



Deliverable

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Water Research Commission

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Project Title: Dissemination and scaling of a decision support framework for CCA for smallholder farmers in South Africa

Deliverable No.1: Desk top review of progress and present implementation of South African policy and implementation frameworks and stakeholder platforms for CCA.

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1. INTRODUCTION

This section provides a brief summary of the project vision, outcomes and operational details.

AIMS	
No	Aim
1.	Create and strengthen integrated institutional frameworks and mechanisms for scaling up proven multi-benefit approaches that promote collective action and coherent policies.
2.	Scaling up integrated approaches and practices in CbCCA.
3.	Monitoring and assessment of environmental benefits and agro-ecosystem resilience.
4.	Improvement of water resource management and governance, including community ownership and bottom-up approaches.

OUTCOME

Vertical and horizontal integration of this community- based climate change adaptation (CbCCA) model and process lead to improved water and environmental resources management, improved rural livelihoods and improved climate resilience for smallholder farmers in communal tenure areas of South Africa.

EXPECTED IMPACTS

1. Scaling out and scaling up of the CRA frameworks and implementation strategies lead to greater resilience and food security for smallholder farmers in their locality.
2. Incorporation of the smallholder decision support framework and CRA implementation into a range of programmatic and institutional processes
3. Improved awareness and implementation of appropriate agricultural and water management practices and CbCCA in a range of bioclimatic and institutional settings
4. Contribution of a robust CC resilience impact measurement tool for local, regional and national monitoring processes.
5. Concrete examples and models for ownership and management of local group-based water access and infrastructure.

5. Chronology of activities

1. Desktop review of CbCCA policy and implementation presently undertaken in South Africa
2. Set up CoPs:
 - a. Village based learning groups: A minimum of 1-3 LGs per province will be brought on board.
 - b. Innovation platforms: 3 LG clusters, one for each province consisting of a minimum of 9- 36 LGs will be identified to engage coherently in this research and dissemination process.
 - c. Multistakeholder platforms: Engage existing multistakeholder platforms such as UCPP, LCP, AN etc
3. Develop roles and implementation parameters for each CoP
 - a. Village based learning groups: CCA learning and review cycles, farmer level experimentation, CRA practices refinement, local food systems development, water and resource conservation access and management and participation and sharing in and across villages.

- b. Innovation Platforms (IP): Clusters of LGs learn and share together with local and regional stakeholders for knowledge mediation and co-creation and engagement of Government Departments and officials (1-2 sessions annually for each IP)
 - c. Multistakeholder platforms: Development of CbCCA frameworks, implementation processes (including for example linkages to IDPS and disaster risk reduction planning and implementation at DM and LM level), reporting frameworks for the NDC to the CCA strategy, consideration of models for measurement of resilience and impact (1- 2 sessions annually for each multi stakeholder platform)
4. Cyclical implementation for all three CoP levels (information provision and sharing, analysis, action, and review) within the following thematic focus areas: Climate resilient agriculture practices, smallholder microfinance options, local food systems and marketing and community owned water and resources access and conservation management plans and processes. Each of these thematic areas is to be led by one of the senior researchers and a small sub-team.
5. Monitoring and evaluation: Consisting of the following broad actions:
 - a. Focus on 3-4 main quantitative indicators e.g. water productivity, production yields, soil organic carbon and soil health
 - b. Indicator development for resilience and impact and
 - c. Exploration of further useful models to develop and overarching framework.
6. Production of synthesis reports, handbooks and process manuals emanating from steps 1-4 with the primary aim of dissemination of information.
7. And refinement of the CbCCA decision support platform, incorporating updated data sets and further information form this research and dissemination process.

DELIVERABLES				
No.	Deliverable Title	Description	Target Date	Amount
1	Desk top review for CbCCA in South Africa	Desk top review of South African policy, implementation frameworks and stakeholder platforms for CCA.	01/Aug/2022	R100 000,00
2	Report: Monitoring framework, ratified by multiple stakeholders	Exploration of appropriate monitoring tools to suite the contextual needs for evidence-based planning and implementation.	02/Dec/2022	R100 000,00
3	Handbook on scenarios and options for successful smallholder financial services within the South Africa	Summarize VSLA interventions in SA, Govt and Non-Govt and design best bet implementation process for smallholder microfinance options.	28/Feb/2022	R100 000,00
4	Development of CoPs and multi stakeholder platforms	Design development parameters, roles and implementation frameworks for CoPs at all levels, CRA learning groups, Innovation and multi stakeholder platforms; within the CbCCA framework.	04/Aug/2023	R133 000,00
5	Report: Local food systems and marketing strategies	Guidelines and case studies for building resilience in local food systems and	08/Dec/2023	R133 000,00

	contextualized - Guidelines for implementation	local marketing strategies towards sustainable local food systems (local value chain)		
6	Case studies: encouraging community ownership of water and natural resources access and management	Case studies (x3) towards providing an evidence base for encouraging community ownership of natural resource management through bottom-up approaches and institutional recognition of these processes.	28/Feb/2024	R134 000,00
7	Case studies: CbCCA implementation case studies in 3 different agroecological zones in SA	CbCCA implementation case studies in 3 different agroecological zones within South Africa	12/Aug/2024	R133 000,00
8	Refined CbCCA decision support framework with updated databases and CRA practices	Refined CbCCA DSS database and methodology with inclusion of further viable and appropriate CRA practices	13/Dec/2024	R133 000,00
9	Manual for implementation of successful multistakeholder platforms in CbCCA	Methodology and process manual for successful multi stakeholder platform development in CbCCA	28/Feb/2025	R134 000,00
10	Final Report	Final report: Summary of all findings, guidelines and case studies, learning and recommendations	18/Aug/2025 (Feb 2026)	R400 000,00

Deliverable 1, being a desk top review of progress and present implementation of South African policy and implementation frameworks and stakeholder platforms for CCA is meant to be an update on the desk top review conducted for this process in 2017 and aims to review all relevant documentation about the latest strategy and policy implementation frameworks for CCA both within Government and multistakeholder forums and to provide a SWOT analysis to develop a coherent methodology for multistakeholder engagement.

Given the present fragmented state of multistakeholder platforms a SWOT analysis has not been seen to be appropriate. Further analysis will be undertaken in the next deliverable.

2. SOUTH AFRICAN POLICY, STRATEGY DEVELOPMENT AND IMPLEMENTATION

Written by Betty Maimela

According to the LTAS (Long Term Adaptation Scenarios) factsheet on Agriculture “*adapting agricultural and forestry practices in South Africa requires an integrated approach that addresses multiple stressors and combines indigenous knowledge and experience with the latest scientific insights. For large-scale commercial farmers, adaptation needs to focus on maximising output in a sustainable manner and maintaining a competitive edge in changing climatic conditions. For rural livelihoods, adaptation needs to focus on vulnerable groups and areas and include promoting climate-resilient agricultural practices and livelihoods. Promoting alternative, sustainable sources of income will be important for subsistence households that are unable to continue farming.*”

As an overall adaptation strategy, benefits would come from practices based on best management and climate-resilient principles, characteristic of concepts such as climate smart agriculture, conservation agriculture, ecosystem- and community-based adaptation, and agroecology. Such practices include restoring and rehabilitating ecosystems to optimise them for future climatic conditions, minimising soil disturbance, maintaining soil cover, maximising water storage, multi-cropping and integrating crop and livestock production to optimise yields, sequestering carbon, and minimising methane and nitrous oxide emissions” (DEA, 2019)

Diversification in the agriculture sector is seen to include in-field and off-field water harvesting and storage to assist with increased irrigation requirements (without compromising water availability), finding new, climatically suitable locations for crops and commercial forests, growing indigenous species and farming indigenous and locally adapted breeds which are heat and drought tolerant, harvesting less often to prevent nutrient depletion, using local techniques to decrease wind erosion (such as mulch strips for shelter belts of natural vegetation), and planting climate-resilient crop varieties, such as drought-resistant maize varieties, alternative crops or late-maturing fruit trees.

Climate advisory services could usefully communicate key messages from the latest available science in an appropriate format to government, agri-business, extension services and farmers. Communication and trust should be increased between authorities and all farming sectors (commercial, small-holder and subsistence) to disseminate relevant knowledge on climate change and promote adaptation (DEA, 2019).

Adaptation strategies are to be integrated into sectoral plans, including: The National Water Resource Strategy, as well as reconciliation strategies for particular catchments and water supply systems; The Strategic Plan for South African Agriculture; The National Biodiversity Strategy and Action Plan, as well as provincial biodiversity sector plans and local bioregional plans; The Department of Health Strategic Plan; The Comprehensive Plan for the Development of Sustainable Human Settlements; and the National Framework for Disaster Risk Management (DEA, November 2021).

The recently submitted Climate Change Bill, lends legal muscle to this process (Draft Climate change Bill, 2021. www.dffe.gov.za). The draft law aims to establish a Ministerial Committee on Climate Change to oversee and coordinate the activities across all sector departments. Under the proposed legislation, the Minister responsible for Environmental Affairs together with the Ministerial Committee on Climate Change would have to set sectoral emission targets (SETs) for each GHG emitting sector in line with the national emission target, every five years and carbon budgets would be allocated to significant GHG emitting companies. Carbon budgets would put a cap on emissions and make it mandatory for companies to constrain their emissions.

In addition, the bill places a legal obligation on every organ of state to coordinate and harmonise their various policies, plans, programmes, decisions and decision-making processes relating to climate change. Local officials – including mayors – will be required to undertake a climate change needs and response assessment within one year of the publication of the National Adaptation Strategy and Plan. The bill further requires a climate change response implementation plan to be developed within two years of undertaking the climate change needs and response assessment. However, the disconnect

Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. (UNFCCC 2014) (DEA, November 2021).

Climate resilience is the capacity of social or ecological systems to recover or bounce back from disturbances, shocks and extreme loads or to absorb these disturbances while retaining the same basic structure and ways of functioning (UNDP 2005; UN/ISDR 2004; IPCC 2007; Rockefeller Foundation 2009; Arctic Council 2013 referred to in IPCC 2014).

between the higher echelons of government and the more localised organisations (both public and private) who are meant to do the implementation, persists even here.

The DALRRD has been allocated as the lead department for climate adaptation action in South Africa. The internal orientation and vision of this department however focuses on generation of *“equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all”*, with a very strong focus on profitability, investments, equity and governance. CCA is not a central theme (DALRRD, 2013).

The basic approach of the agriculture CC adaptation and mitigation sector plan is *“climate smart agriculture, which entails the integration of land suitability, land use planning, agriculture and forestry to ensure that synergies are properly captured and that these synergies will enhance resilience, adaptive capacity and mitigation potential”* (DAFF, 2015). The assumption is that if the smallholder farming sector can deal with issues of poor commercialisation, poor infrastructure and low farm productivity, with *“strong extension services and good communication and trust between local government and the entire farming community (commercial and emerging) to bring about concrete changes, ... this would facilitate preparedness for climate change”* (DAFF, 2015).

As such the main response of the Department for CCA is seen to be their LandCare programme which *“is a community based and government supported approach to the sustainable management and use of agricultural natural resources. The overall goal of LandCare is to optimise productivity and sustainability of natural resources so as to result in greater productivity, food security, job creation and better quality of life for all”*. In budgetary terms the entire function of natural resource management and disaster management is provided with around 17% of the total annual budget of around R16,8 billion for 2022, which means an annual budget for LandCare which is at best around R360 million for the whole of South Africa, around 4% of the total budget. For this year, the budget is to be used within the Department only and no calls for proposals from communities have been put forward (Pers comm. Mrs T Naidoo -KZN LandCare Unit, July 2022). Any implementation can thus be regarded as minimal and indicates a severe disconnect between policy, strategy, and implementation for our public service bodies.

3. INTEGRATION OF DSS IN SCALING (UP AND OUT)

A quote from a paper written in 2014 is as relevant today as 8 years ago. *“Adaptation responses are emerging in certain sectors. Some notable city-scale and project-based adaptation responses have been implemented, but institutional challenges persist. In addition, a number of knowledge gaps remain in relation to the biophysical and socio-economic impacts of climate change. A particular need is to develop South Africa's capacity to undertake integrated assessments of climate change that can support climate-resilient development planning.”* (Ziervogel, et al., 2014).

Efforts have been focused on the policy and legal processes of the NCASS and the Climate Bill and sectoral integration under Government Departments, with DALRRD (Department of Agriculture, Land Reform and Rural Development) being the lead and including biodiversity and ecosystems, health, energy, transportation, human settlements and disaster risk management. The intention of these documents and the white paper is to enable adaptation planning across and between all Government sectors and Departments and mainstreaming of climate action into the integrated development planning process (DEA, 2017). In addition, a focus on vulnerability assessments as well as information and data provision related to different sectors, as per the Let's Respond Toolkit (Sustainable Energy

Africa and Palmer Development Group., April 2012) and the more recent GreenBook- an online toolkit, (CSIR, 2019), at Local Municipal level, would provide the specific context for integration of climate actions into the development planning. In practice, very little progress has been made and a policy-practice decoupling has been noted through various case studies where resources are prioritized to service delivery issues that politicians deem as more important than responding to climate change (Mankolo, 2016), (Chademana, 2019), (Santhia, Shackleton, & Pereira, 2018), (Pieterse, du Toit, & van Niekerk, 2021).

A review of success factors for CbCCA through the Community Adaptation Small Grants Facility provides weight to this argument (CA-SGF, 2018). Their learnings were summarized as follows:

1. ***A holistic approach is required to address the complexities of the challenges experienced by local communities and designing interventions that address, or at least acknowledge, the multitude of factors that contribute to climate resilience. Integrated interventions can be used to leverage multiple benefits effectively***
2. ***Partnerships with external stakeholders at multiple levels and in various forms were critical for success allowing for skills transfer, leveraging of expertise, and flexibility to access resources as needed***
3. ***Participatory, inclusive and locally driven processes are required for climate adaptation intervention success. Locally determined interventions, based upon community priorities and supported by local leadership, can bolster achievements***
4. ***Projects must plan for sustainability from the outset and account for a range of climate change impacts based upon scientific projections, including the sustainability and maintenance of assets developed during a project***
5. ***Adopting adaptive management practices promotes the responsiveness and customization required for Community-Based Climate Change Adaptation projects.***
6. ***Capacity building is an integral component to community-based interventions, as new technical information becomes available. The breadth and level of capacity building span various technical expertise and includes financial and administrative skills as well as project management.***

This means that approaches and processes for integration of climate action planning and implementation at municipal and provincial level still need to be found, despite the comprehensive national policy and reporting processes. One way to undertake such assessments, linked to climate resilient development planning is the use of the CbCCA adaptation platform designed under the WRC brief (K5/2719/4): *Collaborative knowledge creation and mediation strategies for the dissemination of water and soil conservation practices and Climate Smart Agriculture in smallholder farming systems (2017-2020)*. This model provides a reasonably comprehensive process for climate vulnerability assessment including socio-economic, biophysical, climate and weather and agricultural data to provide options and practices for implementation of climate change adaptation (CCA) strategies which are context based and can be used in local and regional planning processes.

It can provide a local, practical engagement process with Municipal Governance Structures and other stakeholders to integrate climate action into their agendas. A quick trawl of recent literature for South Africa indicates that this is still the only bespoke process of its kind in South Africa.

a. International decision support tools and platforms

Effective adaptation to climate change requires support for sound decision making and good practice.

Over the past two decades, a proliferation of decision-making resources and tools has emerged (Street, Pringle, Lourenço, & Mariana, 2019). Mostly, these are online tools and range from simple climate data delivery platforms to complex risk management frameworks providing data, guidance, tools and other documents to support adaptation. They are usually targeted geographically and by sector and are designed for a particular clientele.

There are some challenges in designing and disseminating effective decision support tools, some to do with the tools themselves in that they need to be accessible useable, useful and reliable and need to remain relevant in a fast-changing environment, which all mean that the developers need to have a good understanding of their audience. Other challenges may include unrealistic expectations from users, lack of sustained funding for reviewing, updating and addition of new content and a changing policy context that may require more targeted support for modest interventions rather than comprehensive system wide plans (Street & Palutikof, 2020).

This need for flexibility requires a design and implementation process based on continuous learning and improvement, consisting of tailoring the platforms to match the capabilities and needs of the intended users, sustained monitoring and evaluation, developing partnerships that enhance the ownership by users and user communities and understanding the factors that motivate use of the tools and enable or act as barriers to implementation of the resulting plans (Palutikof, Street and Gardiner 2019);

Latest trends have shown an interest in:

- Developing and implementing effective strategies for coproduction of decision support resources, involving practitioners at all stages of the process.
- Linking climate change adaptation, disaster risk reduction and the sustainable development goals.
- Embedding technical innovations to increase functionality and user friendliness, including more attention to navigability, accessibility, legitimacy and relevance.
- Providing examples of good practice related to supporting evolving user requirements and
- Supporting a broader range of users (Street & Palutikof, 2020).

b. Adaptation platforms and decisions support frameworks for South Africa

Most decision support processes for planning climate action are online processes designed to provide information and planning support at the level of policy, strategy and high- level government interventions, both internationally and nationally. For South Africa the LTAS (Long Terms Adaptation Scenarios) is a good example of high-level provision of information for decision making and planning. The first report was published in 2013 (DEA, 2013). Six individual technical reports have been

Adaptation Platforms: Enabling environments, equipping decision-makers with the data, tools, guidance, and information needed to adapt to a changing climate. Content is usually, but not always, delivered online and may include facilitation of knowledge and capacity building through networking, learning opportunities, and case studies on adaptation planning and implementation. They are intended to provide the user with everything required to undertake adaptation, from scoping the challenge through to monitoring and evaluating adaptation outcomes.

Decision-Support Frameworks (also known as a decision support systems): A risk management framework for climate change adaptation together with the decision support tools necessary to implement the framework. The tools may include case studies demonstrating the application of the framework.

Decision Support Tools: Methods and other knowledge resources that facilitate decision-making for adaptation to climate change. They may be free-standing, or components of Adaptation Platforms.

Climate Services: Covers the transformation of climate-related data – together with other relevant information – into customised products (Street & Palutikof, 2020)

developed to summarize the findings from Phase 1, including one technical report on climate trends and scenarios for South Africa and five summarizing the climate change implications for primary sectors: water, agriculture and forestry, human health, marine fisheries, and biodiversity.

This work was followed-up by the two online climate action planning support online toolkits; the Let's Respond toolkit and the South African Green Book.

The Let's Respond Toolkit (DEA and GIZ) has been developed to integrate climate change risks and opportunities into municipal planning, building on the initial LTAS research process and providing an online resource of information as well as tools to respond to climate change at a local level as part of the Local Government Climate Change Support Programme (DEA, 2017). It includes a vulnerability assessment toolkit, climate change response plan templates and a stakeholder engagement toolkit.

The South African Green Book is an online planning support tool that provides quantitative scientific evidence on the likely impacts that climate change and urbanisation will have on South Africa's cities and towns, as well as presenting a number of adaptation actions that can be implemented by local government to support climate resilient development. The Green Book was co-funded by the CSIR and the International Development Research Centre (IDRC), between 2016 and 2019. The CSIR has partnered with the National Disaster Management Centre (NDMC) and co-developed this product with universities, government departments, NGOs and other peer groups.

It provides evidence of current and future (2050) climate risks and vulnerability for every local municipality in South Africa (including settlements) in the form of climate-change projections, multidimensional vulnerability indicators, population-growth projections, and climate hazard and impact modelling. Based on this evidence, the Green Book developed a menu of planning-related adaptation actions and offers support in the selection of appropriate actions from this menu to be integrated into local development strategies and plans.

4. FURTHER CONCEPTUAL DEVELOPMENT: CONSIDERATIONS

Reframing and development of new frameworks, methodologies and perspectives is an ongoing process in development and CC thinking. Below short summaries are provided of progress in aspects relevant to the overall CbCCA models.

a. Methodological approaches to adaptation

There are still conceptual and methodological challenges in defining adaptation goals and in what effective adaptation looks like, with a number of seemingly divergent approaches being used. Assessments, implementation and impact measurements are not the same across these approaches, notwithstanding calls for standardization on national levels towards coherent reporting of the NDC (Nationally Determined Contributions). Since the Paris Agreement nations are required to consider their contributions towards the global goal on adaptation as well as adequacy and effectiveness of their adaptation responses. A recent comprehensive review of these concepts within a very wide range of literature by a group of international experts, has outlined eleven guiding principles for adaptation research and practice (Singh, et al., 2021).

The frames underlying the principles, outline the different views in understanding and operationalizing adaptation effectiveness and “*suggest that opening up thinking about the purpose, processes, and outcomes of adaptation from different perspectives can lead to (1) better*

conceptualized and designed adaptation processes, which acknowledge the inherent biases and strengths of different effectiveness approaches, and (2) adaptation outcomes that are better aligned to the overarching SDG objective of ‘leaving no one behind’” (Singh, et al., 2021).

These frames are: (1) maximizing economic benefits; (2) improved wellbeing; (3) vulnerability reduction or adaptive capacity enhancement; (4) enhanced resilience; (5) sustainable adaptation; (6) avoiding maladaptation; (7) ecosystem-based adaptation; (8) community-based adaptation; (9) adaptive governance; (10) ensuring equity and justice and (11) transformation.

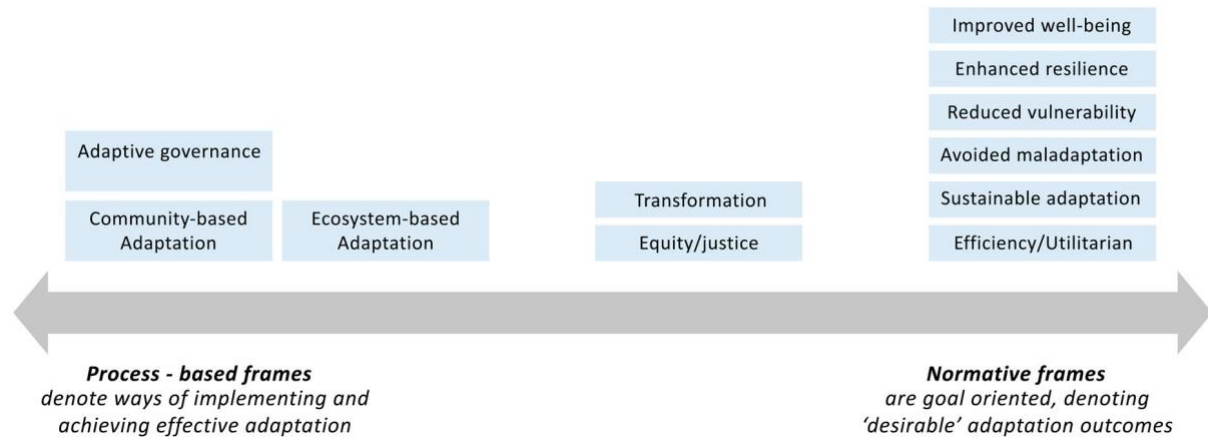


Figure 1: Frames to understand adaptation effectiveness range across a continuum of being process- or outcome-based. Source: (Singh, et al., 2021)

The authors then linked these frames to a statement of principle that summarizes and defines the approach:

- 1) **Minimize costs and maximize benefits (Efficiency/Utilitarian):** which looks at adaptation interventions from financial and social cost perspectives and assumes that benefits can be estimated and calculated.
- 2) **Support achievement of material, subjective, and relational wellbeing goals (Improved well-being):** which broadly covers material, relational and subjective well-being, emphasizing the agency of actors in determining their well-being, tending to focus on the individual
- 3) **Reduce vulnerability and/or increase adaptive capacity, especially of the most vulnerable and those most at risk to climate change (Reduced vulnerability):** which focuses on enhancing capacities to adapt to, avoid, reduce, or capitalize on risk. Indicator-based vulnerability assessment methods or participatory approaches, serve as metrics to monitor vulnerability reduction over time. Projects of this nature dominate the adaptation landscape at present.
- 4) **Increase resilience by building functional persistence over long timescales so that systems have the ability to bounce back from climatic shocks (Enhanced resilience):** which originates in the Ecological Sciences and outlines three fundamental constituents of resilience within socio-ecological systems theory as functional persistence, self-organization, and adaptation. Depending on the scale and scope of the system being considered, the resilience framing helps focus on temporal and spatial trade-offs and trade-offs between objectives (e.g. human well-being vs. environmental services).
- 5) **Be economically, ecologically, and socially sustainable, explicitly looking at longer-term, cross-generational viability of adaptation actions (Sustainable adaptation):** which focuses on climate change vulnerability and gaps in adaptive capacity and adheres to the principles of sustainable development, moving towards goals of social equity and environmental integrity, looking primarily at the confluence of vulnerability and poverty reduction.

- 6) **Take into account unintended negative consequences and explicitly look at the cross-scalar, long-term impacts of adaptation actions (*Avoiding maladaptation*):** which defines maladaptation as action taken ostensibly to avoid or reduce vulnerability to climate change that impacts adversely on, or increases the vulnerability of other systems, sectors or social groups. It calls for thinking of the most vulnerable, but lack of assessment metrics is a big gap in this approach.
- 7) **Invest in ecosystem conservation, management and restoration to enhance ecosystem services, and hence reduce impacts of climate change on human systems (*Ecosystem based adaptation*):** Which highlights that human wellbeing and adaptive capacities are deeply dependent on biodiversity and functioning ecosystem services and focuses on sustainable use of natural resources and ecosystem functioning. Metrics include quantification of ecological limits and indicator-based assessments of how adaptation strategies are benefiting/eroding ecosystem services.
- 8) **Be co-produced with communities to ensure inclusive and sustainable adaptation (*Community based adaptation*):** Which is a bottom-up approach that focuses on increasing the participation and agency of vulnerable communities in adaptation prioritization and implementation. It argues that co-producing adaptation solutions can facilitate more effective adaptation. CbA explicitly focusses on mainstreaming community priorities, needs, knowledge, and capacities into adaptation thereby aiming to empower people to adapt more effectively. Participatory vulnerability assessment tools before and after adaptation interventions are often used for evidence-based adaptation planning and tracking adaptation outcomes.
- 9) **Be oriented towards achieving transparency, accountability and representation in governance through multi-scalar, participatory, and inclusive processes (*Adaptive governance*):** Which draws from research on managing complex, dynamic social-ecological systems to argue for institutions that are flexible and forward-looking, have the capacity to prepare for uncertainty, and explicitly address current climate change impacts, while planning for future risks. It includes also the concept of good governance. A key assumption of this framing is that unequal power structures can be balanced by greater participation and inclusion. While policy learning is seen to be important in the multi-level governance literature, social learning is identified as critical in the adaptation literature.
- 10) **Be oriented toward socially just and equitable processes and outcomes (*Equity/justice*):** Which is a normative, people-centered approach that explicitly focusses on winners and losers from both climate change impacts and adaptation action. It frames effective adaptation as redressing imbalances to achieve more equitable adaptation and reduce socially unjust outcomes. It makes the case for ensuring that the most vulnerable are shielded from climate impacts and that their well-being is not compromised further through actions taken to respond to climate change. It includes the concepts of gender equity and empowerment. Lack of good metrics is a gap in this approach.
- 11) **Be a process that fundamentally changes human thinking and practices in the face of climate change and overtly challenge the power structures that generate vulnerability to its impacts (*Transformation*):** Which generally assumes that climate change brings risks that are beyond society's ability to manage through 'business-as-usual' (or incremental) approaches to adaptation, and that fundamental change is both feasible and desirable. It is centrally concerned with reducing marginalization and strengthening capacities of the most vulnerable

The frames and principles fall along a continuum and can simultaneously be process- and outcome-based. The authors argue that in practice, recognizing the strengths and blind spots of each frame could mean funders and implementing agencies use combinations of frames when tracking adaptation progress (Singh, et al., 2021).

The adaptation platform developed in MDF's previous WRC brief includes element of the community-based adaptation, reduced vulnerability, enhanced resilience and sustainable adaptation frames. Issues related to adaptive governance as relates to water and natural resources as well as transformation through a focus on local food systems are to be considered within the present research work package.

b. Knowledge co-production

Knowledge co-production or co-creation is a further important tenet of this research and the smallholder farmer adaptation platform produced for community-based adaptation. A group of international researchers analyzed 32 initiatives worldwide that co-produced knowledge and action to foster sustainable social-ecological relations (Chambers, et al., 2022).

Co-production, the collaborative combining of research and practice by diverse role players, is argued to be important in sustainability transformations. Yet, there is still poor understanding of how to navigate the tensions that emerge in these processes. These authors argue for four distinct pathways towards collaborative co-creation leading to what they refer to as co-productive agility. According to these authors *"co-productive agility refers to the willingness and ability of diverse actors to iteratively engage in reflexive dialogues to grow shared ideas and actions that would not have been possible from the outset. It relies on embedding knowledge production within processes of change to constantly recognize, reposition, and navigate tensions and opportunities"* (Chambers, et al., 2022).

"It relies on embedding knowledge production within processes of change to constantly recognize, reposition, and navigate tensions and opportunities. Co-productive agility opens up multiple pathways to transformation through: (1) elevating marginalized agendas in ways that maintain their integrity and broaden struggles for justice; (2) questioning dominant agendas by engaging with power in ways that challenge assumptions, (3) navigating conflicting agendas to actively transform interlinked paradigms, practices, and structures and (4) exploring diverse agendas to foster learning and mutual respect for a plurality of perspectives."

The authors provide a framework for navigating tensions and power dynamics among diverse actors to create broad ownership for different types of co-production processes.

A lot of attention has been given to the concepts of scaling up and scaling out, but any bottom-up transformation process is likely to encounter active resistance by those with power and there is limited understanding of how to work within and across scales to break down such resistance.

The constructive exploration of tensions and conflict is increasingly recognized as a catalyst for social learning and transformation. These concepts move beyond 'defensive' approaches to managing tensions, to a willingness to understand different positions and agendas as complex interdependencies rather than competing interests, where the primary purpose of a discourse is not to seek consensus and resolve tensions, but rather to learn to "stay with the trouble" of difference and the discomfort it brings.

In the review the authors found that co-production initiatives were constantly challenged to find a middle space between and within creating space for all views, yet also bringing a critical angle and by not unjustly imposing agendas, but also not romanticizing others' agendas. They found that fostering such agility among these roles depended on creating processes that weave together and balance power among both critical and solution-oriented perspectives. The way the authors conceptualized four pathways for co-production and the six processes to navigate these pathways, is shown in the diagram below.

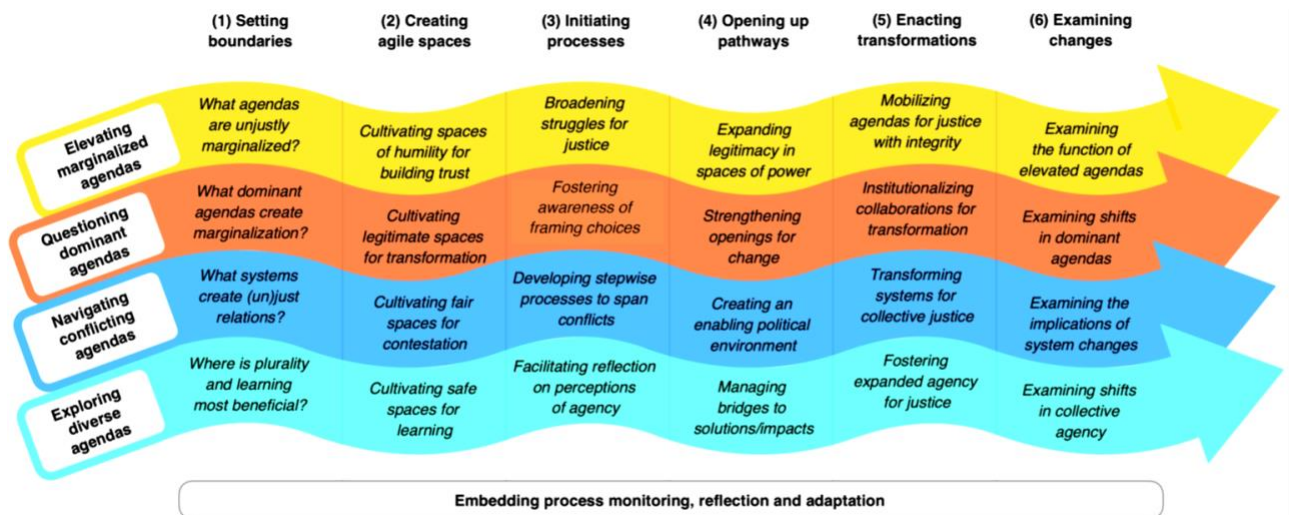


Figure 2: Critical processes to foster co-productive agility in each of the four pathways to sustainability transformations

These concepts have been developed to mitigate against the well-known experience where research and practice may spend too much time debating which agenda for change is best, and too little time considering how to facilitate better interactions among different agendas. The tendency to close down debate over co-production agendas and cover up disagreements for the sake of convenient consensus is linked to the standards of “success” by which scientists and practitioners are held accountable, alongside pressure to show immediate tangible outcomes. According to the authors, such time pressure can incentivize the rapid creation of large ‘inclusive’ multi-stakeholder platforms; yet co-productively agile initiatives consistently limited participation in important ways to effectively balance power relations. They found that embedding research into practice moved initiatives into spaces of co-productive agility. Enabling cognitive, relational, and organizational aspects of co-productive agility may therefore necessitate shifts in institutional environments and funding criteria, to recognize the value of processes that carefully and iteratively navigate tensions and cultivate safe spaces (Chambers, et al., 2022).

These perspectives provide valuable insight and design options towards developing appropriate spaces for co-creation across disparate role players with differing agendas, within this research brief. Aspects of this analysis are to be considered within a number of the related work packages /deliverables within this research process.

c. Vulnerability assessments

As with decision support resources a wide range of global and national role players have developed and proposed frameworks and tools. Vulnerability assessments are the first step towards framing the context for implementation of adaptation measures, especially within the broader understanding that building of resilience requires longer term, participatory and holistic approaches, rather than purely technical, short- term responses, to address all of the underlying structural vulnerabilities in our society.

Understandably, the developed frameworks are thus quite complex and comprehensive and require considerable capacity and resources to undertake. In most cases, the level of vulnerabilities was determined using the IPCC endorsed framework (Exposure + sensitivity = Potential Impact + Adaptive capacity = Vulnerability).

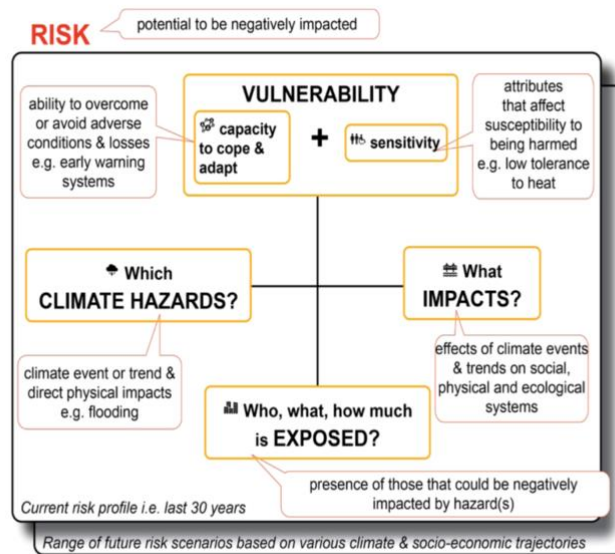
Figure 3: The component of climate vulnerability and climate risk, adapted from IPCC AR5 (GIZ, with EURAC and Adelphi, 2017).

In South Africa, the National Risk and Vulnerability Framework (NRVF) is intended to provide an overarching approach and guidance towards undertaking risk and vulnerability assessment using a suite of available methodologies and tools.

It intends to provide stakeholders/decision makers with an integrated diagnostic framework that can assist to analyse if and how the dynamics of climate risk is addressed in practical assessment cases, and to also enhance a common approach/ a shared responsibility approach in conducting climate risk assessments across all sectors and to provide decision makers with a selection of methods and tools to assess the different components that contribute to key questions such as the type of planning required for a vulnerability assessment, which tool to use and how to carry out a vulnerability assessment (DEFF, 2020).

“The need for this framework stems from the mounting set of demands for various public, private and non-governmental organisations to undertake climate risk and vulnerability (CRV) assessments for policy, planning, funding, insurance and compliance reasons. These include requirements under the National Climate Change Response Policy (2011), the Climate Change Bill, the National Climate Change Adaptation Strategy and the Disaster Management Amendment Act 16 of 2015, as well as international funding processes and reporting under the United Nations Framework Convention on Climate Change (UNFCCC)” (DEFF, 2020).

The variety of assessments being undertaken by a range of organisations has proved problematic for evaluating assessments and for aggregating across them to inform planning and decision making at larger scales and higher levels of governance, underpinning the need for this framework.



Vulnerability: The degree to which someone or something can be affected by a particular hazard (from sudden events such as a storm to long-term climate change).

Vulnerability depends on physical, social, economic and environmental factors and processes.

- Physical vulnerability relates to the built environment and may be described as “exposure”
- Social vulnerability is caused by such things as levels of family ties and social networks literacy and education, health infrastructure, the state of peace and security
- Economic vulnerability is suffered by people of less privileged class or caste, ethnic minorities, the very young and old etc. They suffer proportionally larger losses in disasters and have limited capacity to recover. Similarly, an economy lacking a diverse productive base is less likely to recover from disaster impact which may also lead to forced migration
- Environmental vulnerability refers to the extent of natural resource degradation, such as deforestation, depletion of fish stocks, soil degradation and water scarcity that threaten food security and health. (IFRC, 2007)

The NRVF also offers step-by-step guidance for designing and implementing a vulnerability assessment which covers the entire life cycle of adaptation interventions, using consistent methods proven on the ground and covers the concept of participatory vulnerability assessments.

For the latter two processes of linking vulnerability assessments through project implementation to impact assessments and also working in a participatory manner, more research and explorative processes are still required to assess the potential for standardisation. This is one of the intended work packages of this research brief and will be explored within deliverables 2,4,7 and 8 in more detail

In terms of participatory vulnerability assessments, the following non exhaustive list of tools from a range of international, civil society and institutional role players, provides some examples:

- CARE (2019) Climate Vulnerability and Capacity Analysis Handbook – Informing community-based adaptation, resilience and gender equality – Version 2.0. (Available in English and French versions): <https://careclimatechange.org/cvca/>

- IFRC and the Red Cross Red Crescent Climate Centre (2019) Climate Training Kit: <https://climatecentre.org/training>

- IISD (2012). CRiSTAL - Community-based Risk Screening Tool – Adaptation and Livelihoods. (Available in English, French and Spanish versions): <https://www.iisd.org/cristaltool/>

- IISD & UNEP (2018). Adaptation, Livelihoods and Ecosystem (ALivE) Planning Tool: User Manual. (Available in multiple language versions): <https://www.iisd.org/library/alive-adaptation-livelihoods-and-ecosystem-planning-tool-user-manual>

- The PVA tool (Action Aid) draws on exercises similar to the PACDR process (e.g. hazard map and seasonal calendar) but adds some specific guiding questions on vulnerability. In addition, it includes further exercises (problem tree and concept mapping) which focus more concretely on vulnerability. It also gives guidance on which aspects of vulnerability should be discussed and documented. The PVA also includes steps to carry the results from the analysis to the district and national levels to create ownership and develop advocacy strategies:

- https://www.actionaid.org.uk/sites/default/files/doc_lib/108_1_participatory_vulnerability_analysis_guide.pdf

- PACDR (Bread for the World) has developed the following process: *‘Participatory Assessment of Climate and Disaster Risks (PACDR): A Tool for Integrating Climate and Disaster Risks into Community Planning and Development s to systematically integrate the consideration of climate and disaster risks into community planning and development.’* This tool explicitly incorporates both disaster risk reduction and adaptation into one framework. [Participatory Assessment of Climate and Disaster Risks \(PACDR\)](https://www.pacdr.net) (www.pacdr.net).

PACDR (Bread for the World)

This tool most closely resembles the participatory vulnerability assessment process developed through our 2017-2020 WRC process for development of an adaptation platform for smallholder

Resilience versus vulnerability and risk

The concepts of **vulnerability and risk** focus on differentiating between who or what is exposed to climate hazards and why they are impacted in different ways and to varying degrees.

Resilience places a stronger focus on whole systems and their combined capacity to function and change in the face of climate hazards, pressures or disturbances.

Reducing the climate vulnerability and risks of various communities, businesses, sectors and jurisdictions contribute to increasing the resilience of South Africa’s social, economic, and environmental systems (DEFF, 2020).

farmers in South Africa (Kruger, 2021). As this tool is also actively being promoted in South Africa, the respective organisations have agreed to explore commonalities and future reviews and adaptations to these respective tools through the Adaptation Network Vulnerability Assessments Webinar and follow up process ([About - The Adaptation Network](#)), planned for 2022-2023.

The idea behind the tool is that communities can apply their local knowledge in combination with general knowledge related to disasters and climate change in a way that suits their specific needs and situation. The tool provides a simple, easy-to-use structure and guidance to follow in the step-by-step development of a community assessment of climate and disaster risks and opportunities. It has been developed over roughly 10 years and has been tested and implemented in Africa, Asia and Latin America. The assessment can then inform ongoing or planned projects and programmes, and, more generally, community planning. The tool relies on local participation to identify hazards, to prioritize risks and to develop the strategies necessary to respond effectively to the risks (BfdW, 2020).

More specifically, the tool enables users to:

- Understand how climate and other hazards affect lives and livelihood resources
- Learn how local people currently respond to these hazards
- Identify adaptation strategies to strengthen the threatened livelihood resources and to enhance people's resilience and
- Include gender considerations throughout the assessment of climate and disaster risks.

The PACDR tool consists of 7 modules:

1. Context: Preparation of background material and compilation of information on the community – national policies (CC and DRR), CC information and information on appropriate adaptive responses. (What changes in weather patterns have occurred, what hazards, what impact and how were different people and livelihoods affected).
2. Climate change and hazard analysis: Participatory mapping, seasonal calendar, prioritization of hazards
3. Vulnerability assessment: Vulnerability matrix
4. Response to the impacts of hazards: Survey and assessment of local response
5. Adaptation strategies: review of CC scenarios, Identification of community adaptation goals, strategies (obstacles and opportunities)
6. Co-benefits of adaptation strategies: Matrix
7. Community adaptation and planning: Action plan - Identification of activities for individuals, groups, community and other stakeholders, advocacy plan, presentation to the wider community (BfdW, 2020).

Already one area of cooperation lies in the better integration of the PCDR tool into implementation and impact assessment processes- an area wherein the WRC developed tool is stronger.

Adaptation and disaster risk management

More and more these two areas are being considered jointly, despite the distinct and different policy, strategy development and government implementation trajectories.

A multi stakeholder thinktank developed a policy brief (Dept of Env Sci Rhodes uNiversity, 2017) with the following 6 key messages:

1. The extreme weather events that have dominated the news in 2017 are what we can expect to see under climate change. Drought, storms, fires and floods will become more frequent and more intense, giving rise to the expression 'the new normal'.
2. Climate change and weather events cannot cause disasters in isolation. A disaster occurs when extreme weather events collide with impoverished communities, dysfunctional governance and poorly maintained infrastructure.
3. There are two spheres of discourse dealing with the response to extreme hydro-meteorological events - Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA).

There is overlap in the theory and policy dimensions of DRR and CCA, but little actual integration of decision making, governance and practice, especially at the local level.

4. The bureaucratic challenge of defining and declaring a 'disaster' often leaves the most vulnerable either without much needed support or support that comes too late.
5. Technical fixes and emergency responses are not enough on their own, and sometimes make things worse.
6. Building resilience and preparing adequately for climate related disasters requires transdisciplinary, trans-institutional, trans-sectoral approaches, that clearly identify the synergies between CCA and DRR.

These policy recommendations still hold and are in fact more urgent five years down the line. A recent review of factors hindering effective integration revealed chaotic institutional arrangements, unlinked stakeholder activities, lack of political will, haphazard nature of funding, and interrupted knowledge transfer as the critical factors that hinder the integration of CCA and DRR around the globe (Dias, Amaratunga, Haigh, Clegg, & Malalgoda, 2021). Best practice includes among other factors, risk assessments which include disaster and climate risks, vulnerabilities and coping capabilities and considering systemic interlinkages and dependences. This will be kept in mind in further activities involving the design of vulnerability assessments and monitoring process.

d. Adaptive Management

Adaptive management is not new but has become increasingly relevant in response to rapidly changing situations, including the COVID-19 pandemic and weather-related disasters. It involves implementing a management strategy, closely monitoring its effects and then adapting future actions based on the observed results. In this way, planners simultaneously apply management practices and learn from those management practices.

In brief, adaptive management can be broken into six general steps:

1. Assess the current conditions; identify any problems; determine goals
2. Design a management plan that incorporates these goals
3. Implement the management plan
4. Monitor the impact(s) of the management plan
5. Evaluate the results of the monitoring process and
6. Modify the plan as needed to respond to changing conditions, as identified through the monitoring and evaluation process.

Adaptive management is a cyclical process, running continuously through these steps. The first two steps involve establishing goals for the management process, while steps three through five represent the actual implementation and evaluation of the process. In practice, many adaptive management plans run through steps 3-6 several times before returning to steps 1 and 2, which may involve a reassessment of the entire management plan, including target goals. It is important to evaluate results and modify management strategies as needed to respond to changing conditions (Land Trust Alliance, 2021).

Adaptive management involves continually monitoring a process to evaluate its effectiveness, and improving the process based on this evaluation. It requires transparent planning systems and implementation strategies, and a strong emphasis on monitoring and reviewing to ensure emerging information is reflected in future planning (Rogers & Macfarlan, 2020)

This methodology is to be used in one of the multi stakeholder platforms within which the research team is involved namely the Living Catchments Project (SANBI and WRC) in the uThukela River Catchment. The project has the aim of establishing better-CoPs that are involved with managing the built and ecological infrastructure within important water catchments.

Stakeholders in the upper uThukela are working together towards a shared vision of equitable and sustainable water resources management in the catchment. Warmly welcomed by Okhahlamba Local Municipality Manager, Nkosingiphile Malinga, on 14th June 2022, almost 40 stakeholders who live, work or have an interest in the water resources in the upper uThukela catchment, met in Bergville for a one-day Adaptive Planning Process (APP) workshop. This second multi-stakeholder engagement built on the first workshop of the Living Catchment Project in the upper uThukela in May 2021 and included a structured process to collaborate towards creating a shared vision between a wide and diverse range of stakeholders (Letty, 2022).

The APP process is to be continued under this research brief; more specifically under deliverables 4 and 9.

e. Local Food Systems

Food systems has developed as an area of enquiry that explores the political economy of the agri-food system and focuses on food security and food sovereignty, highlighting issues of agriculture, nutrition and health related to the food system. This work in South Africa has been spearheaded by the Southern Africa Food lab since 2009 ([Southern Africa Food Lab | Food Security Initiative](#)).

A systematic literature review looking at the future of South Africa's food system was undertaken in 2014 (Pereira, 2014).

Food security is the outcome of a complex interaction of multiple factors on multiple levels, from the production of food to its consumption, including elements of food availability, food access and food utilisation. A sustainable food system is regarded as one that takes into consideration environmental, social and economic impacts and that provides nutritious food for all.

The concept of the 'nutrition transition' has become a concern in the food system, especially in developing countries, which is related to overconsumption of refined foods and meat in South Africa this transition is causing undernutrition in young children and overweight and obesity in older children and adults (Pereira, 2014).

According to Pereira, *"poorer South Africans, especially in rural and informal urban areas, are less able to afford healthy, nutritious meals on a daily basis. An increasing reliance on purchasing food instead of growing it has also meant that consumers are more vulnerable to price shocks. In the poor rural areas the emphasis has shifted from growing one's own food to buying it at local stores and supermarkets, often with money received from social grants"*. In general, nutrient-dense foods such as lean meat, fish, fruit and vegetables cost far more than processed food products, further skewing consumption towards these types of food.

The South African food system has been radically altered by the effects of rapid urbanisation, the globalisation of the food trade and the subsequent concentration of agribusiness. Climate change and

Food security is when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy lifestyle.

Food sovereignty is the right of each nation to maintain and develop its own capacity to produce foods that are crucial to its own food security, while respecting cultural diversity and diversity of production methods.

A local food system is a collaborative network that integrates sustainable food production, processing, distribution, consumption, and waste management to enhance the environmental, economic, and social health of a particular area.

weather variability, water scarcity, a failing land reform process, depletion of fish stocks and food waste pose the biggest threats to the South African food system. The duality of the current agriculture system, where large commercial farms produce food for the formal value chain and smallholders are marginalised is another important concern, which has undermined our food system's ability to provide livelihoods and has accelerated and deepened the processes that are driving poor people off the land and fuelling rapid urbanisation.

According to Pereira *'an overarching theme in many of the papers in the review was the need for multi-stakeholder engagement in the governance of the food system. The food system is being contested on many levels and by many different groups. What is generally being advocated is the need to bring various points of view together to chart a way forward for a food system that is both sustainable and equitable'* (Pereira, 2014).

Greenberg and Drimie state in their review that *'in summary, the South African food system is highly contested with the legacy of apartheid leaving a dualistic agrarian system. The advent of democracy coincided with rapid liberalisation of the agricultural sector leading to the consolidation of larger players including agri-businesses, food processors, retailers and other actors in the food value chain. Green Revolution approaches to smallholder support have become the dominant paradigm with powerful actors supporting and entrenching this throughout the food system. As such, agroecology largely has been marginalised. Despite this, important initiatives, particularly those led by civil society, have emerged to advance an agroecological agenda. Pockets have also emerged within government (in particular in DALRRD and DFFE) who are willing to support this agenda'* (Greenberg & Drimie, The state of the debate on agroecology in South Africa. A scan of actors, discourses and policies. Final Report, 2021).

In a recent report, looking at sustainable and inclusive transformation of the South African food system (FAO, European Union, CIRAD and DSI-NRF Centre of Excellence in Food Security (CoE-FS), 2022), four core challenges have been identified for the country to transition towards a sustainable food system: Improved nutrition; sustainable agricultural production systems; levelling the food system playing field, and improved food system governance.

Policy recommendations made in this report are:

- In **food insecurity and nutrition**: reduce the cost of nutrition dense food and increase the range, scale, and coverage of child-centred food system interventions in the built environment
- In **food production**: support the transition towards agroecological food systems, and link land reform with place-based farmer support
- In **market functioning**: reform and enforce food system regulatory policies, adopt an integrated approach to building an inclusive food system and
- In **food system governance**: improve inclusive stakeholder participation and enhanced engagement and adopt a two-pronged place- and issue-based approach to food system governance.

It is within this context that promotion of local food systems using sustainable production and land use practices is being promoted primarily through the civil society sector with some private and academic partners. Concepts such as community food systems, local food economies and food sovereignty are coming into play, linking into thinking around just transitions and transformation of the food system. In terms of food production agroecology and regenerative agriculture are being promoted.

f. Agroecology

Agroecology is a way of redesigning food systems, from the farm to the table, to achieve ecological, economic, and social sustainability. Through transdisciplinary, participatory, and change-oriented research and action, agroecology links together science, practice, and movements focused on social change.

Greenberg and Drimie conclude that *'given the reality of agricultural practice in South Africa, the wide range of existing definitions of agroecology can be considered as aspirational. As such, the accent is placed on diverse ecological production techniques and their integration at farm and landscape levels. We propose these be considered as a continuum of practices, with "entry level" requirements for stepping onto the path of agroecology as no use of genetically modified (GM) seeds, synthetic fertilizers or pesticides that are toxic to humans, animals and the soil. The list of practices offers a range of opportunities for building change practically from the "grassroots" level. Recognizing agroecology as a movement, we also propose the integration of participatory methods of dialogue, research, experimentation and learning as defining features of agroecological practice'* (Greenberg & Drimie, The state of the debate on agroecology in South Africa. A scan of actors, discourses and policies. Final Report, 2021).

The authors developed a table outlining the main discourses around agroecology in South Africa, as shown below.

Corporate food regime		Food movements	
<i>Neoliberal</i>	<i>Reformist</i>	<i>Progressive</i>	<i>Radical</i>
<i>Food enterprise</i>	<i>Food security</i>	<i>Agroecological practice</i>	<i>Food sovereignty</i>
Core approach based on food coming from corporate-industrial producers. Key strategies include increased corporate-led industrial production; Green Revolution; high levels of external inputs such as fertilisers and agro-chemicals; expansion of GMOs; public-private partnerships; market access (especially export markets). Small scale producers (especially those using natural techniques) are seen as an anachronism, otherwise as cheap labour and land for production of mass commodity crops.	Large-scale commercial agriculture still at the base of food production and distribution, but some role for smallholder producers through value chain integration, some recognition of environmental limits and constraints, especially water and soil. Environmental modernisation / sustainable intensification within a capitalist market context (e.g. CA/CSA). Diverse views on agroecology/organic production from within the reformist group: i) Organics as a premium niche market ii) Natural farming as a hobby but not for bulk production iii) Agroecology is equated with subsistence production /	Core approach based on food coming from an open set of dynamic and interconnected practices on a continuum from a set of "entry level" practices to integrated systems at farm, landscape and territorial levels. Core/entry level practices are no GM seeds; use of only organic/natural soil fertility methods; and use of only organic/biological pest management and controls. Key role for smallholder production and small enterprises throughout supply systems. Sustainable food systems, fair and short distribution networks, food systems embedded in local economies. Social and ecological integration, popular and	Core approach sees food coming from agroecological practice based on organised collective agency and democratic control of food systems. Radical nature of approach characterised by radical redistribution of land and other resources, active organised resistance to corporate and other extractive encroachment / occupation of agricultural, food and wider systems.

	'traditional' / backyard agriculture or homestead gardening with a welfare and poverty relief emphasis.	indigenous knowledge, key role for women, right to food. Collective and participatory practices.	
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A trend in the food movement is towards practice “in the shadow of policy” with efforts to work ‘beyond’ the state in the context of state capture and lack of responsiveness. Recent literature details how embedded this form of corruption facilitated by powerful figures within the state has been and how state capture has exacerbated institutional decay. State capture has undermined the social contract that was intended at the advent of democracy in 1994 (Greenberg & Drimie, The state of the debate on agroecology in South Africa. A scan of actors, discourses and policies. Final Report, 2021).

Principles for implementation of agroecology have been defined by the FAO and the United Nations HLPE (Wezel, et al., 2020). These are shown in table format below

Principle	FAO's ten elements
Improve resource efficiency	
1. Recycling. Preferentially use local renewable resources and close as far as possible resource cycles of nutrients and biomass	Recycling
2. Input reduction. Reduce or eliminate dependency on purchased inputs and increase self-sufficiency	Efficiency
Strengthen resilience	
3. Soil health. Secure and enhance soil health and functioning for improved plant growth, particularly by managing organic matter and enhancing soil biological activity.	
4. Animal health.	Ensure animal health and welfare
5. Biodiversity. Maintain and enhance diversity of species, functional diversity and genetic resources and thereby maintain overall agroecosystem biodiversity in time and space at field, farm and landscape scales.	Part of diversity
6. Synergy. Enhance positive ecological interaction, synergy, integration and complementarity among the elements of agroecosystems (animals, crops, trees, soil and water)	Synergy
7. Economic diversification. Diversify on-farm incomes by ensuring that small-scale farmers have greater financial independence and value addition opportunities while enabling them to respond to demand from consumers.	Part of diversity
Secure social equity/responsibility	
8. Co-creation of knowledge. Enhance co-creation and horizontal sharing of knowledge including local and scientific innovation, especially through farmer-to-farmer exchange.	Co-creation and sharing of knowledge
9. Social values and diets. Build food systems based on the culture, identity, tradition, social and gender equity of local communities that provide healthy, diversified, seasonally and culturally appropriate diets.	Parts of human and social values and culture and food traditions
10. Fairness. Support dignified and robust livelihoods for all actors engaged in food systems, especially small-scale food producers, based on fair trade, fair employment and fair treatment of intellectual property rights.	
11. Connectivity. Ensure proximity and confidence between producers and consumers through promotion of fair and short distribution networks and by re-embedding food systems into local economies.	Circular and solidarity economy
12. Land and natural resource governance. Strengthen institutional arrangements to improve, including the recognition and support of family farmers, smallholders and peasant food producers as sustainable managers of natural and genetic resources.	Responsible governance

13. Participation. Encourage social organization and greater participation in decision-making by food producers and consumers to support decentralized governance and local adaptive management of agricultural and food systems.

Source: (Wezel, et al., 2020).

As a part of the TAFS (Transitions to agroecological food systems) project, a range of stakeholders involved in agroecology took part in a number of different conversations (Greenberg, Fastenaktion agroecology survey results., 2022). From this survey Greenberg summarized that *“there is growing societal awareness of the need for systems change across multiple dimensions, and a ‘natural’ role for agroecology in responding to waves of shocks and stresses”*.

Agroecology is seen as a clear response to multiple shocks and stresses (e.g., Cyclone Idai, Covid 19, the July social unrest, rising food prices and deepening poverty). Some specific areas where respondents perceived growing societal awareness are:

- Climate change – awareness of the need to adapt, linked to wider awareness of environmental degradation, and funding is available for climate resilience in food production.
- Nutrition – consumer demand for healthier eating, Covid 19 and healthy eating, indigenous crops, crop and seed diversification.
- Resonances with traditional practices and indigenous knowledge, availability of reliable local seed that can survive through water stressed conditions.
- Interest in the wider society on food sovereignty, land redistribution, local food markets, growing own food, buying from local growers, seed exchanges, and self-sufficiency.
- Deepening and longer term agroecological practise to provide evidence and
- Greater interest within civil society on networking and collaboration, working across sectors, other sectors aligning with healthy food movement, resulting in stronger voice and effective resource use. Respondents proposed local initiatives and collective submissions, and collaboration at national and regional / continental levels.

5. MULTISTAKEHOLDER PLATFORMS

Written by Ayanda Madlala (MDF)

a. What are Multistakeholder Platforms?

There are various ways in which people or groups come up with solutions for complex situations or to explore new and promising opportunities that require working in partnership. These partnerships and interactions are expressed in different ways ranging from coalition, alliances, networks and platforms to participatory governance, stakeholder engagements and interactive policymaking. The term multi-stakeholder platform (MSP) is an overarching concept for partnerships highlighting a vision that different groups sharing a common goal can work together (Surminski & Leck, 2016). These different groups include government, both local and national, Civil Society Organizations (CSOs), Non-Government Organizations (NGOs), private sector and academia (Forino, 2015).

Definitions of MSPs by numerous stakeholders/authors who have thoroughly engaged with the concept are as follows:

- Food and Agriculture Organization (FAO, 2020) describes an MSP as a concept of partnership that seeks to be forward thinking, to make voluntary and collaborative relationships possible regarding issues between various parties. They include both public and non-public entities that can achieve common purposes, offer a neutral space for policy dialogues or undertake specific tasks and as mutually agreed, share risks and responsibilities, resources as well as benefits.

- The Wageningen Centre for Development Innovation (CDI) views MSPs as a form of governance, a way in which groups of people can make decisions and take action for a collective good (Owili, 2021). These decisions may be taken at local, national or at an international scale. One of the objectives for this development approach is to allow for different stakeholders to learn from one another, to hear others while allowing their voices to be heard and explore pathways more likely to meet interests for all.
- MSPs assist in providing the realization that transformation in complex systems cannot be achieved through simple or technical solutions as they are likely to have insufficient or unintended results. For change to take place, new forms of governance are required where new stakeholders will come together to plan and act in innovative ways (Thorpe, Guijt, Sprenger, & Darian, 2021) They are defined as potential means to promote deliberative decision making as an organizational tool to open and create political spaces fostering inclusive institutional innovation.
- MSPs are defined as potential means to promote deliberative decision making as an organizational tool to open and create political spaces fostering inclusive institutional innovation (Adekunle & Fatumbi, 2012).
- The term multi-stakeholder platform is broadly defined as an approach of building synergies and partnerships with key actors, such as civil society organizations, governments, private sector, and the community, all groups who are crucial to engage in addressing food system problems. Multistakeholder partnerships support the development of long-term relationships with partners in knowledge exchange, sharing risks and benefits, human and financial capital, and the innovative ideas that effect change for the common good of the society” (Mutenje & al., 2022)

All the above definitions have something in common which looks at stakeholders at different levels with a shared vision or aim to resolve a complex issue coming together, learning and sharing knowledge amongst each other in order to reach a collective resolution. This role is centered on a multi-stakeholder platform, an initiative that is slightly more than a partnership as it is broader in scope while catalyzing structural changes and coordinating activities of different stakeholders over longer periods.

b. What characterizes an MSP?

Multi-stakeholder platforms are not a one workshop or multi-actor gathering, instead they are viewed as a semi-structured process supporting people to work together over a shorter or longer period. In the interim different groups or people will engage with one another in different ways. MSPs will be diverse in practice, however a well-functioning MSP is most likely to possess most if not all of the following characteristics (Herman Brouwer, Woodhill, Hemmati, Verhoosel, & van Vugt, 2015):

- *Shared and defined ‘problem-situation’ or opportunity*; Stakeholders need to have a sense of why they form part of the MSP. This usually emerges during the development process of the platform.
- *All key stakeholders are engaged in the partnership*; actors who have an influence or are affected by the problem at hand need to be involved from the beginning or the MSP can be easily undermined.
- *Works across different sectors and scales*; underlying causes of the problem and possible solutions are usually found across different disciplines therefore is important to for the MSP to work across different sectors and scales.

- *Follows an agreed but dynamic process and timeframe*; It is vital for the stakeholders involved to understand the process in which they are invited to form part of and how long it will take.
- *Involves stakeholders in establishing their expectations for a good partnership*; actors in the MSP need have create clearly defined rules explaining how they will be working together. This may include means of communication, decision making, roles and responsibilities.
- *Works with power differences and conflicts*; if those with power dominate while leaving those with less or no power feeling excluded, the partnership will not be constructive. This also applies to conflict, if left unresolved it will result to a destructive influence.
- *Fosters stakeholder learning*; good MSPs promote a supportive environment with interactive learning processes.
- *Balances bottom-up and top-down approaches*; MSP are required to find a balance between working with structures and decisions that emerge from the top while supporting inputs from diverse stakeholders from the bottom.
- *Makes transformative and institutional change possible*; there is a need to focus on transformative change to erase underlying institutional blockages.

c. Effectiveness of MSPs

The agricultural and climate change sectors are increasingly facing complex, systemic problems requiring structural change at multiple (global, national, local) levels. Multistakeholder platforms (MSPs) are a recognition that transformation in complex systems cannot be achieved through simple or technical fixes, which are likely to have insufficient or unintended results. Instead, change requires new forms of governance which bring stakeholders together to plan and act in new ways (Thorpe, Guijt, Sprenger, & Darian, 2021).

Multistakeholder involvement is considered crucial for horizontal and vertical scaling of implementation processes and practices that show promise for broader implementation and to facilitate inclusive governance coupled with regional and local development mechanisms. How these multistakeholder platforms are to be set up, function and operate however is a much more complicated question to answer. Presently there are a number of models for engagement with a mixture a statutory processes and volunteerism. The requirement of collective action at all levels, working towards a shared vision is however an important underlying principle (PCC, 2022), as is cutting across traditional public, private and civil society boundaries.

The effectiveness of multi-stakeholder platforms (MSPs) remains poorly understood, particularly in relation to their intended purpose and goals, and relative to approaches to achieve these goals. This is, at least in part, due to the difficulty of assessing MSP effectiveness in a meaningful and robust way. The relationship between individual MSP activities and intended system level effects is neither simple nor direct. Generally, MSPs focus on tracking what can be measured, rather than reflecting on whether and how MSPs are contributing to system level results (Thorpe, Guijt, Sprenger, & Darian, 2021).

According to these authors *“the problem is that our usual tools for measuring effectiveness are not fit for this purpose. They rely on a linear logic – generally involving tracking changes in key performance indicators – which is poorly suited for acting systemically. They are often applied retrospectively, in an attempt to account for the results of an MSP, rather than for real time learning. They put the focus on*

what we can measure – our activities and outputs... but many different economic and political factors, including but not limited to the MSP, collectively shape food systems”.

Successful MSPs are observed through the following principles:

- They are able to achieve lasting outcomes
- They involve wide variety of actors
- They have the ability to create sustainable working groups and
- They work towards finding common solutions.

If these principles are in place, then MSPs have the ability to facilitate and promote policy and legal reforms, create neutral spaces for climate and other related issues and promote buy-in for responsible governance. The manner in which the partnerships are setup, the processes used, the capacity for leadership and the skill of facilitation are important underlying considerations for success.

MSPs need a specific vision to work towards, as well as a theory of change within which to contextualize their activities and impact. They need to also have a clear understanding of their definition of a stakeholder, outlining who needs to be involved and how.

In the context of agricultural development, MSPs have been identified as having the potential to address climate change focusing on a 3-legged approach – mitigation, adaptation as well as food security (Rosenstock, Nowak, & Girvetz, 2019). It is through recent studies that MSPs are viewed as engines to facilitate climate change policy making in East Africa particularly Uganda and Tanzania. Case studies executed in these two countries where MSPs were established at both national and subnational levels prove to be effective. This integrated approach is of utmost importance because, even though climate change effects are felt locally, change happens most effectively within an enabling policy environment.

d. VSTEER Methodology

This is a methodology developed originally in the business sector to assess solutions to environmental and economic problems and stands for ‘Social, Technical, Economic, Environmental and Political Values’. It has been adapted and used more recently in our context within the Strategic Adaptive Management (SAM) and Adaptive Management tables to enact a joint visioning and theory of change upon which to base multistakeholder actions (Palmer, Rogers, Holleman, & Wolff, 2018). This work was done in the context of integrated water resources management in catchments to work towards catchment management forums.

These authors suggested that use of SAM is important because:

- Existing management procedures are not protecting the biodiversity and function of aquatic ecosystems or ensuring fair household water supply.
- Climate change is affecting ecosystems and society must be able to adapt to these changes. We have a responsibility to protect our environment – it supports all life: human, animal, and plant.
- Balancing the protection and use of freshwater ecosystems is difficult because all users need a reliable supply of water of a particular quantity and quality. They also usually want more than is available, and sharing is hard and difficult.
- Freshwater ecosystems need a holistic management approach because all the elements of the system (people, other species, and the structure of the system) are connected. Every

action has multiple effects – some of them unexpected – and whatever happens upstream always affects what happens downstream.

- The adaptive planning process (APP) of SAM provides a set of objectives for action. Management actions to achieve the objectives can be tested and adapted in the full SAM process.
- APP embraces uncertainty and uses it as a learning opportunity. Managers using Adaptive Planning recognize that they are constantly 'learning by doing' and
- APP recognizes that demands on an ecosystem such as a river often compete with each other. Fair sharing can emerge from consensus. Taking account of social-ecological connections increases adaptive possibilities (Palmer, Rogers, Holleman, & Wolff, 2018).

The methodology takes a broad range of concerned stakeholders through a participatory process to define their values and concerns and outline the specific context of their catchment towards developing a joint vision for the future of the catchment. This is followed by identifying the key strengths of the catchment towards defining objectives; it identifies the fundamental purpose of managing a specific resource. Once the special features of these resources are defined, then an exploration of threats and constraints can lead to prioritizing certain sets of activities and processes and lead to an action plan, which can be implemented and reviewed. This is an ongoing, cyclical, and adaptive process.

e. Stakeholder analysis

An important aspect of any multistakeholder process is understanding who the stakeholders are and how they are or could be involved.

Stakeholder analysis in development and the natural resources management literature has focused on understanding power dynamics and enhancing the transparency and equity of decision-making in development projects. The '4Rs' tool for example analyses how people relate to one another over natural resource use by splitting stakeholder roles into rights, responsibilities and revenues (benefits), and then assessing the relationship between these roles (Reed, et al., 2009) These analyses have often focussed on inclusivity, being used to empower marginal groups, such as women, those without access to well established social networks, the under-privileged, or the socially disadvantaged, and those who are not easily accessible, because for example they live far away from main roads.

Natural resource management typically deals with conflicting interests of various stakeholders since they use the same resources for different purposes. It is therefore important to understand the different perspectives of the actors involved. For this reason, in the development and natural resource management literature it is often argued that sustainable management of natural resources requires a soft system, i.e. a space or platform that facilitates a learning among stakeholders by sharing, and intersubjectively validating, their understanding of the situation in order to reach consensus. Stakeholder analysis in itself does not create this platform for negotiation but can be used as a tool to contribute to this negotiation or learning between stakeholders. This is a normative model. Instrumental stakeholder research is more pragmatic, and largely devoted to understanding how organisations, projects and policymakers can identify, explain, and manage the behaviour of stakeholders to achieve desired outcomes. This has been used instrumentally to overcome obstacles to the adoption of new technologies, adapt technologies to relevant user groups, or to disseminate the same technologies in different ways to different groups. It also has been used where consensual targets need to be met across stakeholder groupings. It may also be particularly important for identifying existing conflicts between stakeholders.

The authors propose a stakeholder analysis typology. This consists of methods for: i) identifying stakeholders; ii) differentiating between and categorising stakeholders; and iii) investigating relationships between stakeholders. A number of different methods for undertaking these steps are suggested by the authors.

1. CBCCA CONCEPTUALIZATION OF STAKEHOLDER PLATFORMS

For the purposes of the adaptation platform and this research brief, stakeholder engagement is conceptualized on three levels: Micro-, Meso- and Macro-levels. These are briefly described below.

1st LEVEL: Practical implementation (micro)

The first level of CoPs (Communities of practise) is to work with individual small-scale farmers through their village-based learning groups (LG) where awareness raising, training, farmer level experimentation, implementation, monitoring, review and re planning takes place. This is where the CRA practices are introduced and implemented. Seasonal implementation is undertaken:

- Summer: Conservation Agriculture (field cropping), fodder production
- Winter: Intensive homestead food production, poultry production and fodder supplementation.
- Spring and autumn: soil and water conservation and management activities and other resources conservation activities.

This is done to ensure that implementation fits into the labour and production patterns within the communities where work is undertaken and that participants are not over-burdened by programme activities. Onto this basic platform is scaffolded the village savings and loan associations (VSLAs), the local marketing initiatives, the local food systems development activities (nutrition, value adding, seed saving networks etc), the exploration of collaborative actions related to water and resource conservation and interaction with stakeholders.

These are basically farmer research networks and fit well into the latest thinking around how such structures could function (Richardson, et al., 2021), where diverse farmers participate in the whole research process. Research is rigorous, democratized, and useful. It is focused on agroecological intensification knowledge creation that provides practical benefits to farmers based on their social and biophysical contexts and networks are collaborative and facilitate learning and knowledge-sharing.

2nd LEVEL: Communication & Innovation (meso)

The second level of CoPs are the Innovation platforms, which consist of clusters of learning groups from a particular area, or site coming together to share information and insights and engage with external stakeholders in thematic events to explore social agency, advocacy and further implementation aspects related to CbCCA.

These farmer research networks can be used to support research and action at a systems level (such as a landscape, agroecosystem, or food system). Working in networks that include actors besides farmers may catalyse and strengthen systems thinking. Networks create opportunities to

link farmers to other actors, bringing in perspectives, knowledge, and technologies from others in the farming and broader food system. This can be done by researching multiple components of the agroecosystem and supporting farmers in making informed choices about how to best sequence and combine a variety of AE techniques to suit their own needs, farming system, and resources. Additionally, landscape-level management practices can be encouraged, as well as support for value chain research to facilitate the gradual transition to a sustainable system (Richardson, et al., 2021).

3rd LEVEL: Multi-sectoral involvement of relevant institutions & stakeholders (meso & macro)

The third level of CoPs consist of multi stakeholder networks and processes that provide the platforms for national and international learning and collaboration and also upscaling the CbCCA work and provide for further collaborations and potential funding opportunities.

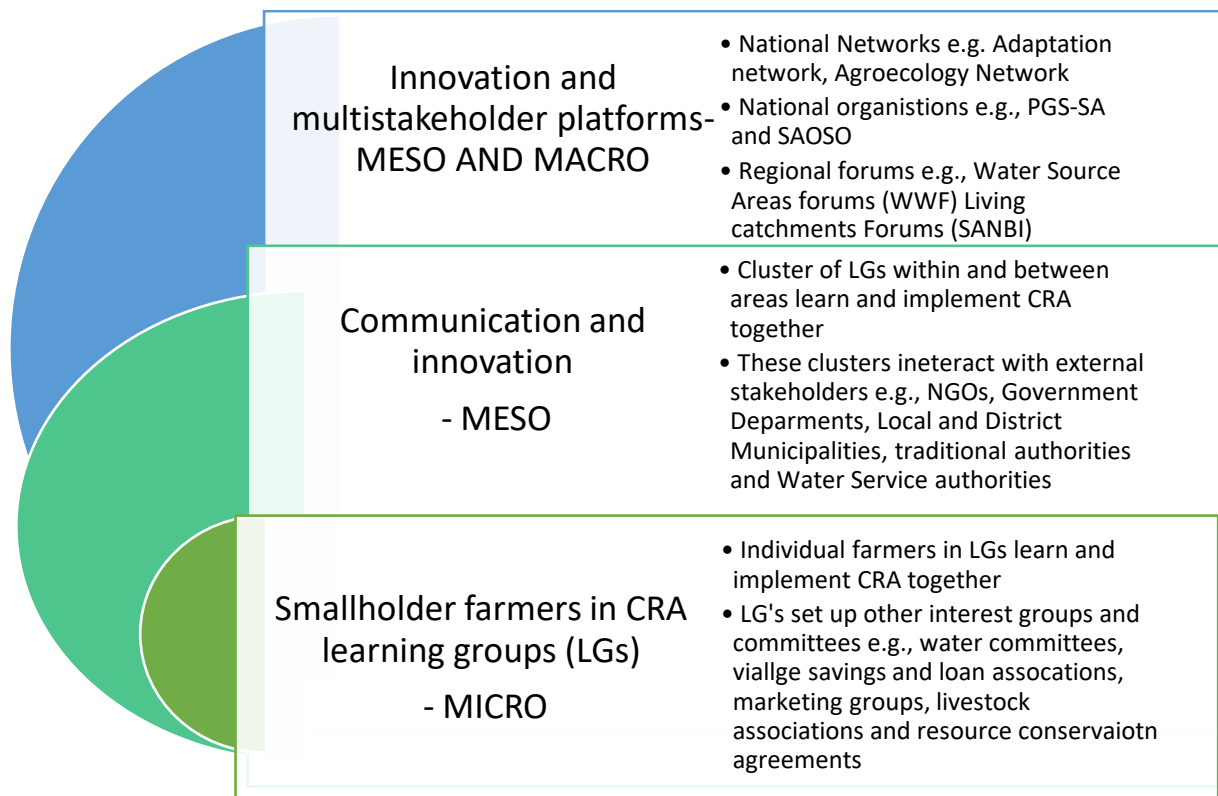


Figure 4: Conceptualization of stakeholder platforms at multiple levels to support CbCCA

Further exploration of the categories of stakeholders and the roles and relationships between stakeholders is important for the present research brief.

2. PROCESS PLANNING AND PROGRESS TO DATE

The intention is threefold:

- Expand introduction and implementation of the CbCCA DSS framework within the areas of operation of MDF with a number of different communities. Work with existing communities as the basis of the case studies in specific thematic areas.
- Introduce and implement the CbCCA DSS framework with a range of other role-players expanding into new areas, including different agroecological zones and
- Work at multistakeholder level to introduce the methodology as an option for adaptation planning and action, both within civil society and also including Government stakeholders. This is the first step towards institutionalization of the process and will involve mainly working within existing multistakeholder platforms and networks as the starting point.

To date the research team has participated in a range multistakeholder platforms, networks and communities of practices (CoPs) towards developing a framework for awareness raising, dissemination and incorporation of the CbCCA-DSS methodology into local and regional planning processes and developing methodological coherence for a number of the themes to be explored in this brief.

Presentations have been made to: The Adaptation Network, The Umzimvubu Catchment Partnership, Tshintsha Amakaya, Adaptation Network, the South African Mountains Conference, The Tsitsa Project, the WWF-Freshwater Programme and the Agroecology Network of South Africa.

Planning meetings have been held with research collaborators; Nqe Dlamini, Nicky mcCleod and Derick du Toit to outline work programmes for various deliverables and to develop Memorandums of Understanding (MoUs) for each work package.

Introductory meetings with other civil society organisations, with a view to expand implementation horizontally and into new agroecological and institutional environments have been held with The Wildlands Trust (Northern KZN), Sociotechnical Interfacing (Gauteng and Northwest), Environmental and Rural Solutions (Eastern Cape).

Conceptual discussion on a range of topics including vulnerability assessments, the role of agroecology in CCA, methods for monitoring and evaluation of multistakeholder processes, development of stakeholder platforms and inclusion of volumetric water benefit accounting as a tool for implementation of integrated water resources management have been undertaken in the last 4 months and will be continued into the next deliverable.

The table below outlines actions and meetings to date.

Date	Organization and individuals	Activity	Notes
2022/07/08	Tsitsa Project- <i>Laura Bannatyne</i>	Informal conversation around implementing the DMF developed adaptation platform to help in a short-term implementation and review process of the project	Further discussions with the tam around how to incorporate different aspects as well as the resilience snapshots into their process
2022/07/04	MDF – <i>implementation team</i>	Presentation of TOC for desktop review for inputs by writing team	Interns and field team members to assist with specific sections of the desktop study

2022/04/12	AWARD – Derick du Toit	Meeting in Hoedspruit to discuss AWARD's contribution	Focus to be on local food systems case study, youth engagement
2022/05/09	StratAct – Nqe Dlamini	Introduction of topic and discussion of Deliverable 3 (Handbook on scenarios and options for successful smallholder financial services within the South Africa)	Nqe Dlamini is registered for a PhD in Adult education at UKZN under the theme of micro finance for smallholders and is to lead this aspect of work
2022/06/01	Sociotech Interfacing- Marna de Lange	Discussion with STI re the CbCCA model specifically incorporation of climate change action in food security implementation – sharing of resources Meeting with STI team in Polokwane to present model and discuss potential implementation collaboration	The intention is to run workshops with STI staff and communities to incorporate climate action into their implementation
2022/07/29			
2022/02/12	Ttshintha Amakhaya – Winile Makhabo	Discussions for presentation of the CbCCA model to 9 partner organizations, with the intention of implementation in WC, EC, Limpopo and KZN	Still to be followed up – change in national coordinator
2022/02/20	Wildlands	Discussions and subsequent joint proposal for inclusion of CbCCA into resource conservation programming	Proposal submitted for Isimangaliso Wetland Programme
2022/03/15-16	SAMC conference	Presentation of a paper: CbCCA improves Climate change resilience for smallholder farmers in central Drakensberg	Submission of full academic paper by 2022/09/30
2022/02/21, 03/16, 04/14,...	WWF-Water Source Areas	Negotiation for MDF CRA implementation to be part of the water stewardship programme in the upper uThukela	Inclusion in a pilot for volumetric water benefits for smallholders; CA and water access (2022-2024)
2022/02/22, 04/19	Umzimvubu Catchment Partnership – Nicky McCleod, Sissie Mathela	Presentation of CbCCA DSS at 34 th quarterly meeting of the UCP (~120 participants). Development of MoU and work programme with ERS	Ongoing involvement in UCP. Collaboration on issues of governance and multi stakeholder platforms
2022/05/23	Karen Kotshky	Learning in M&E interest group meeting	Continued involvement for academic framing of new modalities for M&E
2022/04/06-08	LCP – Convenors' workshop – Erna Kruger (MDF), Brigid Letty (INR)	Learning and sharing workshop for Living Catchments Multistakeholder platform convenors	Part of SANBI-WRC partnership and programme.
2022/06/14	LCP- Upper Uthukela	VSTEOP stakeholder analysis exercise for role players in upper uThukela as part of and Adaptive Planning Process	Visioning for multi stakeholder platforms
2022/05/19	Adaptation Network- Vulnerability assessments	Presentation of MDF vulnerability and resilience assessment tool to CoP for vulnerability assessments convened by Indigo Development and Bread for the World	Ongoing interaction in sharing and learning. Next CoP meeting in August 2022
2022/06/29, 07/13, 07/29	Adaptation Network – Capacity building CoP	Meetings of newly set up CoP for design of capacity building process within multi stakeholder network – implementation of a capacity development process funded by the Govt of Flanders	Ongoing involvement
2022/05/30, 06/26, 07/27	Agroecology networking – (AESA)	-Farming for Climate Justice-part research in solidarity networks with Coventry University (UK). -Joined webinar by CGIAR on measuring impact of CSA across their CCAFS programme -Focus group discussion on agroecology in CCA – SIDA research process. - Ngo focus group and farmer focus group discussions for agroecology cast study for	Role of agroecology in CbCCA – conceptual and development of case studies

2021/11/17		'Fastenaktion' research process managed by Stephen Greenberg -Presentation to the Agroecology research working group on Agroecology transitions towards exploring transition pathways	
2022/07/06, 07/29	SAOSO/PGS SA	Group certification and coordination of organic/agroecological farming inputs working group meetings	Ongoing involvement in CoP

3. WORK PLAN: AUGUST-DECEMBER 2022

The following broad activities are to be undertaken during this period:

1. Planning for implementation of CbCCA in MDF supported Climate resilient Agriculture (CRA) learning groups across three provinces (2x CRA groups per province).
2. Initiation of CbCCA methodology with new CSO partners in two provinces
3. Ongoing involvement in CoPs; Vulnerability assessments, capacity building and learning in monitoring and evaluation, PGS-SA,
4. Ongoing involvement in LCP programme and Water Resource multistakeholder forum development
5. Progress towards Handbook on smallholder microfinance options
6. Onboarding of minimum 1 Masters Student into the programme to start in early 2023
7. Desktop review on monitoring tools for evidence-based planning and implementation
8. MoU for the Institute of Natural Resources work package.

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