in South Africa, and the EI4WS project is well placed to address this. During 2021 there have been several events and opportunities for bringing together actors in the sector in the research-policy-practice nexus. There has been increasing collaboration between the SLKMM and Xabisa course teams at Rhodes University, together with other colleagues working in related projects and initiatives (e.g. the Tsitsa Project, the Green Skills Project, the Living Catchments Project, the Amanzi Ethu Nobuntu Project, etc.) into the environmental and water sector. This has also been facilitated by the DSI/NRF Community of Practice that links several Chairs and their research teams involved in this type of research together (Profs Lotz-Sisitka, Rosenberg, Palmer, Odume, Scholes, Shackleton amongst others). One of the collaboration themes is 'Ecological Infrastructure'. This work has also been enriched by global partnerships such as the Volkswagen Foundation partnership with Osnabruck University which provided space for summer schools, and is now leading to a special issue journal (to be co-edited by Jessica Cockburn, Matthew Weaver, Profs Lotz-Sisitka and Pahl-Wostl). The collaboration between the EI4WS team and the Living Catchments team with universities through the involvement of postgraduate students has also been a positive space for growth and learning. The team that met to reflect on and review the SLKMM and Xabisa course team's work is in itself interdisciplinary and cross-institutional (as is reflected in Table 4.1), and a number of participants in this meeting commented on the positive experience of coming together as a group. Thus, the EI4WS groups are linked into wider networks and teams working on similar issues and concerns. A positive addition to the 'catchment' groups is the addition of the economics groups out of the ISER through the Xabisa course project, and Professor Nhlanhla Mbatha has appointed a research associate (Reesha Kara) who is also working on the Xabisa course team, thus adding new perspectives that are enriching the traditional 'catchment / transdisciplinary' groups.

These collaborations are helping to strengthen working relationships, build capacity and create opportunities for learning and sharing in this nexus which is much needed. Out of this collaborative space it is encouraging to see a community of practice which is emerging in the research-policy-practice nexus around ecological infrastructure and water security.

4.2.2 ANNUAL STRATEGY REFLECTION AND REVIEW

4.2.2.1 INTRODUCTION and overview of annual strategy REFLECTION AND review meeting

On the 13th and 14th December 2021, the SLKMM project team, together with the Xabisa course team (both based at Rhodes University), coordinated an online meeting to support annual review of the SLKMM strategy and continue work on development of the Xabisa course. The implementation of the SLKMM strategy is aligning strongly with the Xabisa course which is a key platform through which to continue the 'strategy-as-practice' (Jarzabkowski & Spee, 2009; Lotz-Sisitka et al., 2016) work of the SLKMM. We used the opportunity to meet with the Knowledge Coordinator to discuss the work of both these teams. The meeting attendees are listed in Table 4.4 below. The meeting was held online via Zoom. The purpose of the meeting was three-fold:

1. to reflect on and review the implementation of the SLKMM strategy in the EI4WS project (specifically Component 3) over 2021,
2. to plan for the EI4WS Component 3 in 2022 (through the lens of the SLKMM strategy-as-practice),
3. with a specific focus on the role of the Participatory Course / Xabisa Course.

Table 4.4: List of people who attended the Annual Strategy Reflection and Review Meeting

No	Name	Organisation
1	Michelle Hiestermann	Water Research Commission (WRC): EI4WS Project
2	Roderick Juba	Water Research Commission (WRC): EI4WS Project
3	Jessica Cockburn	Rhodes University: Department of Environmental Science (DES)
4	Kwanele Siyengo	Rhodes University: Department of Environmental Science (DES)
5	Heila Lotz-Sisitka	Rhodes University: Environmental Learning Research Centre (ELRC)
6	Reuben Thifulufelwi	Rhodes University: Environmental Learning Research Centre (ELRC)
7	Maletje William Mponwana	Rhodes University: Environmental Learning Research Centre (ELRC)
8	Mzukisi Kuse	Rhodes University: Environmental Learning Research Centre (ELRC)
9	Robson Mukwambo	Rhodes University: Environmental Learning Research Centre (ELRC)
10	Nhlanhla Cyril Mbatha	Rhodes University: Institute for Social and Economic Research (ISER)
11	Reesha Kara	Rhodes University: Institute for Social and Economic Research (ISER)
12	Tanya Layne	South African National Biodiversity Institute (SANBI) / Living Catchments Project
13	Pienaar du Plessis	Living Lands
14	Slindile Mtshali	UKZN / Living Catchments Project
15	Tembeka Dambuza	Duzi Umngeni Conservation Trust
16	Nkosinginthandile Sithole	Duzi Umngeni Conservation Trust

Below is a brief overview of how the meeting unfolded:

Day 1:

1. Review and reflections on the EI4WS Component 3 work during 2021, i.e. on implementation of SLKMM strategy-as-practice, development of Xabisa course, and other key activities.
2. Presentation, update and discussions on the Xabisa course development process.
3. Presentation of one of the draft 'core texts' of the Xabisa course (Module 2, which will provide the final navigation tool to the knowledge resources related to key EI4WS practices) with group discussions and work-away sessions to refine the core text and identify additional contributions.

Day 2:

4. Reflections on Day 1 and sharing of key insights.
5. Presentation and discussion of updated course structure and outline, based on discussions on Day 1 using Miro Board tool (see Figure 4.3)
6. Discussion and planning for specific activities going forward (in smaller groups): Proposed Learning Indaba, Water Fund project, Postdoctoral Fellowships, etc.
7. Closing reflections shared via Google Jamboard tool (see Figure 4.4).

The discussions and outcomes of the meeting between the two project teams were integrated across the two areas of SLKMM implementation and reflection, and progress on development of the Xabisa course. In this report we focus on drawing out the relevant points from the perspective of the SLKMM work specifically, noting strong synergies. For example, in Figure 4.3 the overview of the Xabisa course is presented, and the course and project team have their own deliverables, yet it becomes apparent how important the SLKMM framework has been in shaping the development of the course, and how important the course will be in enabling implementation of the SLKMM practices across a range of contexts and applications. Here we note that the Xabisa course is not an 'addition' but was a core recommendation of the SKLMM strategy to catalyse its implementation and advancement.



Figure 4.3: Draft overview of the Xabisa course outline and structure using an online tool called Miro Board (<https://miro.com/>).

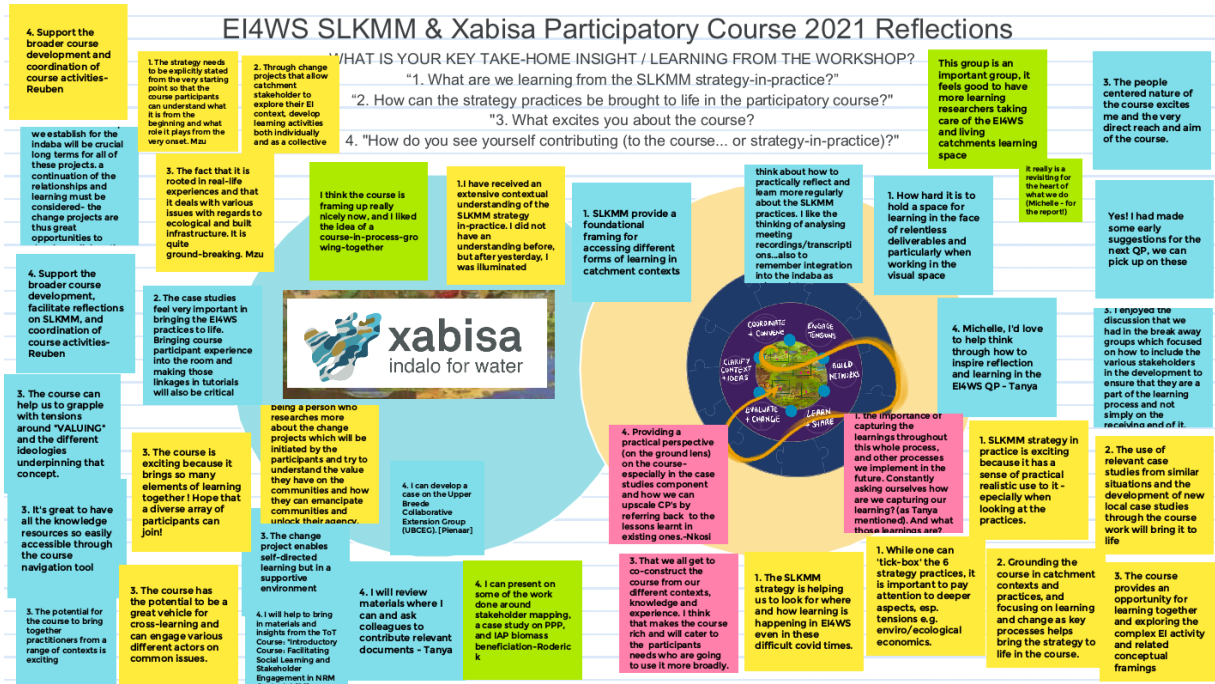


Figure 4.4: Closing reflections and take-home messages on the annual reflection and review workshop with the SLKMM and Xabisa course teams using Google Jamboard (<https://jamboard.google.com/>)

4.2.2.2 Key outcomes of the meeting:

On the second day of the meeting, we took some time to reflect and gather some insights and take-home messages from the time we had spent together. This was captured on a Jamboard (Figure 4.4). Here we briefly draw out key insights of direct relevance to the SLKMM strategy-as-practice:

1. What we are learning from the SLKMM strategy-as-practice:

- The SLKMM practices offer a useful framework to articulate the difference elements, forms and processes of learning taking place in the broader EI4WS project context – this could be useful to introduce and explain explicitly in the Xabisa course.
- The SLKMM practices and framework are only useful if grounded in the context, real experiences and the practices of stakeholders: we must be careful of working with the practices in a way that makes them too abstract and separates them out from one another as they are interconnected and need to be appreciated in a situated manner, i.e. the SKLMM practices framework is a *process framework, and its integrity as a process framework should be advanced*.
- More regular reflection is needed to keep an eye on how the practices are put into practice in the project, e.g. in quarterly reflection meetings, in various online spaces, etc.
- The need to capture narratives, stories and learnings remains an on-going challenge, compounded by the pandemic context, but the teams need to keep working at this. The SLKMM practices can be useful as a lens to look at and see the learning taking place in these stories and experiences, but we should not let it result in us having ‘tunnel vision’ either.
- The practices of ‘engaging tensions’ and ‘clarifying concepts and context’ require on-going attention: in this meeting we were reminded how important it is to grapple with the tensions around VALUING and different ECONOMIC frameworks (e.g. environmental economics vs. ecological economics) which underpin the framing of the EI4WS project.
- An on-going concern is the long-term sustainability and impact, and the potential for broader impact, of the SLKMM practices: this raises a question about who is learning, in which communities of practice, and how this is informing decision-making. It also requires careful thought with regards to the potential of events like the proposed Learning Indaba to catalyse the development of a focused community of practice around learning practices through which this work could live on beyond the life of the project.

2. How the Xabisa course is bringing the strategy practices to life:

Note: the six specific strategy practices (as shown in Figure 3.2) are highlighted in bold text below.

- The importance of contextualising and situating learning practices was mentioned a few times in discussion, and the potential of ‘change projects’ within the Xabisa course to do this was explored and discussed. Change Projects can enable participants to ground their learning within the context of their own realities, practices and catchments, while **learning and sharing** with others across contexts and catchments. Change projects are an essential ‘mediation tool’ for enabling engaged praxis and learning, and transformative agency development in localised communities of practice (cf. Mandikonza’s PhD research on change projects (Mandikonza & Lotz-Sisitka, 2016)).
- The course can provide a platform for participants and facilitators to grapple with and **engage with some of the tensions and contradictions** inherent in the project, e.g. around how we conceptualise value, and how we frame economics. Through the course, we can potentially learn together and **clarify key concepts, ideas and contexts**. The core texts should provide course participants with access tools to engage these tensions, and with tools to advance their practice.
- The course has the potential to **build networks** through developing a long-term community of practice among practitioners interested in learning and the other related areas of practice in the broader context of ecological infrastructure, finance for catchment management, etc. This community of practice can provide a platform to **coordinate and convene** conversations, learning events and activities across a diverse network. This is particularly important considering the EI4WS project is entering its final year of implementation, and there is pressure to ensure lasting connections and impact.

- The development of case studies for and through the course, drawing on narratives and stories from the catchments, can help with gathering data for evaluation (e.g. through the Value Creation Framework) to **evaluate the project and track change** over time.

The annual reflection meeting provided an important space for reflection, rich conversation, and connection among a range of relevant actors working on learning, knowledge management and mediation, and capacity development in the context of ecological infrastructure and catchment management. The group enjoyed the time together (despite the constraints of the online format), as noted by one participant in their closing reflections (Figure 4.4):

“This group is an important group: it feels good to have more learning researchers taking care of the EI4WS and Living Catchments learning space.”

Similarly, the Knowledge Coordinator, Michelle Hiestermann, noted the following about her experience of the meeting and reflections:

“It really is a revisiting of the heart of what we do.”

4.2.3 CONCLUSION: KEY INSIGHTS AND RECOMMENDATIONS FOR STRATEGY-AS-PRACTICE

As a synthesis of the outcomes of the reflection and review meeting and the on-going engagements with the project context, we now propose four questions that remain alive at the interface of the SLKMM strategy-as-practice and the Xabisa course (Figure 4.5). We urge the Knowledge Coordinator, and the Component 3 Working Group to keep these questions in mind as they enter the final year of the project. The questions can enable the strategy-as-practice to continue to guide the work of the project:

1. **Where and how is learning and change happening?** (in spite of challenges of COVID-19 and relentless deliverables and conventional reporting and M&E?)
2. **How can we ensure that learning is contextualised and situated in real landscapes, now and in the future beyond the project?** (in actual catchment landscapes, and landscapes of real experiences, practices and decision-making)
3. **How can we enable real grappling with questions around VALUE and the framing of ECONOMICS?**
4. **How can we best use new online tools to support learning? e.g. Kumu, Padlet, Miro, etc.**

In a more practical sense, our review of the strategy-as-practice and reflections reveal the following important actions and recommendations for the way forward:

1. **The development and implementation of the Xabisa course is a critical means of realising the potential of the SLKMM strategy-as-practice.** Careful monitoring and evaluation of the course as it unfolds will be critical for identifying the impact not only of the course itself, but also of the SLKMM strategy.
2. **The proposed Learning Indaba is a key opportunity to launch the course, identify potential participants, and begin building a network of learning practitioners.** Through this network, the work and impact of the EI4WS project could stretch far into the future, beyond the life of the funded project. Since the goal of Component 3 of the project is to create an enabling environment for learning and knowledge management, this kind of learning platform and network is an important outcome.
3. **The growing enthusiasm and interest around the SLKMM strategy-as-practice process framework provides impetus for publishing an academic paper** in which the framework is shared and reflected on. This could be a key output of the project, and an important learning process for the team itself. The paper should particularly be geared at supporting new researchers to enter this field as the need for ongoing engagement around social learning and knowledge management in a complex

and emerging field such as EI4WS is not likely to reduce, but rather require further capacity and skilled practitioners to advance this area of work.

4. A key task for the Knowledge Management and the Component 3 working group is to continue **to keep a sharp eye to look at where learning and change is happening in the project**. There is potential for analysis of EI4WS quarterly planning meeting recordings and documentation, and a research assistant or postgraduate student could be funded to do this work.

With specific reference to the Xabisa course:

5. **Recruitment and selection of course participants for the Xabisa course** is a key task which will need to be addressed by the course team in order for the course to reach the right participants and have impact across a range of sectors, contexts and levels. The Learning Indaba should assist with this. Due to the 'quick start' and immediacy of the demand to support stream 3 on CBWQM praxis, the team has already been working with the DUCT Amanzi Ethu programme to strengthen learning, and a version of stream 3 is under development in partnership with DUCT and GroundTruth, which is iteratively informing the Xabisa Indalo for Water course development and tools.
6. **Ensuring accessibility to and effective support in the course for a diversity of participants is crucial**: the course needs to be grounded in catchment stakeholders' real experiences and practices and therefore it needs to be accessible to a wide range of participants.
7. The course offers an important platform to **grapple with the tensions around VALUING and difference ECONOMIC frameworks** (e.g. environmental economics vs. ecological economics) which underpin the framing of the EI4WS project. However, there is also a need for this to take place beyond the course in the wider EI4WS project context, where there is potential for complacency around the use of key concepts and terms.

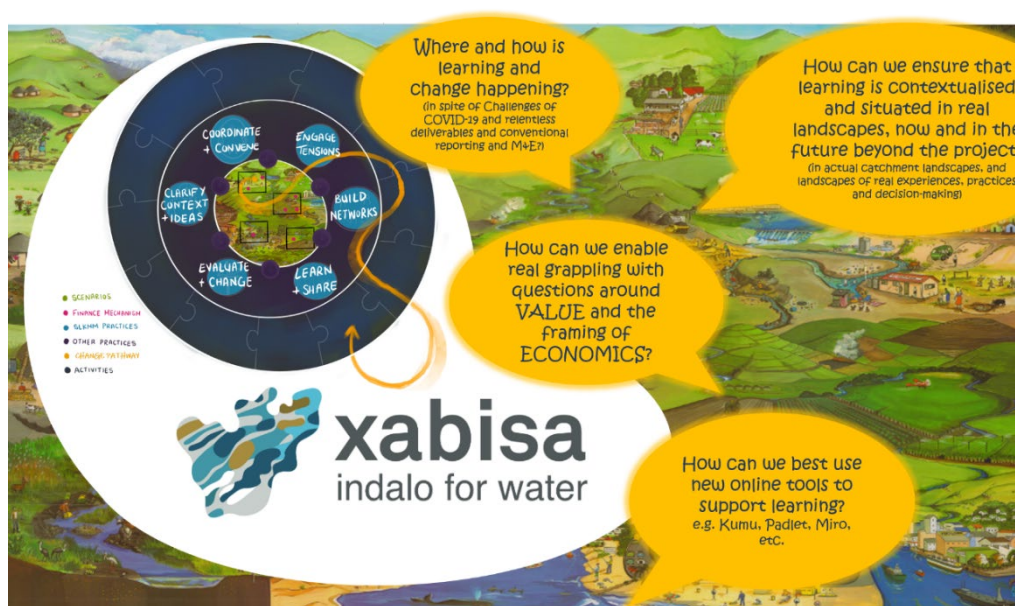


Figure 4.5: In this annual reflection meeting and report we have identified four key questions that remain alive at the interface of the SLKMM strategy-as-practice and the Xabisa course. These questions are important guides for the way forward for this team and the broader EI4WS project as it enters the final p stage of the project and the implementation of the Xabisa course.

In conclusion, the SLKMM project team remains encouraged by the positive way in which the SLKMM strategy, through the process framework of the six strategy practices, and the underlying orientation to co-engaged meaningful social learning in contexts of practice (e.g. through the change project model), is being brought to life in the EI4WS project. The strategy continues to take shape as a 'strategy-as-practice' (Jarzabkowski & Spee, 2009) within the EI4WS project, and particularly in the Xabisa course which is soon to be launched.

We celebrate the commitment and passion with which the Knowledge Coordinator, Michelle Hiestermann, and her team have continued to do this important work under trying circumstances. We look forward to contributing to the development of a long-term network of learning practitioners. Such a network is needed to keep the ideals and ideas of the SLKMM strategy-as-practice alive towards a more sustainable and equitable future for South Africans, all of whom live in a catchment and depend on ecological infrastructure for their well-being. The new scholars joining the programme at doctoral and post-doctoral levels across units, departments and institutions is encouraging in this regard, as is the connections and links with the Living Catchments programme and associated DSI/NRF platforms such as the NRF/DSI Community of Practice of research chairs focussing on social learning and sustainable development. Going forward, the evaluation of the SLKMM Strategy should include careful analysis of these contributing structures and how they are expanding both research-based engagement and capacity building for EI4WS within the social learning sphere (i.e. Component 3) of the national EI4WS programme.

4.3 ON-GOING SUPPORT IN 2022-2023

4.3.1 INTRODUCTION and key activities

The SLKMM project team's activities during the 2022-2023 financial year were primarily centred on providing on-going support to the Knowledge Manager and Postdoctoral Researcher (Michelle Hiestermann and Roderick Juba) at the WRC, and to supporting the development and implementation of the Xabisa Indalo for Water course. The following list provides an overview of the key activities of the team:

1. **On-going support and engagement with EI4WS Knowledge Management & Postdoc:** Through participation in key project meetings, related events like the Ecological Infrastructure Indaba, and on-going liaison via email and other communication platforms. Reflective conversations towards the end of the financial year enabled shared reflection on the outcomes of the SLKMM project used in this report.
2. **Co-planning with Xabisa Indalo Course team** (Dec 2021 for 2022-2023 year): This involved hosting a workshop at Rhodes University (one of the first post-COVID in person meetings) which was very productive in laying the foundations of the Xabisa Indalo for Water course, and to ensure alignment with the key principles of the Strategy as Practice approach, and the tools that were proposed in the Strategy (e.g. the MEL tools).
3. **Leadership, strategic SLKMM input, curriculum development, course materials writing and catchment-based support for development of two course pilots for Xabisa course.** The course pilot was tested in two sites – Umngeni (Amanzi Ethu Nobuntu / DUCT EnviroChamps) and Berg-Breede. The detail of the courses and their piloting is reported on in Project C2020/2021-00639, implemented by the Institute of Social and Economic Research at RU in partnership with the ELRC and the SLKMM team. The SARChI Chair of Global Change and Social Learning Systems, and the DSI/NRF CoP offered additional resources and support to the two course pilots in the form of a strong support team to co-facilitate the Amanzi Ethu Nobuntu course with the DUCT EnviroChamps team (Martin Micklesson, Preven Chetty, Reuben Thifulufhelwi, Maletje Mponwana and Priya Vallabh all offered regular support to this course) which was run by DUCT and GroundTruth in collaboration with Rhodes University (see Figure 4.6 below). This included curriculum development, materials development, development of assessment tools and reflection tools, as well as MEL dimensions.



Figure 4.6: SLKMM team contributing to the Amanzi Ethu Nobuntu programme through piloting of one stream of the Xabisa Indalo for Water Course focussing on monitoring activity.

For the Berg-Breede course, both Prof Mbatha and Prof Lotz-Sisitka supported Maletje Mponwana who took over running the course from Reuben Thifulufhelwi. The course was successfully piloted in the Berg-Breede with approximately 20 participants (see course reports in Project no. C2020/2021-00639) for further detail. A highlight of this course was a field excursion to the Water Hub in Franschhoek, run by Future Water at UCT (Figure 4.7 below).

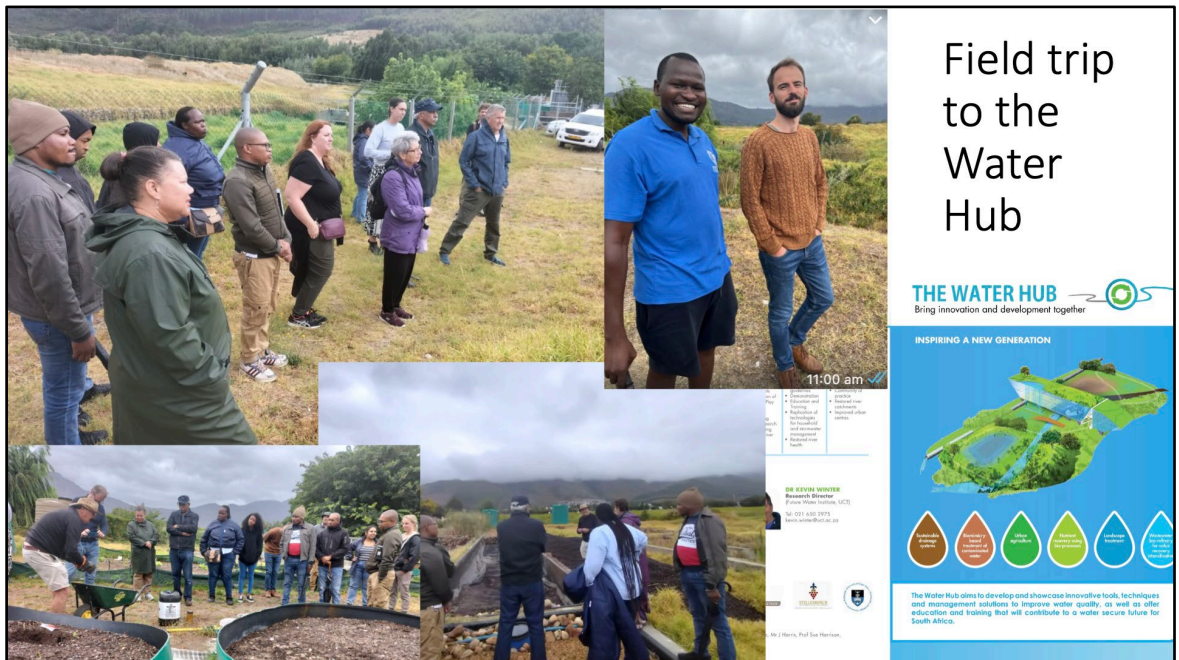


Figure 4.7: SLKMM Contributions to the design, development and piloting of the Xabisa Indalo for Water course in Berg-Breede focussing on investment and policy activity (featured above is a site visit to the Water Hub in Franschhoek).

Overall, the SLKMM and Prof Lotz-Sisitka's contributions (as part of the SLKMM strategy-as-practice) work included:

- a. co-ordinating the conceptual branding tools development for the Xabisa Indalo for Water course (cf. Figure 4.9 and 4.10 below)
- b. guiding and supporting the curriculum development, and materials development of the course, which included writing of course materials with Reuben Thifulufhelwi and Maletje Mponwana
- c. co-designing the evaluation tools for the course based on the MEL framework and guiding tools developed in the SLKMM
- d. attending the three Berg-Breede course sessions with Prof Mbatha and Maletje Mponwana, contributing to the facilitation, conceptualisation of the course programmes and tools
- e. development of short course assessment and accreditation tools for enabling certification of those course participants who complete change projects
- f. development of the change project model and associated support tools to facilitate advancing EI4WS practice in a range of grounded contexts
- g. contributing to the MEL of the courses and reflections on the programmes being developed and implemented in the two pilot catchments.



Figure 4.8: Conceptual graphic tools developed for the Xabisa Indalo for Water Course

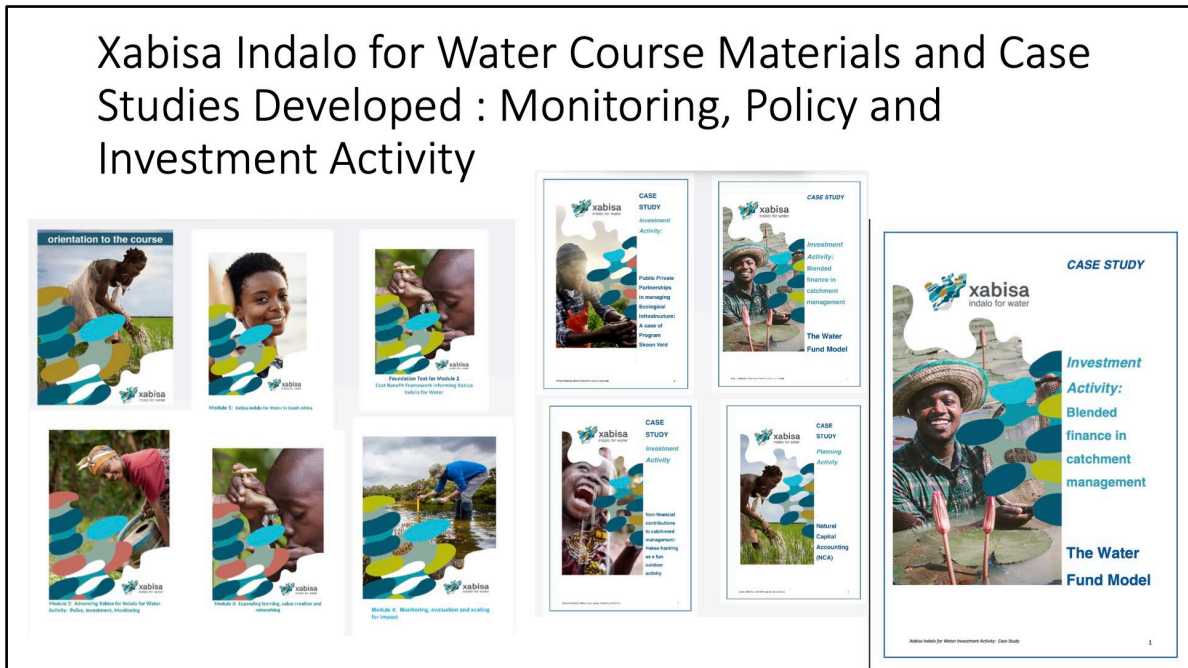


Figure 4.9: Visual and conceptual branding applied to the various course materials developed.

4. Linkages and integration of SLKMM Strategy as Practice into a range of other capacity development, stakeholder engagement and learning processes:

Two key events here during 2022 included the DSI / Amanzi Ethu hosted Indaba in Gauteng in March 2022 with key policy stakeholders in which the **‘Work for the Common Good and Learn for the Future’** programme which had been piloted in Amanzi Ethu Nobuntu programme with support from the Xabisa Indalo for Water course team, and the SLKMM team was presented, and reported on. An interesting outcome of this is the uptake of the ‘Work for the Common Good’ concept by the Presidential Employment Stimulus Programme. A further outcome included deliberation on establishment of a ‘green skills for just transitions’ hub / institute in South Africa, which was later built into the Presidential Climate Commission (PCC) investment framework for South Africa.



A second event was the reflection workshop held in Howick, focussing on the Amanzi Ethu Nobuntu programme. Here we reflected on key learnings from the programme, with the main one related to SLKMM being related to the learning programme construction and advancement for young South Africans to participate in EI4WS (see Figure 4.11).

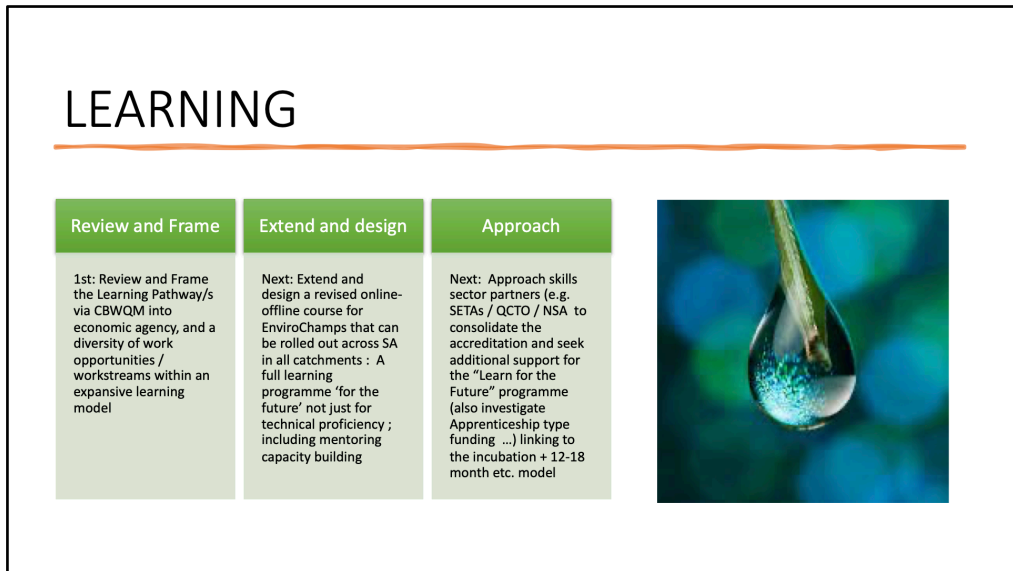


Figure 4.10: Key learning from the Amanzi for Ethu programme relevant to the SLKMM Strategy

We also put forward a framework for a new learning pathway for youth engagement in EI4WS which urgently needs to be developed (Figure 4.11). A partnership with UNICEF’s YOMA (Youth Marketplace Agency) platform was also put forward as one of the ways to explore this. Discussions are currently underway to set up a research programme with UNICEF to advance this work, and this is currently the main focus of the PhD of Maletje Mponwana (funded by the NRF under the SARChI Chair of Global Change and Social Learning Systems). Funding has also been raised by the SARChI Chair for two River Commons LABS (in the context of an international River Commons Research Programme) for Maletje Mponwana and Wandile Mvulane to continue their research in an engaged way with communities, this will continue to advance knowledge of social learning related to EI4WS in South Africa, as proposed in the SLKMM Strategy-as-Practice framework.

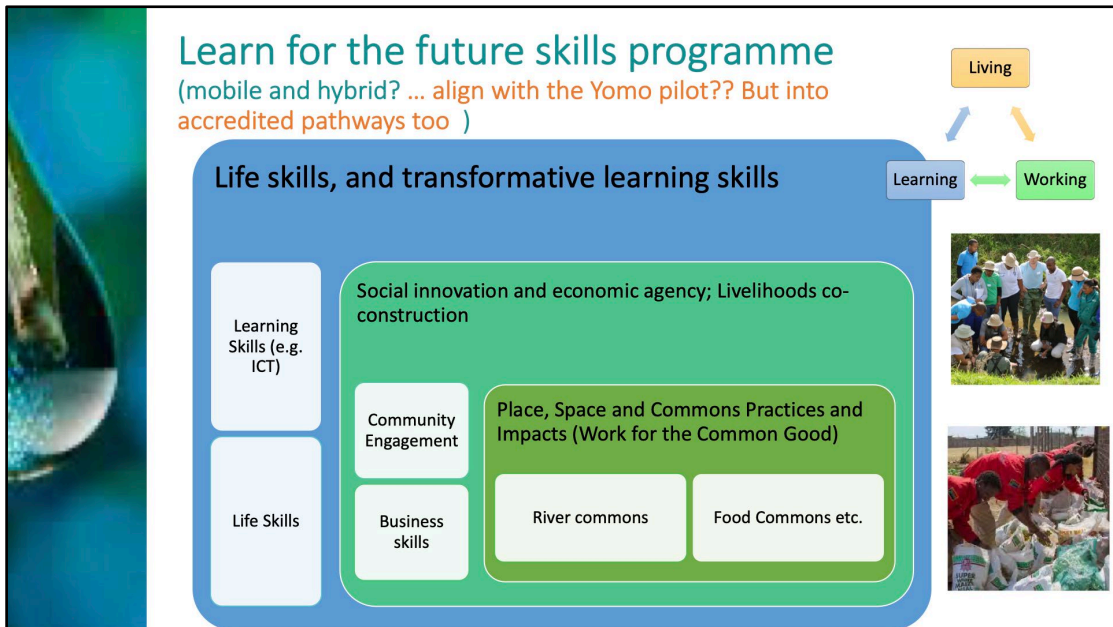


Figure 4.11: Learning for the Future Programme for young people to participate in EI4WS practices.

The programme was also represented in the Global Change skills development symposium event hosted as part of the Global Change National Research Plan 5th Conference at the University of the Free State in January 2023. Here Maletje Mponwana reflected on the insights gained from the youth engagement and participation in the Xabisa Indalo for Water Course supported processes in the

Amanzi Ethu Nobuntu context. This is also forming a key focus of his PhD study. A key insight from these engagements is the need to strengthen social learning pathways via more substantive 'joined up' opportunities for learning and to facilitate the development of viable learning pathways (accredited) for young people in South Africa, to advance their capabilities to access employment in the sector, and also to contribute to ongoing social learning and EI4WS. This requires a concerted effort to engage with the national systems of accreditation and provisioning, and especially with the work being done at present to re-think youth learning pathways and support from the Quality Council for Occupations and the Sector Education and Training Authorities in South Africa.

5. Capacity development through early-career researcher (ECR) advancement and postgraduate supervision (NRF SARChI Chair) in EI4WS, Living Catchments Project and related national and international programmes.

As can be seen from some of the reporting above, the EI4WS SLKMM has been involving a number of ECRs and post-graduate scholars and has also been supporting their research and career advancement, as well as supporting their integration into the national EI4WS networks. A short overview of this is included below:

- **Project Management Leadership:** Dr Jessica Cockburn took up WRC project management for the first time in the EI4WS Project, supported by Prof Lotz-Sisitka where needed. She has, through this process along with her other work, risen to be a strong and well recognised leader in this sector. She set up a partnership with the Living Catchments programme to strengthen social learning graduate support, and has been able to fund two post-graduates through this work: Kwanele Siyengo and Philisa Dunyana. Kwanele has contributed directly to the SKLMM framework and is undertaking research on this. Reuben Thifulufhelwi and Maletje Mponwana were also mentored into project management via the Xabisa Indalo for Water Course Project, by Dr Cockburn, Prof Lotz-Sisitka and Prof Mbatha.
- **Post-graduate studies in EI4WS study areas:** Nkosingithandile Sithole was co-supervised by Prof Sisitka and Dr Cockburn. She completed a study on social learning in the Amanzi Ethu Nobuntu project, and contributed to the Xabisa Indalo for Water course. Mzukisi Kuse took up MEL work in the Xabisa course, and in the Living Catchments Project context as part of his PhD, supervised by Prof Lotz-Sisitka. PhD scholars Preven Chetty and Wandile Mvulane also participated in the Amanzi Ethu programme, contributing to the capacity building of River Rangers and Data Detectives, and informing the courses, as well as MEL work on these projects. Their PhD studies are part of the international River Commons project coordinated out of Wageningen University in the Netherlands.

6. Aligning EI4WS Postdoc Dr Roderick Juba, and co-funding leveraged from NRF SARChI for Dr Robson Mukwambo.

Supported by The Nature Conservancy (TNC), the WRC and the NRF SARChI Chair, Dr Mukwambo and Dr Juba with inputs from DUCT, WWF and other partners, collaborated to develop a Feasibility Study contributing to the greater eThekweni Water Fund work which is ongoing. The Feasibility Study was specifically focussed on the Umkhomazi catchment, which is an important water provider to the eThekweni Municipality and its surrounding urban centres. The purpose of this was to support the development of an independent organisation to host the Water Fund, Amanzi Ethu Nobuntu, which at the time was operating the youth employment programme of the PES which the Xabisa Indalo for Water Course team and the SLKMM team were supporting with monitoring training as part of piloting the activity focus areas of the Xabisa Indalo for Water course. This was also to develop in-depth understanding of the blended financing approach as linked to a Water Fund, which contributed an additional case study to the Xabisa Indalo for Water programme.

7. **Development of SLKMM framework paper for publication in academic journal.** The team are currently working on development of an academic paper based on the SLKMM work that has been undertaken. The paper was planned out at the last project meeting and will be developed in the next few months.
8. **Annual Strategy Review & Reflection Process:** An online meeting was hosted by the WRC with the Component 3 Working Group and a questionnaire was sent out by Dr Cockburn to generate reflections on the SLKMM process this year. Insights from this are shared below.

ADDITIONAL HIGHLIGHTS, SYNERGIES AND COLLABORATIONS:

Resulting from the strong initial partnerships between the WRC, SANBI, the Rhodes University SLKMM project team, the UIEP partners (DUCT), and the Berg-Breede Catchment partners (Living Lands) who were involved in setting up and developing the SLKMM in the first year, a number of extended partnerships and outcomes have been achieved. The initial collaboration to establish the SLKMM has established a vibrant community of practice focussed on SLKMM for EI4WS in South Africa that has extended its reach and impact as follows, led by the core SLKMM team:

- Continued support to DUCT and Amanzi Ethu Nobuntu network including fundraising support for new phase of activity – leading to adoption at National (presidential) level of ‘Work for the Common Good’; a second phase of funding in the Amanzi Ethu Nobuntu programme, and new partnerships with UNICEF for the ‘Learn for the Future’ programme, currently being developed.
- Contributions to Living Catchments Indaba: Here post-graduates / ECRs involved in the SLKMM activities, including the Xabisa Indalo for Water course presented aspects of the work, Chaired sessions, and are clearly emerging as strong leaders for change in the South African water sector.
- Close links to Living Catchments programme have been established, with Living Catchments partners (Tanya Layne) contributing regularly to deliberations on social learning in the EI4WS space, to the SLKMM strategy-as-practice unfolding, and advising on the course. Additionally, this has led to further support for social learning post-graduate studies in the water sector.
- The DSI/NRF Community of Practice (led by Prof Lotz-Sisitka) links 11 SARChI Chairs in sustainability science and learning sciences to strengthen policy and practice impact for sustainability sciences in South Africa. A key focus of this work is development of transdisciplinary science and social learning. Two themes in this CoP focus on Clean Water, and EI4WS in landscapes. The CoP is also further developing MEL work for this sector. Recently Prof Rosenberg and a team of researchers, including Dr Cockburn offered a national training course on MEL using the Value Creation Framework. Other key partners in the CoP are Prof Shackleton from ACDI at UCT, who has been developing TD Social learning teaching approaches in the Berg-Breede catchment context; Prof Nelson Odume who has been developing community-based water quality monitoring and governance tools for EI4WS in the Sundays Catchment, Prof Martin Hill who is developing biological control sciences for EI4WS, Prof Mary Scholes who is working on systems approaches to EI4WS (including in Tsitsa catchment). This has enlarged the team of ECRs involved in EI4WS research and practice linked to the SLKMM.
- As part of the CoP, Profs Shackleton, Lotz-Sisitka, Rosenberg and Dr Cockburn collaborated to raise funding for Transdisciplinary Teaching in biosphere reserves with South Africa forming a Country-hub partner with partners in Canada and Germany. This is leading to International Transdisciplinary Learning LABS and various training programmes. This programme (TRANSECTS), which forms part of the DSI/NRF CoP, links Strategic Water Resources Areas with Biosphere reserves in South Africa and the South African TILL will have a strong focus on this aspect of EI4WS and SLKMM.
- Through the ELRC, DES, and NRF COP: Support for development of complimentary short courses and capacity development opportunities and events, e.g. Reflective Social Practice Short Course, Training of Trainers Short Course on Facilitating Social Learning and Stakeholder Engagement in

NRM Contexts, etc. A new Postgraduate Diploma Course has also been established focussing on Learning and Sustainability. This advances opportunities for qualifications in this important area of SLKMM practice.

4.3.2 ANNUAL STRATEGY REVIEW

For the 2022-2023 financial year, the SLKMM project team did not hold an annual in-person reflection and review workshop as in the previous years. This was due to pressure on all stakeholders in the sector, a sense of 'meeting overload' and many activities already on the go, as well as time pressures associated with the end of financial year for all partners involved. The Xabisa course team was also intensely involved in implementing the course over the period from November 2022 and February 2023, and demands for final reporting, making it difficult to find additional time for the reflection and review meeting.

In lieu of a team reflection and review process, the SLKMM project manager engaged one-on-one in reflective conversations with members of the SLKMM and Xabisa project teams and engaged the Knowledge Manager and Postdoc from the WRC. In addition, on 14th February 2023 we [sent out a mini-survey](#) to the relevant members of the EI4WS project and to the SLKMM project team to invite reflections on the ways in which the SLKMM strategy-as-practice may have influenced their work and practice.

This basic reflective survey was designed drawing on a realist evaluation framework which is based on the CMO scheme for evaluating complex initiatives: C: Context, M: Mechanism, and O: Outcome (Figure 4.12). The CMO scheme seeks to understand how context (C) and mechanisms (M) (in the case of the SLKMM strategy, learning and knowledge processes are seen as 'mechanisms' enabling change) interact with one another to produce outcomes (O) (Pawson, 2013). The value of a context-sensitive, realist approach to evaluating and better understanding collaborative and social learning processes in complex social-ecological systems is recognised in the academic literature, as we have described and discussed in Cockburn et al. (Cockburn et al., 2020). Note that this framework was used quite simply here to guide the development of evaluative, reflective questions, and not for deeper analysis of findings. The relatively simple approach to gathering data and the small sample size (only 6 participants respondents) did not allow for a full realist analysis of the findings.

The SLKMM team presented a brief final report at the EI4WS Component 3 Working Group meeting held online on Tuesday 28th February 2023. After this the DRAFT FINAL REPORT of the project was circulated to the working group, and they were also encouraged to contribute to the reflective survey.

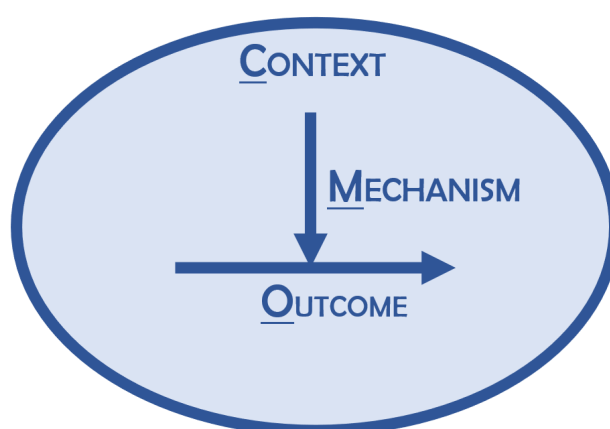


Figure 4.12: CMO (Context-Mechanism-Outcome) schema ((Pawson, 2013) used in realist evaluation, and adopted to frame the closing reflections survey of the SLKMM project (diagram adapted from Cockburn et al. (Cockburn et al., 2020).

The following questions were asked in the survey (via at Google Form at this link <https://forms.gle/qzXgBkFc8dHtcDaM7>)

1. In which context are you working in the EI4WS project, or partner projects? (e.g. EI4WS project management, component X, catchment Y, with stakeholders Z, sister projects, student, etc.)
2. Has the SLKMM Strategy-as-Practice influenced your work in the project in any way?
3. If you answered Yes/Maybe in question 2, please briefly describe how the SLKMM has influenced your work or practice.
4. Please list/describe some of the outcomes of SLKMM in your work or the project more broadly (you are free to note benefits and/or challenges), and/or share any KEY LEARNING from engaging with the SLKMM team and framework.
5. Let us know here if you have any other feedback, questions, etc. THANK YOU!

Only six people responded to the survey, and we have not conducted a thorough analysis of the data as it is not a representative sample. Nonetheless, we really appreciate the responses we did receive as they help us to understand the wider impact of the SLKMM strategy beyond the engagements noted above and reported in the previous annual progress reports.

Our initial analysis of the responses has identified a few key themes relating to A) mechanisms – HOW the SLKMM framework influenced people’s practices and the work of the project and related initiatives, and B) outcomes – the kinds of results and impacts which are emerging from this work. These preliminary findings are briefly noted in Table 4.5. Further analysis would be helpful and important, especially to investigate the interplay of context and mechanism to lead to certain outcomes, though a large data set would be needed to make this worthwhile and rigorous.

Table 4.5: Key mechanisms and outcomes of SLKMM strategy-as-practice implementation as expressed in close-out reflection survey.

Mechanism Themes	Outcomes Themes
<ul style="list-style-type: none"> ● Clear visual tools and accessible conceptualisation of core concepts (SLKMM practices) has enabled better implementation of the strategy in a range of contexts. ● Learning about SLKMM practices in the EI4WS was applied effectively in other work/project contexts. ● The strategy enabled improved design and facilitation of collaborative and social learning processes. ● The practice of ‘evaluate and change’ (through the VCF framework) has informed the work of the Living Catchments Project, a sister project. ● The practice of ‘engaging tensions’ was a new practice which has been adopted in a range of different contexts and enabled grappling with key issues in policy and practice. 	<ul style="list-style-type: none"> ● Improved process design in collaborative and social learning processes. ● More effective engagement with tensions and contradictions. ● Innovations in monitoring and evaluation (early stages, though this shows promise). ● Realisation of the importance of gathering feedback from participants of learning processes. ● More effective use of online tools to facilitate interaction and learning. ● Increased appreciation for the importance of collaboration and partnerships. ● SLKMM practises have emerged from an existing context and (facilitation) practice, and the context and practices continue to influence one another in a co-evolutionary manner (i.e. the SLKMM strategy practices emerged from practices on the ground). ● The development of a shared language, concepts, and community of practice around social learning (out of the EI4WS and other parallel processes and initiatives) has been valuable, i.e. the way these were articulated in the SLKMM strategy was beneficial beyond the EI4WS).

4.3.3 CONCLUSION: KEY INSIGHTS AND RECOMMENDATIONS FOR STRATEGY-AS-PRACTICE

Since this final progress report also aligns with the final project report for the SLKMM project, the key insights and recommendations will be integrated into Chapter 5: Synthesis and recommendations. Here we just briefly note a few specific insights relevant to the 2022-2023 financial year of the project.

4.3.3.1 *Significant role of the Xabisa Indalo for Water Participatory Course:*

As was noted in the strategy report and implementation plan in Chapter X, Section X, the course was designed to be a key vehicle for implementation of the SLKMM strategy, and it appears indeed to be bearing fruit in this regard. Further details on the processes and outcomes of the Xabisa course will be discussed in the separate project report (See Project no: C2020/2021-00639 reporting).

4.3.3.2 *Importance of carefully working with visual and graphic design elements and online facilitation tools*

In both the development of the SLKMM strategy, and the implementation of the Xabisa course, we employed experts in graphic design to support facilitation and development of visual products including diagrams, concept branding, course materials, etc. Furthermore, the two project teams sought to actively innovate with the use of online facilitation tools and platforms to enable more effective online learning, especially in light of the limitations on face-to-face engagements imposed by the COVID-19 lockdown and isolation regulations (e.g. tools like Miro Board, Jamboard, Padlet, etc. were piloted within meetings and processes facilitated by the SLKMM and Xabisa teams and the Senior Knowledge Coordinator in a range of EI4WS and related events). Feedback from both projects seems to indicate that the careful employment of visual elements and concepts branding, and effective use of online collaboration and facilitation tools does enable more effective engagement and uptake of concepts and associated knowledge and learning processes.

4.3.3.3 *The SLKMM project has enabled important capacity building both within the project team, the EI4WS project, and the broader landscape of practice*

- **Within the SLKMM project team:** Here, as noted above, there is clear evidence of ECR capacity development with ECRs becoming strong leaders in the EI4WS sector (especially Drs Jessica Cockburn, and Roderick Juba, and PhD candidates Reuben Thifulufhelwi, Maletje Mponwana, and Mzukisi Kuse). All are recognised figures in the EI4WS sector and Living Catchments spaces. Reuben Thifulufhelwi was offered a job by WWF to take up this work in the Mhlathuze catchment area (UMhlathuze Water Stewardship Partnership). Maletje Mponwana and Mzukisi Kuse are often engaged in national seminars related to EI4WS, Living Catchments, social learning and capacity building. Added to this are post-docs and post-graduate scholars who are completing degrees in this area, but who are also actively engaged in the field while doing so: Nkosi Sithole, Kwanele Siyengo, Philisa Dunyana, Ancois De Villiers, Wandile Mvulane, Robson Mukwambo and others (see above).
- **Within the EI4WS project:** Within the EI4WS project, we have seen capacity development amongst a number of partners involved in the courses and networks that have been supported by the EI4WS project's SLKMM activities, especially the Xabisa Indalo for Water course/s that were being piloted with strong engagement and involvement of catchment partners. Further detail on this is reported in the course reporting (See Project no: C2020/2021-00639 reporting). There has also been some evidence of capacity building for SKLMM amongst Component 3 Working Group partners who reported that the strategy-as-practice has enabled

them to more effectively convene and facilitate social learning processes, to implement monitoring evaluation and learning (MEL) frameworks, and to engage tensions as a key practice to enable transformative social learning (amongst other learnings).

- **Within the broader EI4WS landscape of practice:** Here the strongest evidence relates to the presence of the SKLMM teams and projects in broader EI4WS events, such as the Living Catchments Indaba, the Global Change 5th National Research Conference, etc. where the importance and significance of including a Social Learning focus into EI4WS has been advanced. Additionally, we have been learning a lot about translation and bridging practices between economics discourses of EI4WS, and the social and landscape management discourses of the NRM sector. Here Prof Mbatha, from the Institute of Social and Economic Research has particularly been helpful in articulating these (captured in more detail in the Xabisa course reports (See Project no: C2020/2021-00639 reporting)). The range of accredited short courses hosted by the ELRC and partners through Rhodes University have also played an important role on expanding capacities and networks within the broader landscape of practice. This has laid an important foundation for relationships, skills development and impact beyond the life of the EI4WS project.

CHAPTER 5: SYNTHESIS AND RECOMMENDATIONS

This brief synthesis of the five-year SLKMM project begins by revisiting the intentions set for Component 3 of the EI4WS and revisiting the specific project aims of the SLKMM project. We then reflect on the implementation of the SLKMM strategy practices. Drawing on the insights from the on-going review process captured in Chapter 4, we then discuss key insights from implementing the SLKMM and their implications for on-going and future work in this unfolding landscape of practice. We conclude with a set of recommendations both for the broader emerging landscape of practice, and for the EI4WS post-project road map.

5.1 REVISITING PROJECT AIMS AND THE INTENTION OF THE SLKMM STRATEGY-AS-PRACTICE

As the SLKMM project draws to a close and we bring together and review all the reflections, learning and impacts of this initiative, we revisit the intentions of Component 3 of the EI4WS project, and reframe the objectives of Component 3 as an evaluative question:

Has social learning, credible evidence and knowledge management improved the integration of biodiversity and ecosystem services into the water value chain?

We say YES, it has, and it has done so through a range of different activities, mechanisms, partners and organisations.

The on-going support reports presented in Chapter 4 paints a rich picture of how the work of the SLKMM project team, along with Component 3 Working Group and the wider EI4WS project team and partners has indeed improved the integration of biodiversity and ecosystem services into the water value chain. This has been enabled through the creation of learning and capacity development processes as outlined above, and also through support to the Knowledge Manager and Postdoctoral Fellow in their knowledge management work.

The strong links with key projects and events in the sector such as the Ecological Infrastructure Indabas, the Living Catchments Project, and on-the-ground partner projects such as the Tsitsa Project and the Amanzi Ethu Nobuntu (AEN) project have further enabled the integration of biodiversity and ecosystem services into the water value chain (see for example Cockburn et al. (2018) and a set of policy briefs published by the Tsitsa Project [available at this link](#), and [information on AEN at this link](#)).

In Table 5.1 we review the aims of the SLKMM project (project K5-2988). We have reached all the aims set out for the project, as the five chapters of this report clearly indicate. We would also argue that through leveraging a range of additional partnerships, platforms, funding sources, and capacity building initiatives, that we have exceeded the aims and expectations we initially set out, but we have not done this one our own, or in isolation, and could not have done so without much collaboration.

Certainly, the way the landscape of SLKMM practice has widened and deepened in the last five years makes us as a project team feel excited, validated and proud of the contributions we have made to this growing and impactful field of work. The third and final progress report in Chapter 5 (Section 5.3) provides the relevant details and insights on this expanding process.

Table 5.1: Revisiting and reflecting on the project aims.

PROJECT AIM	PROGRESS
1. Develop an appropriate conceptual framework for social learning within the EI4WS project team as well as within the wider set of project stakeholders, supported by review of relevant literature and lessons learned from other initiatives.	Aim reached. See Chapter 2, Section 2.1.
2. In conjunction with project partners, design a process for strategy development that includes, as a minimum, situation and communities of practice / stakeholder analysis that builds on and refines the information contained in the approved Project Document. The focus will be on Communities of Practice (CoPs) in a landscape of practice, around the shared object / activity of EI4WS.	Aim reached. See Chapter 3.
3. Develop a communities of practice / stakeholder database and tracking tool that outlines the project related role-players, their relationship to EI4WS activity and the evidence base/knowledge resources that they can contribute to supporting uptake of the EI4WS project, as well as which tracks their project engagement and social learning (SL) interactions over time.	Aim reached. See Chapter 2, Section 2.2.
4. In the design of the strategy, employ an iterative, consultative approach involving field analysis, field interviews and at least one workshop and other stakeholder engagement in order to develop a concise project strategy for social learning and knowledge management that provides an approach and set of methods specifically tailored to the project and its objectives.	Aim reached. See Chapter 2, Section 2.3.
5. Develop an accompanying implementation plan that spells out specific activities, resource requirements, responsible project partners/stakeholders, enabling conditions, dependencies and assumptions.	Aim reached. See Chapter 3, Section 3.3 and 3.5
6. Develop a monitoring and evaluation framework for the strategy that feeds into and reinforces the social learning and knowledge management and mediation processes.	Aim reached. See Chapter 3, Section 3.4.
7. For a period of three years subsequent to the development of the strategy, enhance continuity between strategy development and implementation by providing support and expert advice to the WRC and component 3 working group on a. Expansive, transformative social learning and knowledge management and mediation processes as designed and developed within the Strategy with relevant CoPs / stakeholders in the catchment; b. Support decision making around implementation of the strategy; c. Support strategy review and adaptation; and d. Strengthen EI4WS project team capacity for expansive, transformative approaches to social learning and knowledge management and mediation.	Aim reached. See Chapter 3, Section 3.5, and Chapter 4 and 5.

5.2 REFLECTING ON IMPLEMENTATION OF THE SLKMM STRATEGY-AS-PRACTICE AND IDENTIFYING KEY INSIGHTS FOR PRACTICE GOING FORWARD

5.2.1 Implementation of six core SLKMM practices

While the SLKMM strategy-as-practice comes to life in the catchment contexts and partnership networks described above, it is the clear and accessible articulation of the six core practices that seems to have enabled much of the linking up and collaborating in this landscape of practice. We therefore return to these six practices to explore the ways in which they have been implemented and brought to life (Table 5.2). While the presentation of the reflections on the six practices are shown in a table which might inadvertently over-emphasise their 'separateness' we want to stress their interconnectedness, synergies and context-

dependence. We also want to emphasise that these practices were of course named and articulated in this strategy-as-practice framework by the SLKMM project team, however they emerge from the landscape of practice within which the EI4WS was conceived of and conceptualised, and from the practice of the partners and networks whose work informed the development of the EI4WS and related projects and initiatives. The SLKMM project team acknowledges and appreciates this rich context and history of practice within which this particular articulation of SLKMM took place. As one of the respondents to the SLKMM closing reflection survey noted:

“One thing that stands out for me is that the SLKMM practises are part of a context ... they emerged out of observation of emerging practises on the ground and are being reinforced in various ways through a myriad of projects, the strategy itself, and importantly the various social learning facilitators working at national and catchment level.” (Respondent 6 in the EI4WS SLKMM Close-out Reflections Survey).

This history and context of the SLKMM strategy-and-practice is possible its biggest strength going forward beyond the life of the EI4WS project itself. The project has enabled the articulation of these practices and a firm embedding of them in a network and landscape of practice, but none of this is entirely new and its longevity and sustainability is therefore far more likely than if it had been introduced completely ‘from scratch’ in this project context.






What also becomes apparent when looking at the reflections on implementation of the core practices is the strong interconnections not just between the six practices themselves, but also between on the one hand the *EI4WS project management activities* which articulated strongly with the practices and brought them to life, but also the *myriad of formal and informal capacity building and network building activities* both within and beyond the EI4WS context which have strengthened the practical implementation of the practices. While courses like the Xabisa course and the various related Rhodes University short courses discussed in Chapter 4 offer formal opportunities for social learning, knowledge management and mediation, project meetings and other events like workshops, conferences, Indabas, etc. are also increasingly being design in a more learning-oriented manner and are critical events for network-building, learning and sharing, engaging tensions, and so on. The manner in which these spaces are designed facilitated is increasingly being carefully considered, so that they are not just ‘tick-box’ exercises to appease funders and decision-makers, but that they are meaningful sites of learning and relationship-building. One of the respondents in the close-out survey described this as follows:


“The ‘purple diagram’ :) outlining the key strategies have been core to how the project management activities have been approached, from the design of our agenda's to how we work with development of products, to how we design processes for the various areas of work. It is our approach to how we work in a team, into our organization and with our stakeholders and partners.” (EI4WS SLKMM Close-out Reflections Survey Respondent 1).

Moreover, the monitoring, evaluation and learning (MEL) framework, i.e. the value creation framework (VCF) proposed for the strategy has had an important influence on the overall M&E approach of both the EI4WS and the Living Catchments Project. There has been a lot of enthusiasm and interest in this approach, leading to the offering of a 5-day “VCF and Social Learning Research School” hosted at Rhodes University from the 20th to 24th February 2023. Respondent 1 from the survey further noted the interest in working further with the VCF in the final two years of the EI4WS project and how it might become especially useful for making the case for SLKMM-type work in future projects:

“We are actively working with M&E and trying to make that work better, but we still have some work to do there. I think we it would have been useful to have more regular M&E moments around the strategy to capture that as we were implementing to help build the story out through implementation. I think there is still an opportunity to do that in the remaining two year of the project. This would be really useful in making the case for such strategies and ways of working in future GEF and GCF projects.”

Table 5.2: Reflections on implementation of six core SLKMM strategy practices (refer to Table 3.1 for details on the strategy practices).

Strategy practices	Reflections on where and how this practice was implemented in the EI4WS project and wider landscape of practice
<p>Strategy Practice 1: Coordinate and Convene</p> 	<ul style="list-style-type: none"> • Close collaboration between the Knowledge Management and the EI4WS Project Management team to support, facilitate and design effective collaboration and learning within and across the project components and catchments. • Knowledge Manager and Postdoc Fellow played a key cross-cutting role coordinating SLKMM activities across the project components and catchments, and also with other relevant networks, platforms, etc. (See “Strategy Practice 4: Build Networks”).
<p>Strategy Practice 2: Engage Tensions</p> 	<ul style="list-style-type: none"> • ‘Xabisa Indalo for Water’ Course – piloted in Umngeni and Berg-Breede. Discussions and engagements in the course enabled participants and facilitators to grapple with some of the inherent tensions around concepts like ‘value’, ‘investment’, etc. and to discuss these based on participants’ own practice and activities (rather than only from an academic, conceptual perspective). • Annual Reflection and Review Meetings of the SLKMM and Xabisa project teams: key tensions that emerged over the year were reflected on during these meetings.
<p>Strategy Practice 3: Clarify Context and Ideas</p> 	<ul style="list-style-type: none"> • ‘Xabisa Indalo for Water’ Course – piloted in Umngeni and Berg-Breede. The course process enabled participants to clarify key concepts and link them to their work and context. • Postgraduate research and supervision: the strategy practices are being worked with and the core concepts clarified through a number of postgraduate student research projects, • Annual Reflection and Review Meetings of the SLKMM and Xabisa project teams: we found that these meetings were a useful opportunity to clarify our understanding of the project context and key concepts, especially when new members joined the project and raised questions and uncertainties.
<p>Strategy Practice 4: Build Networks</p> 	<p>Links to other related initiatives, projects and initiatives maintained or new ones developed by core EI4WS project team members, and members of the SLKMM and Xabisa Course projects. Some examples of these include: Ecological Infrastructure Indaba, Living Catchments Project, Tsitsa Project, various short courses run by Rhodes University (e.g. Reflective Social Practice, Training of Trainers in Social Learning and Stakeholder Engagement, etc.)</p>
<p>Strategy Practice 5: Learn and Share</p> 	<ul style="list-style-type: none"> • ‘Xabisa Indalo for Water’ Course – piloted in Umngeni and Berg-Breede: this was a central mechanism for enabling learning and sharing at the catchment level, both among local stakeholders, and also between course facilitators and participants. • Contributions to design and facilitation of Ecological Infrastructure Indabas. • Learning-oriented activities in quarterly planning meetings

Strategy practices	Reflections on where and how this practice was implemented in the EI4WS project and wider landscape of practice
	<ul style="list-style-type: none"> • Postgraduate research and supervision.
<p data-bbox="204 488 576 555">Strategy Practice 6: Evaluate and Change</p> 	<ul style="list-style-type: none"> • Adoption of Monitoring, Evaluation and Learning (MEL) framing by the EI4WS Project Management team. • Use of Value Creation Framework (VCF) to generate narrative data and stories of change through surveys and interviews, both at learning events, and with various stakeholders and partners. • Efforts by Knowledge Manager and Project Management team to support and seek alignment with the M&E framework to the funder. • Capacity building and knowledge exchange on the use of VCF, e.g. 'VCF School' hosted by RU ELRC in February 2023. • Sharing of VCF approach by the Knowledge Manager in her new role at the Presidential Climate Commission signals potential for wider uptake of the approach in the sector and at national levels.

5.2.2 Emerging themes and insights to shape the way forward

Drawing on both Progress Report 3 and the reflections noted in 5.2.1 above, we now discuss three emerging insights from the implementation of the SLKMM strategy-as-practice.

5.2.2.1 *The SLKMM strategy-as-practice has enabled articulation and integration of shared practice*

As we discussed above, the SLKMM strategy was not a strategy that was 'parachuted in' as a novel set of concepts and activities, but rather it was developed out of existing practices and ways of working, as per the notion of 'strategy-as-practice' (Jarzabkowski and Paul Spee, 2009) articulated in Chapter 2. Consequently, the strategy was also implemented in an organic way within the existing set of networks and partners working on SLKMM work in the catchments and wider national landscape of practice. The strategy team acknowledged this multi-layered, interconnected landscape of SLKMM practice in its early work, as illustrated Figure 2.4 and 3.1.

The key contribution of the SLKMM project team's work has been to develop and *provide accessible concepts and language, expressed with clear visuals and diagrams, for practitioners to articulate their shared practice and integrate their practice* across a wide range of initiatives, platforms, organisations and areas of work (as illustrated in Figure 2.4 and 3.1). This has enabled an expansion of learning around what it means to facilitate and practice social learning, knowledge management, and mediation in the context of investing in EI for water security.

A key enabler of this articulation, integration and expansion has been leveraging the *value of the visual and the virtual*. The use of *visual images, concept branding and diagrams* which are easily shared, as noted in the quote above from one of the close-out reflection survey respondents, the illustration of the six core strategy practices has become fondly known as "the purple diagram" in the project team (and also further than the project). The concept branding developed for the Xabisa Indalo course has similarly been beneficial in

engaging people in the course and communicating in a positive, connected and professional manner (See Figure 4.8 and Figure 4.9).

The exploration and piloting of a range of online tools to enable learning in virtual environments has been key. The COVID-19 pandemic forced us all to work online for many months, and in this time the SLKMM team and others in the project took the opportunity to upskill and learn the use of the following tools, amongst others, to enable online facilitation of social learning and knowledge exchange:

Whilst the six core practices of the strategy enabled articulation and sharing of SLKMM practices and concepts, the actual learning processes which the strategy-as-practice enabled and facilitated, in particular the Xabisa Indalo for Water course, have been important for further *clarification and contextualisation of core concepts and ideas* (as per strategy practice 'clarify context and ideas', see Table 3.1). In particular, these learning processes have helped with *bridging and translating between the different fields, disciplines and perspectives* which have been brought together in the EI4WS project, and thus enabled engagement with tensions (strategy practice 2, see Table 3.1). This bridging and translating process is critical to enable co-engaged learning among diverse stakeholders around a still emerging object of activity.

Prof Nhlanhla Mbatha, the leader of the Xabisa Indalo Course project team, reflected on this process in the Xabisa course as follows (note we have italicised key aspects):

"Basic core texts on economic measurements and valuations were provided to participants months in advance. After getting a profile of the course attendants, however, *the presentation of the course material was modified*. Revised presentation slides for the group were created on the day before the first session. While the core text material was more general in the way that it presented topics on the pros and cons and the role of measurement in economics, the first session discussion took a step back away from economics concepts. We discussed generally the meanings of concepts like *the act of investing in something, investments in general, including investments of effort, time and money*. We then discussed the *meanings of value* to establish a common understanding of these meanings. This was done before discussions of what economic valuation or measurement or estimation meant. The reasons for doing this was to ensure that we all *shared the same or similar understandings of these concepts*. *This was important to establish because participants came from different backgrounds and experiences*. So, this introductory discussion was different to one that could be done with economics students, where a lot of jargon would have been commonly shared before discussing topics in Environmental Resources Economics.

What the discussion of these concepts also did was *open a window for placing economic valuation within a broader scientific discourse on sustainability*. For example, the discussion on acts of *investing*, emphasis could be placed on *investment efforts in saving or restoring or sustaining the environment and its related resources*. This discussion happened organically. It was not planned. But it was also facilitated by the visual illustration of a living catchment with its ecological infrastructure in the presentation preceding by Prof. Lotz-Sisitka. Using the illustration, it was easier to speak about efforts to restore the infrastructure as an act of investment (through money or time or labour). This was something participants could easily imagine from having done themselves in their own work in the Breede River catchment. It was easier to then ask participants to relate and share stories of these investment efforts. *The discussion allowed in a natural way a bridging of gaps between economic concepts and daily work*. But it also required patience and more time from facilitators for everyone to reach to a common understanding of what investment (whether in terms of finances or time or labour) really means. I also think that the bridging could only happen because all facilitators were present in the room of different discussions and therefore obvious links could be made across the discussions."

Prof Mbatha's reflections illustrate the importance not only of creating the right kind of learning pace and space for grappling with concepts across boundaries, but also of the importance of careful facilitation and listening in to the participants' contexts and needs in such learning processes and adjusting course processes accordingly.

5.2.2.2 *The SLKMM strategy-as-practice has provided and catalysed important capacity and development*

There is clearly a hunger for more effective interpersonal engagements, and a need for further skills development and knowledge sharing on these practices, hence our proposal that we don't just see the SLKMM as 'strategy-as-practice' but also 'strategy-as-capacity-development', acknowledging the life-long learning nature of this kind of work. A wide range of people, processes, and so on have all fed into significant capacity development momentum and outcomes in, around and through the SLKMM and Xabisa work in EI4WS. It is encouraging to see that formal capacity building events around SLKMM practices and skills are attracting high levels of participants.

A key area in which capacity has been built and where the SLKMM strategy practices have been brought to life is in people working to *more carefully craft collaboration*. The SLKMM strategy-as-practice has enabled more thoughtful engagements among stakeholders. The kind of phrases people use to talk about this include: "planning of interactions", "convening spaces", "designing processes", "fruitfully engaging tensions", etc. What this speaks to is a shift in the quality of social processes, and a recognition of the importance of relationality in social-ecological systems practice, which is also being recognised in research on collaborative catchment initiatives more broadly in South Africa (Cockburn et al., 2020).

Another really significant area of capacity development which the SLKMM and Xabisa course pilots have enabled is the youth in the demonstration catchments. The synergies that were explored and leveraged with the Presidential Employment Stimulus (PES) funds in partnership with DUCT and others have brought important gains to the work of EI4WS and its partners. The national-level impact of this work (described in details in Chapter 4) attests to the need for more youth and activist-focused capacity development and learning investment.

5.2.2.3 *A lush, deep and wide landscape of SLKMM practice is unfolding*

In collating and writing this report, we have repeatedly referred to the expanding 'landscape of practice'. Through the life of this project we have facilitated and observed the multi-level influence and impact of the SLKMM strategy-as-practice across a wide range of organisations, policy spaces, platforms, levels of governance and action, including (but by no means limited to): DBSA, SANBI, WRC, Umngeni catchment, Amanzi Ethu Nobuntu, Berg-Breede catchment, BGCMA, Living Catchments Project, UCP, Tsitsa Project, TRANSECTS project, River Commons, and so on (See also Figure 2.4 and 3.1). We see this is the unfolding of a lush, deep and wide landscape of SLKMM practice shared by so many committed, passionate and thoughtful practitioners, researchers, activists, decision-makers and community members.

The 'landscapes of practice' concept is borrowed from the recent work of Beverly and Etienne Wenger-Trayner (Wenger-Trayner et al., 2014), who are most well known for their work on communities of practice. They describe some of these recent theoretical developments which are the core of their book 'Learning in Landscapes of Practice' as follows (*italics are ours*):

"Theoretically it represents a new step in the evolution of the theory: We focus on *landscapes of practice*, rather than single communities or networks as a key locus of social learning capability. We introduce the concept of *knowledgeability* as an outcome of learning with respect to a landscape, which includes a lot of practices in which one cannot claim competence. Theoretically knowledgeability

is a landscape-level counterpart to the concept of competence, which is defined at the level of communities of practice.” ([Wenger-Trayner & Wenger-Trayner, 2015](#)).

So, drawing on these ideas, we ask you, the reader, to take a moment to reflect:

- **Firstly: Do you see the lush, unfolding landscape of social learning, knowledge management and mediation (SLKMM) practice? and do you see yourself, and your practice within it?**
- **Secondly: And do you see a growing, collective knowledgeability in SLKMM, to which you are contributing?**

We do! Not only do we see ourselves in the landscape, and our relational contributions to the knowledgeability, but if you’re reading this report, it also means we see you too! And we thank you for that. For the landscape is nothing without the practitioners who jointly form it, and the knowledgeability is only what it is for our on-going, interwoven contributions to it.

5.3 RECOMMENDATIONS

The three recommendations discussed here draw on our experiences and learning in facilitating the SLKMM strategy-as-practice over the last five years.³

Recommendation 1: The “joined-up” nature of the SLKMM landscape of practice calls for careful and on-going linkages to be developed between the range of partners working in the EI4WS context to expand existing and build new long-term and formal relationships around capacity development for SLKMM practices.

While universities (in our case, Rhodes University, but of course there are many others) are still considered a leader in the development of the shared ‘knowledgeability’, their leadership and knowledge is empty and lifeless without engagement with communities, practitioners, policy-makers, and other important knowledge-makers and holders in the living catchments where our water is produced and ordinary people’s lives are lived. The networks of learning and sharing with the EI4WS project has enabled require strategic planning to ensure long-term funding and support.

In particular, we in the university are finding it increasingly difficult to ensure that learning opportunities are accessible to the South African public and would like to be part of critical conversations as to how such capacity development can be funded and made available to the people and organisations who should most benefit from it. The innovative work in the Amanzi Ethu Nobuntu pilot course has shown how important democratising learning and science (e.g. through citizen science and activist research and engagement) is, and how innovative learning pathways are needed to do the learning and work for the future.

Recommendation 2: Future projects should be designed to ensure sufficient time for reflection and learning within and across project components. This should include careful design of deliverables which are such important levers for action in large grant-funded projects like the EI4WS.

One of this biggest barriers to learning in the EI4WS has been a lack of time and human resources. In so many of the meetings and conversations we as the SLKMM project team have been a part of, members of the EI4WS

³ In the Component 3 Working Group meeting held on 28th February 2023, the SLKMM project team were asked to make specific recommendations towards the EI4WS post-project road map. Here they are.

have expressed their exhaustion and stress. More realistic project timeframes and more dedicated time for reflection and learning needs to be put in place to address this.

Recommendation 3: A “Learning for the Future Programme for young people to participate in the on-going co-evolution of EI4WS and SLKMM practices” should be developed as a key outcome of the EI4WS project.

The innovative cross-boundary work which has taken place in the Amanzi Ethu Nobuntu project through the PES funding needs to be leveraged and built on to ensure longevity of the vision of the EI4WS project. There is now adoption of the ‘Work for the Common Good’ concept at National (presidential) level in South Africa. Exploring this work going forward in partnership with UNESCO and others is an invaluable opportunity to ensure learning, networks and positive impacts of the EI4WS and AEN work is not lost.

It is only through careful and effective investment in capacity development and co-engaged learning processes with the youth living and working in our catchments that the shared language and practices of SLKMM can continue to evolve and grow in response to the ever-changing sustainability and social justice challenges of our country.

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APPENDICES

APPENDIX 1: METHODS FOR STAKEHOLDER ENGAGEMENTS IN DEMO CATCHMENTS FOR CONSULTATION AND DELIBERATION OF SLKMM STRATEGY

1. GREATER UMNGENI CATCHMENT DIALOGUE INTERVIEWS

Methods

Stakeholders for interviews were selected based on their existing involvement in the activities in the catchment, and based on the fact that their perspectives on SLKMM would be different from other stakeholders interviewed, i.e. a diverse sample was sought to capture the wide range of stakeholders relevant to EI4WS. Three stakeholders were interviewed in the Greater uMngeni catchment.

Interviews took place in a form of dialogue. Dialogue interviews involve engaging the interviewee in an informative and reflective easy conversation which provides insight into the challenges and issues the interviewee faces.

We prepared seven questions including follow-up questions. The question was asked while having the conversation as a form of exchanging knowledge with the participant. This method is flexible and less intense which puts minimal pressure on the participants, as they are not just the subject but are also engaging throughout the process. The following questions provided a pool of questions based on the Value Creation Framework from which we drew questions based on the context of each particular respondent:

- Q1: Challenges understood: "In relation to water security in your catchment, what are the challenges?"
- Q2: Understanding expanded over time: "Has your understanding of these challenges changed over the time that you've been involved in the catchment? How?"
- Q3: Solutions Understood: "What are the solutions to water security issues in the catchment?"
- Q4: Understanding expanded over time: "Has your understanding of the solutions changed over the time that you've been involved in the catchment? How?"
- Q5: Learning from each other: "Are there opportunities for learning about the water issues, challenges and solutions taking place in this catchment? What are these opportunities?"
- Q6: "Who learns from whom in this catchment?"
- Q7: Learning applied: "What actions have been taken so far to address the water security issues in the catchment? Has the learning you spoke of been applied in these actions? Please expand a little?"
- Q8: Changing practices and learning embedded in the system "What do people or organizations do differently now in relation to water security in this catchment, than they did before? Has this been informed by learning?"
- Q9: "Have any new partnerships been formed through which the issues and challenges can be tackled? Please mention them"
- Q10: "Have any new agreements or guidelines been put in place to inform new practices and actions? Please mention them"

2. BERG-BREDE CATCHMENT DIALOGUE INTERVIEWS

Methods:

Stakeholders for interviews were selected based on their existing involvement in the activities in the catchment, and based on the fact that their perspectives on SLKMM would be different from other stakeholders

interviewed, i.e. a diverse sample was sought to capture the wide range of stakeholders relevant to EI4WS. Three stakeholders were interviewed in the Berg-Breede catchment area.

Using the VCF Storyboard helped to guide the flow of the conversation. A one page events summary with photos was shared with the interviewees to give an overview of all the past engagements and functioned as a good reminder of the intention and set-up of previous workshops and fieldtrips. The key questions which guided the dialogue were;

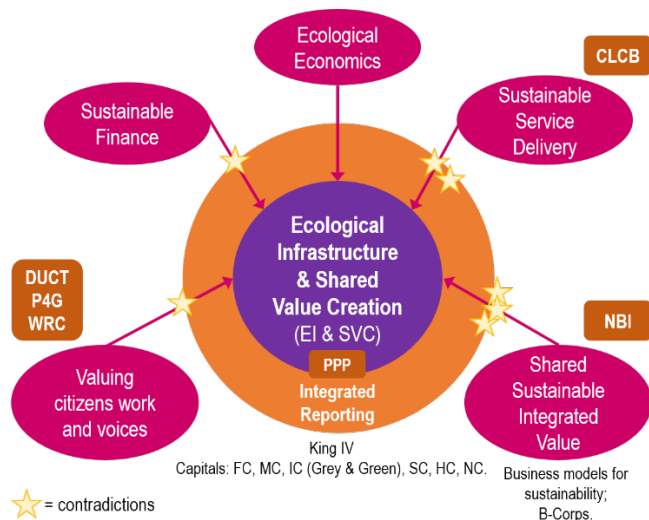
- Q1: What was your experience of engaging in this way (structure of event)?
- Q2: Where there specific elements (enablers/barriers) that made this event successful/not successful?
- Q3: What did you get out of it/What was the result?
- Q4: What should be the next step?

The setting of the dialogue is important. It was held in a space which the interviewee chose, there was privacy and the first 5-10 minutes was informal conversation. Each interview was booked for an hour or slightly less, however the conversation flow was not interrupted when we went over an hour. It is important to note the time, in case the interviewee has other engagements, but make it clear that there is no hurry. Active listening practices was applied – only asking clarifying questions to facilitate the conversation flow without too much interruption.

NOTE: Due to the potential for pseudo-anonymity, we have decided not to describe the findings in this Appendix. Please contact the authors of the report if you are interested in these additional details.

APPENDIX 2: TOOLS FOR SLKMM STRATEGY-AS-PRACTICE IMPLEMENTATION

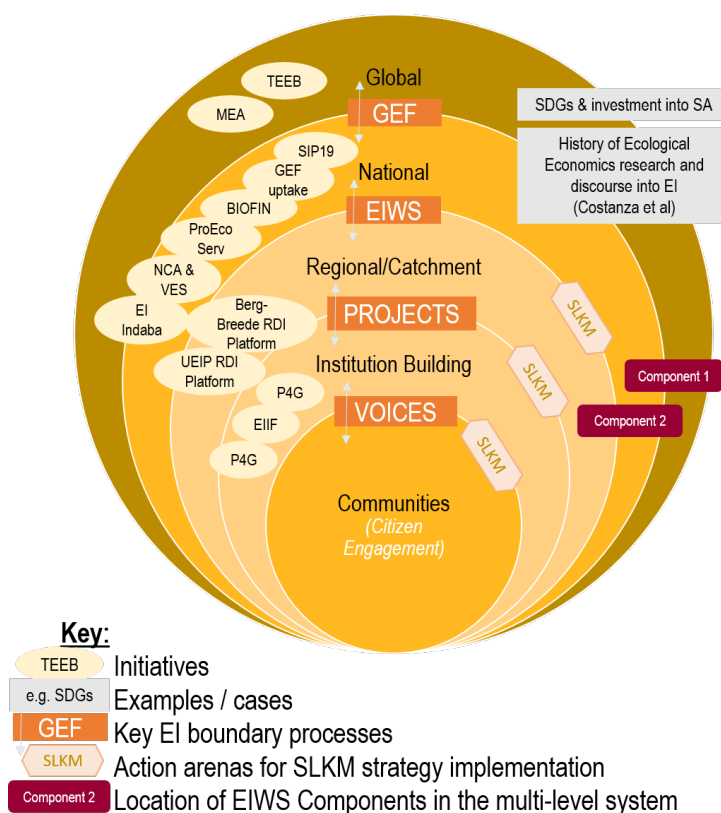
TOOL 1: FRAMEWORK OF CORE CONCEPTS: tool to guide strategy practice 3 – clarify context and ideas



Framework of core concepts which frame and articulate the EI4WS ‘object of activity’ with some emerging contradictions highlighted, as well as some of the key stakeholders involved.

Key: DUCT = Duzi Umngeni Conservation Trust; P4G = Partnering for Green Growth and the Global Goals 2030; WRC = Water Research Commission; NBI = National Business Initiative, PPP= Public Private Partnerships; CLCB = Centre for Local Capacity Building. Capitals: FC = Financial Capital, MC =Manufactured Capital, IC= Infrastructure Capital, SC= Social Capital; HC= Human-made Capital, NC= Natural Capital. King IV refers to the King IV framework for institutional governance.

TOOL 2: MULTI-LEVEL CONTEXTUAL PROFILING FRAMEWORK: tool to guide strategy practice 3 – clarify context and ideas



Multi-level contextual profile framework for SLKMM in the EI4WS project – with emphasis on boundary crossing SLKMM processes between different TYPES of activity systems (e.g. between citizen engagement activity systems and institution building activity systems, or between institution building and the UEIP initiative).

TOOL 3: MURALS AND PUBLIC ART AS COMMUNICATION AND DIALOGUE TOOLS

We recommend murals and other forms of public art as a fun and creative activity which can help with the communication of the concept of 'Ecological Infrastructure for Water Security' (conceptualised by Liezl Kruger, Living Lands).

To bring the concept of EI4WS home to the 'demo' catchments, we develop a collective mural painting of key elements of the catchments, and to convey the context and key ideas of the EI4WS project (Strategy Practice 3). One could be made in the uMngeni and one close to the watershed of the Berg and Breede. This can be done in an accessible public space through a paint-by-numbers approach to allow many people to contribute to one painting. A good space for it may be at a school or community centre. To connect the catchments the painting can be done on the same day, and for example live tweeted.

Below is an example of the kind of image which could work for this kind of mural: This is a painting called 'La Source', a 20-meter long painting by advocate and artist Charles Frank, which was done in collaboration with CWBR, to create awareness of biosphere reserves (From: <https://www.capewinelandsbiosphere.co.za/latest-news/la-source-painting-gains-guinness-recognition>).

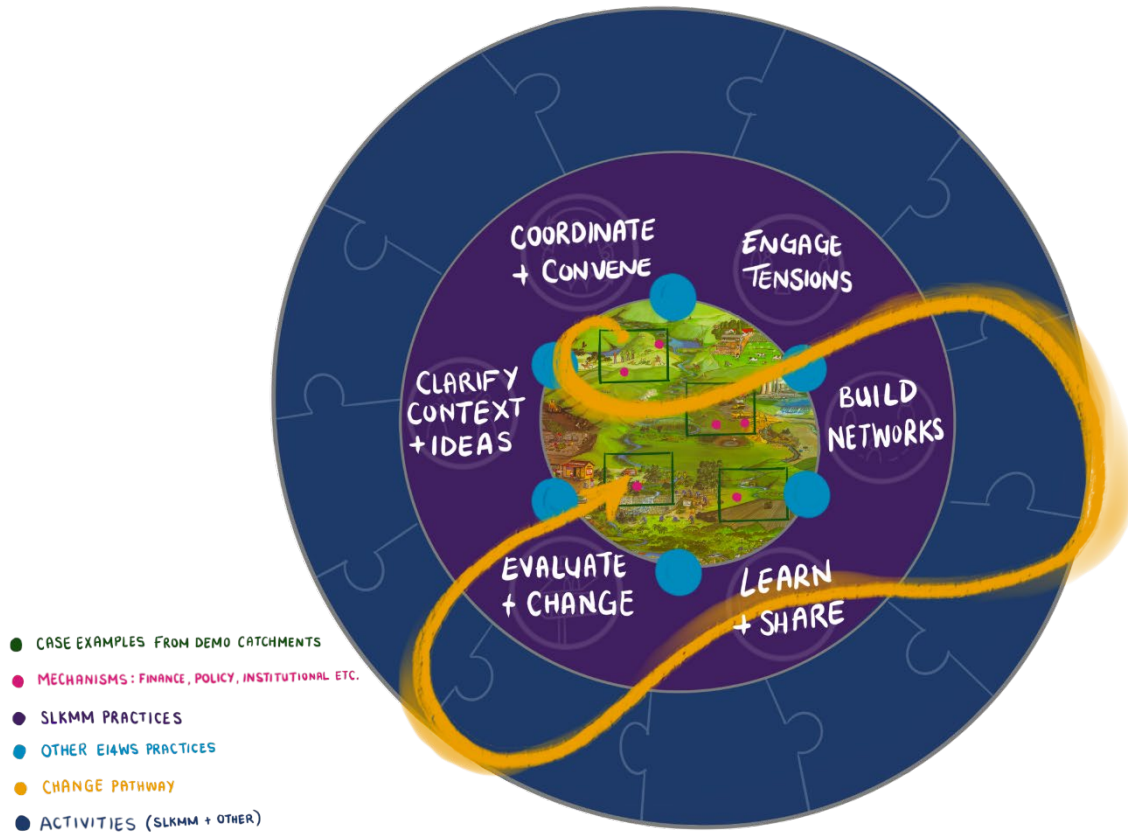


Below is another example of public art related to catchment management: 'storm drain art' (From: <http://www.stormwaterpa.org/public-art-takes-on-pollution.html>)

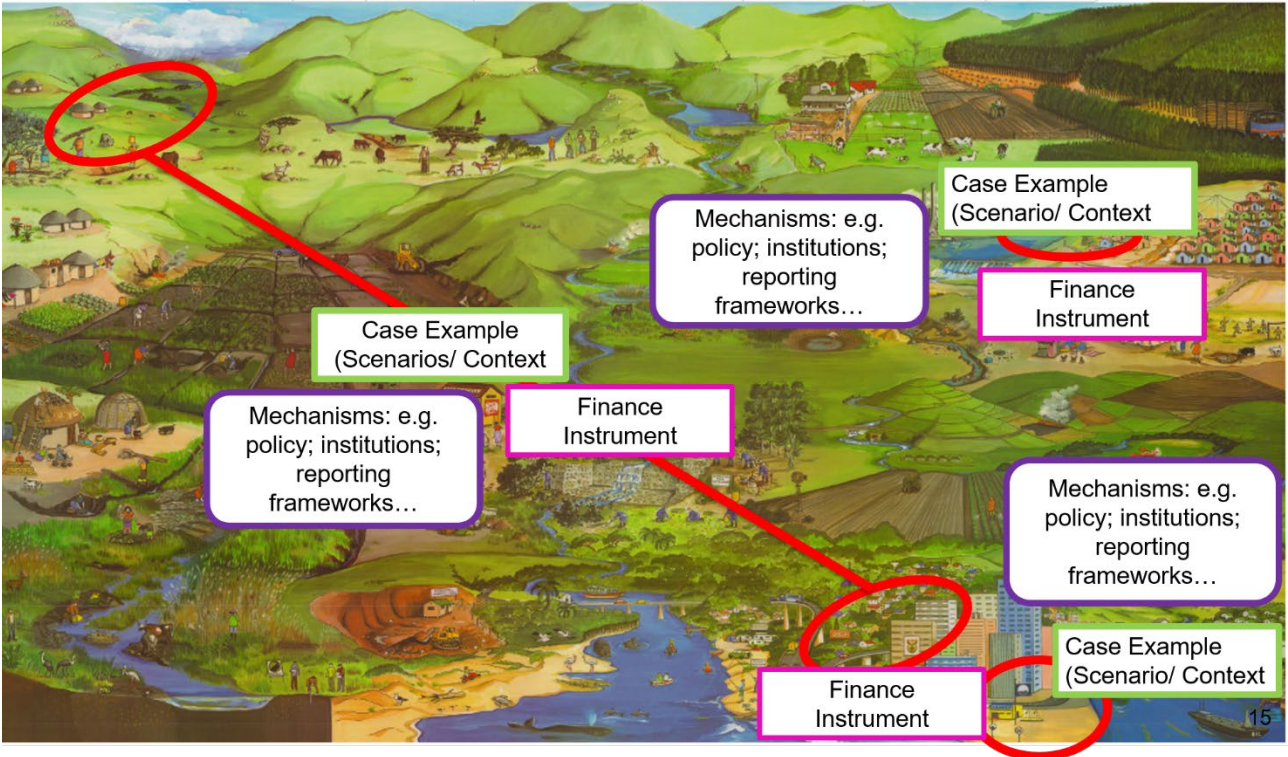


TOOL 4: GROUNDING, CONTEXTUALISING AND CLARIFYING TOOL

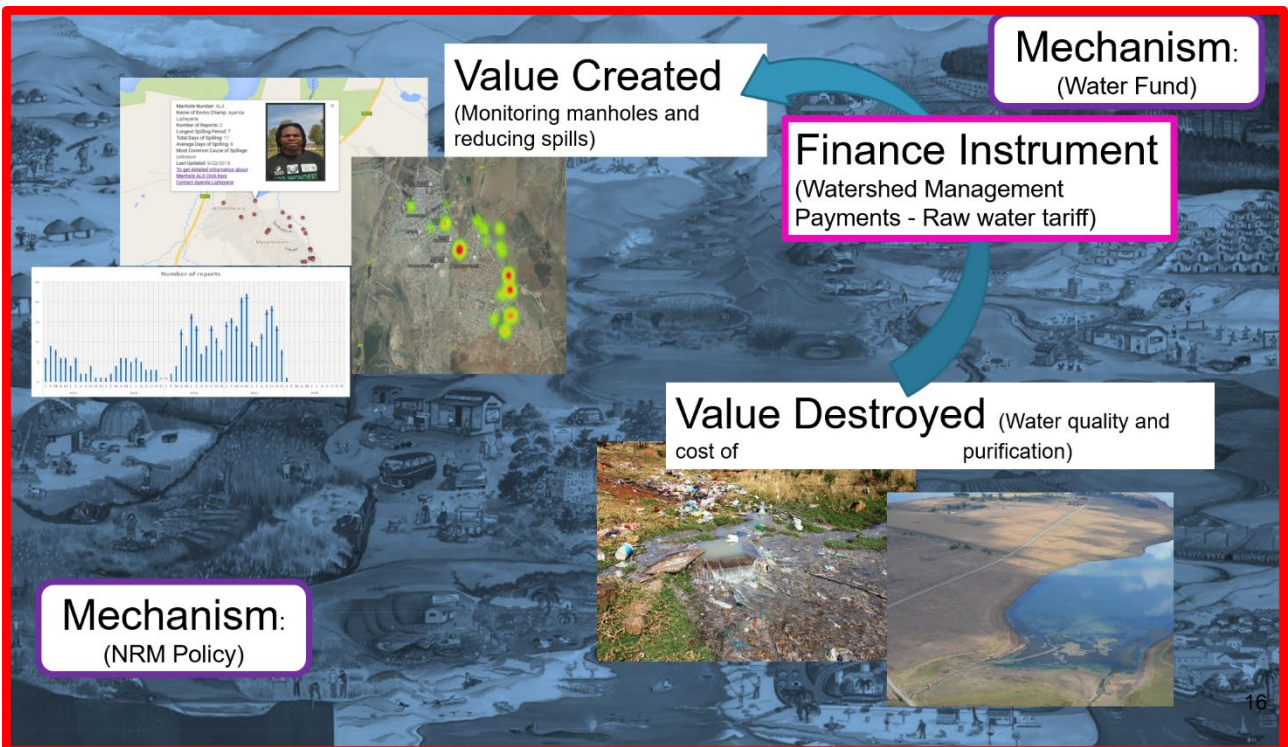
The diagram below is a useful tool to guide a process of grounding, contextualising and clarifying in the EI4WS. It can guide the GROUNDING of SLKMM practices within the wider EI4WS project – in its practices and activities; it can guide a process of CONTEXTUALISING the EI4WS in case examples from demonstration catchments (green boxes with pink dots in the middle of the picture); and it can help to CLARIFY the concepts, practices and activities of the EI4WS project through dialogue and discussion.



The series of diagrams below illustrate how this tool can be used to guide a process of **identifying specific case examples or scenarios from demo catchment contexts**, from which **finance instruments and various other mechanisms** can then be elucidated in relation to EI4WS practices and activities:



In the next diagram, an example of such a case examples / scenario is shown. This can be used to identify value created and value destroyed, and to **identify financial instruments and other mechanisms** to support the shift from value destroyed to value created.



The next two diagrams are examples of printable materials than can be used in a workshop or dialogue process to support use of this tool:

Printable tool 1: Identifying case examples, value created and destroyed, financial instruments, and other mechanisms.

Case Example (Scenario/Context):

Value Created:

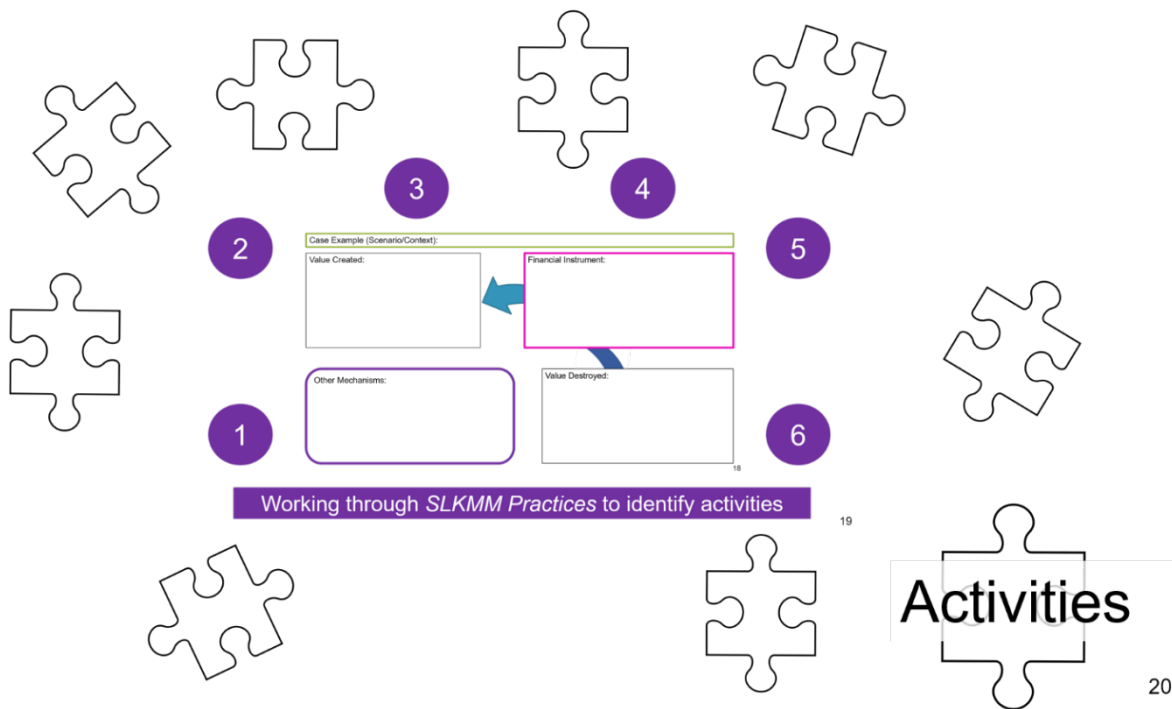
Financial Instrument:

Other Mechanisms:

Value Destroyed:

18

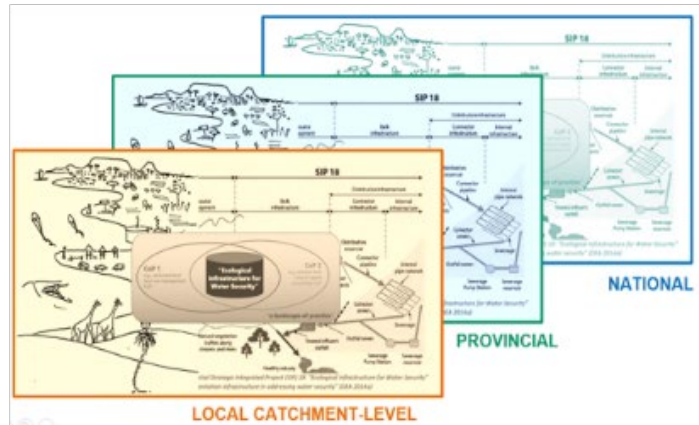
Printable tool 2: Using the worked case example to identify SLKMM activities by working through the six SLKMM practices.



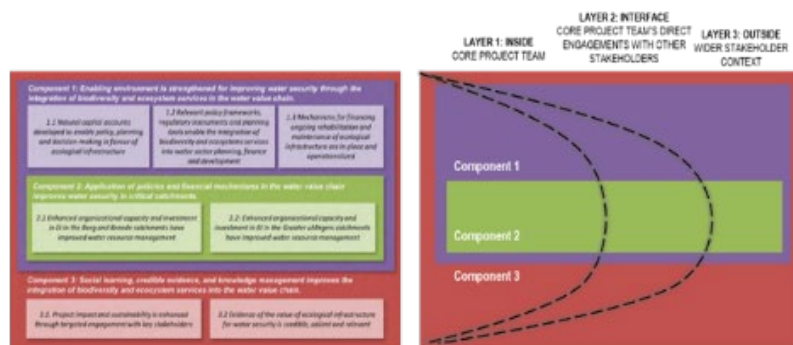
TOOL 5: VARIOUS STAKEHOLDER TOOLS (SEE CHAPTER 2 FOR DETAILS)

The figures below illustrate some of the stakeholder identification, analysis and databasing tools proposed for the SLKMM strategy. Background discussion and further details of these are provided in CHAPTER 2.

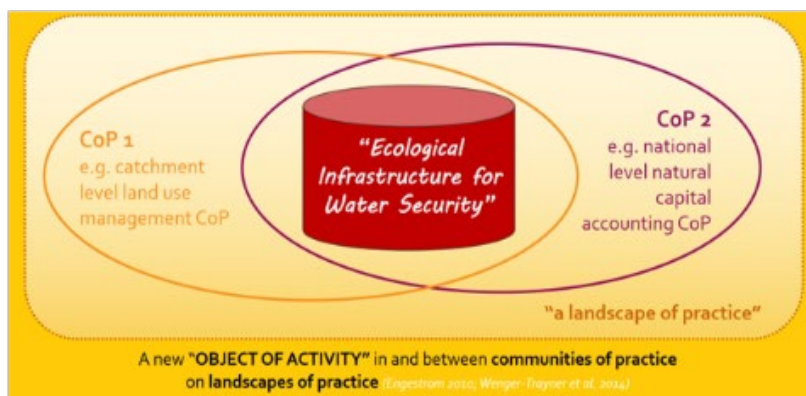
A: EXTENDED, MULTI-LEVEL VALUE CHAIN: Using an extended water value chain across multiple levels to identify stakeholders.



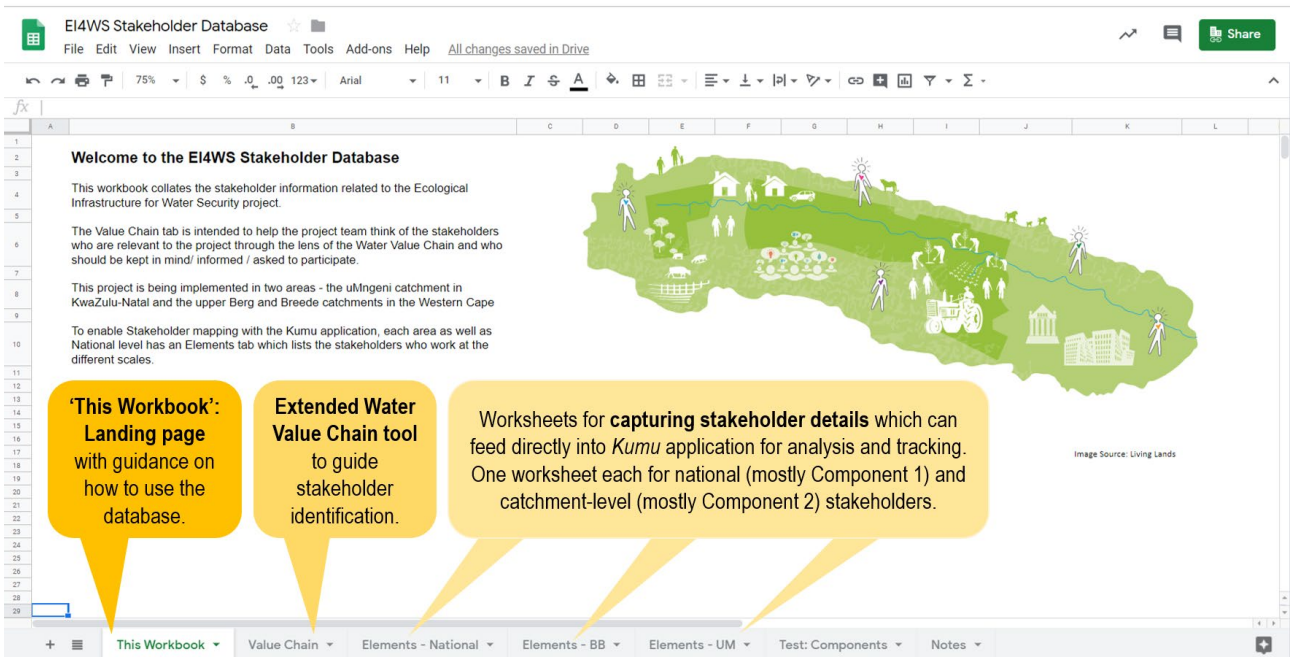
B: INSIDE, INTERFACE, OUTSIDE: Key stakeholders are located in three layers, i.e. Layer 1: inside the EI4WS project team, Layer 2: at the interface of the EI4WS and other stakeholders, and Layer 3: outside in the wider stakeholder context..



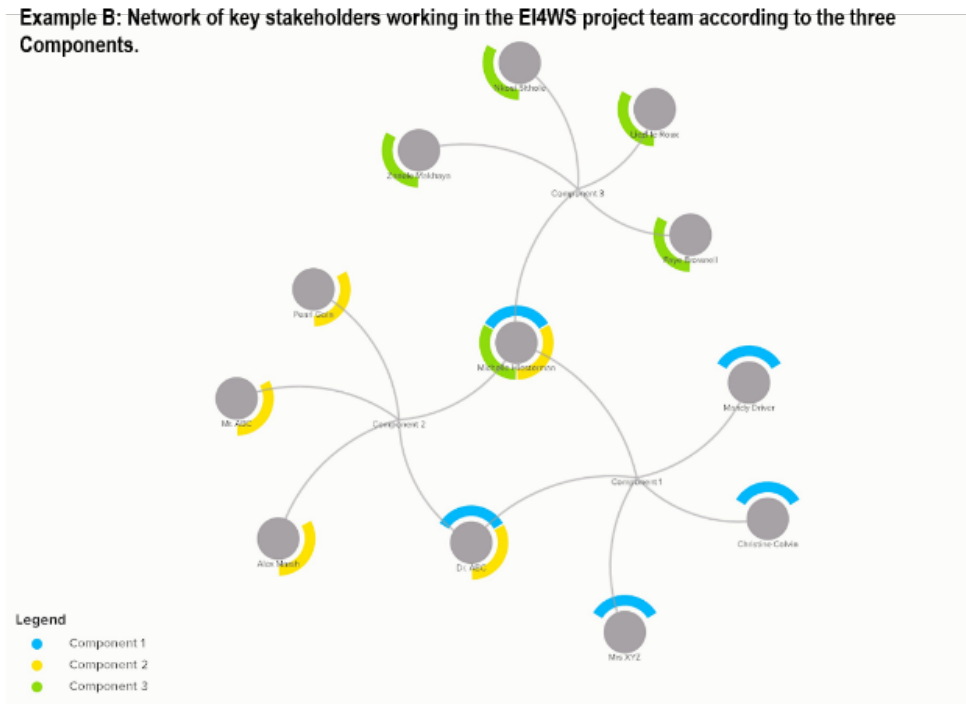
C: INTERSECTING COMMUNITIES OF PRACTICE: The EIWS landscape of practice, on which multiple communities of practice (CoP) come together and intersect around a shared object of activity.



Three key considerations for understanding the stakeholder context of the EI4WS project for SLKMM: A: Extended, multi-level water value chain, B: Inside, interface, outside, C: Intersecting communities of practice (Engeström, 2016; Wenger et al., 2002; Wenger-Trayner et al., 2014).



Annotated screenshot of the EI4WS stakeholder database currently under development to support implementation of the SLKMM. Speech bubbles indicate key features of the database. The link to the Database on Google Drive will be shared with the Knowledge Coordinator. The database needs to be password-protected to ensure privacy of stakeholders' personal information.



Example of visual stakeholder network produced using the Kumu applicationB: EI4WS project Components (Note: networks are incomplete and for illustrative purposes only). (Images by Liezl le Roux, Living Lands)

Tool 6: Additional tools for communication, learning and sharing

These can be developed through the use of social media, sharing of video examples, written papers and policy briefs. Importantly there is need to give attention to the media use patterns of stakeholders involved in the programme. For example, in the Amanzi for Food programme we found that smallholder farmers were using community radio as their main form of media use, while extension officers were using a national website and the Farmers Weekly magazine as their main sources of information. University academics were using academic networks and twitter. This shows a differentiated media use profile amongst different stakeholders, and it is proposed that the SLKMM baseline data generating process include a question or two on preferred media usage patterns to inform the communications of the programme. Within a multi-levelled framework as outlined above, there is likely to be need for a differentiated approach to communications. The Amanzi for Food programme also shows that there is a relationality that exists between types of media being used. For example, a radio programme catalyses visits to the project's Facebook page, which in turn catalyses use of the website.

- **Network-building processes:**

The SLKMM process should also keep good quality records of network building processes and also communicate emerging outcomes from practice. This can take diverse forms such as regular website updates, or sharing of project newsletters via mailchimp. Here it is also important to integrate with existing communication activities and platforms that are already in use in the catchments and organisations.

- **Facilitated learning platforms: Change Laboratories, Solutions Workshops, etc.:**

Change Laboratories (based on expansive learning theory (Engeström, 2016), or Solutions Workshops (as run by the NBI) are also an important communication and co-learning mechanism. These tend to bring multi-actors together to engage with the identified contradictions and leverage points and allow stakeholders to co-engage around complex areas of practice that need to be resolved or advanced. These need to be mediated by experienced social learning professionals, and careful record of decisions need to be kept for ongoing reference and reflexivity with continuities between change laboratory or solutions workshops being shared.

- **Participatory training courses**

There may also be potential in developing and offering a participatory course in EI4WS for various actors in the catchment to fast track some aspects of developing shared meaning and co-engaged practice. 'Assignments' or tasks on such a course should focus on practice outcomes, and should encourage reflexive co-engagement and working together across traditional boundaries. The course environment often creates a safe space for actors to begin to co-engage with each other in non-threatening ways, and is also a good way of activating and expanding learning networks. Such courses can be online and/or offline and can also involve blended learning. The curriculum for the courses should be practice and agency centred, and help participants to make sense of why there is a need for investing in EI4WS, and how this can be done.

- **Practical demonstration sites and cases:**

There is also a need to identify and develop practical demonstration sites that show the value of investing in EI4WS, as this helps others to see the 'theory' of EI4WS in practice, and successful practices can help with others to conceptualise how to develop practices in other contexts. A variety of such demonstrations are needed to concretise and demonstrate the scope of the EI4WS praxis.

The latter three tools are particularly important for developing action competence, and for ensuring a broader, more emancipatory approach to social learning that does not fall victim to social engineering approaches or social marketing approaches to social learning.

TOOL 7: VISUAL LEARNING MATERIALS TO SUPPORT COMMUNICATION AND DIALOGUE PROCESSES

The Wildlife & Environmental Society of South Africa (WESSA) has developed various visual learning materials to support catchment management. A series called 'Windows on our World' included posters, dialogues cards, puzzles and various game materials to support environmental education.

Some of these tools are available on the 'Capacity for Catchments' website and can be accessed here: <https://capacityforcatchments.org/tools>

The image below, from the above-mentioned website, is a core tool to engage stakeholders in dialogues about catchments, and formed the basis of the tools developed for the SLKMM workshop hosted in January (See Tool 4).

The SLKMM project team recommends that the Knowledge Coordinator revise and further develop these tools for use in the context of the EI4WS project.



TOOL 8: examples of conceptual communication branding from the *fundisa for change* and *amanzi for food* programmes

In this Appendix we share details of the process of developing 'brandmarks' (i.e. conceptual communication branding) for two other programmes which the Environmental Learning Research Centre at Rhodes University has been involved in conceptualising and leading. We first share the details of the process for the WRC-funded '**Amanzi for Food**' programme. We then share a few images from the brandmark of '**Fundisa for Change**'.

1. Brandmark development process for the Amanzi for Food programme: *Communication using a common conceptual 'brand mark'* [extract from the Amanzi for Food reporting to the WRC (Lotz-Sisitka et al., 2016).

See: <https://amanziforfood.co.za/>

Early on in the AOS development process, there was a question of how the identity of the project could link very clearly to how the audiences and diverse stakeholders identified in the contextual and stakeholder analysis process would perceive the overall message and become familiar with the activities and objectives of the knowledge dissemination process. Should there be a recognisable 'campaign' or 'brand' under which the various activities will fall, so creating an identity whilst also clearly demonstrating the purpose or key message? At the start of the project, documents were branded via the WRC Project K5-2277 title. This was seen to be useful for the WRC and contracted partners, but was seen to mean very little to the target audiences, and the extended language of 'Rainwater Harvesting and Conservation for Small holder Farmers and Household Food Producers' was long-winded and difficult to share quickly and easily, especially with audiences of different languages.

A project name is useful once content is being produced and shared with audiences across different media and channels. What will be on the top of the handout? What do radio programmers announce prior to a report from the field and in-studio discussion? What do farmers call or SMS to speak about? Who do facilitators call, look up online or email with questions, what is in the title? It was noted that these are the moments when a clear sense of identity will be useful, whilst also addressing the key message.

The name or phrase should be relevant in different languages. The concept of '**Water for Food**' was seen to be a quick way of understanding the key message behind the WRC materials and their objectives, and it was decided to work with this as a key concept to help identify the project. A decision was made to translate the first word of the concept and this became '**Amanzi for Food**' which seemed to be both clear and popular. It was noted that the Action Oriented Strategy (AOS) that the WRC required, would be dependent on coherent 'branding' [not to be confused with organisational branding] and clear communication on the central message of the RWH&C practices. Thus careful work was undertaken to appropriately develop a strong and easy to use conceptual image 'or conceptual brand' for the programme. It is well known that a clear branding signal is a helpful communication tool, as it facilitates easy access and recognition for the users of a programme to a range of complex and related materials, ideas, concepts and products (in this case the RWH knowledge and practices) for smallholder farmers and household food producers as contained in the two sets of WRC materials.

To develop the conceptual branding for the programme, two phases of brand design were engaged 1) initial concepts, and 2) further development of one of the branding concepts for 'Amanzi for Food'. The branding has been set up to help to structure the main elements of the programme and its communication objectives, and to enable accessibility to the core contents of the WRC materials (based on the practices and scales framework outlined above). The branding process as explored for the WRC K5-2277 project is outlined below:

The first phase of the process was to explore a range of options, after which the one that seemed best for the programme was further developed. Five options were initially designed with option 3 (below) chosen for further development (see Figures below).



Initial possible brand marks designed for further development

Option 3 was selected for further development, but recommendations were made to adapt it / further develop it. From here, examples of 'roll out' of the brand were developed, for further approval and expansion. The following 'final logo' and brand identity was selected as this was also seen to be compatible with the WRC logo and brand.



Final brandmark with strapline. The 'strapline' 'Sharing WRC knowledge on agricultural water for food production for smallholder farmers' was chosen to convey the specific purpose of the initiative.

The main brandmark was then expressed via some of the visual products and materials to illustrate how it might work in practice. A style was then set for the website, and for printed publications and materials, to guide further development of the AOS processes and materials as shown below.

Scrolling Website



Think Piece Cover Page



Think Piece - Page 2&3



Visualisation of how the brandmark would work in practice

The branding design process was therefore important to establish a clear communications tool for mediating the programme and its intentions and helped therefore to make clear the key message contained in the WRC materials.

2. Visualisations of brandmark elements developed for the 'Fundisa for Change' programme

See: <https://fundisaforchange.co.za/>

Brandmark Design
Fundisa for Change

Concept 1
Transformative growth

This concept takes inspiration from the circular form of the West African symbol for transformation. The connected dots represents an interlinked community of practice working together towards transformative environmental change through teacher education.

THE BRANDED
2018 to enable for teachers to become symbols for transformation

CONCEPT DEVELOP
2018 to enable for teachers to become symbols for transformation

BRANDED GROWTH
2018 to enable for teachers to become symbols for transformation

fundisa for change

fundisa for change

Brandmark Design
Fundisa for Change



Brandmark Design
Business Cards



TOOL 9: PARTICIPATORY COURSE FRAMEWORK FOR ADAPTATION INTO THE EI4WS CONTEXT

(Note both of the courses referred to below are WRC supported research projects)

1: Amanzi for Food SLKMM Course:

WRC Project Number: K5/2713//4

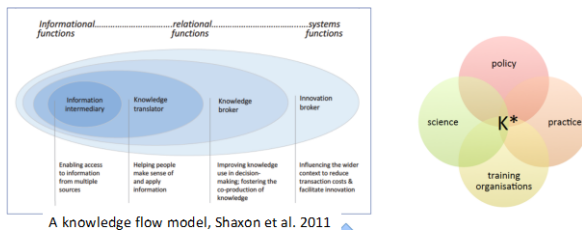
Project Title: *Amanzi [water] for Food': Developing a social learning network approach to knowledge dissemination and uptake in the agricultural learning system, focusing on the management, use and conservation of water for small scale farming and household food production*

The Amanzi for Food SLKMM course was designed to address problems of knowledge flow and uptake and the limitations of top-down, Research-Develop-Disseminate-Adopt models of training. It adopted a more complex systems K* knowledge flow model, which supports knowledge innovation, not just information transfer. It used WRC research and resources as start-up knowledge resources; and developed a mediation tool to support course participants to access key concepts associated with the object of activity (RWH&C). From here, it supported contextual profiling and review amongst course participants, allowing them to identify their knowledge needs, and the issues that were of concern in their contexts (Phase 1: Assignment 1). This then led to a co-defining of shared change projects and identification of useful knowledge resources and local knowledge networks to support the development of the change projects (Phase 2: Assignment 2). Following this, participants were able to work collaboratively on the implementation of their change project and to evaluate its early implementation and develop plans for its further development (Phase 3: Assignment 3). This took place using a work together, work away model, and contextualised learning, assessments and reflexive self-evaluations. These course activities provided start up processes for building communities of practice and a learning network, hence we refer to a process of 'course activated learning network development' (Lotz-Sisitka et al., 2016, ongoing).

Probing framings of knowledge flow and uptake



Figure 2. Earlier technology transfer views of knowledge dissemination and use (Shaxon et al. 2011)

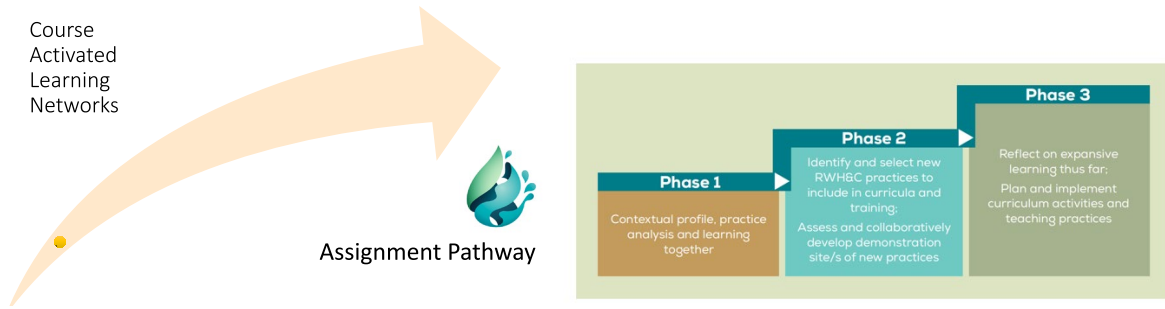


A knowledge flow model, Shaxon et al. 2011

Use of WRC knowledge resources, mediated into use via an accessible 'Navigation tool' that allowed participants ease of access to a range of concepts and knowledge resources.

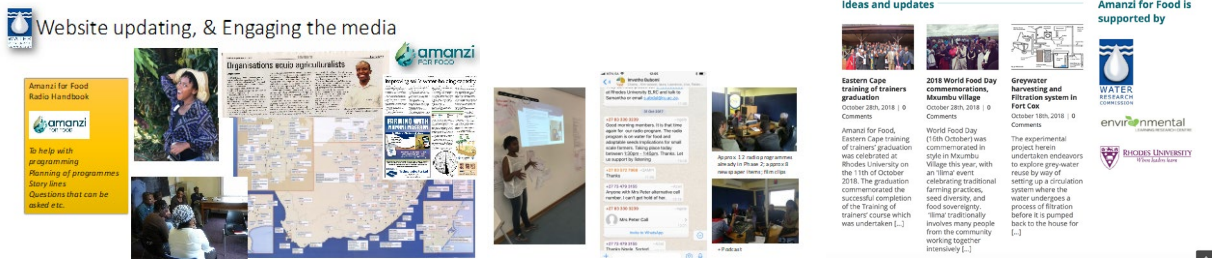


Course framework and assignment path (note assignments are group-based assignments).



Detailed research into the unfolding of this course is contained in the reports to the WRC on this project, as well as in the Masters study of Kim Weaver (2016) and the PhD study of Tichaona Pesanayi (2019)

This course activated learning network was also supported by other knowledge mediation processes including use of social media (WhatsApp), community radio, mobile journalism, and community newspapers, facebook and website activity, which were found to be essential tools for maintaining ongoing co-learning in the course activated learning network following the Training of Trainers Course. We also found that running the Training of Trainers course more than once significantly extended the learning network.



Examples of social media-based extensions of the learning in the Training of Trainers courses.

CITIZEN MONITORING CHANGING PRACTICE COURSE: A second example of an engaged, situated co-learning course design, drawing on the same background and history of the participatory courses designed out of EEASA and Rhodes University over the past 20 years is captured in detail in the research conducted for Citizen Monitoring of the NWRS2, where a SL course was used to support community activists to engage in citizen monitoring of the NWRS2. The details of this course are captured in the final report of **WRC Project No K5/2313/10** (Wilson, J. et al., 2016)

The brief framework is presented here below:

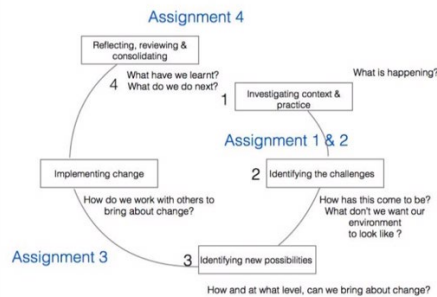


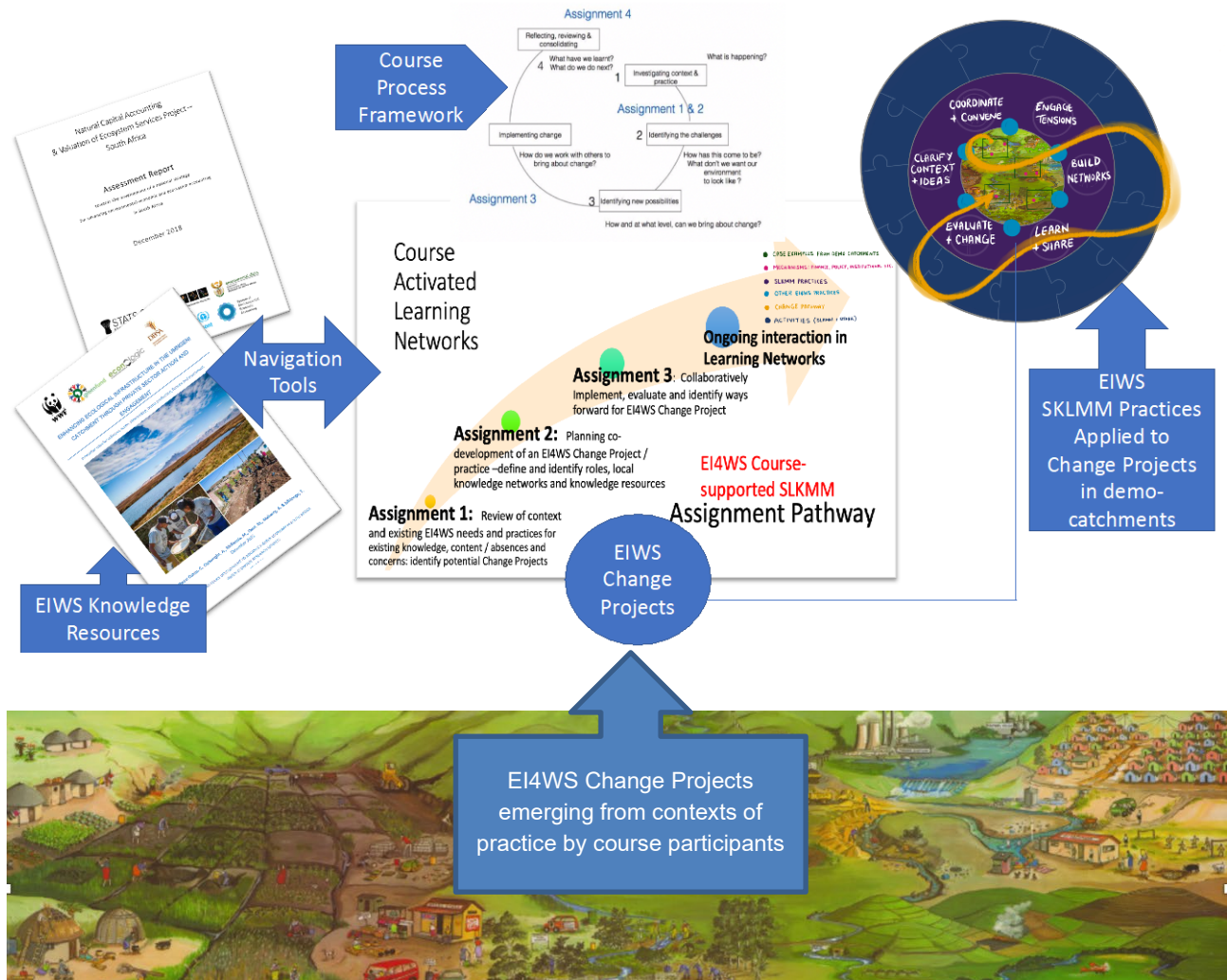
Figure 3: The social learning course model

The course is guided by four key questions which draw on Wals (Wals, 2007) approach to social learning and the stages of expansive learning (Engeström, 2001). These questions also guide, but are not tied to, each of the four modules:

- What is happening? (Module one)
- How has this come to be? (Module two)
- How can we imagine new possibilities? (Module three)
- What have we learnt and what do we do next? (Module four)

From Wilson J. et al., 2016. WRC Report No K5/2313/10. Further research into this course is being presented in the PhD of Jane Burt (2020)

Adapted to EI4WS context:



Potential visualisation of how the course framework above could be adapted to the EI4WS context.

TOOL 10: A tool under development to support implementation of the Value Creation Framework for SLKMM in the EI4WS project



**Value-creation of the Catchment-based Indaba on
Ecological Infrastructure
21-23 October 2019, Matatiele**

Draft feedback compiled by:

Michelle Hiestermann, Senior Knowledge Coordinator: Ecological Infrastructure for Water Security Project, Water Research Commission



The WRC and Rhodes University made use of the Catchment-based Indaba on Ecological Infrastructure in Matatiele in October 2019 to pilot the monitoring and evaluation framework of the Ecological Infrastructure for Water Security’s Social Learning and Knowledge Management Strategy. The agenda of the Indaba is attached in Appendix A. Interviews conducted at the Indaba proved challenging and data collected was insufficient for suitable analysis of value-creation and the needs of the Indaba organising team. The Knowledge coordinator subsequently contacted key individuals recommended by Dan’sile Cindi, the Indaba organiser, with key value creation questions developed using Wenger, Trayner & de Laat (2011).

Table 1: Value-creation story questions adapted from Wenger, Trayner & de Laat (2011p.46)

Name: Organisation: Role:	Project involvement:
Cycles of Value	Your story
1. Activity: Describe a meaningful activity you participated in and your experience of it (e.g. a conversation, a working session, a project, etc.)	
2. Output: Describe a specific resource this activity produced for you (e.g. an idea or a document) and why you thought it might be useful.	
3. Application: Tell how you used this resource in your practice and what it enabled that would not have happened otherwise.	
4. Outcome: a) Personal: Explain how it affected your success (e.g. being a better teacher, job satisfaction, student’s grade) b) Organizational: Has your participation contributed to the success of your organization (e.g. metrics they use)	
5. New definition of success/reframing: Sometimes, such a story changes your understanding of what success is. If it happened this time, then include this here.	

Joyce Loza from the Maloti Drakensberg Transfrontier Programme and Thembanani Nsibande from WWF-SA provided value-creation stories. From these stories an analysis of the following levels of value was done:

- Immediate value: Activities and interactions can produce value in and of themselves
- Potential value: Insights, ideas, plans, resources, relationships which could be helpful in future
- Applied value: How these have motivated change in the way things are done in their work in practice
- Realised value: reflection of the results and how the applied value is affecting the achievement of what matter to the individual and organisation
- Transformative value: The value for the self in the world, impact on the broader environment

A summary of the findings described next are attached as Appendix B.

Field visits enable awareness about local water security challenges, opportunities and interventions

On the 2nd day of the Indaba there were 4 groups of field trip activities that took place showcasing various initiatives in the catchment, e.g. Alien plant clearing, charcoal production, livestock husbandry, etc. After the field visits there was time for recap and discussion about what was learnt and could be applied in other areas. Both Joyce and Thembanani highlighted the value of the field trips to them:

“The Site Visits particularly emphasised the need for making a strong case for investment in interventions that promote water security and availability, the need for strong advocacy on this issue which was triggered by the fact that Sibi communities in Matatiele are largely dependent on springs as their sources of water whilst there also boreholes which are unfortunately not operational. This called for a strong advocacy intervention between the authorities responsible for water service delivery, Alfred Nzo District Municipality (ANDM) and other role players” – Joyce Loza, Maloti Drakensberg Transfrontier Programme



Delegates discussing social and environmental challenges and solutions during the field visits

“The field visit to various interventions being implemented within the Upper Umzimvubu Catchment Area as part of catchment management. It was so fulfilling to meet and have conversations with local people who have seen the benefits of springs protection interventions currently being implemented in the area. Through these interventions, the community now has access to clean and safe drinking water without having to struggle to fetch water as it used to be. Community members shared touching stories such that they no longer feel less important due to the shortages of basic needs like access to water. The commitment that came from the community during the construction of springs protection is amazing because even those who were not employed by the implementing agency volunteered to assist freely. This shows clearly that people mind-set towards the environment could be changed through implementing projects that are relevant to communities and that speaks directly to their needs” – Thembanani Nsibande, WWF-SA

Developing an advocacy approach of EI for community water access

Joyce described how the ‘advocacy approach’ that she had witnessed being used by the various initiatives had inspired her as an approach that she could use *“for communicating with Alfred Nzo District Municipality with regards to investing in water, improving water access for the community”*.

Ensuring that communities are fully involved

Thembanani described the value of making sure that communities were fully involved in initiatives as well as the Indaba. He felt that communities were: *“taking ownership of interventions / projects being implemented in their area. In addition, having some members of different communities attending and participating in the EI Indaba was the best thing ever. This is because they were able to see the bigger picture as to why improved landscape management is so crucial for the benefits of present and future generation”*.



Chief Rachel Sibi delivers the keynote address "Amanzi aphuma apha"

Sharing the advocacy approach of EI for community water access with the Municipality

"The advocacy approach is under discussion, Conservation South Africa who had already initiated the process with Alfred Nzo District Municipality (ANDM) has come on board to align its processes with UCP process in interacting with ANDM. There will be a presentation to the ANDM Standing Committee to present the concept which aims to providing support to the ANDM on water access for the community, introduce alternative approaches to safeguarding and availing water for the communities – the green infrastructure (springs), linked to alien plant clearing, availing water and collecting it using the infrastructure put in place. Training of the community members to provide extension services to the community – maintaining the infrastructure long-term. The concept sold to ANDM also demonstrate the cost-effectiveness and sustainability of the green infrastructure in addition to the boreholes which are the ANDM infrastructure. The meeting with the ANDM Standing Committee is due in 2 weeks, depending on how well this message is received, the next step would be to present it to the ANDM Council for a final resolution to be adopted regarding it meaning that this is recognised by the municipality, it has their support. Hopefully by then we would have also received recommendations of how the parties will be working together. – Joyce Loza, Maloti Drakensberg Transfrontier Programme

Establishment of communal area initiatives

"From the EI Indaba I was also inspired to initiate environmental related interventions within communal areas neighbouring the focus area identified for the establishment of the Grasslands National Park. This will play a vital role in assisting with improving their livelihoods and creation of good working relationship right at the initial stages of the project which will aid in minimising conflicts once the Park is up and running. This has been a challenge where people in communal areas see protected areas as areas that they have been robbed of and denied access. Therefore, in this project we will try by all means to break that negative stereotype towards protected areas and have communities fully involved in the establishment of the Park and affording them a platform to voice out their concerns and thoughts. Consequently, addressing some of the environmental challenges within their respective areas through implementation of various interventions that would complement both the Park and local people". – Thembanani Nsibande, WWF-SA

Conclusion and recommendations

It will be important to follow up and find out about Joyce's progress in terms of making the case of an advocacy approach of EI for community water access to the municipality (applied value) and what impact this has had. Similarly, it will be important to pinpoint what specific interventions Thembanani has catalysed in his area of

work (applied value). What is important to note is that the field visits are an important part of the Indaba and should continue to allow rich discussion of learning and application in other catchments/workplaces. It is recommended that the Indaba team include collection of value-creation stories after each Indaba in order to track the learning of participants. This will also help shape the agenda of the Indaba to ensure that the needs and interests of participants are being met.

References

Wenger, E., Trayner, B., de Laat, M., 2011. Promoting and assessing value creation in communities and networks: a conceptual framework. Ruud de Moor Centrum, The Netherlands.

Wenger-Trayner, B., Wenger-Trayner, E., 2019. Designing for Change: Using Social Learning to Understand Organizational Transformation. Learning 4 A Small Planet.

Appendix A: Agenda of the 2019 Catchment-based Indaba on Ecological Infrastructure

High-level agenda

Day 1: 21 October 2019

08:00	Tea and registration (MC: Joyce Loza, UCP chairperson)
09:00	Welcome and opening (Mayor Mbedla, Matatiele Local Municipality)
09:15	<i>Amanzi ophuma opha</i> keynote address – the journey of the water in the catchment over the past 40 years (Chief Rachel Sibi)
09:30	Setting the scene – the story of water and women (Dan'sile Cindi, SANBI)
09:45	What are the challenges in securing our water: South Africa and local context (Samir Randeria-Rees, WWF)
10:00	There have been many challenges in securing our water: what innovation exists? (panel discussion with Q&A)
11:30	Tea break
12:00	Snapshot of local innovation emerging in Matatiele through collaboration (EPS and partners)
12:20	Market place – what are partners doing to come together to ensure that our water is secured? (Facilitator: SANBI)
	Posters and displays of activities (interactive session)
13:30	Lunch break
14:30	Market place continues – what have we learnt about coming together? (Pearl Goba, UEIP & David Lindley, WWF)
16:30	Wrap up, break for evening and announcements for next day (MC: Joyce Loza, UCP chairperson)
16:30	Free time
17:30	Cocktail function – meet your partners and showcase activities and initiatives, including Producer/Farmer Registry, WWF Journey of Water, Dartmouth, Rhodes, UKZN & Coventry Research, UEIP videos, etc. (MC: Mahlodi Tau, SANBI)

Day 2: 22 October 2019

08:00	Tea and field trip briefing, allocation of vehicles and lunch packs (Isoanelo Shata & Richard Lechmere-Oertel)
08:30	Depart for field trips in four groups Activities to be visited include: <ul style="list-style-type: none"> Watershed stewardship – safeguarding ecological infrastructure (Nicky) Spring protection including alien clearing (Atang & Mahabe) Green business: charcoal production and livestock husbandry (Rego & Thobani) Rangeland improvement: M&E demo (Chris & Paul)
13:00	Packed lunch for field trip
14:00	Return to town hall venue: recap and report back from field trips (Facilitators: Kedibone Chueu, DAFF & Duncan Hay, INR)
14:30	What can we learn from other catchments and take this forward to our catchments?
15:30	Tea
16:00	Youth learning and knowledge exchange – let's create our storybook together (Sam Braid, Waterfore & Zizipho Mnika, ERS)
17:00	Closing remarks and announcements: outline of next day's plan (Chief Thabang Kuali: CONTRALESA)
	On the walls for stimulation, everyone to add with paper and sticky notes: <ul style="list-style-type: none"> What do we understand about innovation? What stimulates innovation? What are the impacts on people's lives? What enables positive impacts? What gets in the way/what are the barriers?

Day 3: 23 October 2019

08:00	Tea
08:30	Water Source Partnership Collaboration Workshop (David Lindley, WWF): <ul style="list-style-type: none"> Intro to session WSP overview and other WSP projects: national context, operating principles, building on what's there (Christine Colvin & Samir Randeria-Rees, WWF) UCP: what has worked, what are we planning, aligning with new WSP thinking and opportunities (Nicky McLeod, ERS) UCP World Café: What do we want to do for UCP with WSP support?
10:15	Consolidation and what next Closure of indaba session (Bonani Madikizela, WRC) leading into UCP quarterly session
10:30	Tea break
11:00	UCP 26th quarterly meeting starts Partners' updates on local work, agenda to be confirmed (Chairperson: Joyce Loza)
13:00	All welcome Lunch and departure

Summary of value-creation of the 2019 Catchment-based Indaba on Ecological Infrastructure

