Putting Climate Resilient Development Pathways Into Practice

High-level proposals for taking the CRD pathways approach forward

Introduction

To ensure that CRD pathways become a valuable decision-support tool within South Africa it is important to take the insights and foundation established through the scoping phase of this project forward and invest in multi-stakeholder testing and development of the approach. Briefly summarised below are a set of high-level proposals that have the potential to advance CRD pathways practice in South Africa, with a particular focus on enhancing equity. These are by no means exhaustive of what could happen next with this work, but are intended to spark interest and fuel dialogue regarding CRD-related priorities and investment options. The high-level proposals presented in the document are as follows:

Advancing CRD pathways in eThekwini: This proposal calls for a structured, equity focused CRD Pathways process including actors from multiple sectors and lived realities in eThekwini. The process seeks to further interrogate the development options associated with major growth and development infrastructure, Community Ecosystem-based Adaptation and human settlements, with a focus on potential thresholds, signals, synergies and trade-offs associated with these pathways into the future. An important aim of the work is to assess the potential economic costs of implementing vs. not implementing various development options, and to understand the blend of options that will transition eThekwini onto a CRD Pathway.

Advancing CRD pathways in Saldanha Bay: This proposal calls for the application of the CRDPs to the Greater Saldanha Regional Industrial Complex (GSRIC), an area centred around Saldanha Bay, but extending into the surrounding region in terms of connected industrial activity. For example, the Saldanha-Northern Cape Corridor which includes the mining, transport, beneficiation, and export of iron ore and other minerals. The region presents numerous energy related opportunities and challenges which provide key entry points to exploring future pathways which include addressing water constraints and unemployment challenges. The proposed process seeks to convene a group of key actors from the region representing a range of interests that weave together greenhouse gas reduction requirements, water-sensitive industrial design options that do not reduce the resilience of the sensitive ecosystem within which a large part of the GSRIC is located, and promote equitable development that includes skills development and employment in line with the just transition.

Capacity strengthening for CRD pathways: Three types of activities are proposed for developing capacities to support a CRD pathways approach in South Africa based on the review of capacities for implementing CRD pathways and the capacities assessment framework.

1. CRD pathways capacity training for local actors using simulation and gameplay.
2. Developing a CRD Pathways capacities course.
3. Tailoring and applying the Climate Capacity Diagnosis & Development (CaDD) tool with a network of organisations to assess current CRD Pathways capacities and prioritise actions for capacity strengthening.

Extending CRD Pathways Applications through the work of WWF-SA: A proposal to support knowledge co-production, capacity development and inclusive planning through action research in three 'proofing grounds' that offer a variety of governance, scale and economic contexts across South Africa, namely: i) the agricultural sub-sector; ii) a rural district and water catchment area; and iii) a rapidly urbanising town.

Proposal 1: Advancing CRD pathways in eThekwini

Introduction

This document describes a proposal for deepening the CRD pathways work that was initiated during the scoping phase, particularly by applying the framework to co-design CRD pathways for eThekwini.

The initial phase identified several notable development pathways and their associated opportunities and concerns in eThekwini, as well as potential risks and opportunities into the future. These were: i) large scale infrastructure investment to support trade and manufacture sectors in eThekwini, Kwa-Zulu Natal and South Africa; ii) environmental concerns that have supported a strong focus on Community Ecosystem-based Adaptation (CEBA) in eThekwini's climate adaptation journey; and iii) progressively engaging with and providing services to informal settlements and informal economic sectors as part of the urban fabric of the city region. Several decision nodes that contributed to development along these pathways were also presented, and attention was drawn to thresholds that could undermine the climate compatibility and resilience of development pathways if crossed. Synergies between several development options were demonstrated, as were potential trade-offs that might be made.

A key concern emanating from the study relates to the trade-offs associated with the development options (for business and human settlements) that might need to be made to support climate compatibility and healthy ecosystems that can support resilience objectives in eThekwini. Further, the study suggests that eThekwini's development pathways are likely to end up in a maladaptive space if equity concerns are not placed front and centre. Many communities continue to experience marginalisation and are repeatedly impacted by hazards such as floods, which suggests that eThekwini is already in a maladaptive space. Prioritising investments in infrastructure, ecosystems and other options without shifting the distribution of resources and power contributes to persistent inequality with far-reaching consequences (e.g. moving well beyond social thresholds).

Building on these initial insights, this proposal calls for a structured, equity focused CRD pathways process including actors from multiple sectors and lived realities in eThekwini. The process seeks to further interrogate the development options associated with major growth and development infrastructure, Community Ecosystem-based Adaptation and human settlements, particularly identifying potential thresholds, signals, synergies and trade-offs associated with these pathways into the future. An important aim of the work will be to assess the potential economic costs of implementing vs. not implementing various development options, and to understand the blend of options that promotes a CRD pathway in eThekwini.

Another objective of the proposal will be to develop capacities at the local scale to better integrate scientific climate information into CRD pathways processes, particularly for assessing climate-related risks and opportunities, and managing uncertainties. For example, strengthening technical, organisational and relational capacities for understanding climate-related thresholds associated with ecosystem services that support urban functioning and resilience, as well as monitoring signals associated with these.

The outcomes from the work are expected to contribute to a more holistic development planning perspective for eThekwini using the CRD Pathways framework presented in the scoping phase. Capacity of actors, organisational units, whole organisations and systems of organisations to support a CRD Pathways approach in eThekwini will be assessed, and strengthening options suggested.

Key actors and their organisations

A full set of actors who will take part in the CRD Pathways process will be identified with local actors. An indicative list includes *inter alia*:

- Environmental Planning and Climate Protection (EM) as focal points
- Civil societies (broader eThekwini)
- Local communities (broader eThekwini) including inter alia South Durban Community Environmental Alliance (SDCEA), Sishen Iron Ore Company-Community Development Trust (SIOC-CDT)
- Durban Chamber of Commerce and Industry (NPC)
- Development Planning Department (EM)
- Representatives from the City Planning Commission (advisory body)
- Human settlements department (EM)
- Department of human settlements (national)
- Researchers (social scientists, natural scientists, modelers) including from inter alia the University of Kwa-Zulu Natal (UKZN) (especially those involved in D'RAP), Durban University of Technology (DUT), Human Sciences Research Council (HSRC)

How

1. The methodology/framework encourages co-design of CRD Pathways with a variety of actors. In line with this, a first step of fully implementing this proposal will be to **co-design the process** with focal points in eThekwini Municipality, and other relevant actors. This will include a series of engagements with stakeholders.

2. In parallel with activity 1, **narrative pathways for eThekwini** will be developed building on the evidence gathered and insights gleaned during the scoping phase.

3. A **series of engagements** will be hosted with a variety of actors (see above) to interrogate the pathways including potential thresholds, signals, synergies and trade-offs into the future.

4. In parallel with activity 3, **experts will further develop the narratives** drawing on scientific evidence and future modelling exercises.

   Activities 3 and 4 are expected to inform one another and to explore pathways, thresholds, signals, synergies and trade-offs in iterative, transdisciplinary manner that bring together scientific information, local knowledge, practitioner and planning experience and the lived realities of residents in eThekwini.

5. Actors who are involved in the CRD Pathways exercise will be invited to participate in a capacity assessment to understand the 'readiness' of actors, organisational units, whole organisations and systems of organisations to undertake the CRD Pathways planning into the future. Based on this assessment, suggestions will be made for strengthening these capacities. [AM1]

6. Based on the outcomes from the CRD Pathways assessment and the capacity assessment, guidance will be developed for supporting CRD and a CRD Pathways approach in eThekwini. In addition, the CRD Pathways framework that has been developed during the initial scoping phase will be updated based on lessons learned.

7. The guidance that will be developed in activity 6 will be shared with actors at various scales through various methods. (proposed updates to plans and strategies?)

Time period

2 years

Cost

The costs associated with the project would include research days and events/engagements with actors living and working in Durban. A ballpark figure for implementing this proposal effectively is ~ZAR 2,500,000 (~250 research days and 20 relatively low-key stakeholder events throughout the project).

Proposal 2: Advancing CRD pathways in Greater Saldanha Region Industrial Complex

Introduction

This document proposes the application of the CRD pathways to the Greater Saldanha Regional Industrial Complex (GSRIC), one of three functional regions identified in the Western Cape's Provincial Spatial Development Framework (PSDF) as areas of growth and / or areas with a high degree of development potential. The GSRIC is centred around Saldanha Bay, but extends into the surrounding region in terms of connected industrial activity. For example, the Saldanha-Northern Cape Corridor includes the mining, transport, beneficiation, and export of iron ore and other minerals.

Background

This initial scoping exercise included an exploration of the antecedent pathway(s) and a review of the current decision landscape pertaining to CRDPs in the GSRIC. The antecedent pathway surfaced a dominant industrial development pathway comprising a number of smaller development pathways. This dominant pathway has been developing over many decades, responding to changing socio-economic conditions from the 1970's to today, but the core of the pathway has remained anchored around the opportunities presented by Saldanha Bay being one of the southern hemisphere's largest and deepest natural ports. Key decision nodes on the antecedent pathway have been to:

1. develop a dedicated iron ore export terminal in the port of Saldanha accompanied by a railway link between the port and the rich iron ore mines in the Northern Cape;
2. develop a second multi-purpose cargo terminal for import of oil and export of manganese, copper and lead in the 1980s;
3. develop a steel smelter adjacent to the port to beneficiate a portion of the iron ore in the 1990s;
4. declare the Saldanha-Northern Cape Corridor a Strategic Integrated Project in the National Infrastructure Plan of 2012;
5. proclaim an Industrial Development Zone (IDZ) around the port focussed on servicing the offshore oil and gas, and maritime clusters in 2014;
6. identify Saldanha Bay as key to Operation Phakisa: Oceans Economy in 2014 and the associated establishment of an Aquaculture Development Zone in 2018;
7. commission an LPG terminal in 2017;
8. instal desalination plants in response to the drought in (2016-2018) by some of the bulk water users;
9. commission an additional fuel storage and blending facility in 2018/19;
10. mothball Saldanha Steel in response to escalating energy input costs in 2019; and
11. commission a phosphate mine and separation facility near Hopefield in 2021.

There are a suite of opportunities and challenges inherent in the context within which these decisions and activities have taken place that need to be noted, as well as those relevant to future pathways. Of primary relevance to this development pathway is the role that energy has played, both as an opportunity as exemplified by i) the availability of cheap energy in the 1970's-1990's period for energy intensive industry to flourish, or ii) the opportunity the large port presented in setting a business case for servicing the energy and maritime engineering sectors; and as a challenge as exemplified by the mothballing of Saldanha Steel due to increased energy costs, amongst other factors. Energy continues to play a critical role in the development of the region which offers numerous energy generation and supply opportunities. These include the high renewable energy potential (solar and wind) in the area which could be used to produce green hydrogen which could be exported to as green ammonia via the deepwater port to markets such as Europe. There is also local demand for green hydrogen within the GSRIC, for example re-opening Saldanha Steel to produce green steel with hydrogen) and co-located Cape Town metropolitan region. Another energy related opportunity is presented in the form of the large and sheltered port for Floating Storage Regasification Units (FSRUs) to import LNG, as well as existing LPG pipeline facilities already in place. Although gas is not optimal in terms of a transition fuel, there are scenarios in the current energy landscape that may require this in the short term. The close proximity to the Ankerlig Open Cycle Gas Turbine provides additional opportunity, as does the Strategic Fuel Fund's large crude oil storage capacity.

Another primary challenge or constraint to industrial activity in the greater Saldanha region has been the availability of sufficient water resources as was highlighted by the recent drought (2016-2018) during which some of the bulk water users installed desalination plants to ensure business continuity. As climate projections indicate a drying trend in the region, combined with ongoing water constraints as growing urban areas compete for shared and limited resources, this must be factored into any future climate resilient development pathways in the region.

In addition, Saldanha Bay has played an important role in the fisheries sector, and continues to do so as evidenced by Sea Harvest, an industrial fish processing facility, currently the largest single employer in the town. With 884 Ha set aside for the Aquaculture Development Zone which prioritises emerging farmers, aquaculture plays an increasingly significant role in the sheltered bay in terms of food production and as a source of export income. It is worth noting that this industry is typically water and energy intensive.

A further noteworthy contextual factor is the environmental sensitivity of the area. Saldanha Bay is connected to Langebaan Lagoon - a marine reserve and Ramsar site, which is surrounded by a national park. There is a natural exchange between the lagoon and the bay, and any pollution due to chemical or biofouling, whether acute or chronic, will have a negative effect on this protected area which must be avoided.

The GSRIC presents numerous energy related opportunities which provide a useful entry point to exploring future pathways which incorporate mitigation, adaptation, and development principles. The proposal therefore seeks to convene a group of key actors from the region representing a range of interests that weave together greenhouse gas reduction requirements, water-sensitive industrial

design options that do not reduce the resilience of the sensitive ecosystem within which a large part of the GSRIC is located, and promote equitable development that includes skills development and employment in line with the just transition.

In seeking to foster CRD pathways in the GSRIC, it is suggested that these intersecting pathways are addressed in an integrated, transparent and inclusive manner as there are numerous synergies and trade-offs present across the suite of actors and pathways, as well as different thresholds that may require the identification of specific signals and triggers. The exploration of the antecedent development pathway on the industrialisation of the region has identified that there is a long history of cooperation between actors, with resulting co-ordinating, co-management, and joint research / information gathering structures. The existence of such a mature network across the major actors presents a unique opportunity for the application of a CRD pathways approach to deepen and integrate decisions and actions across actors increasingly cognisant of the challenges and opportunities presented by climate compatible and resilient development. A further motivation for implementing a CRD pathways process in the GSRIC is the strategic importance of the development pathway to national interests, particularly in terms of energy generation and supply, green steel, green hydrogen, and the ocean economy. Furthermore, in the face of crippling national debt, slow economic growth, and high unemployment, the need to make past capital-intensive investments in GSRIC deliver economic returns is recognised.

Key actors and their organisations

The process proposed involves the co-design and application of a CRDP process within the GSRIC with a group of key actors. However as CRDPs provide for the integration of mitigation, adaptation, and development concerns, combined with the proposed entry point linking strongly into national interests, the actor group will need to be bounded to enable the process envisaged. It is therefore suggested that an initial core group be established that co-produces a list of participants. Suggested initial representation is included in Table 1.

Entity	**Motivation / Rationale**
Saldanha Bay IDZ-Licencing Company: Strategic	Economic development vehicle
National Department of Forestry, Fisheries and the Environment: Chief Director: Oceans Economy	Oversees Ocean Economy
Western Cape Department of Economic Development and Tourism: Director-Coordination of Industrial Development Chief Director- Green Economy	Provincial government. Driven a lot of strategic research into the Saldanha region
Western Cape Department of Environmental Affairs and Development Planning: Director-	Chairs the Greater Saldanha Region Intergovernmental Task Team; Biodiversity and

Biodiversity and Coastal Management or Chair IGTT	coastal inputs
Saldanha Bay and West Coast District Municipalities: Planning	Local municipalities
Transnet: National Ports Authority and Freight Rail	Manages the port and the rail network that supplies the port
ArcelorMittal South Africa: Strategic	Large energy user, capacity to support green hydrogen,
Aquaculture Development Zone Management Committee: Saldanha	Fisheries sector representation of emerging fishers
Sea Harvest, Lucky Star and Terrasan	Large employers and fisheries sector
External expertise drawn from: Meridian Economics, NBI, Southern Waters, CSAG, CSIR	Expert reports on gas, energy, State of Saldanha Bay, climate services, green hydrogen

Proposed process

1. The initial process would entail an engagement with the proposed group to **establish appetite** for a GSRIC CRDP process.

2. Once appetite has been established, and in line with the CRDP framework developed under the initial scoping project, a **terms of reference** for a GSRIC CRDP project will be **co-designed**. The Terms of Reference will include: 1) guiding principles in keeping with climate resilient development, 2) initial composition of the GSRIC pathways group, 3) governance arrangements including roles and responsibilities, 4) an initial pathways process, 5) anticipated timeframe, and 6) funding arrangements.

3. Once convened, the group will develop possible **narrative pathways** for the GSRIC, building on their experience and any evidence gathered during the scoping phase.

4. This will be followed by a process of engagement between the group and relevant experts drawing on the best available evidence in order to tighten the narratives into a series of **plausible development pathways**, identifying decision nodes, signals, and thresholds.

5. The final step will be to **model the development pathways** from the previous activity. This will involve quantifying as many of the parameters as possible in the pathways in order to test the robustness of the decision-logic upon which the narratives were built.

6. In parallel to the development pathways process, actors will be invited to participate in a **capacity assessment** to understand the 'readiness' of actors, organisational units, whole organisations and systems of organisations to undertake the CRDPs planning into the future. Based on this assessment, suggestions will be made for strengthening these capacities.

7. It is hoped that the GSRIC CRDP group and process can become a **permanent feature** on the GSRIC landscape that can convene regularly and update the decision pathways as new information becomes available and contexts change. In this way the group can develop CRDP capacity, loop learnings back into the CRDP process, as well as into the development pathways.

Time period

The time period refers to the period required for an initial CRDP process. This will be co-designed with the core group and included in the Terms of Reference, however a minimum of six months is envisaged, and 12 months is considered optimal for an initial phase.

Cost

The cost implications will depend on the Terms of Reference, but are envisaged to include a high-level facilitation team, expert advisors and researchers, as well as engagements and events around key points in the process. Costs are envisaged to be of the order of ZAR 2 - 2,5 million

Proposal 3: capacity strengthening for CRD pathways

Introduction

The proposal builds on the CCRD Pathways scoping project. It proposes possible next steps, specifically for developing capacities to support a CCRD pathways approach in South Africa based on the review of capacities for implementing CCRD pathways and the capacities assessment framework.

A literature review of relevant capacities (i.e. resilience, mitigation, adaptation and pathways) revealed a number of capacities that enable a CCRD pathways approach, which were consolidated into nine broad capacity clusters. These include 1) awareness and literacy of climate related risks and opportunities, 2) leadership, 3) working across levels, sectors, disciplines, organisations and teams, 4) fostering a learning culture, 5) costing and resourcing development and risk management interventions, 6) designing, acting and maintaining risk management interventions, 7) technical expertise in assessing climate-related risks and opportunities, 8) promoting justice and equity, and 9) managing uncertainties.

The climate-related capacity development landscape in South Africa was also reviewed to understand where investments have been made, and whether these investments have (or can) support the development of capacities for CCRD Pathways planning. This review showed that past and ongoing capacity training activities have focused on empowering the youth and cultivating leadership skills, increasing the digestibility and accessibility of climate information, improving collaboration (with less focus on working together across disciplines and levels), and, to a lesser extent, mainstreaming justice and equity concerns. However, there was limited evidence of training activities that strengthened learning cultures, leveraged technical expertise to manage climate risks, improved the capacities to design, act on and maintain interventions (including how to deal with trade-offs and find synergies), and improved stakeholders' ability to manage uncertainty. Thus, there is a need for capacity training activities that focus on strengthening the full range of capacities required for effective CCRD pathways implementation.

This proposal provides an overview of three capacity training activities that aim to bridge the existing capacity gaps, by building the capacities required for CCRD pathways of three different sets of actors: local community-based actors, senior managers in the public and private sector, and intermediary actors working across organisational levels and between disciplines.

Option 1: Capacity training with simulation and gameplay for local actors

This training proposal is composed of a series of workshops that leverage participatory gameplay to build capacities that can enable local actors to participate in CRD pathways planning. The workshops are composed of three main parts:

1. **Preliminary self-assessment:** A participatory assessment of capacities through breakout group discussions,
2. **The gameplay:** Developing and iterating on pathways based on a simulation of a relevant complex system, and
3. **Reflection, learnings, and key takeaways:** A feedback session on the gameplay and reflection on the preliminary self-assessment.

The simulation workshop is based on work from Lawrence and Haasnoot (2017)[1] who used this method to increase awareness about climate change impacts, whilst creating a learning environment for local decision-makers in the Greater Wellington, Tasman and Nelson regions of New Zealand to practice: i) making decisions under deep uncertainty; and ii) creating pathways for climate-resilient development.

Gameplay provides a productive, engaging and dynamic space, in which actors can experiment with the CCRD pathways approach. It allows participants to actively engage and interrogate information about a complex system and make collective choices while considering trade-offs, synergies, consequences from responses, and unexpected events[2].

Importantly, workshops will end with reflection exercises that will provide an opportunity for attendees to consider what they've learned and how these lessons will inform their everyday lives. Participants will also be encouraged to provide feedback on how the processes and activities might be improved.

As such, the combination of self-assessment, pathways practising through gameplay, and reflection have the potential to build the following capacities: awareness; leadership; working as a team; learning; costing and designing interventions; using technical expertise; promoting justice and equity; and managing uncertainty.

Who will be involved?

- Target audience: ~45 local actors targeting officials and Councillors in local and district municipalities - a mix of metropolitan, peri-urban and rural municipalities - from three different socio-ecological systems across South Africa, selected based on their differentiated climate change impacts and potential adaptation strategies, with the purpose of developing three distinct simulations.

[1] Lawrence, J. & Haasnoot, M. 2017. What it took to catalyse uptake of dynamic adaptive pathways planning to address climate change uncertainty. *Environmental Science & Policy.* 68: 47-57. DOI: http://dx.doi.org/10.1016/j.envsci.2016.12.003

[2] Mendler de Suarez, J., Suarez, P., Bachofen, C., Fortugno, N., Goentzel, J., Gonçalves, P., Grist, N., Macklin, C., Pfeifer, K., Schweizer, S., Van Aalst, M., and Virji, H. 2012. *Games for a New Climate: Experiencing the Complexity of Future Risks.* Pardee Center Task Force Report. Boston: The Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University. Available: https://www.climatecentre.org/priority_areas/innovation/innovation_tools/

- Simulation designers (researchers with experience in CCRD pathways, system modelling, and the local context)
- Facilitators (combination of researchers and other practitioners, such as the Red Cross Climate Centre which has experience leveraging gameplay for climate learning)

How will the proposal be implemented?

The whole proposal will be implemented over 12 months:

- 0 - 4 months: Focus groups and informal discussions with focal points from the three different municipalities will be used to understand the local context and to select potential candidates for the workshops. The simulation for each context will be designed based on climate information, planning processes and priorities of the local context, the outcomes of CCRD Pathways scoping project, and engagement with relevant actors in the research and practitioner's space.
- 5 - 10 months: Three series of workshops will take place. Each workshop will be three days long and include ~15 local actors from each municipality. At the end of the workshop series, participants will be encouraged to provide feedback on the capacity training activity.
- 11 - 12 months: The feedback from the workshops will be used to iterate on the base template of the simulation and capacity training activity as a whole. Learnings will be shared and discussed with each community's local government decision-makers to inform planning processes. The outputs of the project will also include a guidance manual for practitioners and local government for running the workshop series and proposals for running the series in more communities.

Cost

The costs associated with the project would include research days, engagement with actors, and each of the workshop series. A ballpark figure for implementing this proposal effectively is ~ZAR 2,418,000.

Option 2: CRD pathways capacity course development

This section describes a proposal for the bespoke development and trialling of an introductory training course for catalysing capacities for supporting a CRD pathways approach across South Africa. Similar to the Climate System Analysis Group (CSAG) course on 'navigating climate risk', the course will be designed to introduce key concepts associated with a CRD pathways approach, as well as the important capacities that have been identified during the CRD pathways scoping project.

The course will be designed with a wide diversity of stakeholders in mind, such as practitioners working in social and environmental NGOs, networking and capacity building organisations (e.g. SALGA), and officials working in various provincial and national government departments. Learning

material and potential follow-on courses will be suggested for participants who are eager to further their expertise in a particular CRD pathways capacity area[3].

It is envisioned that the following content will be covered during the course:

- An overview of adaptation, mitigation and resilience
- Introduction to CCRD Pathways planning
- Content relevant to capacities (awareness; leadership; working across levels, sectors, disciplines; learning; costing and resourcing; designing, acting and maintaining; technical expertise; promoting justice and equity; managing uncertainty)

The course will encourage active participation and attendees will be exposed to multiple platforms, tools and networks of stakeholders, on which they might draw to engender a CCRD Pathways approach in their own work contexts. The course will also involve hands-on learning exercises so that participants can apply the concepts and tools to which they are introduced.

Who will be involved?

- Target audience: ~10 actors from 9 provinces (~90 in total) (ideally senior managers and executives responsible for setting the strategic direction of organisations)
- Course content producers and convenors (group similar to ACDI-CSAG at UCT and guest lecturers relevant to the various capacities)

How will the proposal be implemented?

The whole proposal will be implemented over 18 months.

- 0-6 months: Course content will be designed based on the outcomes of the CCRD Pathways scoping project and engagement with relevant actors in the research and practitioner spaces. Actors across provinces will also be engaged to select potential candidates to attend the training events.
- 7-16 months: Three training events will be implemented with three different groups of ~30 actors (at each event). Ideally these training events will take place face-to-face, each covering a period of 5 days. Importantly, all three courses will end with reflection exercises that will provide an opportunity for attendees to consider what they've learned and how these lessons will inform their work. Participants will also be encouraged to provide feedback on how the course might be improved.
- 17-18 months: The feedback from participants will be considered to update the course content and finalise course materials.

[3] The CRD pathways scoping project identified a range of learning programmes that are implemented across South Africa to develop climate-related capacities.

Cost

The costs associated with the project would include research days, course costs, travel, accommodation and subsistence. A ballpark figure for implementing this proposal effectively is ~ZAR 2,650,000.

Option 3: Tailoring and applying the Climate Capacity Diagnosis & Development (CaDD) tool to implement the CRD pathways capacity assessment framework

This section describes a proposal for applying the capacity assessment framework that was developed during the CRD pathways scoping project using the Climate Capacity Diagnosis & Development (CaDD) tool.

The capacity assessment framework presents a characterisation of capacities needed to enable a CRD pathways approach to take root and be sustained in South Africa, and suggests methods for assessing these capacities. CaDD has been developed to provide organisations in the public, private and civil society sectors with a structured way of assessing and directing the strengthening of their collective capacity to manage climate risks and leverage climate opportunities in both the adaptation and mitigation domains. The tool can be used online and/or in-person through a series of interviews, meetings and workshops.

CaDD is a flexible tool and can be adapted to fit the needs of a particular group of people or network of organisations. During the CRD pathways scoping project, engagements were undertaken with representatives from Climate Sense, a group that has developed and applied the CaDD tool extensively in various contexts. These initial engagements served to explore the applicability of CaDD to assess and develop capacity that can support a CRD pathways approach in South Africa. Based on these engagements, there is an opportunity to assess CRD pathways capacities and identify capacity strengthening priority actions through adapting and applying the CaDD tool with various organisations that play a key role, or need to play more of a key role, in charting the development trajectory of a place, area or landscape. CaDD designers, developers and practitioners at Climate Sense would support and coach in-country facilitators, helping them deliver the CaDD tool in workshop settings and with actors as relevant, and in making-sense of the learning to inform subsequent action.

It could become possible to have a peer mentoring programme (or at least an engagement programme) that grows capabilities by capitalising upon the different levels of engagement and agency that exist across the different actors and sectors. This could mean that conversations around what can be done to meet stakeholders where they are actually at and not where others might feel they should be at. This is most effectively done when stakeholders engage with other stakeholders

who are not so far ahead of their level of experience. For example: if we used the CaDD process and found out one organisation was at Response Level (RL) 2, while another is at RL3, then the one at RL3 would be a good mentor for the RL2. However, if another organisation was at RL5, then the RL2 organisation would be unlikely to have such a fulfilling engagement with them. The experience gap would be too broad. The ideal would be pairing up organisations where one organisation might be at a higher response level than the other organisation on one of the capacity dimensions (e.g. managing operations in the face of climate risks and opportunities), while the other might be at a higher level on a different capacity dimension (e.g. empowering and supporting agents of change), and they could thereby share experience and lessons to help build each others capacities.

Who will be involved

- CaDD accredited experts at Climate Sense
- Local CaDD facilitators (supported and coached by Climate Sense)
- Actors within a case study area (e.g. eThekwini or Saldanha)
- *Optional: WWF SA and partners in the Boland-Groot Winterhoek Water Source Areas linked to proposal 5.*

How will this be implemented

There are two levels at which the tool can be applied: 'Explorer' and 'Deep Dive'. The CaDD Explorer provides a rapid diagnostic of response levels in a given organisation and network or system of organisations (i.e. the capacity review can be readily scaled out). The CaDD Deep Dive explores capacity levels of an organisation in-depth, identifying and prioritising activities to improve the organisation's response levels. Outcomes from the Deep Dive can inform the design, resourcing and implementation of tailored capacity development interventions.

Initially, the facilitators of the CaDD process will familiarise themselves with the outputs and material that has been developed during the CRD pathways scoping project to design a suitable CaDD process. Importantly, they will adapt the CaDD material and tools to align with the CRD pathways capacity assessment framework.

Thereafter, the CaDD process will be implemented with the selected group of actors. This process will vary in length, depending on whether the 'Explorer' or 'Deep Dive' method is chosen. The length also depends on the specific climate change challenges and opportunities of who is being assessed and what they know already. Both the Deep Dive and the Explorer have "appreciative inquiry" elements within them, meaning that one cannot predict which questions will be asked to whom, because the software will only ask specific questions triggered by the answers being provided. Nobody is asked all questions, e.g. highest complexity questions are only asked to those whose answers are showing signs of doing the complex actions and learning.

A CaDD Explorer questionnaire can be completed online by an individual who knows the full extent of their organisation well within 30 minutes (with a tailored report on their capacity challenge and

what they can do about it being generated and sent to them instantly (or sent to the project coordinator for consideration and expanding or contextualising as appropriate. If people choose to answer the questions collaboratively (e.g. one person feeds in the answers online while anything from a few people in an organisation to a large group in a workshop setting discuss and settle on the answers) then it can take as long as the discussions are fruitful. A half-day workshop would normally do it for a large group of 20 to 25 people.

A Deep Dive is much more granular and takes 2-3 hours on average for a person to complete. Any collaboration on answers will extend that to a day or preferably two or three half-day sessions. Sometimes people completing a Deep Dive will need to go away and find things out, and so elapsed time can be days or even weeks until they find a sufficient answer. The report generated from a Deep Dive is not automated like it is in the Explorer. The CaDD software automates and organises the organisations set of responses, but a CaDD Expert needs to come in to assimilate the findings and make some expert conclusions, ideally together with local experts. It can also be valuable to get different groups or units within an organisation to complete a Explorer or Deep Dive questionnaire each and then compare for similarities and differences to identify existing capacities across the organisation and inform recommendations for priority actions to strengthen capacities.

Cost

The costs associated with the project would include researcher days, facilitator days, CaDD-related expenses, workshop costs, travel, accomodation and coordination. A ballpark figure for implementing this proposal effectively is ~ZAR 2,078,800.

Proposal 4: Extending CRD pathways applications through the work of WWF-SA

This document describes a proposal for deepening the CCRD Pathways work that was initiated during the CCRD Pathways scoping project, particularly by progressing relevant processes in three locations in South Africa.

It must be noted that this is an abridged version of a concept note that has already been submitted to IDRC and FCDO within the Climate Adaptation and Resilience (CLARE) programme[4]. WWF led the development of the proposal based on the emerging insights from the CCRD Pathways scoping project, which indicates a willingness on the part of this organisation to take this approach forward.

The CLARE programme specifically aims to enable socially inclusive and sustainable action to build resilience to climate change and natural hazards for people across the Global South. In response to this call, a consortium (led by WWF South Africa) proposed research activities to contribute to answering the following core question: "Can a localised CRDP approach support a diversity of South African actors from public, private and civic spheres in transitioning to an equitable climate-resilient economy, which integrates mitigation and adaptation?"

The proposal aimed to support knowledge co-production, capacity development and inclusive planning through action research in three "proofing grounds", which offered a variety of "governance, scale and economic contexts" namely: i) the agricultural sub-sector; ii) a rural governance district and water catchment area; and iii) an urban town.

Who will be involved?

The project will involve a variety of actors from the three "proofing grounds" listed above. While specific details of actors were not identified in the proposal, an indicative list included: public officials, private sector actors, labour unionists, civic representatives, practitioners and researchers.

What activities are proposed?

The proposal aims to achieve the following through various methods including deliberative mapping and application of the Climate Capacity Assessment and Diagnosis (CaDD) tool:

- Integrate knowledge to collectively understand what got us where we are now.
- Characterize changing conditions underway and likely coming.
- Identify and co-design development options and differentiate those that are climate-compatible and resilient, building on development strategies and plans already in play.
- Sequence options considering feasibility and range of conditions for which each option (combined with
- preceding options) keeps the climate risk profile acceptable (as negotiated amongst the stakeholders)
- Negotiate roles and the allocation of costs and benefits in realising preferred options

[4] For details see: https://www.idrc.ca/en/funding/call-concept-notes-climate-adaptation-and-resilience-clare

- Coordinate efforts, track action, assess outcomes, and facilitate shared learning to adjust the trajectory or switch between pathways.

A total of ~12 workshops is planned across the three “proofing grounds”.

Project timeline

The project is proposed to take place over 36 months.

Project cost

The costs associated with the project would include personnel, consultants, equipment, research and indirect costs (as per the CLARE proposal budget). A ballpark figure for implementing this proposal effectively is ~ZAR 18,386,012.

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