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WP 3: Co-creation and demonstration

First Swartkops catchment workshop Report Workshop

Date: 22 January 2022

SDG-pathfinding project

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Foreword

Summary: SDG-pathfinding (*Co-creating pathways for sustainable development in Africa*) is a transdisciplinary research project (2021-2023) aims at developing tools and capacities to support the localization of the SDG agenda in African countries using participatory bottom-up approaches. We have brought together natural and social scientists from three leading institutions, Rhodes University (South Africa), Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (France), and The International Institute for Applied System Analysis (Austria), along with a leading local NGO, Groupe d'Action et d'Initiative pour un développement Alternatif (GAIA) to work collaboratively with a broad network of stakeholders including local policy makers, NGOs, grassroots, and private sector from the Fimela district (Senegal) and the Swarzkopt basin (South Africa) in order to: 1) Develop and test an innovative tools to lift local capacities for framing complex sustainability challenges using a system thinking approach and explore adaptative pathways to meet the SDG agenda at local level in these two case studies, 2) Foster multi-stakeholder collaboration to promote social learning and innovation on how to localize the SDGs, and, 3) Support the institutionalization of the sustainability agenda beyond the lifetime of the project. The project is a not-for-profit research effort and is part of the Belmont Forum initiative to support the development of international networks and collaborations to support the development of transdisciplinary research to develop and implement the sustainability agenda.

More information: <https://iiasa.ac.at/projects/sdg-pathfinding-co-creating-pathways-for-sustainable-development-in-africa>

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Funding: This work was conducted as part of the Belmont Forum “*Transdisciplinary Research for Pathways to Sustainability*” collaborative research action for which coordination was supported by the Austrian Science Fund (FWF) under the grant number 5356N to the International Institute for Applied Systems Analysis (IIASA). The French partner INRAE is funded by The French National Research Agency (ANR). Rhodes University receives funding from the National Research Foundation from South Africa (NRF) and GAIA from Future Earth. Any opinions, findings, and conclusions, or recommendations expressed in this material do not necessarily reflect the views of the funding organizations.

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1. Introduction

The achievement of the sustainable development goals at the local level requires collective actions that draw on diverse knowledge systems (academic, practice-based, and locally situated). Local collective actions can only be effectively mobilised when the SDGs are seen to reflect the values, aspirations, and the shared vision of the local communities at the sub-national scales. Within the SDG pathfinding framework, three set of tools: the policy simulation tool, COOPLAGE, and the adaptive systemic approach (ASA) exist which can be drawn upon to better understand local context (current situation), develop collective vision, co-create pathways/objective hierarchies, and identify sets of actions for implementation in an adaptive, reflexive, and systemic manner. Each tool within the framework or toolbox can be used complementarily in ways that enhances actors' participation and collective actions for the achievement of the SDGs. To this end, the project team in South Africa organised the first Swartkops Catchment case study workshop on 22 January 2022, with 45 participants in attendance. The aim of the workshop was in three folds: i) introduce the SDG-pathfinding project, ii) undertake collective exploration of current sustainability challenges in the catchment, iii) co-develop a vision for the catchment in relation to the sustainable development goals. Within the SDG-pathfinding framework, the workshop was designed using the Adaptive Planning Process (APP) within the ASA, but the report has been written in ways that draws on the policy simulation tool. Therefore, the aim of this report is to provide an analytical, reflective account of the key workshop outcomes, while also identifying critical next steps based on the suits of tools within the SDG-pathfinding framework.

The report is structured as follows. Section 1 provides a brief introduction to the project and the context of the report. Section 2 provides an exploration of the sustainability challenges within the Swartkops River, and in section 3 the systemic interactions between the identified challenges are interrogated. In section 4, the elements of the shared Swartkops catchment vision are articulated, whereas in section 5 stakeholders agreed upon guiding values are discussed. Section 6 provides the critical next steps, which involves mapping of the current situation, vision and pathways using the policy simulation tool and games within COOPLAGE.

2. Co-exploration of sustainability challenges within the Swartkops catchment (current concerns; current situation)

The sustainability challenges in the Swartkops catchment were co-identified using the STEEP-H (social, technological, economic, environmental/ecological, political, and historical). Workshop participants were divided into four groups, each group comprising of about 6-7 participants. The STEEP-H offers ways of organising the challenges into predetermine themes. Each group were asked to identify three to four top concerns or challenges belonging to each category of the STEEP-H (Figure 1). The identified challenges area briefly discussed.

Social challenges: Poverty, high levels of inequality and unemployment are the primary social challenges identified by actors within the catchment. These deep-rooted challenges manifest in diverse ways including high rate of crime leading to safety and security concerns, infrastructure vandalism, high level of unwanted pregnancy, abortion, and disposal of foetus into the Swartkops River/estuary. Escalating human population and settlements were also identified as another key challenge within the catchment. As a result, many people are under serviced in relation to sanitation, contributing to a growing incidence of poor-sanitation induced diseases, and release of solid waste into the Swartkops system. The release of waste into the river system has impacted on the spiritual use of the water, particularly by the *Sangomas*, who uses sites within the Swartkops for spiritual cleansing, ancestral worshipping, and transgenerational communication.

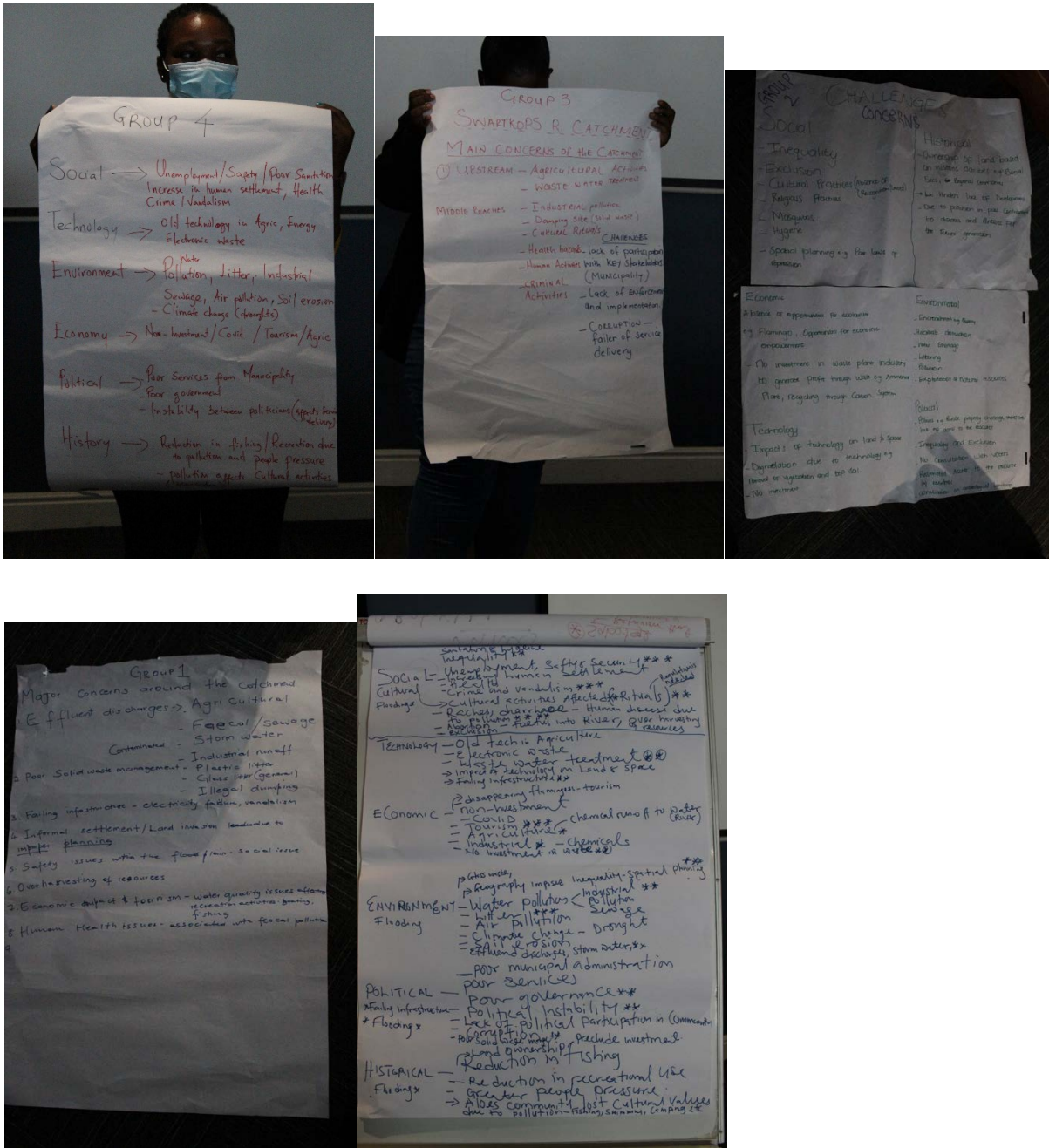


Figure 1: Photos showing sustainability challenges identified by workshop participants.

Technological challenges: Technology plays a key role in advancing and achieving the SDGs across scales. In the Swartkops catchment, failing infrastructure and poor maintenance of existing infrastructure because of sustained low investment into infrastructure development particularly in the water and wastewater sector were identified as key technological constraints in the catchment. For example, a failure to upgrade wastewater treatment works to meet demand of the growing population was identified as a key contributor to the occasional release of poorly treated wastewater into the Swartkops River system. The same can be observed for urban storm water infrastructure, road networks and the agricultural sector. In the agricultural

sector, it was observed that old technologies are still widely in used particularly in terms of irrigation and land management. Electronic waste is increasingly being recognised as a serious sustainability threat in the Swartkops catchment. The key challenge is lack of technologies for reducing the release of electronic waste into the environment, and to stimulate a circular electronic economy.

Economic- The economy of the Swartkops catchment rely heavily on tourism, agriculture, and industrial activities, in addition to the services and education sectors. The Swartkops estuary act as breeding grounds for migratory and local birds that attract tourists to the catchment. However, a key challenge identified is the degradation of the Estuary, leading to a severe decline in the population of the migratory birds, and thus reduction in the tourism potential of the estuary. The Spar water race was an annual swimming event held on the Swartkops system. This event attracts tourists and supports the local economy. However, due to serious pollution, this event has now been moved to the neighbouring Sundays River catchment, leading to a loss in tourism. Another dimension of the degradation of the estuary is the reduction of property values in proximity of the estuary, thus affecting potential property-linked investment returns. The Swartkops catchment can be consider as one of the epicentres of the motor manufacturing and assembly industry in South Africa. While it was identified that the industries create jobs for the people and hugely support the local economy, concerns were raised about potential pollution of the Swartkops system. Non-investment in solid waste management, as well as run-off from agricultural farmlands are factors identified that also contribute to environmental pollution.

Environment/ecological: Climate change, biodiversity loss, water and air pollution are the critical environmental concerns raised by workshop participants. Regarding climate change, drought and floods are the primary indicators of climate change in the catchment that have had serious societal implications. It was acknowledged that the catchment is currently in the grip of a prolonged drought, prompting the fear of a Day Zero within the Nelson Mandela Bay Metro. A Day Zero is described as the day when taps cease to flow because of water insecurity challenges. On the other hand, flash floods are common and becoming severe in the catchment. Flash floods affect mainly settlements in the low-lying areas, and it is usually people with little or no coping mechanisms that are most affected. This according to the workshop participants has deepen and accelerated inequalities within the catchment.

Water and air pollution are major concerns for stakeholders in the Swartkops catchment. Poor solid waste management particularly litters in parts of the catchment such as Motherwell, KwaNobuhle, Perseverance and New Brighton were identified as being of both environmental and social concerns. Key concerns arising from poor solid waste management is exposure to potentially harmful micro-organisms, reduction of the aesthetic value of the environment and increase risk of children missing out of school due to sicknesses caused by polluted environment. The proliferation of solid waste such as plastics, electronic waste, and household waste in the Swartkops system was identified as a major concern. In addition to solid waste, other major pollution sources identified as being of serious environmental concerns included effluent discharges from the municipal wastewater treatment works, urban stormwater canal system such as the Motherwell canal, Kat canal etc. Regarding air pollution, within the Uitenhage part of the Swartkops catchment, the concentration of industrial activities was implicated as major contributors of air pollution.

Political: Governance failure and political instability within the Nelson Mandela Bay Metro are the primary political challenges identified as critical in the Swartkops catchment. A particular governance challenge relates to poor community participation, consultation and involvement in governance decision making within the Metro. It seems that from all indications, network governance is not well established, yet strongly desired by the local communities. What seems to be prevailing in the catchment is hierarchical and market-based governance, driven by regulatory processes, top-down command and control procedures, and business interests. Compounding the governance issue are corruption and politics of exclusion that deepen inequality within the catchment.

Linked to governance failure is the challenges with the implementation of the integrated development plan of the municipality. It was argued that several years into its implementation, much of the indicators such as those related to poverty reduction, water and sanitation services, local economic development, have not been met. This then raises question about the capacity of the current of the municipality to address the complex sustainability challenges within the catchment.

Historical: The catchment is still confronted by the legacies of historical apartheid spatial planning. Unequal access to opportunities and service delivery are outcomes of the legacies of the historical spatial planning. While participants acknowledged that much has been done, the reality is that poverty, unemployment, and inequality are spatially distributed in the catchment,

which need to be seriously confronted if the sustainability agenda are to be achieved. Historically, the Aloe community derived cultural and spiritual benefits from the Swartkops system, but these have been lost due to urbanisation, increasing human pollution and the accompanying pollution of the system.

Table 1: Priority sustainability challenges identified by the workshop participants

Dimensions of the STEEP-H	Identified priority sustainability challenges
Social	Poverty
	Unemployment
	High levels of inequality
	High crime rate; safety and security concerns
	infrastructure vandalism
	high rate of unwanted pregnancies, abortion, and disposal of foetus into Swartkops River/Estuary
	Growing human population
	Underserviced communities in terms of water and sanitation related services; poor sanitation-induced diseases
	Community release of solid wastes into River, impacting on spiritual use of water by the <i>Sangomas</i>
	Technological
Upgrade and maintenance of wastewater treatment works/technologies	
Upgrade and maintenance of urban storm water infrastructure	
Electronic waste management and the challenge of the electronic circular economy	
Old technologies being deployed in the agricultural sector and land management	
Economic	Declining tourism potential of the Swartkops catchment due to pollution and reduction of the migratory bird population
	Declining property values in proximity of the Swartkops Estuary
	Industries support job creation, but are also major contributors to catchment pollution
Ecological/Environmental	Climate change, drought, and flash floods in low-lying communities and in informal settlements
	Fear of the so called "Day Zero" in the catchment
	Water and air pollution emanating from various sources e.g., industries, informal settlements, road and rail networks
	Poor solid waste management e.g., plastics and electronic waste
	Discharges of occasionally poorly treated wastewater effluent from municipal wastewater treatment works into the Swartkops system
	Poor water quality from the Kat and Motherwell canals
	Invasive alien plants species in the catchment
	Biodiversity loss
Political	Governance failure - poor community participation, involvement and consultation in governance decision making
	Corruption and politics of exclusion

	Challenges with planning and implementation particularly of the IDP
	Features heavily hierarchical and market-based governance, network governance not well entrenched
Historical	Legacies of historical apartheid spatial planning

3. Co-exploring the systemic interactions between the identified challenges

The four groups in the workshop were asked to identify their top sustainability concern (challenge) in the catchment and then show how it affects other challenges they have identified. The purpose of this exercise was to demonstrate how a single, important challenge interact with and impact on other challenges if not addressed. The exercise demonstrates the positive multiplier effects if addressed and negative multiplier effects if left unaddressed. The degree of the interaction and influence of the central challenge on other sustainability concerns were indicated using the negative (-) sign. A single negative (-) indicate low effect, a double sign indicates moderate negative effect, whereas a triple sign indicates serious negative effect. This exercise highlights the path-dependency of the identified challenges, and their systemic interaction.

Of the four groups, three of the groups identified governance-related issues such as governance failure and improper planning as their top priority challenges for the Swartkops catchment. For example, Group 1 identified improper planning as their top priority challenge (Figure 2). As shown in the figure below, the participants in this group reasoned that improper planning contributes seriously to failing infrastructure, which in turn contributes to pollution with its attendant effects on environmental and human health. The photo also suggests that improper planning is a driver of the proliferation of informal settlements, and that it also impacts on the local economy and tourism because of the negative effects on recreational activities and social amenities. Safety and security were also identified as consequences of governance failure.

As can be seen in Group 4 drawing, governance failure is centralised, and its interaction with other sectors of the catchment is far-reaching. The Group seemed to suggest that challenges with poor housing, water and sanitation services, crime and safety concerns, environmental pollution, unemployment, poverty, and declining tourism potential of the catchment are all outcomes of governance failure. The implication here is that by strengthening governance, institutions, and deepening citizen participation one can begin to tackle some of the sustainability challenges in the Swartkops catchment.

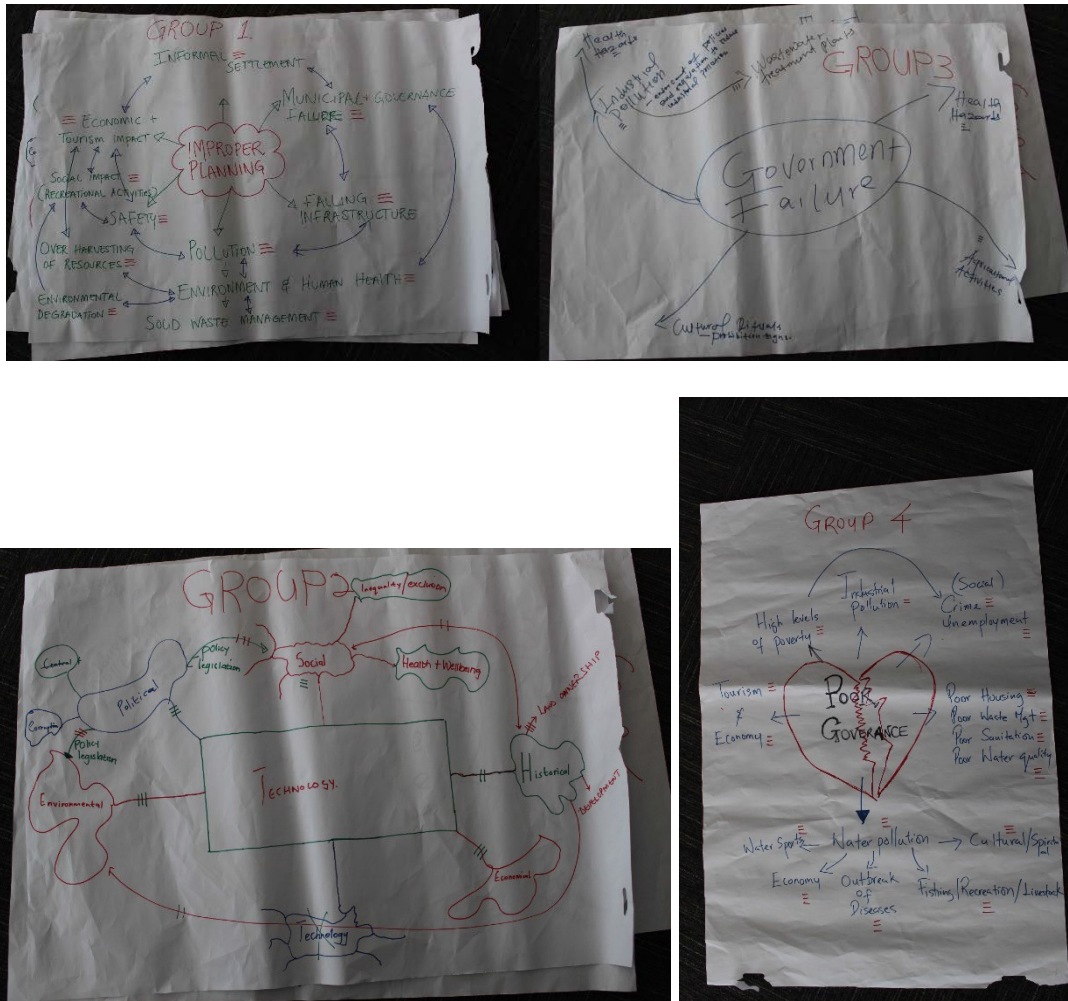


Figure 2: Workshop participants drawings showing the systemic interaction among the sustainability challenges

4. Towards a sustainability vision for the Swartkops catchment

The workshop participants were asked to visualise and imagine an ideal future for the catchment. The visualisation exercise was guided by three key questions:

- In the imagined ideal future, what would you like to see and experience in the catchment?
- What would be significantly different from the current situation in the catchment?
- How would this ideal future for the catchment be different from the present situation?

Guided by these three questions, the following are elements of the vision participants had for the Swartkops River catchment:

- 1) A catchment with good water quality, where investments in water and wastewater treatment technologies are prioritised; solid waste are managed and recycled, leading to a clean and safe environment for all communities.
- 2) A catchment rich in biodiversity, the return of the flamingos, and the creation of a social-ecological fish sanctuaries. The term social-ecological fish sanctuaries were used by workshop participants to denote a safe social and ecological reservoir for the protection and flourishing of fish species in the Swartkops catchment.
- 3) A catchment with good governance, economic stability, job creation, reduced crime rate and safety and security concerns, and improved human well-being and health.
- 4) A catchment with good education, including the prioritisation of indigenous knowledge, and “data democracy” in ways that entrenched inclusion and equity.

The vision elements for the Swartkops River catchment will be integrated into a single descriptive vision in the next workshop. The vision also be mapped using the Policy Simulation tool, to spatially represent what these elements of the vision might mean geospatially within the catchment.



Figure 3: Workshop participants during the catchment visioning exercise

5. Towards collective, shared values for sustainability actions in the Swartkops River catchment

Values underpinned governance processes, decisions, and institutional arrangements (Brown and Schmidt,2010). From a philosophical conception, values can be taken to mean what specific societal groupings or constituencies express at a generalized level to be good or bad conduct (de Wet and Odume 2019). This definition of value is akin to what Schulz et al (2017) refer to as fundamental values, underpinning our attitude and behaviour towards other people and the rest of nature. In a way, many authors such as Schulz et al. (2016) have argued that many conflict around resource governance and management are value conflicts, a situation whereby involved and interested actors are unable to reconcile their different value standpoints. Seen this way, values are important for collectively navigating sustainability challenges within any social-ecological context. The SAM-APP often begins with constellation of values. In the Swartkops River workshops, participants were asked to share values they would like to see in the catchment, which should collectively guide their actions, behaviour, and social-ecological interactions as they address the complex sustainability challenges in the catchment. As shown in the Table 2 below, the main values emphasised by the participants are mainly relational values, emphasising the importance of relationship and collective actions.

Table 2: Shared, collective values for sustainability actions in the Swartkops catchment

Values		
Accountability	Mutual respect	Communication
Teamwork	Adaptiveness	Dedication
Integrity	Innovation	Leadership



Figure 4: Workshop participants sharing the values they would like to see in the Swartkops catchment

6. Next steps: Mapping of the current situation, vision and pathways using the Policy Simulation Tool

The next workshop of the Swartkops River catchment and the inaugural meeting of the Swartkops Catchment Living Labs are planned for Thursday 21, and Friday 22 July 2022, respectively. During the workshop and living lab, the current concerns expressed in the previous workshop would be used as a starting point for the mapping of the current situations in the catchment, and this is to be followed by pathway exercise and objective hierarchy for the vision. In mapping the pathways using the policy simulation tool, we will draw on the ASA to identify key threats and strengths with the catchment system that may undermine or enhance collective actions towards the vision. Internal and external threats and strengths will be collectively explored. The elements of the vision expressed in the previous workshop are also to be mapped in the next workshop and living lab session using the policy simulation tool. The strategy is for the initial mapping exercise is to be undertaken by the research team, and then presented to workshop and living lab participants for interrogation and further mapping. This exercise is already on-going.

7. References

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