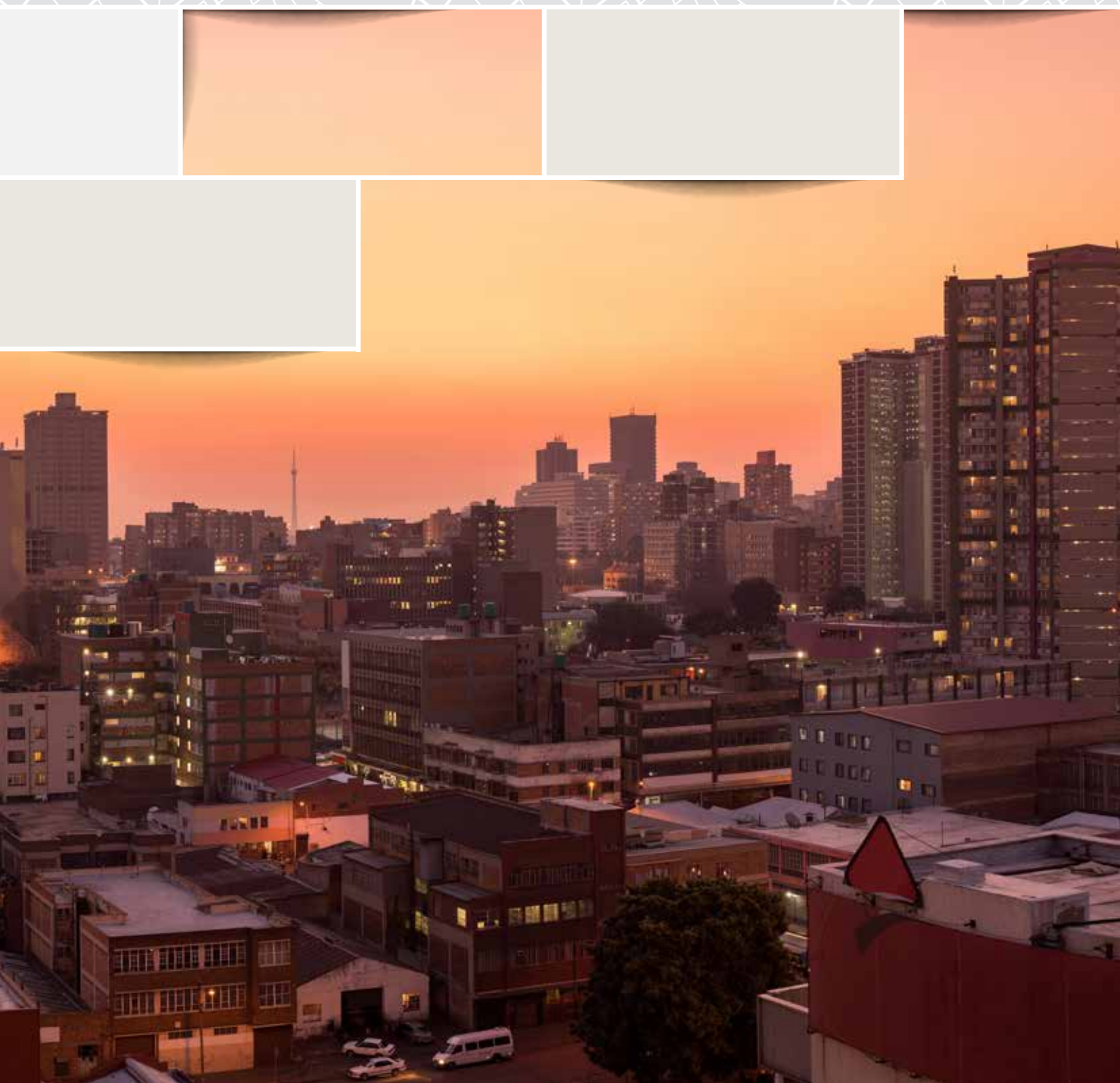


GUIDELINE ON MAINSTREAMING CLIMATE RESPONSIVENESS AND RESILIENCE INTO URBAN PLANNING



About

This guideline was developed by the Council for Scientific and Industrial Research as an implementing partner of the National Treasury's Cities Support Programme. This guideline is endorsed by the Department of Forestry, Fisheries and Environment (DFFE), the Department of Cooperative Governance and Traditional Affairs (CoGTA), the Department of Agriculture, Land Reform and Rural Development (DALRRD), the South African Local Government Association (SALGA), and South African Cities Network (SACN).

Guideline Partners:



Contributing authors

Amy Pieterse
Willemien van Niekerk
Lethabo Chilwane
Anthea Stephens

Stakeholders consulted

African Climate & Development Initiative
Buffalo City Metro
City of Cape Town
City of Johannesburg
City of Tshwane
Department of Agriculture, Rural Development, and Land Reform
Department of Cooperative Governance and Traditional Affairs
Department of Forestry, Fisheries, and the Environment

Ekurhuleni Municipality
eThekweni Municipality
Mangaung Metro
Cities Support Programme
National Treasury
Nelson Mandela Bay Metro
South African Cities Network
South African Local Government Association

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Definitions

Climate change adaptation	The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects. Climate change adaptation consists of measures that range from providing social protection after disasters, to retrofitting habitats or settlements with more resilient infrastructure, protecting coastlines from flooding, securing water resources to rely on during periods of drought, and improving crop production for dryland farming, among others.
Climate change mitigation	A human intervention to reduce the sources or enhance the sinks of greenhouse gases (GHGs). This includes human interventions to reduce the sources of other substances which may contribute directly or indirectly to limiting climate change. The goal of climate change mitigation is to achieve a reduction of emissions that will limit global warming to between 1.5°C and 2°C above preindustrial levels.
Climate change responsiveness and resilience (CR&R)	Climate responsiveness encompasses climate change adaptation, mitigation, and disaster risk reduction actions to build long-term resilience, while also considering the complexity of rapidly growing urban areas and the uncertainty associated with the impacts of climate change in these areas. Additionally, resilience to climate change refers to the capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for climate change response.
Climate risk zones	A climate risk zone indicates a geographic area with a high or very high potential for adverse consequences resulting from the interaction of vulnerability, exposure, and one or more climate-related hazards.
Mainstreaming	The process of integrating climate change adaptation strategies and interventions into existing instruments and processes, particularly those related to development and planning.
Maladaptation	The process of implementing planned adaptation actions that exacerbate the adverse impacts of climate change by directly increasing the vulnerability of targeted or external elements. Contrary to unsuccessful adaptation, maladaptation implies a heightened vulnerability of an element, because of adaptation. Therefore, not only is maladaptation a failure to adapt, but it is also an exacerbation of the situation.
Urban planning	Urban planning involves spatial planning, land-use management and integrated development planning within metropolitan municipalities (Category A Municipality), and local municipalities (Category B Municipality). Municipalities that include national urban nodes and regional development anchors, are of particular relevance. District municipalities (Category C) are recognised as important actors in coordinated planning across a municipal area and its cities and towns. Urban planning includes long-term planning as well as term-of-office planning and involves the management and development of mechanisms and instruments that guide integrated, strategic infrastructure and investment planning and associated budgeting and reporting.

Acronyms

BEPP	Built Environment Performance Plan
CoGTA	Department of Cooperative Governance and Traditional Affairs
CR&R	Climate Responsiveness and Resilience
CRZ	Climate Risk Zone
CSIR	Council for Scientific and Industrial Research
CSP	Cities Support Treasury
DARDLR	Department of Agriculture, Rural Development, and Land Reform
DDM	District Development Model
DFFE	Department of Forestry, Fisheries, and the Environment
DRR	Disaster Risk Reduction
GHGs	Greenhouse gases
IDP	Integrated Development Plan
IPCC	Intergovernmental Panel on Climate Change
IUDF	Integrated Urban Development Framework
MTREF	Medium Term Revenue and Expenditure Framework
MTSF	Medium-Term Strategic Framework
NCCAS	National Climate Change Adaptation Strategy
NSDF	National Spatial Development Framework
NT	National Treasury
PCC	Presidential Climate Commission
SACN	South African Cities Network
SALGA	South African Local Government Association
SDF	Spatial Development Framework
UNFCCC	United Nations Framework Convention on Climate Change

About this guide

Several government stakeholders were consulted and included in the process of scoping and developing the **Guideline on Mainstreaming Climate Responsiveness and Resilience into Urban Planning** (the Guideline). The Department of Forestry, Fisheries and Environment (DFFE), the Department of Cooperative Governance and Traditional Affairs (CoGTA), and the Department of Agriculture, Land Reform and Rural Development (DALRRD), the South African Local Government Association (SALGA), and the South African Cities Network (SACN), together with National Treasury's Cities Support Programme and the metropolitan municipalities, were key stakeholders and contributors in the process.

This Guideline provides process-related guidance and recommendations on how to go about integrating climate responsiveness and resilience (CR&R) into planning. The aims of this Guideline are to provide guidance to all municipalities:

1. To integrate CR&R priorities into strategic planning processes and instruments,
2. To integrate CR&R into spatial targeting and prioritisation, particularly through the identification of climate risk zones, and
3. To be able to assess and report on CR&R mainstreaming progress and outcomes.

The intended users of this Guideline include those working in local government¹ and involved in long-term planning, term-of-office planning, budgeting, and reporting, particularly in those municipalities that include national urban nodes and regional development anchors, as identified in the National Spatial Development Framework (2022).

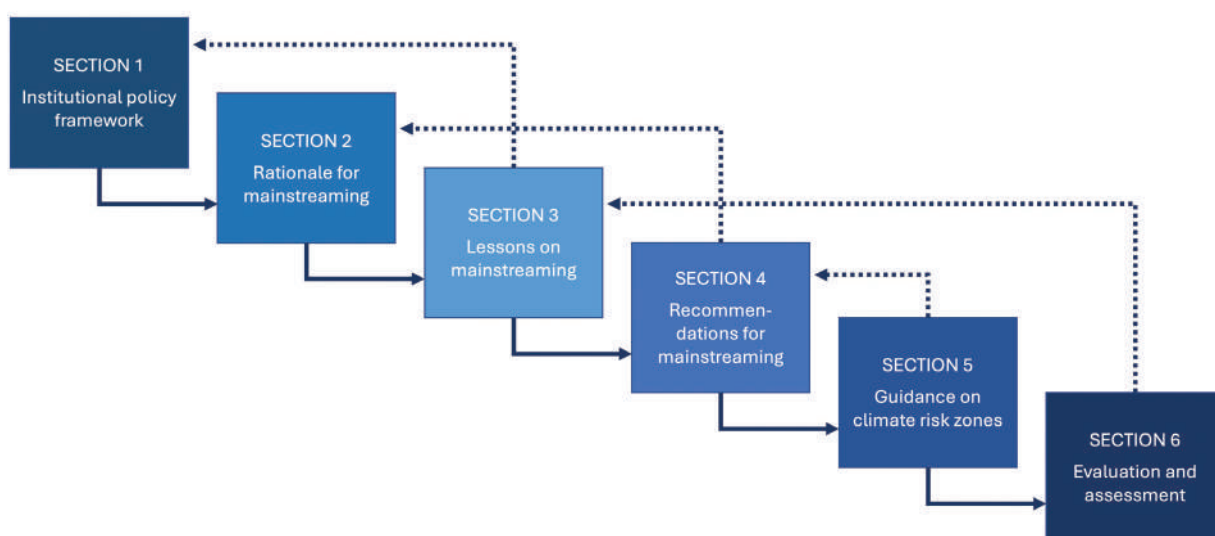


Figure 1: Outline of Guideline illustrating how each of the Sections build on one another (solid arrows), and how Sections relate back to previous Sections (dashed arrows).

¹ Including metropolitan municipalities, intermediate city municipalities, local municipalities, and district municipalities. Also see definition of 'urban planning'

The Guideline starts with an overview of the institutional framework in which CR&R and planning exists and places these guidelines within the planning framework. Section 2 provides the rationale for mainstreaming. Lessons on mainstreaming, based on experiences and assessments done on the state of mainstreaming within metros is introduced in Section 3. These lessons inform Section 4, which offers recommendations and a progressive approach to mainstreaming CR&R into urban planning. By implementing these recommendations, the benefits of mainstreaming (Section 2) can be activated. Supportive of the process-related recommendations and guidelines, Section 5 provides further guidance on spatialising climate risk and identifying climate risk zones to support spatial targeting and prioritisation. Finally, considerations are put forward in Section 6 to be able to assess continued mainstreaming within municipalities and guide planning and reporting.

Box 1: The climate change mitigation and adaptation agenda

Climate change mitigation and adaptation refer to the two main agendas intended to address the negative impacts of climate change, i.e., by either delaying, minimising, redistributing, or avoiding the impacts. Climate change mitigation efforts are concerned with addressing the underlying causes of climate change by reducing the rise of greenhouse gas (GHG) emissions, and concentrations in the atmosphere, which contribute towards Earth's rising temperature and changing patterns of extreme events. The ultimate goal of climate change mitigation is to achieve a reduction of emissions that will limit global warming to between 1.5°C and 2°C above preindustrial levels. Failure to meet this target will likely result in irreversible changes in sea level rise, extreme weather, and water availability, among others. To reduce GHG emissions, policymakers around the world use a variety of strategies, including making it less economically advantageous to use fossil fuels, such as coal and oil, to power and produce products and services such as electricity and transport.

The climate change adaptation agenda is concerned with adapting species, people, places, assets, and systems, to the impacts of actual or anticipated climate-related risks. Climate change adaptation consists of measures that range from providing social protection after disasters to retrofitting habitats or settlements with more resilient infrastructure, protecting coastlines from flooding, securing water resources to rely on during periods of drought and improving crop production for dryland farming, among others. Although climate change mitigation and adaptation both aim to reduce impacts of climate change, mitigation aims to address the underlying causes of climate change by reducing GHG emissions, while adaptation addresses the impacts of climate change on people and ecosystems.

Although the focus of this Guideline is on the mainstreaming of CR&R with a deeper emphasis on adaptation, it acknowledges that adaptation and mitigation are equally important in the response to climate change and to drive transformational outcomes. To maximise efficiencies and minimise investment risk, resources should be strategically used to achieve both adaptation and mitigation agendas. The Framework for a Just Transition acknowledges this need and calls for coordinated and integrated efforts across sectors to facilitate a just transition to a low emission and climate resilient economy.

(Sources: Kongsager, et al., 2016; Behsudi, 2021; IPCC, 2021; PCC, 2022)

1. Institutional and policy framework

CR&R exists within a complex policy environment. There are various scales at which climate change response relates to policy, as well as across sectors. This institutional and policy framework is broadly illustrated in Figure 2. South Africa has positively responded to the challenge of climate change as the country is a signatory of numerous global climate change response commitments. Cities in particular, play an important role as they are at the centre of converging global frameworks, such as the Paris Agreement, the Sustainable Development Goals, the Sendai Framework on Disaster Risk Reduction, and the New Urban Agenda, and it is through the multiplier effect of cross-sector and multilevel action that ambitious climate goals can be achieved.

To mainstream CR&R, all government sectors and departments must ensure that all policies, strategies, legislation, regulations, and plans are aligned with the Climate Change Act, No. 22 of 2024. The Bill provides for a coordinated and integrated response to climate change across the different spheres of government, for the effective management of climate change impacts through adaptation, as well as through contributing to global mitigation efforts. The National Climate Change Adaptation Strategy (NCCAS) provides a common vision for climate change adaptation and resilience based on the 2011 White Paper on National Climate Change Response Policy (NCCRP) and serves as the country's National Adaptation Plan in fulfilment of international obligations under the United Nations Framework Convention on Climate Change (UNFCCC). The NCCAS puts forth nine strategic interventions, one of which is to facilitate the mainstreaming of adaptation responses into sectoral planning and implementation, and particularly into municipal development and infrastructure planning. The NCCAS recognises the role of local government in responding and adapting to climate change, as well as a general need for guidance and capacity building to be able to fulfil this role.

Climate change cannot be decoupled from development concerns and goals, and national level policies, plans and legislation acknowledge this. The national strategic and integrated policies and strategies that outline the country's vision and development priorities include the National Development Plan (NDP), the Framework for a Just Transition (PCC, 2022), the Medium-Term Strategic Framework (MTSF), the Integrated Urban Development Framework, and the National Spatial Development Framework (NSDF) that sets out strategic spatial development priorities. They, and others, document the transformative change required to become a climate-resilient country.

Section 7. (1) of the Climate Change Act, No. 22 of 2024 requires that all organs of state affected by climate and climate change align their policies, programmes, and decisions to ensure that the risks of climate change impacts and associated vulnerabilities are considered. Local government is a key player in climate change response as a facilitator and implementer to achieve effective climate action. The Local Government Municipal Systems Act of 2000, and the Spatial Planning and Land Use Management Act of 2013 require the municipal spheres of government to develop and implement integrated 'place-based' spatially focused plans to coordinate planning and investment through Municipal Spatial Development Frameworks (SDF) and Municipal Integrated Development Plans (IDP). Despite the important role of local

government, provincial, and national stakeholders play an essential role in providing a supportive framework to empower local governments to be able to fulfil their planning mandates, especially in the context of effective and coordinated climate response and to ensure that local climate response align with broader national and global goals. Some of the important supporting functions of provincial and national actors include providing overarching policies and legislated frameworks, facilitating access to financial support and mechanisms, supporting capacity building, providing guidance and standards, promoting innovation, and facilitating access to data and information, and setting up mechanisms to monitor and evaluate implementation. The Climate Change Act, No. 22 of 2024 sets out the requirements for institutional arrangements for these actors to coordinate climate change response.

Given the existing policy and institutional framework, this Guideline sets out to provide guidance on mainstreaming climate change response and resilience priorities within and across the local planning framework as illustrated in Figure 2.



Figure 2: Institutional framework for climate change response planning.

2. Climate response and resilience mainstreaming

The national and international policy framework makes clear that mainstreaming is essential to achieve both our developmental and sustainability outcomes. The aim of mainstreaming is to change the dominant planning paradigm by making climate change response and resilience (CR&R) an integral part of other well-established planning programmes, processes, and instruments. A climate responsive and resilient approach to planning addresses the causes of vulnerability and exposure, to ultimately reduce current risks and potential future impacts within cities.

The major benefit of mainstreaming is that it can create opportunities for coordinated and synergistic planning by activating co-benefits across sectors and departments, which in turn allows for better organisational efficiency. Mainstreaming can also promote innovative thinking and the development and implementation of more efficient and transformational climate response measures, particularly in support of long-term planning.

“Mainstreaming adaptation into development efforts has the potential to improve the resilience of development outcomes, contribute to the more efficient use of resources, and avoid investments that unintentionally lead to maladaptation”

(Mogelgaard, et al., 2018, p. 1)

Box 2: Maladaptation

Maladaptation refers to intentional adaptation actions that exacerbate the adverse impacts of climate change by directly increasing the vulnerability of targeted or external elements. Contrary to unsuccessful adaptation, maladaptation implies a heightened vulnerability of an element, because of adaptation. Therefore, maladaptation “...is the challenge of not just failing to adapt but exacerbating the situation” (Magnan, et al., 2016, p. 648).

The five dimensions of maladaptation, as identified by Barnett and O' Neill (2010), include adaptation actions that (1) increase the emission of GHGs, e.g., energy-intensive adaptation actions; (2) disproportionately burden vulnerable groups, i.e., actions that, when meeting the needs of one sector or group, increase the risk of another; (3) have high socioeconomic and environmental opportunity costs; (4) reduce incentives and the capacity to adapt, including actions that encourage excessive dependence; and those that (5) restrict the ability to respond to unforeseen changes.

(Adapted from Barnett & O' Neill, 2010; Barnett & O'Neill, 2013; Noble, 2014; Magnan, et al., 2016)

The intersection, or nexus, between climate change response (in particular adaptation) and development planning provides several entry points to facilitate mainstreaming, as the aim of both are to reduce the root causes of vulnerability. Development patterns affect a city's exposure, vulnerability, and capacity to adapt to the negative effects of climate change. Poor development choices can worsen vulnerability to the impacts of climate change, and trigger maladaptation (UNEP, 2011). It is therefore important to “consider all current and future costs to all parties involved in the provision of infrastructure and social services” that support and promote development (City Think Space; Setplan, 2017, p. 12). Mainstreaming has been critiqued for its ability to inadvertently reproduce risk when implemented within inadequate and poor planning practices (Runhaar et al., 2018). It is therefore important to be critically aware of the dominant planning practices to ensure that the risk of maladaptation is limited.

See Box 2 for more information on maladaptation. Although poor and unplanned development may increase exposure and vulnerability, investments also need to be protected from climate change impacts by including principles of climate resilience, resource efficiency and sustainability in development planning and spatial planning. Mainstreaming adaptation actions into sectoral plans and policies, increases the likelihood of the success of development under a changing climate (Mogelgaard, et al., 2018). The role of planning in adaptation is widely recognised, but planning is also positioned to support mitigation through land-use planning systems that can facilitate community design, transportation networks and development densities in support of reducing greenhouse gas emissions (Hagen, 2016).

Mainstreaming approaches can be classified in terms of horizontal and vertical approaches. Vertical mainstreaming occurs between levels or spheres of government such as national, provincial, and local. Vertical mainstreaming often occurs within a specific sector and is associated with high levels of guidance and regulation. Whereas horizontal mainstreaming occurs across sectors and broader planning frameworks and requires high levels of coordination and transversality (Wamsler et al., 2014; Rauken et al., 2015; Reckien et al., 2019). Successful mainstreaming requires that both approaches be applied. The Guideline set out in this document, and particularly in Section 4, provides a framework for those within municipalities that develop plans and take decisions, to apply both approaches, with a specific focus on horizontal mainstreaming as this remains the greatest challenge. The next Section will discuss this, and other challenges and successes in mainstreaming based on assessments across metropolitan municipalities.

3. Lessons on mainstreaming

Between 2019 and 2022 metropolitan municipalities were assessed against an assessment framework and progressive criteria to measure the extent to which they have integrated CR&R into their planning documents and processes. Eight metros were evaluated and reviewed and provided with annual feedback in terms of their progress. See Annexure A for more information on the process, assessment framework, and assessment criteria. The lessons and best-practice examples from the metro assessments across the three-year period are captured below, but are relevant to all local municipalities.

- a) All the metros included some form of climate responsiveness in their vision, principles and broad strategies and often refer to sustainability, resilience, or resource efficiency goals in their theory of change. However, spatial visions and strategies did not always prioritise or feature CR&R as strongly. Where spatial visions were clearly communicated, CR&R priorities were often better integrated.
- b) Where spatialised information on climate risks and vulnerabilities was available, the information was often scattered across different departments and not always accessible to other departments. This highlighted the importance of integrated and transversal planning, and information and data sharing among departments. It is essential that disaster risk management, and the environmental function work with spatial planning and that there is mutual sharing of data and opportunity for collaboration between departments.

Box 3: City of Tshwane integrating climate risk zones into decision-making systems

The City of Tshwane was the first metro to identify climate risk zones as part of the update to their Climate Risk and Vulnerability Assessment in 2021. The City has integrated the climate risk zones into two important decision-support tools, i.e., the Capital Planning System (CaPS) and their Geographical Information System (GIS) repository. The City included the climate risk zones as a spatial layer in their CaPS, which is considered as a key informant in the investment prioritisation model. The climate risk zones are also included in the City's GIS repository which is available to users across all departments.

- c) Spatially relating climate risks and vulnerabilities to the urban network strategy was generally a challenge among metros. Metros made limited progress with identifying climate risk zones or applying similar approaches to spatialising climate risks to inform prioritisation and to ensure that areas at highest risk from climate change impacts, receive the necessary investment to adapt to the risks.

Box 4: Integrating risk and vulnerability into spatial targeting in the City of Ekurhuleni

In their BEPP, the City related risk and vulnerability information from their 2017 Climate Change Response Strategy to their spatially targeted areas. In their BEPP, the City overlaid exposure to specific risks such as flooding, together with vulnerability information such as the location of informal settlements with their Integration Zones and Integrated Public Transport Network. The BEPP spatially identified where strategic projects were most vulnerable and at risk in terms of air pollution, electricity supply disruptions and infrastructure failure.

- d) There is a gap between strategic plans, programmatic interventions, and sectoral plans. Metro plans and policies recognise the current and possible future impacts of climate change on cities, and that planning plays an important role in responding to these impacts through their intentions and strategic outlines. What is often not reflected, are programmatic and coherent responses to address such long-term impacts through existing short- to medium-term planning, including in longer term sector plans.

Box 5: City of Cape Town mainstreaming climate responsiveness and resilience into programmatic planning

The City's 2017-2022 Integrated Development Plan (IDP) integrated CR&R to a great extent, with greater inclusion of priorities with yearly reviews and updates to the IDP. The formulation of the City's principles, strategic focus areas and objectives as captured in the IDP illustrates that climate change response, resilience and sustainability strongly informs the guiding principles and strategy of the City. The priorities, strategies and objectives are directly linked to projects and initiatives that support them such as biodiversity and conservation projects, recycling, renewable energy, water conservation, green infrastructure development etc. The three spatial priorities of the Cape Town SDF are also echoed in the IDP. The City has demonstrated alignment of strategic goals and objectives between the IDP and the SDF, and have translated the spatial priorities into programmes such as the Green Infrastructure Programme, the Climate Change Programme, and their various projects. The City recently adopted their Climate Change Strategy which further sets out the City's planned response to climate change, including mainstreaming across the organisation.

- e) Institutional arrangements to support mainstreaming varied across the metros. Where climate change experts were included in forums and decision-making structures responsible for city's project pipeline, or dedicated structures were established to promote and facilitate CR&R and mainstreaming, their roles and status were not very clearly communicated. Often where the institutional arrangements and structures for CR&R were clearly defined, greater progress was made in mainstreaming CR&R into planning.

Box 6: A climate change governance framework in the eThekweni Municipality

A framework for climate change governance has been set up in the eThekweni Municipality to facilitate integrated and effective climate change response, as set out in the Durban Climate Change Strategy (DCCS). The governance framework consists of four structure tiers that ultimately report to the Executive Committee and Council. The Secretariat feeds evidence and information around climate impacts, risks, and vulnerabilities to the Sub-Committee from the various line functions who then consider and integrate the information into their own programme planning. The Sub-Committees report to the Technical Task Team which is representative of all line functions, and coordinates with the Disaster Management Advisory Forum. The Technical Task Team makes decisions on recommendations received from the Sub-Committee. The Strategic Management Forum and the Climate Change Committee, which is chaired by the mayor, respectively provides administrative and political oversight to the implementation of the DCCS and ensures support for proposal before reaching the Executive Committee (ExCo). Additionally, the City proactively engages with the private sector and business chamber, with research partners such as the University of KwaZulu Natal on aspects of DCCS implementation and the strategic climate research agenda.

4. Recommendations for mainstreaming

Based on the lessons and examples from the assessments discussed in the previous Section, this Section offers recommendations and a progressive approach to mainstreaming CR&R into urban planning. It is through the implementation of these recommendations, that the benefits of mainstreaming (Section 2) can be activated.

“Resilience thinking offers some tools for reconciling short- and long-term responses, including integrating different types of knowledge, and emphasis on inclusive governance, and principles of adaptive management”

(IPCC, 2012, p. 440)

Many policymakers and development practitioners realise the necessity to anticipate climate change impacts and prepare for these risks, but mainstreaming CR&R objectives into plans and policies is lacking and has been slow to translate into robust action (Mogelgaard, et al., 2018; Pieterse et. al. 2021). To be able to activate the benefits of mainstreaming, bridge the implementation gap, and to facilitate the process of institutionalising climate responsive and resilient planning, there are certain factors that need to be put in place. These factors are explored below, with transversal engagement with internal and external stakeholders acting as the belt, driving all the other factors. These facilitating factors are illustrated in Figure 3.

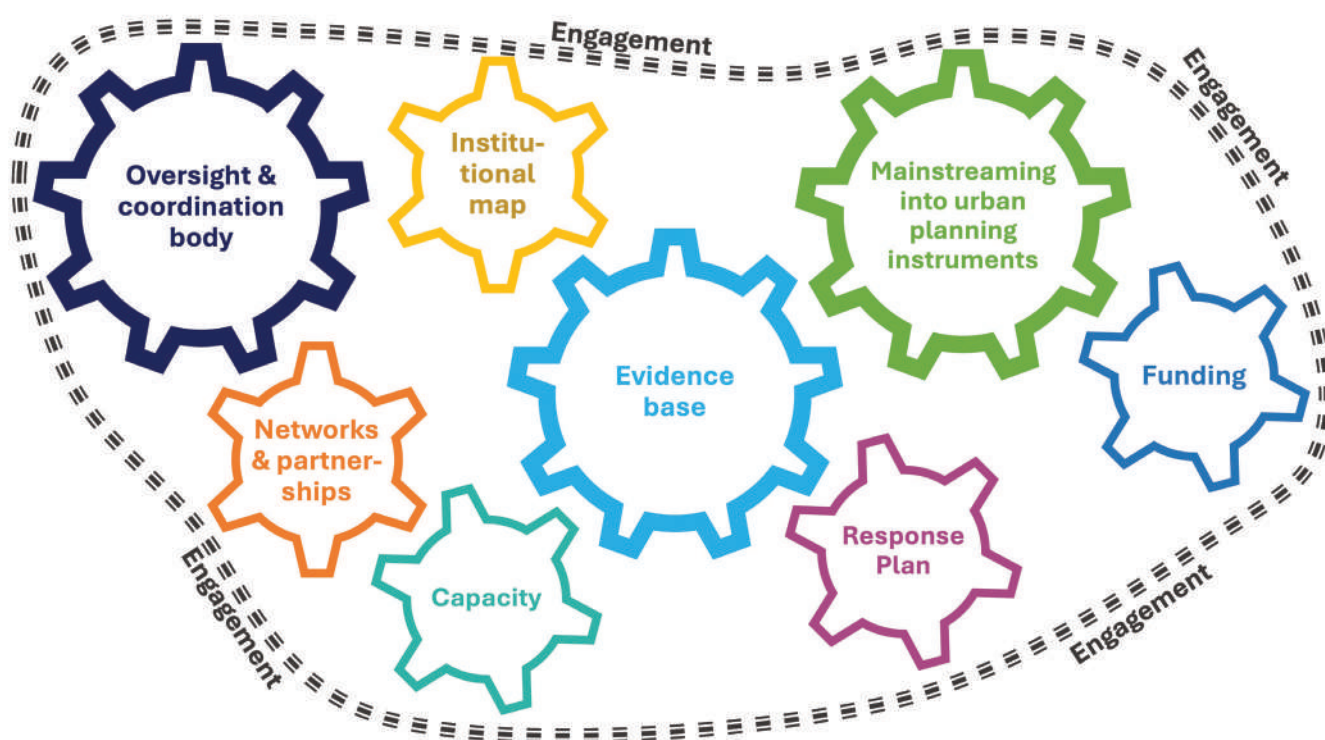


Figure 3: Factors that can facilitate the mainstreaming process.

Considering the various factors that enable mainstreaming, it is recommended that mainstreaming be approached as set out below. Although, depending on the unique context within the municipality, and the extent to which mainstreaming has already been undertaken, the progressive steps outlined below are likely to be iterative and might not be followed in exactly the same order.

4.1. Establish a formal body and a team to oversee and coordinate CR&R mainstreaming

Supportive internal processes and structures need to exist to sustain the institutionalisation or mainstreaming of CR&R in a city. An oversight body and a dedicated champion with strong links to the strategic or development planning office must be identified to lead the mainstreaming-process coordination team. The team should consist of competent, dedicated, and professional individuals. The team should:

- provide policy direction,
- raise awareness,
- drive collaboration between stakeholders across sectors such as with civil society, research, and business,
- promote and contribute to common data sources,
- provide technical and administrative support,
- ensure synergies between activities are leveraged,
- support the planning, implementation, and evaluation of mainstreaming efforts, and
- follow-up on actions to be implemented.

This role and these tasks of the coordination team should be captured in the performance agreements of officials. This oversight body and team is best centrally coordinated through existing intergovernmental forums or through strategic management structures and processes as for example the IDP. Formal establishment of a Municipal Forum on Climate Change should be done in line with the Climate Change Act, No. 22 of 2024 and the Intergovernmental Relations Framework Act, No 13 of 2005.

4.2. Prepare an institutional map

The necessary institutional arrangements and mechanisms need to be established and mapped to direct and drive the mainstreaming of CR&R across the organisation. The purpose of the institutional map is to:

- provide an overview of the regulatory and institutional frameworks,
- provide an overview of the intergovernmental structures at play, i.e., cross-departmental, intra-municipal, and intergovernmental technical structures, and the linkages and relationships between them,
- list the coverage and scale of existing climate change interventions,
- identify technical, and institutional or organisational gaps, and
- make recommendations for institutional improvements.

Below is a conceptual example of a complex systems map identifying role-players and indicating the links between them.

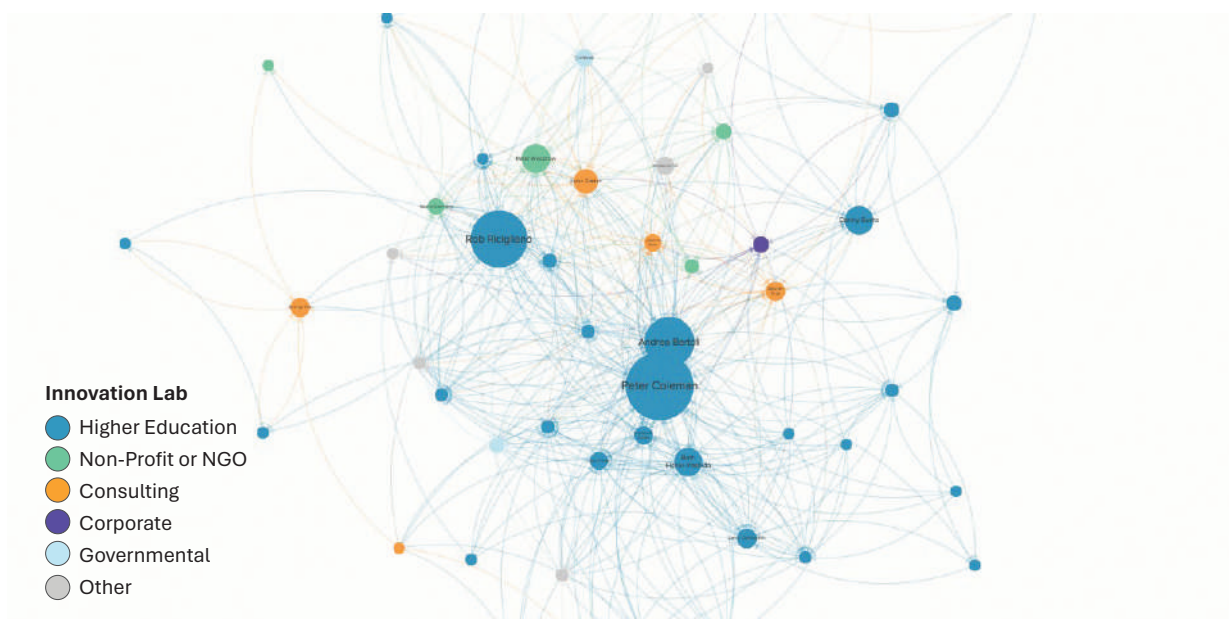


Figure 4: Mapping a network to identify key influencers and gaps (Source: <https://docs.kumu.io/about/how-does-it-work.html>)

4.3. Establish or renew external networks and partnerships

Municipalities need to partner and co-create climate response and adaptation plans with other partners to overcome the complicated, complex, and long-standing challenges they face. Formal as well as informal networks and partnerships play a very important role in mainstreaming CR&R. Many local and international networks exist to support local governments to reach climate goals and commitments. These networks often provide guidance, expert support and access to solutions, service providers, partners, and climate finance. Partnerships are best captured in a Memorandum of Understanding or a Memorandum of Agreement with specific targets that are well-aligned with the municipality's development agenda, priorities, and targets.

Formal networks and partnerships such as the UNFCCC and the C40 Cities network are generally established as a result of top-down approaches to climate change adaptation and mitigation. Conversely, bottom-up approaches to climate change adaptation and mitigation provide practical ways to establish and strengthen informal partnerships and networks. Moreover, bottom-up approaches offer numerous opportunities to leverage partnerships and networks for success (See Recommendation 5). Informal networks, based on professional relationships, are also valuable in terms of innovation, coordination, cooperation, information-sharing, learning, and institutionalisation.

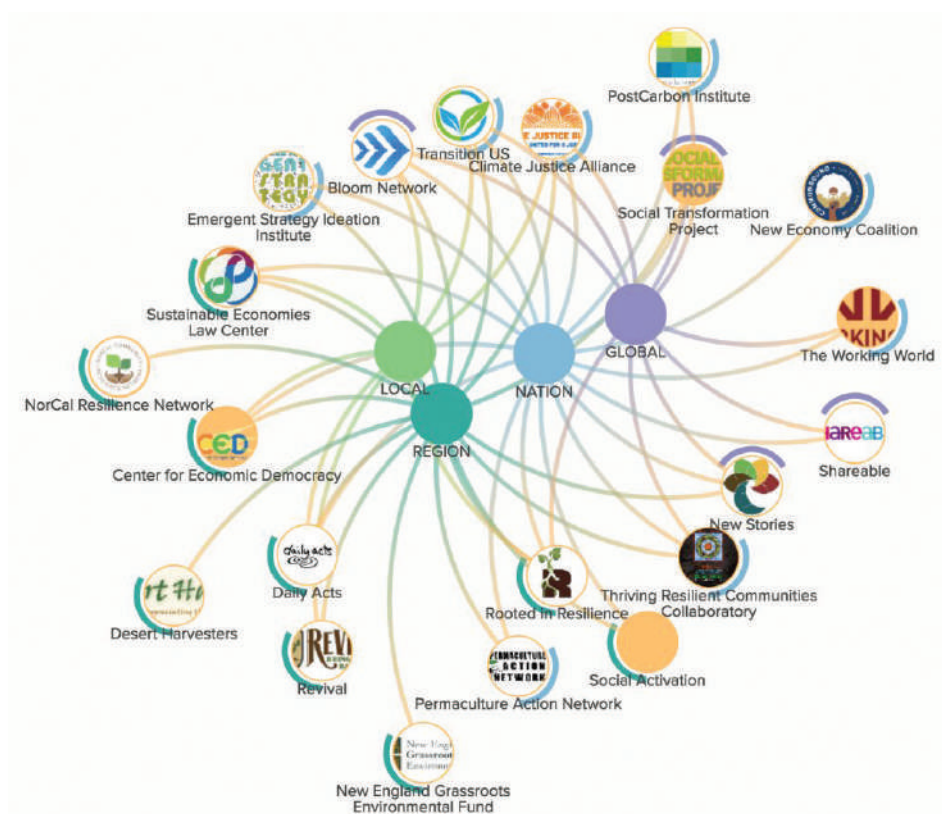


Figure 5: An example of a network map that indicates local, regional, national, and global partners
 (Source: <https://thrivingresilience.org/trcc-overview-kumu-map-guide/>)

4.4. Establish an evidence base of climate change risks, adaptation opportunities, and priorities

Information and data around climate change, its impacts, and possible responses are essential to inform and guide planning and decision-making. Reliable and trusted evidence needs to be available in a form that is relevant to planning and that offer sufficient detail at the right spatial and temporal scale. A clear understanding of the problem, and the availability of common sets of data (data covering various dimensions of development that is used in all long-term strategic planning across the municipality), provide a basis for constructive and transversal engagement. Assessing vulnerability, the likelihood of hazards to occur, and the exposure to these hazards (i.e., climate risk and climate risk zones), as well as developing climate response and adaptation actions, is an interdisciplinary exercise by technical people, complemented by research partners, networks, and external consultants, if necessary. Drawing from network partners and stakeholders across sectors, allows for the identification of synergies, co-benefits, and trade-offs across adaptation and mitigation efforts. See Section 5 and Box 7 for additional information on spatialising climate risk. Useful resources such as the DFFE's National Climate Risk and Vulnerability Assessment Framework (See Box 10), and the CSIR's GreenBook (See Box 11) provide useful frameworks and information to develop climate risk and vulnerability profiles with data and maps, and to identify appropriate response measures. The DDM Spatialisation Guidelines offer guidance on the spatialisation of development priorities, programmes, and budgets (CoGTA, 2023), proving an essential foundation of good planning practices for effective mainstreaming of CR&R.

Box 7: The planning-value of spatialised climate risk information

An implicit aim of climate change response, and in particular adaptation, is to reduce an area's, or system's, vulnerability, and exposure to climate-related hazards. However, insufficient knowledge on the state of the system and the impact climate change may have in disturbing the system, will make it difficult to facilitate effective decision making and response. Therefore, city decision-makers need climate information to understand the impacts of climate change on urban development and various systems, and to ultimately adapt to emerging and projected climate conditions. Moreover, "for cities to identify, prioritise and invest in climate adaptation and mitigation measures that are suitable to their context, relevant information is needed about climate patterns impacting on the city and GHG emissions profiles over time, historically and into the future" (Taylor, 2019, p. 6).

The mapping or spatialisation of climate risks can provide relevant climate information by refining and visually presenting key information and implications arising from complex interactions between the various components of climate risk. For instance, the spatial distribution of climate risk is unlikely to be uniform across a city. In addition to the frequency and spatial extent of a wide variety of hazards, risk is also determined by the exposure and pre-existing vulnerability of widely divergent social, economic, physical, and environmental systems, including ecosystems. Therefore, assessing a city's risk to climate hazards must consider these spatial differences in an evidence-based and integrated manner. And to efficiently address these spatialised risks, adaptation planning should be as spatially explicit as possible, to ensure the prioritisation of adaptation and mitigation actions in areas, i.e., within a city, that are most at risk from climate-related hazards.

Through translating climate information into familiar places and forcing a certain amount of simplicity in what can be readily displayed in a legible format, maps are an easier way for a variety of decision-makers to engage with climate information. They are also an effective way to strengthen risk perception and deepen understanding of the problem. Maps also provide a means to visualise temporal trends. Different users can use spatialised risk information to draw their own conclusions, therefore diversifying the range of possible adaptation and risk reduction measures as well as identifying different aspects of vulnerabilities. The spatialisation of climate risks makes it easier for planners and decision-makers to integrate such information into decisions. To effectively mainstream climate adaptation actions into municipal planning instruments and processes, it is necessary to package and present climate information in a way that links it with the city's priorities. Hence, the identification of climate risk zones.

(Adapted from Taylor, 2019; Midgley, et al., 2011 and Lieske, 2015)

4.5. Engage internal and external stakeholders

Climate change and its impacts are a cross-boundary concern and response requires coordination across spheres, scales, and planning mandates. It is difficult to get support in decision-making and planning processes in a multi-stakeholder and multi-sphere setting when dealing with long-term climate impacts which often have high levels of uncertainty. Cross-sectoral, as well as intergovernmental planning alignment and coordination is needed to ensure CR&R on the city- and regional-level. Internal and external stakeholders and partners are identified (see Recommendations 2 and 3) and need to be continuously engaged and included to:

- raise awareness,
- communicate the mandate and sense of priority from high-level authority,
- overcome issues of limited mandate,
- share and validate the climate risk assessment and evidence,
- involve stakeholders to prioritise risks and response measures,
- identify documents that need to be revised to integrate adaptation measures,
- identify resources to conduct the work, and
- establish a baseline for future monitoring and evaluation.

Bottom-up participatory approaches have shown to be effective in fostering networks and producing desired outcomes in the fields of climate change adaptation and mitigation, as well as disaster risk reduction. One example is the use of participatory media in collecting, reporting, analysing, and disseminating localised climate information, as well as to enable the active involvement of affected communities in climate change communication (Harris, 2014). Interdisciplinary and participatory approaches are useful for generating ideas and strategies, and allow for the inclusion of multiple perspectives (including those of marginalised groups), while bridging the gaps between experts, decision-makers, and stakeholders (Pulido-Velazquez, et al., 2022).

4.6. Draw up a climate change response plan

A dedicated climate change response plan is required to serve as a guide for all other plans and instruments, by setting out the climate response and resilience agenda for the city. It is recommended that the city's adaptation and mitigation agenda be captured in this plan as there are many co-benefits that can be realised when adaptation and mitigation measures are considered together (see Box 1). The Climate Change Act (Act No. 22 of 2024) requires municipalities to develop a climate response plan, informed by a climate change needs and response assessment. Although this is a legislated requirement only for metropolitan and district municipalities, all local municipalities would benefit from having such a dedicated climate response plan. The purpose of such a climate response plan is to identify responses that will address the root causes of vulnerability, reduce exposure to protect investments from climate risks, contribute to mitigation efforts, and increase long-term resilience. The climate change responses set out in this plan, should be integrated into other sector plans (see Recommendation 8). For the responses to be implementable they must:

- Be specific to a climate risk, a climate impact, a spatial area, and/or a sector,
- Suggest a target or an indicator to measure progress, either quantitatively or qualitatively,

- Be assigned to a primary implementer with specific responsibilities (see Recommendation 2 on preparing an institutional map),
- Be realistic and achievable given available resources (see Recommendation 9).
- Be able to be broken down into actionable steps or tasks,
- Where relevant, be spatially explicit and targeted,
- Have clear implementation timeframes, and
- Consider and address co-benefits and other possible implications.

The plan should conduct economic and feasibility analyses of adaptation or response efforts, identify responsible implementation parties, and include a baseline for implementing, monitoring, and evaluating these initiatives. Monitoring and evaluation should be done periodically and linked to learning and engagement. See Section 6 for a framework to evaluate the extent of mainstreaming.

4.7. Build capacity of stakeholders

Encourage inter-departmental collaboration, incentivise, and enhance capacity to mainstream climate response and adaptation measures. Technical skills and expertise around climate change response should be increased across sectors and departments to facilitate the use and interpretation of relevant climate evidence into programmatic and implementable responses. Capacity building can be facilitated through:

- Training programmes that build technical skills on climate science, impacts, mitigation, and adaptation strategies.
- Workshops and seminars that facilitate knowledge exchange and learning related to best practices, case studies, and practical tools for CR&R.
- Expert technical assistance in conducting climate risk assessments, developing climate response plans, and implementing CR&R projects.
- Awareness raising among certain stakeholder groups that focus on education of the impacts of climate change and the importance of climate responsive planning.

External and internal networks and partnerships offer access to essential resources to support knowledge sharing and capacity building (see Recommendation 3). Networks and partnerships can provide access to expertise, information, and funding for capacity building. A capacity building plan that outlines needs, goals, activities, and timelines are a useful tool to further guide capacity building in the municipality.

Box 8: C40 Cities Climate Action Planning Initiative

In response to the Paris Agreement, C40 Cities introduced the Climate Action Planning initiative with the aim of having every city develop and implement a climate action plan (CAP) by the year 2020. A CAP refers to an integrated and inclusive plan or strategy that addresses the need to reduce greenhouse gas emissions and adapt to climate change, while providing a wide range of social, environmental, and economic benefits. A city's CAP outlines the mechanisms for realising city-level climate ambitions and provides guidance for engaging relevant stakeholders. The key elements of a CAP include an assessment of existing conditions, a summary of climate risks, a GHG emissions inventory, as well as a detailed overview of the actions that cities intend to take over time to reduce emissions and enhance the city's resilience to climate change. Actions can range from reducing a city's vehicular emission and improving its building energy efficiency, to increasing its supply of green energy and strengthening its capacity to adapt to, and cope with, the unavoidable impacts of climate change. The C40 Cities' Climate Action Planning initiative was thus introduced to support the development and implementation of member cities' climate action plans. The various support tools and resources offered to cities include the C40 Cities Climate Action Planning Framework, the Vertically Integrated Action Tool (VIA Tool), the Governance Self-Assessment Resource, the Climate action for URban sustainability (CURB) scenario planning tool, the Adaptation and Mitigation Interaction Assessment tool (AMIA), the Action Selection and Prioritisation (ASAP); City CAP Monitoring, Evaluation and Reporting (MER) resources, as well as the Climate Action Planning Communications Toolkit. These tools and resources are intended to guide the development and implementation of CAPs by setting out the essential components of a CAP, and by providing an evidence-base to guide informed decision-making, as well as guidance on mainstreaming the CAP throughout key municipal structures, processes and systems, and across relevant sectors and departments. The resources are also intended to help cities identify and prioritise suitable actions, while also providing guidance on how to communicate the ambitions, strategies, and actions outlined in their plans to ensure successful implementation. For more information on the tools and resources offered through this initiative, and to access the CAPs of the various C40 member cities, visit the [Climate Action Planning Resource Centre](#).

4.8. Mainstream climate change response and adaptation into planning instruments

Based on recommendations in the climate change response plan, the second-to-last step is to mainstream CR&R and adaptation considerations (objectives, goals, actions, etc.) into integrated plans, sector plans, their associated budgets, and into monitoring and evaluation frameworks. Key instruments include the IDP and the SDF, together with relevant sector plans, to facilitate the operationalisation of CR&R considerations into projects, programmes, and other activities.

Box 9: Spatial Targeting Toolkit

The Spatial Targeting Toolkit is a reformulation and consolidation of the BEPP guidelines into a toolkit that covers the entirety of the Built Environment Value-Chain (BEVC). The Toolkit provides additional guidance on urban management and implementation.

The Toolkit set out several principles, one of which is to mainstream climate response and resilience across the BEVC. The guidelines captured in this document is integrated into the Spatial Targeting Toolkit and finds further operationalisation in the Toolkit. For more information visit <https://spatialtargeting.co.za/>.

4.9. Leverage existing and new revenue and income streams

Existing revenue and income streams can be leveraged where principles of CR&R are integral to municipal priorities, and objectives are integrated into programmes and projects. There are significant financial benefits to pro-active adaptation and making use of existing revenue and income streams. For example, undertaking maintenance and repairs on water provision infrastructure to reduce leaks and increase the efficient use of water, adapts to current water scarcity while also building resilience in a possibly drier climate future. Such maintenance and repairs that activate adaptation benefits could be funded through available departmental operational budgets. However, responding to the impacts of climate change can also have immediate financial implications and thus directly affects the financial sustainability of municipal planning and investment programmes. Municipalities would likely require more finance than currently available, and funding gaps may be too large to absorb through the revenue streams and capital reserves currently available to local government. To address these anticipated longer-term funding gaps, municipalities must access alternative funding and/or financing options to cover the gap between current revenue streams and reserves and the investment needed to design and implement climate responsive actions. By establishing a CR&R project pipeline, municipalities will be able to secure more finance through climate finance mechanisms.

(Recommendations adapted from Department of Cooperative Governance and Traditional Affairs, 2020; Global Commission on Climate Change, 2019; IPCC, 2014; Mogelgaard, et al., 2018; National Treasury, 2018; Pieterse, 2020; Reyner, 2010; UNEP, 2012).

5. Guidance on identifying climate risk zones (CRZs)

This Section of the Guideline provide additional guidance on identifying climate risk zones by first providing some background to where the concept emerged from and what climate risk zones are. A framework and the concepts that make up risk are then introduced, whereafter a step-by-step approach to identify climate risk zones is provided. Also see Box 8 on the planning-value of spatialised climate risk information.

Identifying climate risk zones in cities is a relatively novel concept. It was first proposed in the *2019/20 Supplementary Guidance Note on Integrating Climate Response Priorities into the BEPP* that was released by National Treasury's Cities Support Programme. In terms of the Guidance Note (p18), the aim of identifying climate risk zones is to “highlight the areas at highest risk from climate change impacts and to inform the required investment to adapt to these risks”. Limited guidance was provided in how to go about identifying climate risk zones at that time. The City of Tshwane was the first city to pilot a study into the identification of climate risk zones in 2020 (City of Tshwane, 2021). Based on the experience of the Tshwane study and subsequent endeavours in other cities, and well-established concepts around risk, this Guideline provides a framework and steps for identifying climate risk zones. As more cities attempt to identify climate risk zones, the concept and methodology can be refined over time to reflect new information and insight into climate risk zone identification.

The concept of Climate Risk Zones does not constitute the only example of spatialised climate risk information. For example, as part of the Climate Change Hazard, Vulnerability and Risk Assessment for the City of Cape Town, vulnerable areas in the city were spatially mapped out. The assessment includes both climate change risk hotspot maps for the current (2019), mid-future (2021-2050) and far future (2070-2099) time periods, as well as the identification and prioritisation of areas in need of action in the City. The risk hotspot maps are based on the IPCC's AR4 methodology for spatialising climate risk, while the concept of CRZs, presented in this Guideline, is premised on the IPCC's AR5 methodology (see the section below on the Framework for understanding risk) (OneWorld, 2018; OneWorld, 2019). Municipalities are encouraged to explore alternative approaches and frameworks for identifying climate risks and this Guideline presents only one proposed approach.

5.1. Defining a climate risk zone

Risk is defined as “the potential for adverse consequences of a climate-related hazard on lives, livelihoods, health and well-being, ecosystems and species, economic, social and cultural assets, services (including ecosystem services), and infrastructure” (Chen, et al., 2021, p1-64) Risk results from the interaction of vulnerability (of the affected system), its exposure over time (to the hazard), as well as the (climate-related) hazard and the likelihood of its occurrence” (IPCC, 2021).

A climate risk zone indicates a geographic area with a high or very high potential for adverse consequences resulting from the interaction of vulnerability, exposure, and one or more climate-related hazards.

Areas where multiple climate hazards overlap with vulnerable people, or assets, are of particular concern. Evidence has shown that considering multiple types of hazards, “reduces the likelihood that risk reduction efforts targeted at one type of hazard will increase exposure and vulnerability from other hazards, both in the present and in the future” (IPCC, 2012, p439).

“The most effective adaptation and disaster risk reduction actions are those that offer development benefits in the relative near term, as well as reductions in vulnerability over the longer term”

(IPCC, 2012, p439)

The spatial representation of climate risk zones provides cities with the scientific evidence necessary to prioritise actions to reduce the impacts of climate change in the most vulnerable areas. Areas that are at high or very high risk of experiencing more than one hazard should be prioritised for investment. Adaptation strategies should focus on implementing actions that will reduce the exposure of communities, infrastructure, assets, as well as ecosystems to the impacts of climate change and severe events. Actions should also focus on building long-term resilience.

Climate risk zones should be interpreted with acute contextual consideration. Climate risk zones offer a picture of where climate hazards overlap with exposure and vulnerability of people and/or assets. Climate risk zones must not be regarded as definitive boundaries outside of which climate risk does not exist. There are several uncertainties and data limitations that exist in each of the layers that make up a climate risk zone. It is for this reason that it is suggested to spatially consider each of the components that make up risk, before overlaying them to identify areas of highest risk. First and foremost, spatialised climate risk information should be used to facilitate robust engagement. See Recommendation 4.4 and Box 7 in the preceding section on the value of spatialised climate risk information.

Box 10: The National Climate Risk & Vulnerability Assessment Framework

An up-to-date Climate Risk and Vulnerability Assessment is essential to understanding and spatialising the current and future climate and its impacts on the metro (See Box 7). It is the findings from these assessments that should be incorporated and mainstreamed throughout urban planning instruments and processes. The National Climate Risk & Vulnerability Assessment Framework, published in 2020 by the Department of Forestry, Fisheries, and the Environment (DFFE) is an important resource and guide for the development or updating of such assessments. The Framework is intended to provide an overarching approach and guidance towards undertaking risk and vulnerability assessment using a suite of available methodologies and tools. The Framework should be consulted together with the guidelines set out in this document.

5.2. Framework for understanding risk

Risk implies the potential for adverse consequences resulting from the interaction of vulnerability, exposure, and a climate-related hazard. In the IPCC's 6th Assessment Report, it is recognised that risks may result from “dynamic interactions between climate-related hazards with the exposure and vulnerability of the affected human or ecological system to hazards” (Chen, et al., 2021, p. 64).



Figure 6: The interaction between the various components of risk, and where the opportunity for adaptation exists to reduce risk (adapted from the IPCC, 2014 and IPCC, 2021)

There are three central concepts to defining risk and climate risk zones. The three components are illustrated in Figure 6 and can be described as:

Climate hazards are a sub-set of natural hazards and a grouping of hydrological, climatological, and meteorological hazards. This includes the spatial extent and frequency of, among others, floods, fires, and extreme weather events such as extreme rainfall and extreme heat. Sometimes they are also referred to as hydro-meteorological hazards. The potential occurrence of a climate hazard may cause loss of life, injury, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources (Chen, et al., 2021). Climate hazards can increase in intensity and frequency with climate change.

Exposure implies the physical exposure of elements to a climate hazard. It is defined as the “presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected” (Chen, et al., 2021, p. 64).

Vulnerability is defined as the “propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt” (Chen, et al., 2021, p. 64). Vulnerability refers to the characteristics or attributes of exposed elements. i.e., elements that are exposed to potential climate-related hazards. Vulnerability is a function of sensitivity and capacity, where sensitivity refers to the susceptibility to be negatively impacted by a climate hazard, and where capacity refers to the potential or the ability to prepare for, respond to, and recover from a climate hazard impact.

It is important to note that each of these components are subject to uncertainty in terms of magnitude and likelihood, and that they can change over time and space. This change may be positive or negative and can be due to socio-economic and socio-spatial dynamics, or human intervention through adaptation, mitigation, or other risk management interventions (IPCC, 2021).

The risk equation is given as:

$$\text{Risk} = \text{Likelihood of a Hazard} \times \text{Exposure} \times \text{Vulnerability}$$

where

$$\text{Vulnerability} = \frac{\text{Sensitivity}}{\text{Capacity}}$$

(Adapted from UNDRR, 2017)

Box 11: The GreenBook

The GreenBook is a multi-disciplinary, open-access planning support system developed by the CSIR, providing evidence to South African municipalities to adapt their cities and towns to current and future climate change impacts based on their risk profiles. In the development of the GreenBook various studies were undertaken related to climate change, vulnerability, population growth, the impact of climate change on certain resources and sectors, and the occurrence of certain climate-related hazards. The GreenBook provides all local municipalities with baseline and future climate risk and vulnerability profiles. There are additional more detailed profiles for some metropolitan municipalities. The GreenBook also provides a library of climate change adaptation actions that are specific to local government’s planning mandate. The aim of the GreenBook is to be used to drive forward local government climate change response efforts to ensure more resilient and better prepared cities and towns in South Africa. The GreenBook Planning Support System consist of several components and tools including the National Overview Web Apps, the Municipal Risk Profile Tool, the Adaptation Actions Tool, and the MetroView Climate Risk Profile Tools and Climate Actions Tools. With the support of partners, the GreenBook offers planning support and training to facilitate uptake and mainstreaming of the GreenBook into planning. For more information visit <https://greenbook.co.za/>

5.3. Identifying climate risk zones

Determining climate risk zones can be broken down into the steps captured below. Figure 7 provides an illustrative example of this process.

Step 1: Map the likelihood of a hazard to occur

Mapping hazards, or specifically climate hazards, involves identifying the spatial extent and likelihood of such a hazard to occur. Climate hazards, among others, can include floods, wildfires, coastal flooding and erosion, and extreme weather events such as extreme rainfall and heat extremes. Domain-specific expert input and modelling will be required to identify the spatial extent and the likelihood of specific climate hazards. The likelihood of a specific hazard occurring can be classified as unlikely, about as likely as not, likely, or very likely (IPCC, 2012). The hazards and extreme events that are prioritised for modelling and mapping should be guided by the climate risk and vulnerability assessment (See Box 10), municipal priorities, and through engagement with internal and external stakeholders.

Box 12: Dealing with drought

It is not recommended to develop a climate risk zone for drought. Hydrological drought is very likely to affect the entire population of a city if they have a centralised water supply, as opposed to certain wards or neighbourhoods in a city (as in the case of flooding). The likelihood of drought to occur is therefore modelled for an entire region and will not emerge nor be displayed as a cluster of probable drought occurrences scattered across several areas within a city. People's vulnerability to drought within a city may vary due to different coping capacities. Mitigating the impact of drought often requires a set of city-wide, regional, and national interventions. See *Unpacking the Cape Town Drought: Lessons Learned*, published by the African Centre for Cities, that provides an account of the governance of the drought in Cape Town between 2015 and 2018 and offers useful lessons for other municipalities.

Step 2: Map exposure

Elements that may be exposed to hazards need to be identified and mapped. Elements can include people, infrastructure, and certain environmental assets. Exposed elements should be identified, categorised, and mapped in relation to one or more hazards. Exposure of elements to a hazard can be quantified, e.g., number of people, area of land, kilometres of road, etc.

Step 3: Map vulnerability

The vulnerability of exposed elements should be explored and mapped. Vulnerability can be broken down into relevant categories or indicators of vulnerability unique to each element. Vulnerability talks to the attributes of certain elements such as people, and different types of infrastructure, that affect their susceptibility to be harmed (sensitivity) as well as the ability to overcome or avoid adverse impacts and losses from the occurrence of climate hazards (capacity). The vulnerability indicators for each exposed element should be quantified and/or classified and informed by available data.

Step 4: Overlay hazards, exposure, and vulnerability to identify climate risk zones

When the spatial extent of a hazard is overlaid with the elements that are exposed, and their relative vulnerability – a climate risk zone is identified for a specific hazard. A climate risk zone per hazard can be developed and can be overlaid to indicate a multi-climate risk zone map. A risk matrix can be applied to determine where the risk is very high, high, low, and very low.

Identifying future climate risk zones

Where possible, the effect of climate change on the future extent and location of current climate risk zones, should be explored. Future risk scenarios can be used based on socio-economic trajectories, and possible climate futures. The likelihood of certain hazards to occur into the future can be modelled using climate change projections as input. Downscaled climate models, as opposed to outputs from global climate models, should be used as input into risk assessments to ensure contextual relevance. Consideration should also be given to the emission scenarios for which climate change is projected. Future exposure is driven by population growth, and urban expansion which can be modelled, while vulnerability is driven by socio-economic change and policy dynamics which are more difficult to account for. However, to be able to understand future risk and to assemble an evidence-base that could support planning and decision-making, some, or all the elements of climate risk zones for the future could be unpacked. Potential future hazards, exposure and vulnerability can be quantified and modelled where the data is available but should be supported with narratives and local knowledge. There are inherent uncertainties in modelling future risk, and these should be acknowledged and accounted for during each step of the process.

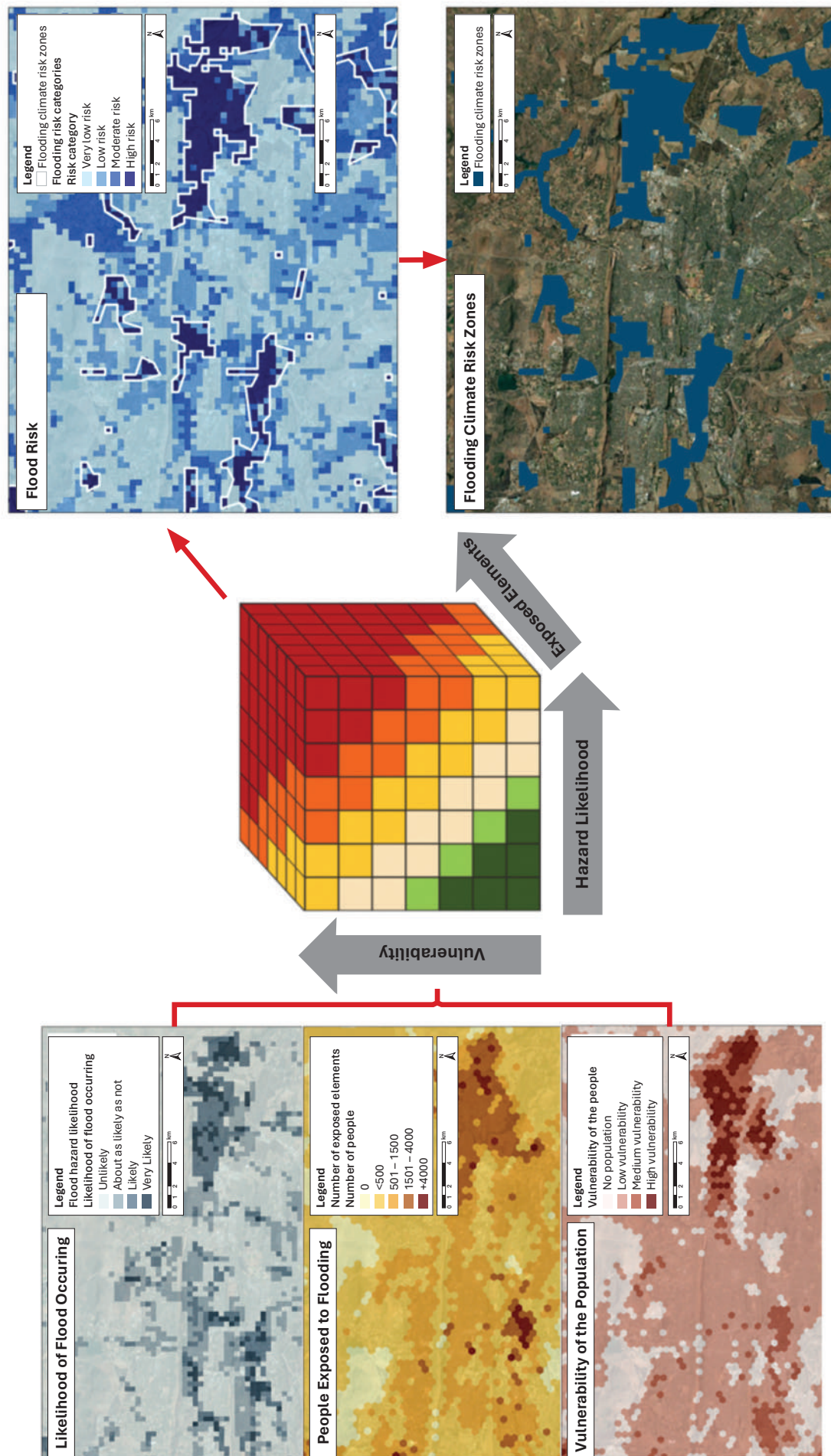


Figure 7: Illustrative example of climate risk zones

6. Evaluate mainstreaming: Assessment considerations

The outcomes and lessons of the assessments of municipal planning documents were discussed under Section 3. The assessment considerations set out below reflect the lessons learnt over the three assessment cycles. The assessment considerations also integrate the recommendations and guidance from Sections 4 and 5.

These assessment considerations can be used by municipalities to evaluate the extent to which CR&R principles are mainstreamed within their planning operations, policies, and plans. These assessment considerations can be used not only to establish a baseline for evaluating the integration of CR&R principles but also for continuous monitoring of progress. By regularly applying these considerations, municipalities can track their advancements, identify areas for improvement, and ensure that CR&R priorities remain integrated into their urban planning efforts over time. Additionally, these considerations can serve as a valuable tool for stakeholders and national departments engaging in joint planning and reporting with local municipalities.

The progressive mainstreaming of CR&R priorities into urban planning should be assessed through meaningful dialogue between municipalities and other stakeholders. To ensure a comprehensive and fair assessment, municipalities should have the opportunity to respond to these considerations. Sharing learning and experiences among municipalities can further facilitate peer-to-peer learning, enhancing the overall resilience of urban areas to climate change impacts.

1. Climate change response and resilience inform guiding principles and outcomes.
1.1. CR&R is part of the vision, strategic priorities, and/or theory of change. Evidence of integration and consideration found in strategic planning documents such as the City Development Strategy (CDS) or the Growth and Development Strategy (GDS).
1.2. The spatial vision contained in the SDF includes and considers CR&R priorities. The spatial vision is mirrored in the IDP, and relevant sector plans.
1.3. CR&R are included in the problem statement or situational analysis of the SDF, IDP, and sector plans, and bear on the desired impacts and outcomes.
2. Climate change response and resilience guide spatial prioritisation and targeting.
2.1. Climate risk and vulnerability information guide the identification and prioritisation of spatial targeting areas.
2.2. Climate risk zones are included in the SDF, other spatial plans, and relevant sector plans.
2.3. The most vulnerable communities, informal settlements, economic nodes, and infrastructure, and other assets are identified. Evidence that this information is integrated into the relevant sector plans, SDF, IDP and decision-making tools, processes, and structures.
3. Climate change response and resilience priorities effected through interventions.
3.1. Goals and outcomes for spatially targeted areas are actioned through climate change response and resilience projects and interventions, i.e., climate change adaptation and mitigation projects.

3.2. Climate risk zones are considered in the prioritisation of programmes, projects, and interventions in spatially targeted areas.
4. Resource mobilisation for climate change response and resilience.
4.1. Identify additional investment, fiscal support or human capital/expertise needs in support of CR&R priorities.
4.2. Officials with CR&R expertise are identified and their roles in support of spatial targeting and investment planning are clear and included in performance agreements.
4.3. Intentions are demonstrated to pursue and progressively increase access to climate finance. Existing and potential future alternative revenue and income streams are identified.
4.4. CR&R is integrated into project pipelines and budgets.
5. Climate change response and resilience goals and outcomes are actioned through institutional arrangements.
5.1. CR&R experts are included in relevant transversal planning structures and their roles, and the extent of their involvement is demonstrated.
5.2. Mechanisms are established to institutionalise climate change response and resilience in spatial targeting and in the project pipeline. Arrangements are captured in agreements with specific targets, including individual performance plans.
6. Climate change response and resilience is integrated into the monitoring and evaluation, and reporting frameworks.
6.1. Agreed CR&R indicators are incorporated into monitoring and evaluation frameworks.
6.2. CR&R is incorporated into relevant reporting frameworks and learning networks.

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Annexure A: Background to the development of the Guidelines

Introduction

The 2019/20 *Supplementary Guidance Note on Integrating Climate Response Priorities into the BEPP* was prepared by National Treasury's Cities Support Programme (CSP) to guide metropolitan municipalities in the preparation of their 2019/20 – 2021/22 Built Environment Performance Plans (BEPPs) to include climate change responsiveness and resilience (CR&R) priorities. Based on the Supplementary Guidance Note, an assessment framework was introduced to incrementally measure the extent to which metros are integrating CR&R into their BEPPs and their planning processes such as spatial planning, integrated development planning, and infrastructure investment planning (i.e., mainstreaming). The assessment framework and the Supplementary Guidance Note acted as mechanisms to assess metro-specific challenges and opportunities for mainstreaming. They also allowed the CSP to offer support to metros to improve capability to plan for CR&R so that urban development, services, and infrastructure are resilient to the impacts of climate change, and to support the transition to a low carbon economy and resource efficient cities.

However, the BEPP was never intended to be a permanent addition to the existing number of plans in the local government planning system and was meant to reform planning to the extent that spatial transformation outcomes could be achieved. The BEPP as a required plan, was terminated from 2021/22, but the use of the outcomes-led planning approach and strategy-led budgeting continues to be institutionalised. See the *Guidelines for transitioning out of planning reforms and BEPPs to sharpen the planning tools*, for more information.

Given the transitioning out of BEPPs and the sharpening of planning tools, the CSP undertook an update of the Supplementary Guidance Note to be able to speak to the wider range of strategic planning processes and their instruments, to provide more guidance in terms of spatialising climate risk and integrating it into planning, to be extended to intermediary city governments, and to align with current guidelines and frameworks for the development of term-of-office (i.e., the Integrated Development Plan) and long-term plans (i.e., the Spatial Development Framework). The 2019/20 Supplementary Guidance Note brought forward the relevance and importance of integrating CR&R into planning, budgeting, and reporting to strengthen the overall application of the Built Environment Value Chain in pursuit of more productive, inclusive, and sustainable metros that contribute to economic growth and a reduction in poverty and inequality. The Supplementary Guidance Note set out that “metropolitan municipalities have to mainstream climate change in their budgetary processes, especially in the context of maintaining the value-for-money of built infrastructure, protecting investments from risk of climate-change driven damage and loss, and promoting the health of municipal revenue sources” (p.12). Further to the 2019/20 Supplementary Guidance Note, this update takes another step forward to leveraging spatial planning as a key avenue to anticipating change and responding to the impacts of climate change in urban spaces across municipalities in South Africa.

Progressive assessment of mainstreaming in metros from the 2019/20 – 2021/22 MTREF

The *Supplementary Guidance Note on Integrating Climate Response Priorities into the BEPP for the 2019/20 to 2021/22 Medium Term Revenue and Expenditure Framework (MTREF)* introduced progressive requirements for integrating CR&R into the BEPP. All the metros were evaluated and reviewed and provided with annual feedback in terms of their progress with implementing the Supplementary Guidance Note.

Based on the requirements set out in the 2019 Supplementary Guidance Note, an assessment framework was developed, and the metros were assessed across the 2019/20 to 2021/22 MTREF. The assessment framework was developed to incrementally measure the extent to which metros are integrating CR&R into their BEPPs and their planning processes (i.e., mainstreaming). The assessment framework was a mechanism to identify city-specific challenges and opportunities for mainstreaming and for CSP to be able to offer support to cities and to improve city capability to plan for CR&R so that urban development, services, and infrastructure are resilient to the impacts of climate change, and to support the transition to a low carbon economy and resource efficient cities. See the detailed progressive assessment criteria that was put forward as part of the 2019 Supplementary Guidance Note for the 2019/20 – 2021/22 MTREF at the end of this section.

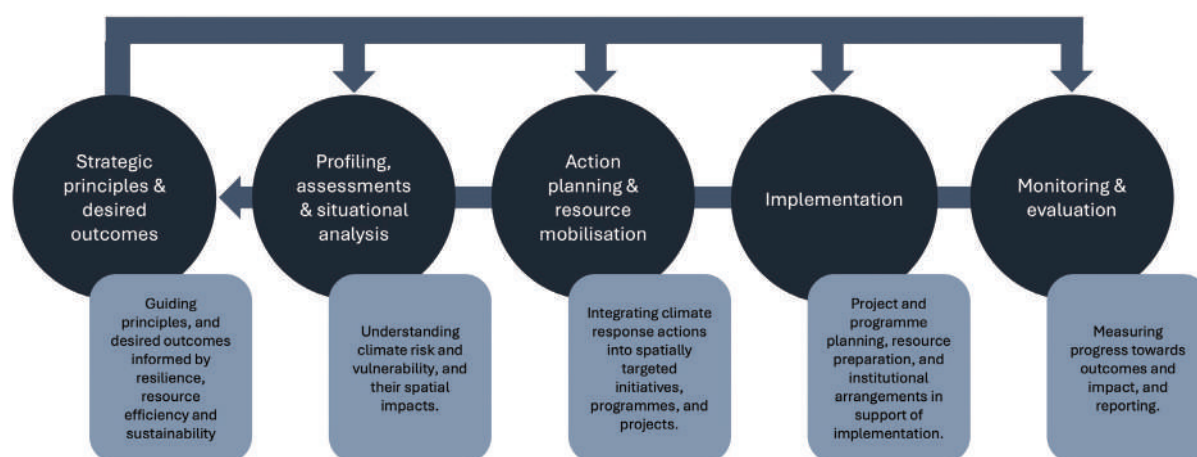


Figure 8: Assessment framework for the mainstreaming of CR&R into metropolitan planning (Adapted from Pieterse et al., 2021).

The assessment considerations in relation to the steps in the planning process are illustrated in Figure 8. The main assessment considerations for the assessments that took place between 2019/20 and 2021/22 were:

- Climate change response and resilience reflected in guiding principles and strategies: Standardised section on metropolitan municipalities' response to its climate risks, including reference to strategies and plans, and how climate change is strategically and transversally institutionalised within the organisation and incorporated into the drafting of the BEPP.
- Climate change response and resilience reflected in desired outcomes: Incorporate CR&R into the identification and prioritisation of spatial targeting areas through undertaking climate risk and vulnerability assessments and applying the findings from these assessments to the priority spatial targeting areas (integration zones, marginalised residential areas, economic nodes, prioritised precincts etc.).
- Critical assets that are most at risk and/or exposed to climate impacts are identified, including infrastructure and communities: Incorporate CR&R into the identification and prioritisation of spatial targeting areas through climate risk and vulnerability assessment and identification of associated climate risk zones.
- Interventions that support climate change response goals and outcomes are identified, i.e. climate change adaptation and mitigation measures and interventions: Incorporation of CR&R considerations into the identification and prioritisation of the Catalytic Land Development Programmes. Link precinct management with existing and relevant disaster management planning.
- Additional investment, fiscal support or human capital/expertise is identified in support of climate change response and resilience: Incorporation of climate change experts into relevant forums and decision-making structures responsible for city's project pipeline. Identify and package projects to facilitate access to climate finance.
- Climate change response and resilience goals and outcomes are actioned through institutional arrangements: Identify/confirm incorporation of CR&R and Disaster Risk Management experts within transversal arrangements for planning and implementation in the priority spatial targeting areas.
- Climate change response and resilience goals and outcomes are reflected in a monitoring and evaluation framework: Incorporate CR&R considerations into city transformational and reporting reform indicators. Review and evaluate how mainstreaming is being implemented to learn lessons to further institutionalise the system.

The first round of assessments was of the 2019/20 Council Approved BEPPs only. All eight metros completed BEPPs in this year. During the following year in 2020/21, both Cape Town and Johannesburg transitioned out of the BEPP, and did not submit a BEPP. For the remaining six metros, the 2020/21 BEPPs were assessed, and feedback was provided. In the case of Cape Town and Johannesburg, the suite of available strategic planning documents was assessed using the same assessment framework. For the 2021/22 period assessments, a range of planning documents were considered for all the metros and included the IDP, the SDF and the Growth and Development Strategy (GDS) or City Development Strategy (CDS).

It is important to note that the assessments only considered published planning instruments such as the BEPP, IDP, SDF, GDS, CDS and some sector plans. The assessment was only able to account for the information captured in these documents.

Assessment consideration (criteria)	Content requirements as per CR BEPP Guidance Note		
	Year applicable & detail expected		
	2019/20	2020/21	2021/22
1. Climate change response and resilience reflected in guiding principles and strategies.	<i>Standardised section on metropolitan municipalities' response to its climate risks, including reference to strategies and plans, and how climate change is strategically and transversally institutionalised within the organisation and incorporated into the drafting of the BEPP.</i>		
1.1. The spatial vision reflects or considers climate change response and resilience, informing spatial targeting.	Insert a paragraph that succinctly sets out the City's whole-city climate change profile and risks, and where in the BEPP these risks are addressed.		
2. Climate change response and resilience reflected in desired outcomes.	<i>Incorporate CR&R into the identification and prioritisation of spatial targeting areas through climate risk and vulnerability assessment and application of the findings from this assessment to the priority spatial targeting areas (integration zones, marginalised residential areas, economic nodes, prioritised precincts etc.).</i>		
2.1. Spatial targeting goals and outcomes for integration zones reflect climate change response and resilience.	Insert weblink in BEPP to the City's Climate Risk and Vulnerability Assessment. Incorporate a paragraph in the section that demonstrates how the City has applied the findings of its Climate Risk and Vulnerability Assessment to its spatial targeting.		Demonstrate how the guidelines have been applied to the planning for priority spatial targeting areas.

Assessment consideration (criteria)	Content requirements as per CR BEPP Guidance Note		
	Year applicable & detail expected		
	2019/20	2020/21	2021/22
3. Critical assets that are most at risk and/or exposed to climate impacts are identified, including infrastructure and communities.	<i>Incorporate CR&R into the identification and prioritisation of spatial targeting areas through climate risk and vulnerability assessment and identification of associated climate risk zones.</i>		
3.1. At-risk marginalised areas and informal settlements are identified.		Compilation of necessary baseline information (GIS layers) to inform the identification of climate risk zones within spatial targeting areas.	Identification and mapping of climate risk zones.
3.2. At-risk economic areas are identified.			
3.3. At-risk key infrastructure is identified (i.e. transport infrastructure, ICT infrastructure, water infrastructure, stormwater infrastructure etc.).			
4. Interventions that support climate change response goals and outcomes are identified, i.e. climate change adaptation and mitigation measures and interventions.	<i>Incorporation of CR&R considerations into the identification and prioritisation of the CLDP. Link precinct management with existing and relevant disaster management planning.</i>		
4.1. Spatial targeting goals and outcomes for integration zones are actioned through climate response and resilience projects.			Consideration of climate risk criteria in the prioritisation of projects in spatial targeting areas. Demonstrate how the guidelines have been applied to the planning for priority spatial targeting areas
4.2. Climate risk criteria is considered in the prioritisation of programmes and interventions in spatial targeting areas.			

Assessment consideration (criteria)	Content requirements as per CR BEPP Guidance Note		
	Year applicable & detail expected		
	2019/20	2020/21	2021/22
5. Additional investment, fiscal support or human capital/ expertise is identified in support of climate change response and resilience.	<i>Incorporation of climate change experts into relevant forums and decision-making structures responsible for city's project pipeline. Identify and package projects to facilitate access to climate finance.</i>		
5.1. The role of officials with climate change expertise are identified in support of infrastructure investment planning.	Indicate the role of officials with climate change expertise in infrastructure investment planning. Amend ToRs of relevant structures as required to make provision for the inclusion of climate change experts.		
5.2. Intentions demonstrated to pursue and progressively increase access to climate finance where appropriate.		Describe the city's multi-year strategy for progressively increasing access to climate finance.	Demonstrate the City's multi-year strategy to initiating or increasing access to climate finance to expand the resources available to the City to invest in CR&R infrastructure.
5.3. Climate change response and resilience is integrated into the implementation of the CLDP.		Demonstrate how the City will integrate CR&R concerns in its implementation of the CLDP.	
6. Climate change response and resilience goals and outcomes are actioned through institutional arrangements.	<i>Identify/confirm incorporation of CR&R and Disaster Risk Management experts within transversal arrangements for planning and implementation in the priority spatial targeting areas.</i>		
6.1. Climate change experts are included in relevant structures and the extent of their involvement is demonstrated.		Demonstrate extent of CR&R personnel and expertise in the city's BEPP Forum (or similar structure).	

Assessment consideration (criteria)	Content requirements as per CR BEPP Guidance Note		
	Year applicable & detail expected		
	2019/20	2020/21	2021/22
6.2. Mechanisms to institutionalise climate change response and resilience in spatial targeting are included.		Identify mechanisms that have been set up at city level to institutionalise CR&R. Include terms of reference of relevant mechanisms.	Attach minutes and key decision from relevant mechanisms reflecting the institutionalisation of CR&R in spatial targeting.
6.3. Climate change response and resilience related projects are identified stemming from the implementation of the CLDP.		Demonstrate how the City will integrate CR&R concerns in its implementation of the CLDP.	Identification of CR&R related projects stemming from the implementation of the CLDP.
6.4. Institutional changes effected to prepare for the application of climate change response and resilience to the pipeline are demonstrated.			Demonstrate specifically the institutional changes effected to prepare for the application of the CR&R Project Toolkit to the City's pipeline
7. Climate change response and resilience goals and outcomes are reflected in a monitoring and evaluation framework.	<i>Incorporate CR&R considerations into city transformational and reporting reform indicators. Review and evaluate how mainstreaming is being implemented in order to learn lessons to further institutionalise the system.</i>		
7.1. Agreed climate change response and resilience indicators incorporated into reporting.		Incorporate agreed CR&R indicators into City reporting, noting that the timing of this intervention would need to align with the review of Circular 88	Institutionalise outcomes from BEPP evaluation

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