

# CLIMATE-RESILIENT DEVELOPMENT PATHWAYS

PROJECT LEADER: DR ANNA TAYLOR



## IMPACT SUMMARY

A team from the African Climate and Development Initiative (ACDI) at the University of Cape Town (UCT), in collaboration with colleagues in the Climate Systems Analysis Group (CSAG), helped to develop the concept of climate-resilient development pathways (CRDPs) and supported all three spheres of South African government operationalise the approach. The CRDP approach guides decision-makers and diverse stakeholders through a process of assimilating and deliberating systemic risks, intersecting injustices and developmental aspirations to analyse and negotiate multiple sets of climate adaptation, mitigation and sustainable development interventions that can be dynamically prioritised over time as conditions change.

Led by Dr Anna Taylor at ACDI, the team undertook research in 2021 and 2022 to support South Africa's Presidential Climate Commission (PCC), whose remit is to work towards ensuring that South Africa transitions to a low-emissions and climate-resilient economy by 2050 in a way that is just and equitable.

The team's findings influenced how the PCC secretariat and commissioners think about climate adaptation and resilience in relation to core development issues. They supported the PCC in its development of a CRDP conceptual framework and methodology that could facilitate coordinated action for a just transition in South Africa. To provide practical recommendations, the team considered the potential for applying a CRDP approach, using eThekweni Metropolitan Municipality and Saldanha Bay as test cases.

Building on the work with PCC, the team went on to shape anticipatory planning processes in Nelson Mandela Bay (NMB) and the Western Cape through a process of iterative engagements, appreciative inquiry, reflecting, proposing and mutual learning. While not driving the process in either place, the researchers shared resources and offered a constructive sounding board to work through the challenges and uncertainties.

In NMB, the ACDI team guided and supported the development of a Climate-Resilient Development Strategy Framework and Action Plan with iterative engagement throughout the process, helping to establish an agreed vision for a climate-resilient NMB in ten years and building in provision for a just transition. Their work was presented at the Adaptation Network's [2024 Colloquium](#) and at the Garden Route Environmental Forum Climate Change and Environmental Management Indaba in June 2025 to share learnings with other practitioners.

The Western Cape government set out to establish climate change adaptation pathways that could enable decision-making in situations of uncertainty, allowing for flexibility as conditions change. The work was led by the Department for Environmental Affairs and Development Planning (DEA&DP) and was partly sparked by UCT engagements as well as learning exchanges with sub-regional governments in Australia and Spain. The ACDI team actively supported the development of adaptation pathways through a number of consultations and helped to host stakeholder workshops for the province. This process has not only enabled proactive planning and allowed for timely adjustments, but will also contribute to South Africa's Nationally Determined Contributions by strengthening resilience, improving climate finance opportunities and integrating locally-led adaptation efforts into national priorities.

The project team further shared their insights with an international network of practitioners, researchers and policy advisors via [weADAPT](#), a collaborative platform for climate adaptation work.

## **UNDERPINNING ACADEMIC WORK**

The UCT expertise builds on and contributes to international research by science and policy networks exploring CRDPs as “a systemic approach to mainstreaming climate action in the face of changing conditions” (Taylor, 2024). The concept has been included in the [5th](#) and [6th Intergovernmental Panel on Climate Change Assessment Reports](#) (ARs). The latter included an increased emphasis on risk and solution frameworks, highlighting critical concepts such as CRDPs, which bring together disparate research and activities in climate change, ensuring the concepts are understood holistically and helping sequence action in diverse contexts.

After leading the four PCC guidance documents, Taylor and colleagues published two academic papers detailing the applicability of CRDPs in South African contexts (Taylor, 2024 and Taylor et al, 2023). Comparative work is included in these that considers how pathways approaches are operationalised elsewhere in the world and in particular in other Global South contexts with similar systemic issues: competing priorities, changing risk profiles and deep structural inequalities.

The work has since been cited by international academics looking to make CRDPs actionable in city-level contexts (see [McEvoy, et al., 2025](#)).

## NARRATIVE DESCRIPTION OF THE IMPACT

Research around CRDPs has been gaining momentum globally, especially since the concept's inclusion in the 5th and 6th IPCC ARs. Meanwhile, in South Africa, complex systemic challenges (e.g. inequality, informality, rapid urbanisation) persist alongside climate risks (e.g. flooding, drought, fire, biodiversity loss) and the Just Transition Framework (adopted in August 2022) recognises the urgent need to consider how best to integrate the country's climate change actions (mitigation and adaptation responses) with its long-term development trajectory.

The PCC engaged the UCT research team to add to the adaptation component of the Commission's work to develop a framework. Initially, the team established the foundations for future knowledge (co)production and planning work around the adaptation and resilience aspects of navigating a just transition. They established guidelines that could be applied in South African contexts, publishing four reports, several outputs that were shared online and training materials that were created as part of an online course to be used by municipal officials. The ACDI team also integrated this material into an international course aimed at government officials globally that was developed by *Apolitical: 'Human Rights for Climate-Resilient Development'*. At UCT, the material is used in the 'Climate Change and the City' module of a Masters in Sustainable Urban Practice for mid-career public officials.

The UCT team worked as advisors in eThekweni and NMB, strengthening the capacity of officials and partners in the two municipalities to develop interventions within a CRDP framing. They designed and convened the peer-to-peer learning and associated materials to help build resilience to floods and drought at city level. The project was part of efforts to establish climate resilience and support the integration of climate adaptation responses into development policies, planning and action. The aim was to think through climate risks from a systems perspective and identify leverage points for adaptation interventions, considering how to sequence interventions over time, as risks change.

They also supported the participatory approach that was embedded in the creation of a *Climate-Resilient Development Strategy Framework and Action Plan for Nelson Mandela Bay*. The engagement processes required a level of collaboration that broke down silos, fostered partnerships and found synergies, so that the Plan addressed climate risks while building civic pride and social equity.

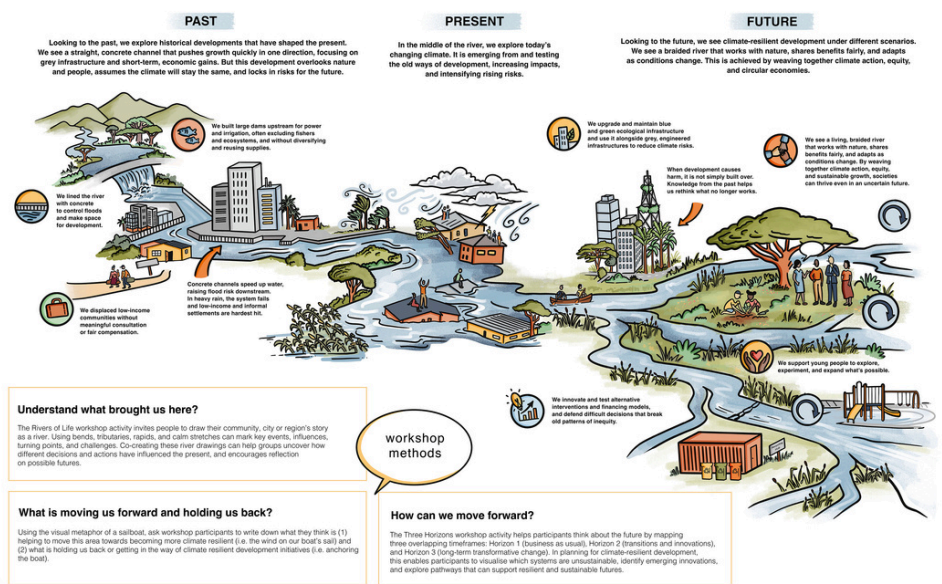
Recently, together with several other organisations, ACDI worked with the Western Cape government to develop climate change adaptation pathways that ensure a climate-resilient province by 2050. It set out to provide dynamic adaptation approaches that can guide decision-makers and practitioners as they respond to future climate uncertainties, identifying and prioritising adaptive measures over time. The strategic approach report was published in 2025: *Western Cape Climate Change Adaptation Pathways*.

## INFOGRAPHIC

A visual representation of the CRDPs concept and approach was produced as part of the Tuwe Pamoja project to share insights and foster engagement amongst researchers, practitioners and residents working to support development and reduce climate impacts in contexts across Africa.

### LET'S RETHINK DEVELOPMENT PATHWAYS IN A CHANGING CLIMATE

We can use a river to illustrate how climate-resilient development differs yet flows from historical development. What does this river look like in your context? Can you build partnerships and processes for the pathways ahead?



## TESTIMONIALS

### A testimonial of the work done with DEA&DP for the Western Cape government:

The Western Cape Government's Department of Environmental Affairs and Development Planning (DEA&DP) developed a framework methodology followed by a series of four Climate Change Adaptation Pathways for the province with a focus on (i) Agriculture and Food Security, (ii) Water Security, (iii) Ecological Infrastructure and (iv) Built Infrastructure. Throughout this process, a series of bilateral engagements and consultations with the African Climate and Development Initiative (ACDI) team were held. These engagements were instrumental in shaping, refining and mapping the pathways. The relationship was built on ACDI's experience in developing Climate-Resilient Development Pathways for the Presidential Climate Commission (PCC).

ACDI's academic team provided critical insights and evidence-based scientific recommendations to guide our understanding and approaches of integrating equity and access into resilience-building efforts. They further supported DEA&DP in the development of cluster-specific adaptation options and identifying how progress towards identified 'Desired Outcomes' for each priority adaptation cluster could be identified across short-, medium-, and long-term timeframes as envisioned in the pathways through 'pathway signals vs tipping points'. ACDI's existing publications and their facilitation of co-production workshops enabled us to translate complex climate science into practical pathways that support decision-makers and practitioners in managing uncertainty, setting priorities and planning for long-term resilience as we journey towards 2050. Importantly, this process also deepened our commitment to inclusive consultation, integrating diverse perspectives across government and academia. Their contribution has been pivotal in shaping how the province now frames, mainstreams and implements climate adaptation particularly at the local government level.

**Mpfunzeni Tshindane**, Control Environmental Officer: Climate Change Adaptation, Western Cape Government



## TESTIMONIALS

**A review of the work done by the academic team in NMB is included in the report, Climate Resilient Development Strategy Framework and Action Plan for Nelson Mandela Bay:**

*The academic community that we had met in the course of the CRDSF work, has provided invaluable guidance and support for the work we have undertaken. The Scoping team was supported throughout the process by members of the Adaptation Network, UCT and GroundTruth. Anna Taylor and Jo Douwes were consistent in listening to our challenges and helped us to navigate through them. This process of sharing challenges, and trying to find our way collectively, has been one of the highlights of the development of the Strategy. In effect, it was putting the CRDSF process into action, with its collaborative approach.*

Section 2.10.5, p.22

**Belinda Clark, Therese Boulle** and **Abigail Kamineth**, members of the Climate Smart Nelson Mandela Bay team.

## ADDITIONAL RESOURCES

### Academic papers

- McEvoy, S., Langendijk, G., Haasnoot, M., Jeuken, A., 2025. [What is needed to make Climate-Resilient Development Pathways planning actionable in cities?](#) Environmental Research Communications.
- Taylor A. (2024) [Transitioning to climate-resilient development pathways in South Africa: What does it take?](#) South African Journal of Science, 120(11/12), Art. #19891.
- Taylor, A., Methner, N., Barkai, K.R., McClure, A., Jack, C., New, M. and Ziervogel, G. (2023) [Operationalising climate-resilient development pathways in the Global South](#), Current Opinion in Environmental Sustainability, 64, p101328, in Schipper, L., Rodríguez, R.S. and Solecki, W. (eds), Special Issue: Climate Resilient Development - Theory, Practice and Prospects.

### References on operationalising CRDPs in South Africa

- [Facilitating Peer-to-Peer Learning to Build Climate Resilience to Floods and Droughts](#)
- [Climate Resilient Development \(CRD\) Pathways: Applicability to Navigating a Just Transition in South Africa](#)
- [Climate resilient development pathways: applicability to navigating a just transition in South Africa](#)

### Reports and guidelines

- Four reports from PCC study:
  - [A guidance manual on the methodology for CRD pathways planning in the South African context](#);
  - [A climate information and services recommendations report for supporting the CRDP approach](#);
  - [A multi-level CRD pathways capacity assessment framework](#);
  - [High-level proposals for investment priorities to implement the CRD pathways approach](#)
- [Test cases in Nelson Mandela Bay and eThekweni](#)
- [Climate Resilient Development Strategy Framework and Action Plan for Nelson Mandela Bay](#)
- [Western Cape Climate Change Adaptation Pathways](#)

### References on CRDPs

- [Training materials](#)
- [Dialogue](#)
- [Briefing note](#)
- [Animated presentation](#)

*This project was undertaken by a team at the University of Cape Town, from the African Climate and Development Initiative and the Climate System Analysis Group. The team consisted of Dr Anna Taylor, Dr Nadine Methner, Alice McClure, Prof Gina Ziervogel, Prof Mark New, Dr Christopher Jack, Penelope Price, Kalia Barkai, Yasirah Madhi, and Anna Steynor..*