

Draft Climate Resilience Development Strategy Framework

Nelson Mandela Bay

1. Introduction and orientation:

Nelson Mandela Bay is a complex system, and escalating climate change and its impact on the local biosphere, and secondary impacts on the economy and communities, creates both risk and opportunity for the Metro and the Bay. It is imperative that the metro as whole consider the risk and work together to shape the opportunities to bring about timeous and positive change.

In that regard, the Nelson Mandela Bay Climate Resilient Development Strategy (CRDS) Framework seeks to actively involve key stakeholders and residents in determining proactive development pathways that enable the greater metro to adapt to the changing environment, mitigate human activity to lessen carbon emissions and biodiversity impact, and build a climate resilient greater Nelson Mandela Bay. In this sense, the framework is a “living scaffold” that seeks to learn as it leverages change through targeted strategies and interventions. It attempts to respond to both the threats and opportunities a changing climate and declining ecosystems brings to bear, with the intent to create a virtuous sustainability cycle and break the current downward spiral. Accordingly, the strategy framework seeks to address not just extreme climate events, but also the incremental changes taking place in the atmosphere and biosphere and its knock-on impacts on human systems. To this end, its scope considers both the human and natural systems of both the terrestrial and marine environments and includes all the metropole municipal area and the full extent of Algoa Bay, including the “Wild Side”.

The Nelson Mandela Bay CRDS Framework follows a similar outline of other resilience frameworks and the substantive content of which was then informed by the process the (pilot) project followed. It began with a desktop survey and analysis of climate hazards and impacts (considering scale, intensity and urgency, and both primary and secondary impacts) for the geographic area; assessed the current asset base (social, natural ecosystems and economic, from both a terrestrial and marine perspective) of the metro; then mapped these onto a systems map through engagement with stakeholders (which included possible interventions) to develop the key vulnerabilities; engaged broadly across the metro with citizens through eleven public meetings, eleven podcasts, and a questionnaire; and then sought input on possible key interventions with focus stakeholder groups drawn from the broad sectors of the metro (community, business, parastatals, municipal directorates, and the tertiary research institutions); supplemented this focus group input with a granular detailed narrative report of risks and opportunities that interrogated the detail of approximately 30 “narrative mapping units”. The diverse detail and input were then used to develop an action-plan framework that consisted of three levels built from the ground up: specific actions informed the key focus areas which was consolidated into strategic interventions. Each action was prioritised via a matrix scoring system that applied climate resilience criteria. The outcome of which is this framework document.

Two key lessons emerged for the team in doing the work: the first being that climate impacts at this level varies significantly from area to area and is critically shaped by terrain, settlements, and infrastructure – thus necessitating a micro-scale approach when identifying risks and opportunities. For instance, it may flood in one locality but not another, and one area may flood because of stormwater designs that don’t necessarily apply to other areas. The second key lesson was the reinforcing of the notion that climate change requires an “all of society” response, no single sector has sole responsibility for building resilience. Consequently, a detailed and broad stakeholder

engagement is required to both understand the reality on-the-ground and to assess existing initiatives and effective solutions – stakeholder engagement is key to gaining necessary information.

These lessons are key to any roll-out of this process to other geographic areas, namely that while the *process* may be the same/similar in planning for climate resilience, *interventions* must be designed with a micro-scale focus and ensure that all sectors of the society are involved in the process.

To this end the NMB CRDSF will add value in two specific ways: it can be used as a template for similar planning initiatives in other geographic areas; and it provides a detailed pathway action map to guide the metro’s stakeholders in implementing interventions that if followed will build a climate resilient metro.

2. Expected climate impacts and hazards:

The scoping and analysis, and input from research and other institutes, was used to develop the following assessment of climate impacts and hazards

- 2.1. For purposes of this CRSD Framework, we have assumed, based on the available regional projections and the SAWS analysis, that ***the greater Nelson Mandela Bay will become drier, hotter (terrestrial and marine), and with greater variation in wind strength and direction.*** These overall trends will be interspersed with an ***increase in the number and amplitude of extreme weather events, which means an increase in high-precipitation events, gale-force winds, and tidal surges, and often amplified by elements acting in combination such as “perfect storms” or “rain bombs”.***
- 2.2. These will in turn result in the increased likelihood and frequency of: ***heat-waves, drought, wild-fires, flooding, shortage of potable water, increase in the range and extent of harmful algae blooms, increase in water-borne diseases, destruction of service infrastructure, destruction of sensitive ecosystems, amplification of poverty and inequality, and the decline of human physical and mental health***

3. Expected transitions that the metro will undergo (as per current trends):

The people and ecosystems of the greater Nelson Mandela Bay can expect to have to manage the following transitions:

- 3.1. **Weather:** amplification of weather hazards, specifically, drier (droughts), hotter (heat waves), wind component shifts (gale frequency and strength increases, increased Easterly component), and more intense and regular high-precipitation events (rain “bombs”), sea-level rise and associated storm surges. All of which leads to increased risk of: flooding; potable water shortages; wild-fires; “perfect storms”, harmful algae blooms; water quality decline (sea and rivers); destruction of homes, factories and services infrastructure and transportation systems; water-borne diseases; and disruption to supply chains/distribution networks (incoming food and materials, outgoing exports like cars and citrus).
- 3.2. **Natural ecosystems** (terrestrial and marine): changes in the ocean currents (Agulhas and inner-shore circulation/upwelling) and temperatures which impact marine and estuary ecosystems and sand distribution; loss of habitat and species leading to biodiversity loss; increase in pollution (forever chemicals, industrial waste, sewage, plastics, agricultural runoff); stripping of natural vegetation for flower sales, fuel and house materials; alien invasive

plants proliferate; over-fishing in marine ecosystems and illegal extraction of fish and abalone stocks

- 3.3. **Economy:** a shift away from internal combustion engines and components; auto-manufacturing focus on supplying African markets and competing against second-hand imports; global technological choices between EV's and hydrogen-powered vehicles, electrification of alternative transport; arrival of Green Ammonia/Hydrogen and downstream opportunities; increasing emphasis on carbon content of products and restricted entry to global markets; increasing mechanisation of manufacturing; increased demand for reliable and renewable forms of energy; increased "off-grid" reliance on essential services (energy, water, waste disposal)
- 3.4. **Human wellbeing:** colonial-apartheid spatial distribution largely remains in place but has taken on a more economic-difference/class profile, this serves to amplify social conflict and inequality; given the "broken" infrastructure increase in water-borne diseases such as cholera and typhoid, and greater susceptibility to COVID-19 type pandemics; increasing poverty and unemployment; increasing prevalence of the "shadow" society – gangs (drugs) and "protection" rackets; increasing levels of homelessness and informal settlements; increasing prevalence of mental-health challenges (e.g. depression) in the face on consistent/ongoing extreme weather events and material consequences; food insecurity increases with heat impact on crops and supply chain disruptions; increasing mass immigration south due to tropical "inhabitable" conditions
- 3.5. **Infrastructure:** aging infrastructure, designed for communities of smaller size and on climatic assumptions no longer valid (e.g. a stronger and more regular Easterly wind component), threatened by opportunistic vandalism and syndicated theft, and not maintained to original design specifications; declining purchasing power; and outsourced capacity/capability and extensive vacancies at both director and artisan level; and lengthy procurement and backlogs within centralised functions such as vehicle maintenance; make the metro vulnerable to the impact of both extreme weather events and long-term climatic changes.
- 3.6. **Communities:** Already under pressure of (youth) unemployment, inequality and poverty; the impact of violent crime and corruption; the lack of adequate housing, public transport, and municipal services, amplifies community vulnerability to the primary and secondary impacts of climate change
- 3.7. **Mindset:** an increasing negative perception of metro and surrounds and incapacity/incapability of local government to deliver basic services; the churn in administrative and political leadership; the increasing response to build self-sufficient/off-grid industrial and human settlement enclaves; will serve to undermine civic pride and a positive view of the metro and bay.

4. Expected weather extremes for Nelson Mandela Bay by 2055:

*Scientific projections and modelling have identified ranges of future change based on several scenarios. However, for planning purposes, and based on regional projections, we deem the following to be **the likely specific outcome by 2055** of the current trends, and what a CRDS Framework should plan for. It should be noted that current warming trends of above 1.5°C earlier than expected suggests the rate of change has been underestimated, and that these "expectations" will require revision on a regular basis:*

- 4.1. Warming = 2°C increase in terrestrial and marine temp

- 4.2. Sea-level rise = 75 cm – 1m
- 4.3. Daily temp max = 40°C at summer peak
- 4.4. Wet-bulb temperature max = 31°C at summer peak (*humidity is a greater risk to humans than dry heat*)
- 4.5. Rainfall = 400 – 600mm per annum in dam catchment areas
- 4.6. Rain “bomb” events of 100-400 mm within 24hrs on a regular basis leading to flash flood events across the Metro
- 4.7. Residential water-use will need to range between 110 MLD (50Lppd) to 176 MLD (80Lppd) to match available (and new resources)
- 4.8. Population will grow to 2,2 million citizens (*over the last decades population growth has plateaued within NMB, we do project some growth based on current trends, but the great unknown is what impact tropical heating has on the liveability of those tropical regions in Africa and the likely mass migration south may significantly change these assumptions*)

5. Variables of concern (in no specific order):

The following “variables of concern” were workshopped with stakeholder clusters using Miro-board systems-mapping technology to get input into the detail of expected risks and changes within the greater Nelson Mandela Bay. The following is an overview of those inputs:

- 5.1. **Unsustainable human settlements:** Human settlement within Nelson Mandela Bay remains largely arranged in its colonial-apartheid and American-styled city-planning division and spread leading to continued racial and economic divides and differing experiences of urban life. Of particular concern is: urban sprawl, with the lowest economic groups furthest from employment opportunity and shops, limited space for urban food gardens/commonage/open space; the location of informal settlement in flood plains; limited/inequitable access to municipal services; the distances piping and other services must cover per head; unsustainable design and planning of buildings and communities; the (non) enforcement of by-laws; climate “unfriendly” construction; maintenance and design of storm water drainage systems; and the prevalence of illegal dumping across settlements. A key challenge for the Metro is dealing with informality, particularly building into its understanding and planning of urban space the notion that informal settlements and economies are an ongoing reality that must be addressed.
- 5.2. **Governance and policy challenges:** Of concern is the high churn in mayors, city managers and senior administrative leadership that leads to institutional inertia, stagnation and obsolescence; the neglect of provincial and national departments, and SOE’s such as Transnet/TNPA to fulfil local mandates and maintain critical infrastructure such as hospitals, mental health facilities and services, rail networks, national roads, and school premises; the failure to maintain strategic masterplans and other planning tools that guide budgeting and resource allocation; the re-purposing of funds meant for maintenance; the inefficiency of procurement, recruitment, and fleet management; the high incidence of corruption and fraud; poor stakeholder and citizen participation in governance decisions; the lack of

commercial/industry leadership and/or accountability for issues such as manganese transportation, illegal dumping, derelict buildings and sites; and the lack of policy clarity on industrial aspects. In combination these elements act to create a vicious circle/downward spiral and general sense of a city in decline.

- 5.3. ***Unhealthy/unsafe communities:*** Nelson Mandela Bay is greatly and increasingly impacted by unemployment (especially youth), inequality, and poverty. The migration of middle-class persons and knowledge bases out of townships into suburbs is increasing the “ghettofication” of townships with a subsequent increase in gangs and crime syndicates and a concomitant increase in murder, sexual assault, and other crimes. This results in an “under-siege” mindset as expressed by many township residents. Hunger, malnourishment, disease, loss of skills (intergenerational transfer), social exclusion and poor service delivery (due in part to access constraints, theft/vandalism of infrastructure, littering, using toilets as trash disposals, etc.) are the norm for life in the township areas. In addition, high-profile crime in tourist areas impacts and amplifies the negative impression of the metro. While the metro is characterised by strong social cohesion in response to extreme events, emergency services and coordination needs upgrading to effectively respond to the increasing occurrence and impact of extreme events.
- 5.4. ***Challenges with access to affordable and quality services:*** Of concern is the basic delivery of services such as sanitation, water, electricity/energy, street cleaning, storm-water functioning, waste removal, library/internet hubs, and primary health care facilities. With the increasing moving off-grid of key metro consumers and declining revenue collection, the administration’s capacity to fund its servicing of communities is declining and the inequality gap is increasing. This lack of servicing is exacerbated by administrative constraints placed on small-scale citizen-based solutions such as the lack of leases, tariffs, and access to municipal officials. While pockets of excellence occur across the administration, the lack of maintenance, security, and long-term planning further negatively impacts service delivery. Sufficient water supply is also a great threat to the city, with a heavy/over-reliance (50-60%) on the Gariiep-Nooitgedacht system, and a significant loss of water between source and consumer.
- 5.5. ***Degrading natural environments:*** of concern is the transformation and degradation of marine, coastal, and terrestrial ecosystems; and the transformation and degradation of freshwater and groundwater ecosystems. The flow modification of streams and rivers, the reduced recharge of the aquifer, the reduced freshwater flow into estuaries and nearshore, the changing (natural) sand transportation, the increasing air/soil/water pollution component (marine noise, plastics, forever chemicals, pharmaceuticals such as hormone and antibiotics, oils and fats, acid, manganese dust, etc.), poor catchment management (including increased runoff from large scale paving) and the unsustainable extraction of natural resources is in combination exponentially impacting the decline of natural environments (both marine and terrestrial). As a consequence, negatively impacting ecosystem services, potentially impacting tourist and recreation sites such as beaches, and

amplifying events such as HAB's, fish die-off, bivalve contamination, water quality and human health.

- 5.6. **Carbon-intensive and constrained transport and mobility:** Nelson Mandela Bay has a large urban sprawl component with the labour force and unemployed typically located far from employment centres, consequently public transport and its emissions are of concern. This would include inefficient port systems that cause delays; the dominance of cars (ICE vehicles) as transport means; limited public transportation routes; limited walkways and non-existent bicycle lanes; and lapsed monitoring and control of taxi vehicles. As it stands the market is not ready via charging stations for electric vehicles and pricing puts such out of range of majority of residents. In addition, there are large tracts of unused rail corridors throughout the metro. Bunkering (ship-to-ship transfer of fuel) has a significant impact on marine ecosystems primarily through marine noise and occasional oil spills.
- 5.7. **Challenged economies:** Given its export manufacturing base, the Nelson Mandela Bay economy is highly dependent on developments within specific sectors such as the auto and auto-components industry which is currently in a high state of flux. Of additional concern is the global impact of major markets implementing some form of carbon "tax" on imports (e.g. CBAM on goods imported to the EU); the "collapse" of basic infrastructure (load-shedding, outages, road conditions, water availability and quality, and waste management); the prevalence of crime (hi-jacking, vandalism, stock theft) and criminal syndicates and a significant shadow economy; the lack of skills for new technologies; the failure to develop supplementary industries such as tourism and the maritime sector; the neglect of township enterprises; the through flow of critical minerals such as manganese without value-add; the lack of adequate recycling capacity and centres; and the lack of provincial and national policy direction, certainty, and investment for emerging industries.
- 5.8. **Finance:** Of concern is the decline in municipal revenue collection both due to the drop in collection rate and the increasing impetus to go off-grid to secure stability of electricity and water supplies; the return to Treasury of unused funding for infrastructure development; the limited revenue opportunities available to the metro; and the lack of stakeholder readiness for investment, projects, and carbon/biodiversity/water credit systems to proactively source new funding opportunities.

6. Vision:

After extensive consultation and feedback, the following vision emerged:

"A climate resilient Nelson Mandela Bay that thrives - it's clean, safe and working!"

7. Principles:

The following principles guide the development of a NMB CRDS Framework. Namely:

- 7.1. **Complex socio-cultural-ecological system:** The Greater Nelson Mandela Bay, which includes both terrestrial and marine environments is an interrelated and dynamic whole. Like a spiderweb, impact in one area is carried across the entire web of relations.
- 7.2. **Sustainable (ecosystem) development:** Development must occur within the bounds of what the natural and human systems can sustain on an ongoing basis. Thus, social, economic, and environmental considerations must together guide development pathways
- 7.3. **Climate justice informs a just transition:** Climate change and biodiversity loss impacts the most vulnerable in society proportionally more than others; and colonial and apartheid legacies still impact the distribution of resources, services, and beneficence, leading to gross inequality. Any transition from current systems to new must consider existing inequality and create a more just society. No-one can be left behind or outside.
- 7.4. **Collective and collaborative stewardship:** Much of climate change and biodiversity loss originates in the notion that nature serves the interests of humans. However, humans are part of nature, not separate from it, and stewardship of natural resources requires a collective endeavour, that incorporates individual residents, communities, civil society, enterprises, national and multi-national corporates, and all tiers of government - an all-of-society approach. In short, the metro's people must own the plan and action the solutions.
- 7.5. **Good governance and citizenship:** Centred on the South African Constitution and legislation, effective responses (both in mitigation and defence against) to the changes in climate and ecosystems requires all representative structures, specifically local government, to operate in the interests of both its constituency and other sentient beings. In turn, residents must be active citizens, involving themselves in the good functioning of their communities and the greater Nelson Mandela Bay, and business interests need to take responsibility for their products and value chains.

8. Preliminary Pathways:

The pathway approach works on the premise that decisions taken today will either add or detract from building a climate resilient metro by 2055, but over time if good decisions are made at key inflection points a better future can be shaped for the metro and its citizens. The following pathways have emerged from the stakeholder engagements and research.

- 8.1. **Thriving and Sustainable Economy:** The metro has a strong manufacturing base of world-class standards. Much of what drives the manufacturing sector will be decided by decision-makers and markets that occur outside of the metro - such as which technology wins out in the transition away from ICE vehicles. Collaborative efforts such as the Business Chamber's Reindustrialisation Think-tank and the biomass steam island initiated by Aspen Pharmacare and operated by Sustainable Heating, demonstrate the potential of collaborative initiatives. Government policy decisions (at all three levels, including SOE's) and initiatives can enhance these efforts through creating an enabling environment. For instance improving port operations to an international standard will significantly enhance port traffic and export opportunities, in turn, port stoppages and inefficiencies have the opposite effect. Significant intervention is also required to nurture other industries (such as tourism, maritime, and agriservices) to increase employment and revenue flows. And skills development geared to future needs will place the metro in a strong position to utilise the future opportunities.

- 8.2. **Resilient and Equitable Services:** Like many other metro's across the world, the NMB's infrastructure was designed and built for conditions half a century ago. The current infrastructure is ageing and operating beyond design capacity, full replacement requires budget capacity beyond what the Metro has access to, and key design assumptions require complete re-thinking of current systems. For instance potable water supply will require additional sources that currently do not exist if the population increases as expected, waste-water treatment works must recycle the bulk of their incoming water, and ultimately sewage systems need to go waterless. Waste needs to be recycled and separated at source. The metro's energy supply has to become renewable driven.
- 8.3. **Healthy Natural Ecosystems:** NMB has the advantage of a unique marine-terrestrial ecosystem comprised of seven biomes, 10+ nature reserves, 10+ major water catchments, the Swartkops estuary and resultant rich biodiversity in fauna and flora. These ecosystems are undergoing change due to human actions that is changing the climate and reduces biodiversity and the ecosystem services they provide. Key thresholds will be the expected climatic changes that change the rainfall, wind and current patterns. Key interventions as listed below will serve to secure components of the ecosystems under threat.
- 8.4. **Safe and Healthy Communities:** Urgent priority must be given to restructuring the metro's human settlements. Gangsterism and crime are outcomes of urban decay and need to be countered through addressing socially divided suburbs, building upwards instead of outwards (reducing urban sprawl), improving basic services, and providing greater access to green space.
- 8.5. **Collaborative Good Governance:** Given the current make-up of townships and suburbs, it is anticipated that NMB will continue to have a political coalition of some form in charge for the foreseeable future. Civic pressure would be useful to ensure that the political systems stabilise, and coalition governments mature. Some of the quick wins in building climate resilience is to ensure a fully staffed administration, that has efficient procurement, recruitment and planning capability. It is essential too that a multi-stakeholder Climate Committee (as per the Climate Bill) supported by a Climate Office is set up within the next budget cycle to drive future planning, budgeting, and interventions.
- 8.6. **Efficient and Accessible Mobility:** To mitigate against climate change and to enhance mobility of the metro's citizens, public transport needs to be electrified and networked across the city. Key consideration must be given to where taxi's fit within the public transport system and their own electrification. Reducing urban sprawl will in turn reduce travelling distance for daily commutes.
- 8.7. **Unified Civic Pride and Identity:** The metro has no common sense of its "brand" and significant civic and leadership attention is given to the failings of the metro. An emphasis

on opportunity and strengths and a civic campaign on a city brand can counter the negative mindset. There is a significant cultural, struggle and maritime heritage that can be used as a foundation for a civic pride.

9. Strategy Framework:

The following strategic framework outlines the strategic interventions the Metro needs to align around, and within each are specific strategic areas of focus that will leverage the necessary change. A detailed action plan (with prioritization is available to give substance to the below.

<i>Strategic Intervention</i>	<i>Strategic Focus</i>
Build the future we want	Shift to a sustainable, low-carbon economy (Formal and Informal)
	Sustainable, low-carbon livelihoods & Just Transition jobs
	Sustainable Urban Planning (Formal and Informal)
	Energy Efficiency & shift to Low-Carbon Energy Systems
	Low Carbon & Efficient Mobility Corridors
	Waste Minimisation & Improved Waste Management
Defend against the Extremes	Floods - Building Resilience to Flooding
	Sea - Preparing for Sea-Level Rise, Storm Surges, Coastal Flooding and Erosion, and Sand Inundation
	Drought - Drought Preparedness and Water Security
	Fire - Wildfire and Fire Preparedness
	Heat - Building Resilience to Increasing Air Temperatures and Heat
Secure the Basics	Delivering Municipal Services
	Disaster Management Planning and Response
	Support Community Well-Being and Safety
	Governance
Steward our Assets	Carbon-Conscious Manufacturing
	Skills and Innovation
	Pollution Prevention

	Protection / Management / Restoration of Natural Areas and Resources
Work together	Collaboration & Networking across actors to share knowledge & experience, and for inclusive resilience planning, action and monitoring

10. Immediate way forward:

- 10.1. **Routing through to Mayoral Committee/Council & PCC processes**
- 10.2. **Final Dialogue Multi-stakeholder session – Draft Framework – 12 March 2025**
- 10.3. **Convening a multi-stakeholder Climate Change Forum** (in fulfilment of the Climate Change Act)
- 10.4. **Adopting the Climate Resilience Framework** as the initial Analysis and Climate Response Plan requirements of the Climate Change Act
- 10.5. **Integrating Climate Resilience/Sustainability into NMBM:** incorporation into the IDP/Master Plans/Budget, briefing directorates to attend to risks and opportunities
- 10.6. **Integrating Climate Resilience/Sustainability into other key stakeholders:**
 - 10.6.1. Business Chamber – Business Coalition for Sustainable Environment
 - 10.6.2. NMU – call for a centralised Climate Change focus
 - 10.6.3. Civil Society needs a greater attention to climate change
- 10.7. **Engagement with key SOE's:** SAWS, TNPA, CDC, SANParks, DWS, SANRAL on cross functional areas and aspects under their jurisdiction
- 10.8. **Establish a Climate Secretariat/Office to support the Forum** – the project's work needs to be sustained by a well-resourced unit that can work transversally within the municipality and across the different role players
- 10.9. **Make the project archive publicly available** – a great deal of detailed information and networks have been established through the work of the project, this information would be a key aid to role players in devising their own strategic interventions

11. Addendum: Existing initiatives and resources:

The following is a list of the various sources and inputs that have informed the work of the project team

11.1. Existing plans and documents:

- 11.1.1. IDP
- 11.1.2. SDF, LSDF, and MOSS
- 11.1.3. Masterplans (sanitation, water, tourism)
- 11.1.4. National Treasury's MFMA Circular No. 88
- 11.1.5. SALGA BIGM Programme
- 11.1.6. PCC JET
- 11.1.7. Climate Change Act
- 11.1.8. NMBM Climate Change and Green Economy Action Plan (August 2015)
- 11.1.9. NMB Coastal Management Lines
- 11.1.10. DFFE Protected Areas Register
- 11.1.11. Coega Development Corporation strategy and key SIP & other projects
- 11.1.12. Medium-term Economic Strategy for NMB (Prof Deon Pretorius – Aug 23)
- 11.1.13. EV Masterplan Eastern Cape
- 11.1.14. Provincial Hydrogen Strategy (Prof D Swartz & Prof O Franks – NMU)
- 11.1.15. Marine Spatial Plan – Algoa Bay (NMU & Rhodes)
- 11.1.16. Swartkops Environmental Management Plan (EMP)
- 11.1.17. Bunkering Risk Assessment Study - Algoa Bay (SAMSA)
- 11.1.18. African Penguin Biodiversity Management Plan – DFFE
- 11.1.19. NMB Business Chamber – Reindustrialisation Think-tank
- 11.1.20. Mantis Group & MBDA/DWS – Baakens Valley studies
- 11.1.21. Key Businesses strategy – Auto Manufacturers and Components
- 11.1.22. Transnet/TNPA Port Strategy
- 11.1.23. Hive – Green Ammonia (SIP) EIA process
- 11.1.24. WFA Climate Assessment for NMB

11.2. Existing resident/private-based initiatives:

- 11.2.1. Friends of Van Stadens & Van Staden's Flower Reserve
- 11.2.2. Cape Recife Conservancy & Friends of Cape Recife
- 11.2.3. Millpark Conservancy
- 11.2.4. CCA – Baakens Trust – Baakens Business Chamber Cluster
- 11.2.5. Friends of St George's Park
- 11.2.6. Russel Road Regeneration
- 11.2.7. Motherwell Recycling Hub
- 11.2.8. Zwartkops Conservancy
- 11.2.9. Nyosi Nature Reserve (Mantis)
- 11.2.10. Seaview Private Sanctuary (Jendamark)
- 11.2.11. Royalston Nature Reserve
- 11.2.12. Coega Biomass Centre
- 11.2.13. Sustainable Heating (steam island at Aspen)
- 11.2.14. Recycling endeavours: Pack-a-ching, Greencycle etc.

11.3. Civil Society forums:

- 11.3.1. ECCEF (Eastern Cape Combined Environmental Forum)
- 11.3.2. Alien Clearers forum (WESSA ABB initiative)
- 11.3.3. SANGOCO (NGO Coalition)
- 11.3.4. NMB Civil Society Coalition
- 11.3.5. NMB Traditional Leaders forum (Mike Pantsi)

11.4. Research institutes/initiatives:

- 11.4.1. South African Weather Services (SAWS)
- 11.4.2. SAEON
- 11.4.3. CMR
- 11.4.4. SAIMI
- 11.4.5. SST (Sustainable Seas Trust)
- 11.4.6. NMB Business Chamber
- 11.4.7. Coega Development Corporation (CDC)
- 11.4.8. Provincial Green Hydrogen Strategy development – NMU

11.5. *Generic climate change information/assessments:*

- 11.5.1. IPCC 6th Assessment & Summary
- 11.5.2. PCC State of the Climate Report (pending)
- 11.5.3. UN Sustainable Development Goals
- 11.5.4. Constitution, NEMA, Integrated Coastal Management Act, Water, Biodiversity White Paper, Climate Change Act
- 11.5.5. NDP 2030 – Make it work
- 11.5.6. IPBES – Biodiversity & Ecosystem services assessment (2019)
- 11.5.7. NOAA's State of Climate in 2022, 2023, 2024
- 11.5.8. WMO – State of the Climate 2024 – update for COP29
- 11.5.9. WMO – 2024 *Warmest year on record* (press release 10 Jan 2025)