VOLUME 2

CITY DIPLOMACY PAPERS

South African CitiesNetwork

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Introduction

Lwazi Sikiti, South African Cities Network

The South African Cities Network (SACN) International Relations (IR) Forum is a joint initiative of the SACN and eight of the largest cities in South Africa. Its primary purpose is to engage in and develop a collective city agenda that clearly positions South African cities within global and national contexts and debates. The research, engagement and learning coming out of the IR Forum are meant to assist cities in implementing international and national urban policy frameworks by aligning their respective city strategies.

Internationally, there has been a growing recognition of the important role that city diplomacy plays in the development of nation-states. To be effective, city diplomacy must first and foremost serve the core purpose and objective of local government, i.e., to improve the lives of citizens. Although still a developing practice, city diplomacy generally involves activities such as building city networks, sharing experiences and best practices through dialogue and learning exchanges, cooperating among international private and public organisations, and creating networks of mayors and local government bodies. As currently practised, city diplomacy manifests in several key dimensions, including (but not limited to) development, economy, climate change/resilience initiatives, and sports, arts and culture. City diplomacy should not be seen as competing and/or undermining national government's diplomacy but rather as a complementary effort to further enhance South Africa's diplomacy, global image and influence. As city diplomacy continues to grow and mature, it will no doubt alter established diplomatic processes, and so the goal should be to understand and harness its power to promote South Africa's interests actively on the global stage.

The objective of this working paper series is to inform and encourage city stakeholders to engage critically and practically on the meaning of city diplomacy, and to translate this understanding into practice. The papers are intended to outline and capture a set of perspectives that will form the basis for robust engagement and debate about the state of city diplomacy in South Africa, and how it can be enhanced and leveraged to advance the global interests of South African citizens, more so given the devastating impact of COVID-19.

The papers are aimed at city practitioners engaged in international relations; local governments; local city leaders, including city mayors, councillors and managers; provincial governments and bodies; national governments, including the departments of cooperative governance and traditional affairs, international relations and cooperation, trade and industry, environment, forestry and fisheries, human settlements and transport; research and academia; and business and civil society (especially organisations advocating for the recognition of the expanding role of cities in international relations).

This second volume contains papers that look at city diplomacy through the lens of national diplomacy, the implementation of effective city-to-city cooperation and learning, city diplomacy and climate change, and city diplomacy and data-driven development.

Overview of the papers

City diplomacy is not a new concept, but cities are playing a more substantial role in international diplomacy because of rapid urbanisation, global migration and climate change. This has led to foreign diplomatic missions focusing on cities and supporting local initiatives and projects that can be implemented in a visible and tangible manner. In their paper, "City Diplomacy through the Lens of National Diplomacy: Tactics and experiments", Rashiq Fataar and Helene Botha examine city diplomacy and its tools through four foreign diplomatic missions in South Africa: Denmark, the Netherlands, the United Kingdom and France. They find that trade and investment is increasingly a focus of city diplomacy, as cities such as Johannesburg, Tshwane and Cape Town have become economic powers in their own right and offer opportunities for trade partnerships. They also find that foreign missions are supporting urban sustainability projects, as cities now play a crucial role in mitigating and adapting to climate change. The paper provides ideas for leveraging city diplomacy and calls on cities to take advantage of the opportunities that are available to support sustainable and inclusive urban development.

One opportunity is for greater cooperation among cities, which is expanded upon in the paper by the Urban Futures Centre, "A Guide to Implementing City-to-City Cooperation & Learning in South Africa". This paper offers a hands-on guide for local government practitioners who are grappling with urban challenges and are seeking tools to engage with other cities that may have found solutions to similar challenges. It proposes a three-phase framework for guiding city-to-city cooperation and ten critical success factors for city-to-city

learning. The authors argue that cities need to be bold and experimental, to incorporate an appetite for risk-taking and innovation into their organisational culture, and to take advantage of the national and international learning resources that are available.

An area where South African cities can learn (and are learning) from each other and their international counterparts is climate change mitigation and adaptation. Safiyyah Aboo's paper, "City Diplomacy and Climate Change", provides an overview of South Africa's international commitments, national policies and strategies, and local plans related to climate change. It shares the progress made by some of South Africa's metros, which are active in international networks, such as the C40 Cities, and have developed Climate Action Plans (CAPs). Their experience provides other cities with a useful learning tool for developing mitigation and adaptation plans and for accessing funding (directly or by leveraging national government's access to international funders) in order to develop sustainable and resilient cities.

Development processes and practices are increasingly driven by data, and cities are where data-driven policies and operations could have the greatest developmental impact. The final paper by Malindi Neluheni, David Monyae and Sizo Nkala, "City Diplomacy and Smart Cities: Exploiting data for development", discusses the approach to data-driven development and smart cities in South Africa and the challenges facing cities. It looks at the state and evolution of data governance globally, as well as the global governance issues that cities will need to deal with. The paper identifies the requirements for successful city diplomacy and the strategic stakeholders with whom cities could engage, as they seek to create smart urban systems to serve their residents.

City Diplomacy through the Lens of National Diplomacy: Tactics and experiments

Rashiq Fataar and Helene Botha

Introduction

The concept of city diplomacy is not new, but cities are playing a more substantial role in international diplomacy due to rapid urbanisation, global migration and climate change (Acuto et al., 2021). Cities are finding a platform to engage in the multi-layered diplomatic environment through networks, such as ICLEI[1] and C40[2]. They are becoming the focal points for on-the-ground action, as topics such as climate change and resilience become important focus areas of national diplomatic strategies (Van der Pluijm & Melissen, 2007). In response to these shifts in national diplomacy, city diplomacy is also evolving. And in a post-pandemic world, new forms of city diplomacy will be key in driving urban sustainability and the climate transition.

The greater emphasis on city diplomacy presents an opportunity for diplomatic missions in global cities to take a different strategic approach (Kosovac & Pejic, 2021). Recognising the importance of city diplomacy in driving national diplomacy efforts, foreign diplomatic missions (embassies and consulates) are focusing more on cities, in particular on the role played by cities and municipalities in implementing projects and initiatives that address local and context-specific urban challenges. Therefore, foreign diplomatic missions are starting to look at cities and municipalities, where projects and initiatives can be implemented in a visible and tangible way, instead of at traditional national government implementation of programmes, as part of bi-lateral diplomatic and trade agreements. This approach also gives embassies and consulates the opportunity to implement smaller-scale projects with smaller budgets but greater impact.

This paper examines city diplomacy and the tools that form part of the city diplomacy strategies, through four foreign diplomatic missions in South Africa: Denmark, the Netherlands, the United Kingdom and France. It explores potential links to city diplomacy through national programmes of the four selected foreign missions, looking at relationships, stakeholders, benefits, and barriers and opportunities. It then provides some lessons on how cities could leverage city diplomacy for urban development and concludes with reflections on the benefits of city diplomacy for both cities and the country.

City Diplomacy: Definition and 'tools'

Diplomacy can be described as the "mediated relations between representatives of polities", which are traditionally states but have evolved to include a range of non-state actors and the relations "between these [polities] and other non-governmental political actors" (Acuto et al., 2016: 6). Non-state actors include both those with a non-territorial character, such as non-governmental organisations (NGOs), multinational organisations and those with a territorial character, such as states in a federal system, regions and cities (Van der Pluijm & Melissen, 2007).

City diplomacy can be defined as "the institutions and processes by which cities engage in relations with actors on an international political stage with the aim of representing themselves and their interests to one another" (ibid: 22). Given this definition, there are clearly various forms of city diplomacy which depend on the actors involved and the types of relationships formed. The various 'tools' of city diplomacy include bilateral agreements, city networks, bilateral and multilateral projects, international events and international advocacy (Kihlgren Grandi, 2020).

[1] ICLEI – International Local Governments for Sustainability is a global network of more than 2500 local and regional governments committed to sustainable urban development. https://iclei.org/

[2] C40 Cities is a global network of mayors taking urgent action to confront the climate crisis and create a future where everyone can thrive. https://www.c40.org/

Bilateral agreements

In the mid-20th century, bilateral or 'twinning' agreements started developing, as a collectively organised form of city cooperation. Based on a memorandum of understanding (MoU) between two cities, a formal agreement is drawn up to denote the special relationship between the two cities. Initially, these agreements served as international instruments of friendship and cultural exchange, but they have evolved to focus more on trade and economic development. For both cities and their national governments, these agreements provide "a gateway to new markets and products; sport, art, educational and cultural exchanges (and increasing tourism); technology and know-how transfer; and development assistance" (De Villiers, 2005). As the agreements tend to be vague, cities are able to adapt them according to their priorities, which allows many cities to cooperate on issues not formally mentioned, such as climate change and COVID-19 (Acuto et al., 2021). Although these agreements form part of the city diplomacy landscape in South Africa, this paper focuses on the projects and initiatives that form part of these agreements, which are where the on-the-ground impact happens.

City networks

In the 1990s, city networks started to emerge as informal organisations that facilitated cooperation among cities and among cities and other private or public entities (Kihlgren Grandi, 2020). These networks gave cities the platform to influence global policy debates and have consequently increased the influence that cities have on global governance. "[B]y coming together in transnational networks, cities have offered the possibility of an emergent political assemblage that can offer forms of governance that can match the scale and complexity of global challenges" (Curtis & Acuto, 2018: 12). For example, city networks are replacing nation states as the driving force behind climate change policy development and implementation strategies (Curtis & Acuto, 2018). City networks that are important players in urban sustainability, resilience and climate change include:

- The Global Covenant of Mayors for Climate & Energy (GCOM), which is the largest global alliance for cities and local governments committed to combating climate change.
- ICLEI – International Local Governments for Sustainability, which is a network of local and regional governments committed to sustainable urban development.
- C40 Cities Climate Leadership Group, which is a global network of cities committed to delivering on the most ambitious goals of the Paris Agreement at local level.
- Resilient Cities Network, pioneered by the Rockefeller Foundation, which focuses on cities and projects that share a common lens for holistic urban resilience.

In South Africa, these networks play a role in city diplomacy, not only because South African cities belong to some of these networks but also because these networks are, in some cases, stakeholders or partners in city diplomacy projects (the Netherlands and Denmark) or form part of city diplomacy strategies (UK and France).

Bilateral and multilateral projects

Bilateral and multilateral projects are short to middle-term international projects where municipalities engage with one or more foreign partners to "harness city diplomacy's potential to impact the city positively" (Kihlgren Grandi, 2020: 16). Such projects often focus on creating new partnerships and introducing innovative solutions by exchanging best practices, introducing new technologies and initiating pilot projects. Unlike bilateral and multilateral agreements, these projects are set within a shorter and more specific timeframe, with goals that address the needs of the cities involved (Kilgren Grandi, 2020). Not all of the projects that form part of this paper are directly linked to bilateral agreements. A variety of projects and initiatives have been included to understand the avenues pursued by embassies and consulates and how these form part of their diplomatic strategy. The broader range of projects also reveals more about the diplomatic relationships and avenues that South African cities and municipalities pursue within their geographical boundaries.

International events and international advocacy

International events can be recurring, hosted by specific cities (e.g., the Cannes and Venice film festivals or the Cape Town Cycle Tour) or itinerant (e.g., the Olympic Games or the FIFA World Cup). These events provide opportunities for cities to boost their international profile and their local economies in the short and (ideally) long term (Kilgren Grandi, 2020). Cities often engage in international advocacy through city networks and advocacy campaigns related to, for example, human rights or climate change, which are not always aligned to the will and action of their national government (ibid.).

These various 'tools' form part of the diplomacy strategies of cities and local municipalities, as well as foreign diplomatic missions that are located within these cities.

Foreign National Diplomacy in South Africa

In South Africa, trade and investment is increasingly a focus of city diplomacy. Although developmental diplomatic aid is available through various channels for countries in Africa, foreign diplomatic missions view their diplomacy in South Africa through a developmental and economic lens that goes hand in hand with cultural and human rights initiatives. Over the past 10−15 years, there has been a move away from bilateral developmental assistance, with foreign diplomatic missions adapting their strategies to view South Africa as a trade and investment partner rather than in need of developmental aid. At the same time, the growing importance of climate change and urban sustainability has led to diplomatic strategies focusing more on cities, which play a crucial role in mitigating and adapting to climate change and other crises. The broader trade and economic agendas of foreign diplomatic missions include urban sustainability projects and initiatives in cities such as Tshwane, Cape Town and eThekwini, which are economic powers in their own right and offer opportunities for economic and trade partnerships.

This paper focuses on the city diplomacy strategies of four foreign diplomatic missions in South Africa: Denmark, the Netherlands, the United Kingdom and France. Interviews were conducted with representatives from these four foreign missions, to gain insights into how city diplomacy is understood and approached, as well as the country's national diplomatic strategy, which has a direct influence over the approach to city diplomacy. The interviews were guided by the following questions:

1. How has the national diplomacy approach evolved in the last decade?
2. What have been the key drivers (politics, city activeness, thematic, sectoral)?
3. How have these changes resulted in a shift of activities, programmes and tactics?
4. What is their most up-to-date view of the role of city diplomacy as seen through the lens of national diplomacy?

Denmark

Denmark's diplomatic mission consisits of the Embassy of Denmark, which is based in Pretoria. Its national diplomatic strategy follows an approach that focuses on the values which form part of the Danish national identity: freedom, safety, equality, democracy, human rights, justice, welfare, sustainability and the climate. The three main forms of diplomacy are: (i) value diplomacy, which is about promoting democracy and strong international institutions; (ii) safety diplomacy, which aims to increase security in "a world with an ever-more complex threat landscape"; and (iii) climate diplomacy, in which Denmark is a leading global actor (UMDK, 2022: 3).

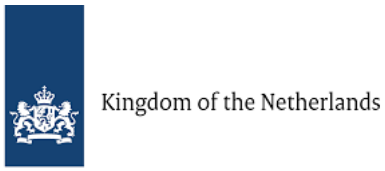
MINISTRY OF FOREIGN AFFAIRS OF DENMARK
Denmark in South Africa

Since 2007, Denmark's bilateral development assistance to South Africa has been gradually phased out, and its national diplomatic strategy has shifted towards economic diplomacy and viewing South Africa as a trade and investment partner. Although the national Danish diplomatic strategy still includes bilateral agreements, their implementation is more economic and project-based, taking the form of strategic sector cooperation programmes in energy, water and smart city development.[3] Its strategy has also evolved to include a more specific focus on city diplomacy, in response to the growing role that cities play in global policies and the discourse on climate change. As a result, the Danish Ministry of Foreign Affairs in South Africa focuses on two strategic areas: climate diplomacy and economic diplomacy, with both areas often working in unison in the strategic sector cooperation programmes that are implemented at city level.[4]

The focus on the green agenda and sustainability is not only because these need to be developed in South Africa, but also because of the level of Danish technical expertise in the water and energy sectors. Denmark prioritises renewable energy programmes, and transport and infrastructure programmes, and has a well-developed renewable energy sector and sustainable water management sector.[5] Building on this expertise, the strategic sector cooperation programmes focus on climate responsiveness, specifically in the technology, energy and water sectors.[6] These programmes are highly technical and often involve — in collaboration with city partners — formulating policies, strategies and manuals on the operation of assets, as Danish cities are world leaders in developing frameworks for managing city economies. They also often involve partnerships with Danish companies, thus creating a space and a demand for green technologies that help to drive sustainability transitions.[7]

[3] https://sydafrika.um.dk/en/sector-cooperation
[4] Interview with Kristoffer Rønde Møller, Sector Adviser, Cities Programme, Danish Embassy, Pretoria (via Zoom, 11 May 2022)
[5] Ibid
[6] https://sydafrika.um.dk/en
[7] Interview with Kristoffer Rønde Møller, Sector Adviser, Cities Programme, Danish Embassy, Pretoria (via Zoom, 11 May 2022)

The Netherlands



The Kingdom of the Netherlands diplomatic mission consists of the Embassy of the Kingdom of the Netherlands (in Pretoria) and the Consulate-General of the Kingdom of the Netherlands (in Cape Town). The diplomatic mission is mainly concerned with trade and investment, as illustrated by their mission statement:[8]

> Our mission is to work closely with our South(ern) African counterparts to increase bilateral trade and investment, contribute to more inclusive and sustainable development, promote a strong rules-based multilateral order, especially with respect to human rights and democratic values, foster peace and security, further cultural cooperation and cultural heritage and decisive action with respect to climate change.

Economic and cultural diplomacy is key to the Dutch diplomatic strategy and is closely aligned with their overall aim, which is "Solving Global Challenges Together — We stand for openness, innovation, and inclusivity".[9] The country's diplomatic strategy has shifted to focus on "the true essence of modern foreign diplomacy: building relationships, putting the demand at the core of our discussions and focusing on long-term commitments and partnerships".[10] This ties into the broader diplomatic platform — #cocreate — which is "based on the belief that if we work together, we can make a difference and co-create solutions for local challenges".[11]

Begun in 2014, as a three-week-long event that was part of World Design Capital Cape Town 2014, #cocreateSANL grew into a platform for exchanging ideas and innovations around the theme of a sustainable future. The platform hosts all the events and initiatives by the Dutch embassy and consulate in South Africa and is an overall theme of their diplomatic strategy, which also focuses on specific themes, including innovation, shared values, transformation and identity, climate action and resilient cities.[12]

The shift to thematic areas, accompanied by a shift away from working in traditional economic sectors, is due to the changes in modern diplomacy, where soft forms of diplomacy, through culture, values and policies have become prominent in diplomatic strategies.[13] Key factors in the development of thematic areas have been the impact of climate change, specifically water and resilience, the increasingly important role of cities in sustainable development practices, and the pressing need to address the challenges created by urbanisation and inequality. The World Bank's economic classification of South Africa has also led to the Netherlands seeing their diplomatic relationship with South Africa as one of trade and investment rather than of development aid.[14]

The shift to the thematic areas of innovation, shared values, transformation and identity, climate action, and resilient cities coincides with an increase in economic diplomacy. These themes provide more of an interplay between traditional economic sectors, inform annual diplomatic strategies and drive the consulate's projects and initiatives. In this regard, cities have also begun to play an important role, for example in the water space, after the consulate chose the city-based theme: "smart solutions for resilient cities".[15]

The United Kingdom

The United Kingdom's diplomatic mission in South Africa consists of the British High Commission (in Pretoria) and the British Consulate General (in Cape Town). The UK's relationship with South Africa follows a "development partnership model built around mutually agreed priorities […] in areas including tax capacity building, tackling climate change and service delivery monitoring".[16] The UK views South Africa as a trade and investment partner, although the focus areas are more specific to the developmental needs of South Africa.

[8] https://www.netherlandsandyou.nl/your-country-and-the-netherlands/south-africa/about-us
[9] Ibid
[10] http://cocreatesa.nl/
[11] http://cocreatesa.nl/about-cocreatesanl/
[12] Interview with Nichola Walker-Woodard, Deputy Consul General, Consulate General of the Kingdom of the Netherlands, Cape Town (via Zoom, 10 May 2022)
[13] Ibid
[14] Ibid
[15] https://www.netherlandsworldwide.nl/countries/south-africa
[16] https://www.gov.uk/world/organisations/british-high-commission-pretoria

The national diplomatic strategy has four clear priorities, which inform the types of programmes and projects that the British High Commission implements (FCDO, 2022):

- To promote reliable investment that grows economies sustainably
- To promote the freedom of women and girls through access to education, empowerment and protection against violence
- To provide humanitarian assistance in life-threatening crises
- To further work on climate change, nature and global health

These translate into various forms of diplomacy, including economic, value and cultural, aid, and climate diplomacy.

Over the last decade, cities have become much more prominent in the UK's diplomatic approach because of both global trends in diplomacy and the important role that the City of London plays in the financial market.[17] London has become a global financial centre, giving the city the leverage and power to participate on the global stage as an independent entity. The city uses international events and international advocacy as a way to strengthen its global image and enhance its diplomatic relationships. Beyond the City of London, the UK has numerous established local city programmes that receive substantial funding and thus were able to provide relief funding and urban regeneration funding in response to the global pandemic. There has also been a shift to urban sustainability as a focal point for city programmes, which is evident in the Global Future Cities Programme (discussed in the next section). In South Africa specifically, the UK focuses on sustainability, service delivery and the development of a just transition, in response to the country's developmental needs and strategic plans.[18] These areas of focus are also key developmental drivers in South African cities.

France

France's diplomatic mission in South Africa consists of the Embassy of France (in Pretoria) and the Consulates General of France (in both Johannesburg and Cape Town). France's approach to the African continent influences its diplomatic strategy in South Africa. In 2017, speaking in Ouagadougou, Burkina Faso, President Emmanuel Macron outlined France's main priorities, which included a renewed interest in African countries that do not have historic colonial ties to France, as well as a focus on youth, gender equality, biodiversity, climate transition, mobility and innovation.[19]

AMBASSADE DE FRANCE EN AFRIQUE DU SUD
Liberté
Égalité
Fraternité

France is one of South Africa's important trade and investment partners. More than 370 French companies operate and trade in South Africa, with a total revenue of R8.6-billion. The two countries also have a long history of bilateral cooperation that focuses on economic relations and cultural, scientific and technical cooperation.[20]

Decentralised cooperation is a key element in France's diplomatic strategy in South Africa and has been part of France's national diplomatic engagements since 1992. Decentralised cooperation is "based on partnerships between French authorities (regions, departments, inter-municipalities, districts) and foreign authorities, involving human exchanges and relationships of trust". Various cooperation projects have been completed in South Africa, including: [21]

- The Ile-de-France region and the province of Gauteng (urban development: transport, tourism, economic development, etc.)
- The Reunion Island region and the KwaZulu-Natal province (cultural exchanges)
- The Val de Marne department and the City of Johannesburg (social housing and management of early childhood services)
- The cities of Nantes and Durban (urban development, human rights and culture) […]
- The Lille European metropolis and the City of Johannesburg (urban regeneration and territorial development)

[17] Interview with Shabari Shaily-Gerber, Head, Urban Economic Development, British High Council, Pretoria (via Zoom, 16 May 2022)
[18] Ibid
[19] https://www.elysee.fr/en/emmanuel-macron/2017/11/28/emmanuel-macrons-speech-at-the-university-of-ouagadougou
[20] https://www.diplomatie.gouv.fr/en/country-files/south-africa/
[21] https://frenchinstitute.org.za/partner-with-us/

Decentralised cooperation projects are partly financed by French local authorities, and numerous co-financing opportunities can be mobilised, both in South Africa and through the French development agency, l'Agence Française de Développement (AFD) or the European Union.[22]

With a focus on city diplomacy, France is looking at its existing strategy to see to what extent decentralised cooperation could be used to further the agendas of urban sustainability and the climate and energy transitions,[23] and to see where new, potentially less formal partnerships, which include a wider variety of stakeholders, could be formed. To leverage these partnerships and the authority, project holders will have to be more flexible to be able to respond to rapidly changing urban environments.

National Diplomacy Projects and Initiatives in Urban Sustainability

This section explores potential links to city diplomacy through the national programmes of the four selected foreign missions, in order to determine how these relationships manifest, how stakeholders interact, where benefits may exist, what the barriers and opportunities are, and how problems are framed.

Denmark: Strategic Sector Cooperation Programmes

These programmes form part of Denmark's national strategy to foster mutually beneficial economic and trade relationships. They integrate "three different aspects of the Danish-South African relations by (i) promoting Denmark as a nation, (ii) supporting South African development agendas and (iii) paving the way for investments and trade in the private sectors".[24] For example, the Strategic Water Sector Programme "addresses issues of financing and research and innovation to ensure the sustainability of government policies".[25] It also supports municipalities by addressing the objectives of the National Development Plan (NDP) and the 2030 sustainable development goals (SDGs) on clean water and sanitation (SDG6), affordable and clean energy (SDG7) and sustainable cities and communities (SDG11). At the same time, it integrates Denmark's trade and investment agenda into the daily engagements with the sectors, specifically by including private sector consultations and various public-private partnerships.[26]

There are currently three strategic sector cooperation programmes: (i) an agreement on water between the City of Tshwane and the City of Aarhus; (ii) a programme on smart and sustainable urban development which is under formulation; (iii) the Danish-South African Energy Partnership Programme, which started in April 2013 and is in its third and final phase. This particular one has the overall objective of decoupling economic growth from growth of overall greenhouse gas (GHG) emissions and an intermediate objective of increasing the deployment of low-carbon technologies in the energy sector.[27]

Project spotlight: The Water Resilient Cities Programme (from 2017)

Type: City-to-city relationship
Parties: City of Aarhus, City of Tshwane
Purpose: To improve the service delivery of the City of Tshwane's water sector

This programme began in 2017 and entered its second phase in 2012/22. The aim is to improve service delivery of water (especially non-revenue water), wastewater and stormwater management, increase revenue and mitigate the impact of droughts and water loss. The City of Tshwane's current water loss is estimated to be between 30% and 40%, compared to between 5% and 7% in Denmark.[28]

The programme currently involves stakeholders from a variety of sectors, including the public sector, private sector, academia, civil society and financial institutions, who are concerned with sustainable urban water management. The stakeholders are involved in designing, formulating and implementing the programme, and the variety of expertise and knowledge that they bring contributes to the programme's success.[29] The City of Aarhus is the formal project owner and coordinator, and the City of Tshwane municipality is the main partner.

[22] https://frenchinstitute.org.za/governance-and-human-rights/civil-society/local-cooperation/
[23] Interview with Warda Ouzemmal, Project Officer Governance and Technical Cooperation, French Foreign Ministry, Pretoria (via Zoom, 26 May 2022)
[24] https://sydafrika.um.dk/en/sector-cooperation
[25] Ibid
[26] Interview with Kristoffer Rønde Møller, Sector Adviser, Cities Programme, Danish Embassy, Pretoria (via Zoom, 11 May 2022)
[27] https://sydafrika.um.dk/en/sector-cooperation
[28] https://sydafrika.um.dk/en/sector-cooperation/water-sector-program
[29] Interview with Kristoffer Rønde Møller, Sector Adviser, Cities Programme, Danish Embassy, Pretoria (via Zoom, 11 May 2022)

The programme strategy was conceptualised and specific objectives set, based on the needs identified by the municipality and through research conducted in Phase 1. The Embassy of Denmark in South Africa acts as the project facilitator, guiding learning and integration, including other stakeholders and the Danish development agencies and private sector, through roadshows and other engagements. Key stakeholders include:[30]

- The water utility agencies of the two cities, Aarhus Vand and Rand Water (implementers)
- The South African Department of Water and Sanitation and Department of Public Works
- Passenger Rail Agency of South Africa (PRASA, as landowner in the metropolitan area)
- Statistics South Africa
- Water Valley Denmark (a cluster alliance of Danish water companies)
- C40 Cities
- State of Green (a not-for-profit, PPP from Denmark focused on the green transition)

The Ministry of Foreign Affairs of Denmark, through the Danish International Development Agency (DANIDA), funds the administration and soft infrastructure of the project, since the outcome is policy-based, while the City of Tshwane provides or acquires any further technological or infrastructural funding.[31]

In March 2022, as part of Phase 2, a delegation from South Africa went to Denmark, to visit various wastewater treatments and projects that have developed storm and rainwater-related climate adaptation interventions. As the project develops, the expertise and new knowledge are also being shared with various municipal departments, beyond the specific stakeholders, and feed into strengthening relationships and knowledge exchange between the University of Aarhus in Denmark and the University of Pretoria.[32]

This is an example of a bilateral project that forms part of the embassy's specific city diplomatic strategy. The project's impact cannot yet be determined because it is only in the second phase of development. However, based on previous projects of the strategic sector cooperation programme, the impact lies far beyond the implementation of the policy and strategy.

The Netherlands: The Water Hub

A key part of the Netherlands' national diplomatic strategy is bilateral water cooperation. In 2018, South Africa and the Netherlands signed an MoU related to cooperation on water resources, specifically integrated water management, water efficiency and re-use, and climate change adaptation.[33] The Netherlands facilitates or contributes to an extensive list of projects in South Africa, but the choice to focus here on the Water Hub is due to the role that knowledge institutions play in the project and in turn in city diplomacy.

The Water Hub is a living lab situated in Franschhoek, in the Western Cape, and is a collaboration between the Future Water Institute at the University of Cape Town, the Western Cape Government and Stellenbosch Municipality. A living lab creates an experimentation environment that fosters innovation and experimentation, often integrating concurrent research and innovation processes within a public-private-people partnership. The Water Hub has been running since 2018, with infrastructural support from the Western Cape Government and research funding provided by a variety of institutions.[34]

The Dutch Consulate's role in this project is (i) facilitating knowledge exchange and (ii) facilitating and financing the Water Hub accelerator programme.[35] Knowledge institutions are often stakeholders in city diplomacy projects and initiatives, especially in the Netherlands, as universities in the Netherlands often have strong relationships with the cities in which they are based.[36] The Orange Knowledge Programme promotes institutional collaboration and includes the "Bridging the Water" project from 2019 to 2021 that was aimed at strengthening water education and training in South Africa. The project was a joint activity of Dutch universities and private suppliers and both South African and Dutch students. As part of this project, in 2020, the Water Hub hosted students from the Rotterdam University of Applied Sciences who completed an internship at the Future Water Institute.[37]

[30] https://sydafrika.um.dk/en/sector-cooperation/water-resilient-cities-program
[31] Interview with Kristoffer Rønde Møller, Sector Adviser, Cities Programme, Danish Embassy, Pretoria (via Zoom, 11 May 2022)
[32] ibid
[33] http://cocreatesa.nl/news/press-release-south-africa-and-the-netherlands-continue-their-cooperation-in-the-water-sector-by-signing-mou/
[34] http://cocreatesa.nl/about-cocreatesanl/
[35] Interview with Nichola Walker-Woodard, Deputy Consul General, Consulate General of the Kingdom of the Netherlands, Cape Town (via Zoom, 10 May 2022)
[36] ibid
[37] http://cocreatesa.nl/about-cocreatesanl/

Project spotlight: The Water Hub accelerator programme (2020–2021)

Type: Knowledge institution to private companies
Parties: The Consulate of the Netherlands, The Water Hub, Dutch companies
Purpose: To provide market acceleration strategies for Dutch companies in South Africa

In 2020/21, the Water Hub accelerator programme was launched as a pilot, facilitated by the Consulate of the Netherlands in Cape Town. Dutch companies were invited to apply to participate in a pilot of the Water Hub acceleration programme. The call was aimed at Dutch businesses in the water sector that met technology demand and were ready to upscale their businesses in a new market, specifically the South African market.[38] These businesses would receive market accelerator services, funded by the consulate, and developed using the expertise and facilities of the Water Hub. Due to COVID-19, these services were provided virtually. The market accelerator services included an introduction to the South African water market and support in developing and implementing a market-entry strategy, through mapping of the sector, identifying potential customer segments and demonstration opportunities, giving regulatory and funding advice, and matchmaking with local partners.[39] Dutch companies include RMA and South African partners include GreenCape.

The United Kingdom: The Global Future Cities Programme

The UK Government established the British Prosperity Fund, with a specific focus on financing sustainable development in developing countries, and the aims of promoting economic growth and addressing the challenges of rapid urbanisation, climate change, and high and persistent inequality (UN-Habitat, 2020). Although the Fund ceased in 2020, one significant outcome was the Global Future Cities Programme, which is a £80-million programme that promotes inclusive urban economic growth through urban sustainability projects focusing on the themes of transport, resilience and urban planning (ibid). It runs in 19 cities across 10 countries (Brazil, Indonesia, Malaysia, Myanmar, Nigeria, Philippines, South Africa, Thailand, Turkey and Vietnam). All projects in the programme are set to run until, or be completed by, the end of 2022.

Funding for the programme was provided by the UK Foreign, Commonwealth & Development Office (FCDO), which also oversees the programme (ibid.). While UN-Habitat and the UK Built Environment Advisory Group act as strategy and capacity-building partners, the projects are implemented by a consortium of delivery partners, led by a different partner in each country. In South Africa, this was The Future Cities South Africa (FCSA) programme, led by PwC (UK and South Africa) and included the Isandla Institute, Open Cities Lab, Palmer Development Group, Violence Prevention through Urban Upgrading, Zutari and others (ibid.). The British High Commission in South Africa's involvement in the programme was to facilitate and oversee the programme as the UK FCDO representative.[40]

Starting in 2020, five individual projects in three South African cities, in the areas of transport, urban resilience and sustainable planning, are being implemented over two to three years. Each of the projects is designed to address the host city municipality's specific needs under the themes of the programme, with the host city being in control of choosing the specific theme and the specific project and its parameters.

Project spotlight: Five city projects in South Africa (from 2020)[41]

Type: Development fund investment in specific city projects through national cities programme
Parties: British High Commission, consortium of delivery partners lead by PwC, city municipalities
Purpose: To promote inclusive economic growth through specific sustainability projects

City of Cape Town: Implementation of data strategy and economics capacity building

The project's aim is to provide technical assistance to the City of Cape Town in its development and implementation of a data strategy, through creating sustainable methodologies, tools and research that will enable the city to make better evidence-based decisions. It consists of two simultaneous workstreams, one focused on assisting the City to roll out its data strategy and the other on building methodologies, tools and capacity to improve the use of economics for evidence-based decisions.

[38] http://cocreatesa.nl/news/the-water-hub-call-for-applications-accelerator-programme/
[39] ibid
[40] Interview with Shabari Shaily-Gerber, Head, Urban Economic Development, British High Council, Pretoria (via Zoom, 16 May 2022)
[41] https://www.globalfuturecities.org/sites/default/files/2021-05/May%202021%20Newsletter%20Core%20project%20updates%20Pdf.pdf

eThekwini Municipality: Informal settlements information management solution
The aim of this project is to develop a data management solution that will facilitate the collection, analysis and integration of data related to informal settlement planning, upgrading and support. The information planning solution is intended "as a planning tool for readdressing spatial, social and economic inequalities to support inclusive, resilient and sustainable human settlements".[42]

eThekwini Municipality: Enhanced institutional governance for transit-oriented development
The project's aim is to assist the city in designing and planning "institutional, financial and economic models that the City can use to operationalise its pipeline of projects along corridors and nodes of its public transport system" in order to realise spatial transformation and a financially sustainable public transport network.[43] Recent work includes developing a Land Use Transport Model that can be used to measure costs, revenue and benefits for stakeholders.

City of Johannesburg: Review of 4IR trends and effects on urban mobility
The project's aim is to develop the city's readiness to deal with 4IR disruptions that affect urban mobility, through understanding, assessing and implementing appropriate interventions. Specifically, it seeks to understand how the 4IR can be leveraged to create a more just and equal society, and to create an implementation plan for the city that includes key policy, fiscal and regulatory interventions.

City of Johannesburg: Strategic area framework and implementation tools for Soweto 'Triangle'
The project focuses on a specific area in Soweto, which the city has identified as a key intervention area. The aim is to develop a sustainable spatial and economic development vision and trajectory for the area (the 'Triangle'), bounded by Van Onsellen Road to the north, Klipspruit Valley Road to the east, Chris Hani Road to the south, and Koma Road to the west.

France: The Blue Downs Rail Link

Unlike the other projects, this project may not be a clear example of a foreign embassy's city diplomacy efforts, but it does contribute to France's national diplomacy efforts through the investment by its national development agency (AFD) at city scale. It also reveals two important factors of France's diplomatic strategy: (i) the focus on infrastructure investment, which is also evident in the AFD's INCA Municipal Debt Fund (IMDF) project,[44] a R3-billion fund that provides development relief for South African municipalities; and (ii) the type of partnerships formed, which are similar to the other projects, as they include various stakeholders and more specifically, PPPs.

In 2018, the City of Cape Town initiated the Blue Downs Rail Link, as part of its transit-oriented development strategy, with the aim of creating a new rail link east of Cape Town to be operational by 2020. The rail link itself would have been developed in collaboration with Transport for Cape Town (TCT) and PRASA, but the project has still not been realised.

Project spotlight: The Blue Downs rail link (2018)

Type: Foreign development agency investment in city project
Parties: AFD, PRASA, The City of Cape Town, SUEZ Consulting (together with Transitec, GAPP and RebelGroup)
Purpose: To design a series of new railway stations as part of a proposed new rail link

The aim of the project was to develop the design and the implementation strategy for the new rail link, which would be a two-track rail line joining the existing Noglungile and Kuils River stations with three new stations along the line. The Blue Downs rail line was one of the city's priority infrastructure investment projects. In 2018, the City of Cape Town commissioned SUEZ Consulting, together with Transitec, GAPP and RebelGroup to conduct a study and present a proposal for the development of the Blue Downs railway station. The City of Cape Town was the client and managed the project, defining its scope, targets and needs. The AFD provided the funding but had minimal input on project specifics.

The first phase of the project was a success, as the study was conducted and a design presented. However, it did not lead to an actionable impact on the city's transport system. The City of Cape Town and PRASA were responsible for the implementation of the design and plans, but the stations and rail link have not yet been constructed.

[42] Ibid: 3
[43] Ibid.: 4
[44] https://www.afd.fr/en/support-municipalities-south-africa

Leveraging City Diplomacy for City Development

The greater flexibility, informality and agility and increasing importance of city diplomacy when compared to national diplomacy, provide city actors (in particular local government) with the opportunity to leverage benefits in support of sustainable and inclusive urban development.

City diplomacy and development

The extent to which city diplomacy projects benefit development depends on several factors:

- **Agenda:** The political agenda of a city administration (and the preferences of city leaders) could influence the urban issues presented for partnership. While the city should be able to define the agenda freely, the risk is that city diplomacy could be directed at niche issues, which are politically guided and have less impact on city development, instead of being directed at the pressing socioeconomic and environmental issues identified in the city's Integrated Development Plan.
- **Training:** City leaders and officials may require training in order to leverage complex city partnerships. Local government needs to increase its capacity to engage with and respond to facilitators of projects that form part of city diplomacy strategies. Capacity building, knowledge and expertise are needed in areas related to understanding trade and investment, the use of virtual platforms and other soft skills required to build city-to-city relationships.
- **Pace of work:** The mismatch in process and work culture between the public and private sectors may result in missing opportunities that require agility and responsiveness. Hindrances to city diplomacy are the slowness of the public sector, its red tape and bureaucracy, contrasted with the faster pace at which the private sector or trade and investment agencies operate. City or regional economic development, trade or investment agencies may be better placed to coordinate, manage and support long-term city-to-city partnerships.

The global African city

Many South African cities are using their influence and power, and the profile of their leaders, to gain a competitive advantage within the country, through their association or membership of multiple international city networks and platforms, and through major events and conferences (business, tourism, sports and other). However, to leverage the benefits of city diplomacy, the cities need to have a clear vision of how rapid urbanisation and modernisation could enhance their competitiveness within the African and global arena. Within the current national diplomatic programmes, various opportunities exist for cities:

- To learn from the strategies of potential partner cities and agencies outside of South Africa about how to attract investment and support to unlock the opportunities of urbanisation. Specific sister or partner cities in the Global South should not be excluded, especially where challenges related to urbanisation may be more similar in nature than those of the Global North.
- To benefit from the profile and brand of another city if the relationship is managed intentionally. For example, the challenges of the smaller or intermediate cities and towns could provide a laboratory for potential constructive solutions.
- To become more globally aware and investment-minded, through regular engagements and knowledge-sharing between South African cities and international counterparts.

City-to-city cooperation

The increasing use of virtual platforms and technology during the COVID-19 pandemic provides practical solutions for cooperation between cities, by enabling local city officials to achieve more despite the barriers of differing time zones and geographic location. However, this would also require:

- Collecting and sharing recent high-quality and verifiable data with potential partner cities, given that this remains a major challenge for South African cities particularly in the area of urban sustainability.
- Exploring potential twin or partner cities that are a strategic fit, broad enough to cover the strategic priorities or sectors of both cities, through support from the local embassy.
- Using projects as platforms to understand other financing streams available for city infrastructure and sustainable development, through accessing foreign development funds or other private funds that form part of stakeholder networks.
- Initiating partnerships outside the formal realm of twinning or agreements, which may allow for more flexibility and responsiveness to environmental and climate change shocks. The twinning agreements already in place are often ceremonial without the means to measure progress.

- Identifying partners and strengthening existing partnerships, locally and in the foreign city, in order to avoid duplication and improve the feasibility and success of the project. Early relationships at an institution or agency level may pave the way for more productive city-to-city relationships down the line.

City diplomacy and climate change

Projects and initiatives in city diplomacy provide the opportunity to address some of the most pressing issues that face cities today: climate change, inequality, rapid urbanisation.

- Climate change will be a key driver of city diplomatic efforts in the coming decade, complemented by funding sources and mechanisms.
- South African cities could pursue relations with partner cities that have expertise in particular aspects of climate change, matching local context and need. One or more South African municipalities could benefit from partnering jointly with a foreign city, possibly through an existing multi-city network or alliance.
- South African cities could help to drive the climate mitigation and energy transition that is desperately needed on a national and municipal level, by leveraging successful city projects and investments available through national and international funding mechanisms.

Concluding Remarks

Denmark, the Netherlands, France and the UK may have different national diplomatic strategies and different city diplomacy approaches, but common themes are emerging, including the opportunity for interventions that yield faster and more noticeable results, as well as different and broader partnerships.

City diplomacy is high on the agenda of foreign diplomatic missions, as shown by the funding and focus provided to city projects and initiatives by embassies and consulates. Unlike the long-term bilateral agreements favoured in national diplomatic strategies, city diplomatic strategies facilitate short-term, quicker and more affordable interventions that yield faster and more noticeable results. City diplomatic strategies are also linked to economic and trade diplomacy, which widens the scope of partners and stakeholders that could be involved, while the focus on projects and economic incentives offers an opportunity to 'depoliticise' diplomacy. In South Africa, where national and municipal governments may have different agendas, embassies and consulates are able to avoid engaging in the complexities of local politics by focusing on the direct impact of the projects.

The many stakeholders involved in city diplomacy programmes (e.g., national governments, municipalities, foreign diplomatic missions, foreign development agencies, knowledge institutions, city networks, and foreign and local companies) create the opportunity for a variety of partnerships across sectors and the strengthening of PPPs. Furthermore, partnerships at local government level are often more flexible and less informal than at national level, and enable embassies and consulates to respond more quickly to crises, and enable the parties involved to access opportunities at a larger scale. For example, the British High Commission provided R42-million in additional technical assistance to municipalities in South Africa for COVID-19 response and recovery plans through the Future Cities programme. New partnerships are often formed through public-private channels, when private companies are introduced to municipalities through roadshow and expositions (as in the Danish and Dutch cases) or through the broadening of the stakeholder base when technical expertise of a widened jurisdiction is needed for an existing project (e.g., the Danish strategic sector cooperation programmes expanded to include additional municipal departments).

Despite the interconnected and intertwined nature of global economies and environmental resources, national diplomacy continues to be the driving force and formal platform for engagement between cities, regions and countries. Yet cities also provide the settings for projects and initiatives that yield more direct and tangible results, helping to showcase the impact of national diplomatic strategies and initiatives in the given country. City diplomacy acts as an 'advertisement' for national diplomacy by providing useful results and statistics from projects such as those related to urban sustainability, resilience and climate change mitigation. These support and prove the efficacy of national diplomatic strategies. As the role of city diplomacy continues to grow — despite often being prompted by national diplomacy — a window exists for South African cities to benefit from this transition, through focused, integrated and impact-led partnerships that go beyond formal sister-city or twinning agreements.

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A Guide to Implementing City-to-City Cooperation & Learning in South Africa[45]

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Cities have actively created new spaces for their international action, often perfecting the practice of addressing transnational issues such as climate change, urbanisation, mobility and more recently the COVID-19 pandemic (Grandi, 2020). Over the last decade, the impact of city-to-city (C2C) cooperation has increased in importance, as the United Cities and Local Governments (UCLG) network has promoted decentralised cooperation in all global regions. South African cities, through their strategic access to and support of the UCLG World Secretariat, have played a key role in shaping the nature and form of international C2C learning (Moodley, 2016; 2019; 2020). However, while this may be the case on the global stage, much work is still needed to demystify the world of C2C cooperation and learning, and make it available in an accessible and meaningful form for busy city practitioners in South Africa.

This paper's intention is to provide a hands-on guide for local government practitioners who are grappling with urban challenges and seeking tools to engage with other cities that may have found solutions to similar challenges. The paper begins with unpacking the notion of C2C cooperation and learning, and offers a workable definition that is applicable to the South African context. It then examines C2C learning within the global context, as part of city diplomacy, and proposes a three-phase framework for guiding South African C2C cooperation. After an overview of key stakeholders in C2C learning, some suggestions are made to improve the opportunities for obtaining funding. The paper ends with ten lessons learned and five recommended actions for the SACN to take in order to maximise C2C learning in South Africa.

Demystifying C2C Cooperation and Learning

The notion of C2C cooperation involves some form of relationship or partnership between local authorities "in two or more countries which are collaborating over matters of mutual interest and leading to sustainable development", and includes civil society's engagement and participation (Bontenbal, 2009:35; Hafteck, 2003; Tjandradewi & Marcotullio, 2009). Although there is no single definition or blueprint for C2C cooperation (Bontenbal, 2009; Hafteck, 2003), C2C cooperation refers to local government practitioners being given the opportunity to interrogate ideas and learn from their counterparts, and build their capacity to find innovative solutions, while adapting (rather than adopting) ideas from abroad. The capacity building aspect of C2C cooperation resonates with the concept of C2C or peer-to-peer learning (Van Ewijk et al., 2015).

C2C learning is a structured (yet flexible) process of acquiring new knowledge that is willingly shared among two or more cities or towns by skilled, experienced practitioners and their collaborative partners, in order to improve municipal service delivery and good governance (Moodley, 2016; 2019). Learning is seen as a dynamic process, not simply an end product. The knowledge transfer process is done in an empowering and respectful manner, with the emphasis on collaboration, both among professionals and with a range of civil society partners (Moodley, 2019). This aspect of genuine partnership is important for achieving complex long-term goals that require stakeholders to align and work together, especially for South Africa, where city planners sometimes regard participation as a compliance issue (as required by the Municipal Systems Act).

A study of 'smart cities', i.e., cities that engage in continuous learning and innovation, looked at how learning takes place in cities (Campbell, 2012a; 2012b). A typology of learners was developed and includes Durban, the only African city to feature among those that "organize deliberate learning missions, have dedicated agency, and continuous operation" (Table 1). The city has shown its commitment to learning through establishing institutional mechanisms such as its Municipal Institute of Learning (MILE) that promotes C2C learning. This typology offers a useful way for South African cities to think about how they might position themselves.

[45] The paper draws on doctoral research (Moodley, 2016) augmented with personal experience and insights that the lead author gained as a local government practitioner leading C2C cooperation in southern Africa for the United Cities and Local Governments (UCLG) and South African Cities Network (SACN) teams in Namibia, Malawi and Mozambique, as well as supporting the UCLG international Learning Forum on C2C learning.

[46] This working paper has been drafted by staff from the Urban Futures Centre (dut.ac.za) an interdisciplinary laboratory based at the Durban University of Technology (DUT). Corresponding author's email: sogendrenm@dut.ac.za.

Table 1: Typology of learners

Principle Types	Modalities of Learning	Example
Organize deliberate learning missions, have dedicated agency, and continuous operation	Large groups from individual cities working one-on-one or one on many cities	Seattle, Turin, Bilbao, Durban
Engage in episodic visits or exchanges		EuroCities (members), VNG or the UCLG group on decentralized cooperation, Sister Cities (members)
Share common (but limited) program objectives or campaigns	Small groups or individuals from one city working in one-on-one, peer exchange or City Clusters on clusters	UNESCO World Heritage Cities, ICLEI Agenda 21 Cities
Members in regional or global associations		UCLG and Metropolis, Healthy Cities, EuroCities, CityNet, SCI
Engage casually in conferences, events, and network bulletins	Individuals in cities using passive networks	City Mayors, Local Government Information Network (LOGIN)

Source: Campbell (2012b: 11)

C2C Learning and City Diplomacy

In South Africa, urban areas drive economic growth, with nine cities contributing about two-thirds of the country's gross domestic product (SACN, 2016). Now more than ever, cities are called upon to play a leading role in South Africa's post-COVID-19 economic recovery and development, through innovative good practices. C2C cooperation and learning can enable the sharing of knowledge among South African cities and with international cities, in order to improve local practices and facilitate economic recovery. Reasons for individual cities to invest in C2C learning and engage in structured decentralised cooperation include (UCLG, 2020: 17):

- To promote solidarity, peace and goodwill.
- To learn from and improve local practices.
- To strengthen the capacities of local staff and professionals.
- To improve local and regional public policy.
- To initiate innovative projects.
- To ultimately improve local public services and the living standards of local citizens.

C2C learning can also play an active role in localising the sustainable development goals (SDGs) and helping nation states achieve their commitments to realising the global policy agenda. The UCLG network (2020) emphasises the convergence between the SDG localisation process and C2C learning (or decentralised cooperation). Cities are crucial to delivering the 2030 Agenda for Sustainable Development (UN, 2015), especially as they have to deal with the most pressing challenges, such as environmental pollution and waste management, climate change, and the protection of citizens from economic and social confusion and insecurity, all of which are more intensely perceived at the local level. Given that nearly 70% of all SDG targets require direct action by subnational levels of government, any local action based on structured C2C learning programmes would strengthen and give more legitimacy to the localisation of the 2030 Agenda, which should help to grow support for policies related to SDG implementation. The C2C learning processes offer opportunities to:

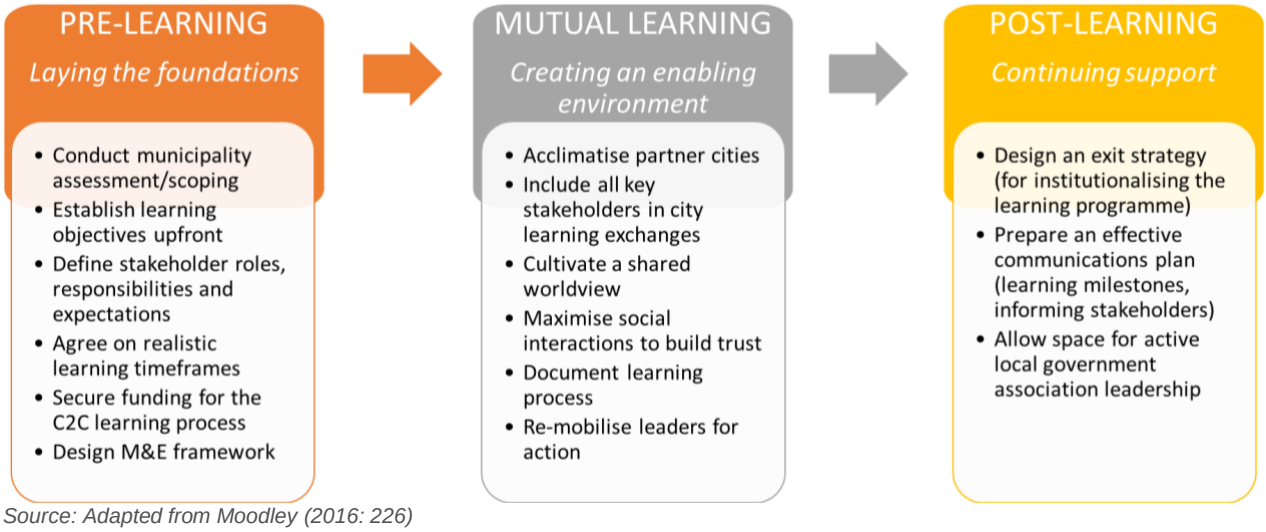
- Promote innovative partnerships that contribute to the SDGs, in particular SDG17[47], and mobilise resources through involving territorial stakeholders from different sectors, including the private sector.
- Be a powerful catalyst for bringing different stakeholders together in order to share their expertise, while raising local awareness and informing citizens about the SDGs and the importance of sustainable development.
- Strengthen local governance and enhance multi-level coordination between different spheres of government, thereby substantially contributing to the creation of strong institutions, SDG16[48] and the successful implementation of the whole 2030 Agenda.
- Be a tool for social transformation through the engineering of truly global citizenship, by promoting learning, raising awareness and ensuring dynamic dialogue, thereby contributing practically to the localisation of the SDGs.

[47] SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development
[48] SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

A Framework for Effective C2C Learning

Although South African cities recognise the value of C2C learning (De Villiers, 2009), city-led interventions tend to be uncoordinated. Therefore, to assist cities in structuring their learning processes, a framework is proposed (Figure 1). This framework emerged from research into C2C learning programmes in South Africa, Malawi and Namibia (Moodley, 2016). What is proposed is not a blueprint but a guide that cities can use to structure C2C learning.

Figure 1: Unpacking the toolbox: A framework to guide South African C2C cooperation



Source: Adapted from Moodley (2016: 226)

Pre-learning phase

This preparation phase is crucial for the success of C2C learning and begins with an assessment of the municipality. Such a scoping exercise may appear onerous to busy city practitioners, and the tendency may be to fast-track this step because of pressure to deliver on learning outcomes as stipulated in the funding agreements. However, to maximise the benefit of investing in C2C learning and ensure longevity of municipal learning partnerships,[49] significant effort and time should be spent on ensuring that the necessary conditions are in place upfront (even before applying for funding). This phase is all about laying a foundation and building a solid platform that will ensure that investing the financial and human resources in the second phase (the actual mutual learning process) is warranted.

1. Conduct municipal assessement/scoping	The aim is to understand the municipality's planning and development contexts, as well as its readiness (i) to share and impart and (ii) to receive and act on knowledge willingly (see Figure 2).
2. Establish learning objectives upfront	Clear and concise terms of reference spell out the exact objectives and provide the learning teams with a focused cooperation and learning agenda (what is involved and what is not involved).
3. Define stakeholder roles, responsibilities and expectations	Clearly defined stakeholder roles, responsibilities and expectations ensure a more focused and precise learning programme.
4. Agree on realistic learning timeframes	This is a balancing act between sufficient time for interaction and the need to deliver outcomes before learning fatigue sets in. Learning programmes generally work if 3–5 years long, with outcomes delivered within the first two years.
5. Secure funding for the C2C learning process	Ideally funding should be secured before starting, so that it can be used to leverage additional resources. The capacity to administer and manage these funds must be in place.
6. Design M&E framework	Designing monitoring and evaluation (M&E) is important for keeping a project on track. Before starting the programme, the entire team should spend time developing key performance indicators for each project output.

[49] More than half of all municipal learning partnerships in South Africa were abandoned within the first two years (De Villiers, 2009).

Figure 2: The key elements of the assessment and scoping exercise

Mutual learning phase

This phase creates the enabling conditions for C2C learning. Research found that a typical outcomes-driven C2C learning programme progresses through five stages: "courtship and acclimatisation", where stakeholders begin to find each other; "inspiration and reflection"; "adoption of the learning"; "supported implementation of learning"; and "after-care" (Moodley, 2016). Cutting across these five stages are eight key considerations to assist cities in informing learning policy and guiding future practice.

1. Acclimatise partner cities	Maximising contact time between officials from the respective cities builds trust and lays a foundation for learning. Reconnaissance visits and contact time not directly related to training must be factored into budgets and business plans.
2. Include all key stakeholders	Broadening the delegations involved in city learning exchanges enables a common understanding of C2C learning programmes. (Learning is a personalised individual experience with C2C programmes simply providing the structure.)
3. Cultivate a shared worldview	Cultivating a similar worldview and having the same understanding of the complex realities being dealt with are important, especially when participants in the learning processes are from different disciplines.
4. Maximise social interactions in order to build trust	Interacting and engaging in relaxed social settings enables participants to build trust networks that are essential for meaningful learning and transformation. This requires consciously creating space and budgeting for such interactions.
5. Design a self-reflective learning methodology	Maximising group participation in an environment perceived as not threatening and valuing of face-to-face interactions enables self-reflection and results in better learning outcomes.
6. Document the learning process	Documenting the knowledge management journey of cities provides invaluable lessons for other practitioners and preserves institutional memory. Postgraduate students or research interns could be used to document the journey.
7. Re-mobilise leaders for action	Engaging and mobilising the administrative leadership, while supported by the political leadership, is needed throughout the process, but especially at the start of implementation. Leaders provide visibility, credibility and strategic direction.
8. Finalise and implement a change management strategy	Ensuring very early in the process that the municipality has the will and capacity to implement major changes in the way it operates is crucial. It requires active administrative and political leadership.

Post-learning support phase

This phase is important for consolidating learning, sustaining the momentum of the lessons learned and institutionalising the good practices. It also counters the temptation to re-prioritise energies, given the competing demands on busy South African practitioners.

1. Design an exit strategy	Well before the learning programme winds down, an exit strategy is needed that covers institutionalising the learning, implementing the M&E framework and sustaining the learning process without donor funding.
2. Prepare an effective communications plan	This plan may be part of the exit strategy but is better as a stand-alone. It includes learning milestones and how to inform stakeholders of the next steps in the learning process.
3 .Allow space for local government association (LGA) leadership	LGAs (SALGA in South Africa) provide a platform for exchange and are crucial for strengthening the diplomatic ties built during the learning programmes and for disseminating the learning accumulated to other municipalities.

Inspiration from Namibia: LGA strategic partnership for building capacity

Faced with capacity constraints, the Association of Local Authorities of Namibia (ALAN) worked in partnership with the larger and better-resourced Swakopmund Municipality, which had established the Swakopmund Municipal Institute of Learning (SMILE) with support from eThekwini's MILE technical team, to share the emerging lessons from the City of Otjiwarongo's urban strategic planning process with four other pilot municipalities in Namibia.

This partnership is a concrete example of how an under-capacitated LGA in Africa can find creative ways of sharing knowledge, if allowed the space to play a leadership role in the post-learning phase of C2C learning processes. It is also a powerful and symbolic statement of how a country can take ownership of its own learning and development process, using one of its own larger municipalities to provide support to less capacitated ones. While eThekwini Municipality did participate in the workshop, Swakopmund hosted and coordinated the learning, with ALAN facilitating the knowledge transfer process. Similarly, UCLG was present but played only an observer role. This is an example of a best practice: a decentralised and bottom-up governance model that is worthy of emulation in South Africa, where levels of capacity among municipalities vary greatly. SALGA could take the lead in knowledge-sharing processes and, in collaboration with the SACN, disseminate lessons learned to inspire other municipalities to take action.

Engaging All-of-Society Stakeholders for Action

Cities are often mired in legislative compliance and thus undervalue the power of unlocking the energies of potential partners in their territories. Undoubtedly, cities are in the best position to lead, coordinate and maximise the impact of cooperation, by coordinating the actions of all their local stakeholders. Cities can become the nucleus around which local partners organise, each contributing their unique strengths and competencies to achieving a common goal. The challenge lies in identifying the key stakeholders and their roles in the learning process. The stakeholder roles are summarised in Figure 3 which draws from UCLG (2020).

Figure 3: The roles of key stakeholders in C2C learning

STATE ACTORS			NON-STATE ACTORS		
Municipality	**Regional LGAs**	**National government**	**Private sector**	**Civil society(*)**	**Academia**
• To govern the learning process (intra-administrative, multi-stakeholder and multi-level coordination mechanisms) and foster institutional innovation • To ensure a more strategic, holistic, local approach (integrating all aspects of development, based on the needs, aspirations and resources of different partners) • To localise global challenges (SDGs), coordinating local action that is aligned with national and regional SDG strategies • To mobilise human, technical, financial (both their own and those of local, regional, national and international partners) • To draft integrated local plans and ensure their implementation with partners, based on partner competence (promoting inclusiveness and ownership of the learning process) • To challenge local stakeholders (and internal municipal departments) to think about how their actions can help to achieve targets and goals in partner cities	• To lobby national government (on behalf of local government) to pass legislation and policy that facilitate C2C learning, and to allocate resources • To develop municipal knowledge and capacities (through information, training and development, so local partnerships become more effective) • To foster a culture of learning and sharing, through exchanging good practices among municipalities • To foster links and relationships with sectoral ministries, with the aim of promoting better coordinated national and local development	• To provide data and research support (e.g., facilitating sharing of best practices for improved reporting, increasing awareness, and building capacity in collecting and processing statistics • To promote policies and mechanisms for the exchange of financial and technical resources, (e.g., facilitating knowledge exchanges and pooling expertise; assessing technical expertise, to identify tools and best practices; facilitating access to subnational sources; offering guarantees and risk-mitigation tools) • To strengthen all-of-society actions (civil society, academia, other government spheres) by institutionalising multi-level dialogue to ensure policy coherence, and actively promoting decentralised multi-stakeholder partnerships	• To share responsibility for sustainable development and the pursuit of the 2030 Agenda and the SDGs, by creating decent jobs and linking economic activity to local development • To engage with communities and other local stakeholders • To catalyse technology transfers and innovation that respond to local challenges • To develop and provide relevant information and data	• To engage and network with, and learn from each other within the spirit of a global civil society partnership • To create shared and inclusive local strategies promoting greater collaboration and joint ownership of the implementation of the 2030 Agenda and SDGs • To mobilise local resources • To hold municipalities accountable	• To provide knowledge and scientific expertise that strengthen sustainable development partnerships within the local municipality • To add value by generating data based on the local territory • To be an independent assessor of learning processes • To develop indicators and metrics for evaluating and reporting processes • To generate innovative research and exchanges through academic partnerships with peers in other cities and regions

(*) Civil society includes non-governmental organisations, community-based and faith-based organisations, environmental protection groups, organisations representing women, young people, students, immigrants or workers, and urban accessibility organisations.

Technical collaboration: Brazilian NGOs and Mozambican municipalities

Urban planning can be greatly improved by collecting valuable baseline data, which is specifically linked to territorial references and mapping. Brazil is an international leader in this practice, and the *cadastro*[50] is an important tool for guaranteeing the organisation of geographical space and providing services to municipal communities, based on the information collected.

The experience of the Brazilian City of Maringá was successfully shared with the municipalities of Maxixe, Inhambane and Manhiça in Mozambique. This project effectively mobilised partnerships among the international NGO Architects without Borders and the various Brazilian and Mozambican cities, with funding provided by Barcelona City Council. It is an example of good practice showing how NGOs and cities from different countries can work together to train and empower planners. Inspired by this example, eThekwini in South Africa has been working with UCLG to learn from São Paulo's data-driven approaches to human settlement planning.

Funding C2C Learning Post COVID-19

For C2C learning to be successful, it is crucial that funding is secured. However, the reality is that the impact of COVID-19 has constrained local government fiscal resources and possibilities. In South Africa, the devastating economic effects of the pandemic have drastically reduced the capacity of many municipalities to provide even basic public services. Therefore, C2C learning is unlikely to be a priority item in many South African municipal budgets. Moreover, since the 2008 economic crisis, international development funding for C2C learning has reduced (UCLG, 2020), and there is much greater competition between cities, agencies and their networks for these scarce resources. Nevertheless, despite the limited availability of this funding, many municipalities from more developed economies are committed to partnering with those in the Global South. It is simply about identifying the right partner (UCLG, 2020).

For South African practitioners, C2C learning initiatives should NOT depend entirely on securing international grant funding or rely exclusively on partners in the Global North, especially as South African municipalities have resources dedicated to development. Cities need to find new ways of accessing funding instead of depending on multilateral funding agencies. One way is to adopt a multi-stakeholder approach, whereby partners contribute to the learning programmes. This will require some creativity and the ability to manage small amounts of funding from different sources. The different partners will need to identify with the purpose and outcome of the cooperation project, ideally related to a specific SDG.

Seven recommendations are proposed and are derived from the UCLG guidelines (UCLG, 2020):

1. **Design a clear C2C learning plan aligned to the global policy agenda**
   A clear learning plan makes mobilising funding easier, as it shows a commitment (to the vision) and provides a systematic process, which gives confidence to potential investors and stakeholders.

2. **Contribute own municipal funding towards a C2C learning programme**
   Given the competing local priorities, allocating municipal resources to C2C learning may not be seen as an urgent need. However, political leaders could be lobbied to commit some operational funding or in-kind contribution if shown that the learning programme would deliver development outcomes and increase the city's profile. A useful starting point to secure political commitment is through the budget of the office responsible for C2C cooperation (e.g., the Office of the Mayor or the intergovernmental unit).

3. **Mobilise philanthropic finance**
   The private sector recognises the value of robust partnerships with government in achieving the SDGs. To harness private financial or in-kind resources will require showing that the C2C learning programme would provide them with tangible benefits in the municipality where they are located. Cities could also leverage digital platforms for crowdsourcing donations, which is an option that cities in South African have not yet explored.

50
A public register showing details of ownership of the real property in a district, including boundaries and tax assessment s https://www.thefreedictionary.com/Cadastra

4. **Harness academic and research resources and expertise**
   Universities are key partners, as they have existing international relations and align with the SDGs through international education standards. Academics could commit intellectual resources (including training and capacity building), research funds could be creatively utilised to help fund partnerships, and post-graduate students (rather than outside service providers) could assist in designing programmes.

5. **Match development donor funding with local priorities**
   Most development partners are developing specific budget support related to the SDGs and trying to make funding as accessible as possible. Therefore, cities need to understand how these funding mechanisms work and how to engage with partners in order to access them. Where donor funding has already been secured for service delivery in under-resourced contexts, a capacity-building approach could be adopted to allow C2C learning to be built into the project design of sector-specific projects (e.g., the provision of water, sanitation, local economic development, energy). This could be another creative way to use international funding to promote peer learning.

6. **Engage with LGAs and national government**
   LGAs may have greater access to international networks, and so municipal learning teams should engage with SALGA to see how best to mobilise their resources. National ministries may also have set aside funding for international cooperation, which cities may be able to access with the support of SALGA and SACN. For example, in Morocco, the Ministry of the Interior created a fund to support C2C learning that provides nearly 60% of the required financial support, provided that the local authority works with a local collective on a specific project.

7. **Identify local political champions**
   The City Mayor, Deputy Mayor, or another relevant political leader or senior politician who has credibility with the city should be made the learning project's champion and then be fully briefed on the importance of municipal cooperation. Once on board, such champions could lobby for resources through their local, regional, national and global networks.

Positioning a city globally: the Johannesburg−Lilongwe mentorship programme

The City of Johannesburg assisted Malawi's capital, Lilongwe, to formulate a city development strategy (CDS). This mentorship programme received a 2012 International Guangzhou Award for Urban Innovation, raised the City of Johannesburg's international profile and consolidated its position in the UCLG.

In 2007, the City of Lilongwe decided to develop a CDS but had no experience in the strategic urban planning process and faced leadership, management, resource and governance challenges. Therefore, Lilongwe (with support from the UCLG and the Malawi LGA) looked for guidance from Johannesburg. The Johannesburg team offered targeted support and guidance to the Lilongwe City Council. As a result, the Council improved its capacity to formulate and adopt strategies in economic management, shelter, land, and infrastructure; and computerised much of its accounting and billing system, leading to more transparency, accountability, efficiency and higher revenues. This enabled the council to raise staff salaries, based on the new performance management system. These improvements enabled the Council to leverage additional funds, which were used to create nearly 2000 residential and commercial plots for the poor, improve water and sanitation in the settlements, repair dilapidated roads and instal street lighting.

The mentorship also strengthened the relationship between South Africa and Malawi and resulted in further benefits, with representatives from Malawi's other major cities (Blantyre, Zomba and Mzuzu) participating in all of the CDS workshops. UCLG facilitated mentorship between Mzuzu and eThekwini, which led to Mzuzu's first visioning process and strategic planning framework.

Source: Cities Alliance Cities without Slums Newsroom Release, January, 2013

Lessons Learned

Cities embarking on their learning journey, especially in a post-COVID-19 world, should consider these 10 critical factors from lessons learned

1. Invest in a scoping exercise before starting any C2C learning initiative

As South African cities race to find innovative ways to rebuild their economies post COVID-19, there is a real danger of city partnership agreements being finalised before proper assessments are conducted. The temptation to finalise any learning partnership without undertaken a scoping exercise must be resisted. Such an exercise does not have to cause unnecessary delays to the project. It involves:

- assessing the contexts of both cities to ensure that the learning can be adapted effectively,
- getting full commitment from the leadership in both cities for the programme over at least three years, and
- assessing the stability and the willingness of the municipality to implement the learning fully.

2. Establish clear learning objectives before the process commences

A critical success factor for sustaining learning is establishing very clear terms of reference that spell out the learning areas and how to realise the objectives. These must be framed carefully and not deviate from the brief, which requires project discipline, especially as the nature of urban governance is often fluid, making it easy to cross over into other sectors and blur the project's focus.

3. Set up a realistic timeframe agreed to upfront by all parties

Most cities may be prepared to invest in and willing to commit staff, time and financial resources to a three-year process (from conceptualisation to implementation). The learning project needs to be tied to the workplans and performance agreements of the staff, so that it is not seen as an additional burden but part of their overall performance plan.

4. Design and agree on a monitoring and evaluation process

Both city teams need to craft a joint M&E process, to ensure that the learning deliverables and outcomes are achieved on time and to their satisfaction. A good practice is to set quarterly targets upfront that are reported back to all role players, as communicating the progress, successes and challenges helps build confidence and credibility in the project.

5. Secure funding early in the process

Challenges are often experienced when the project relies on donor funding that is not cleared on time. Therefore, funds need to be secured upfront and can be used to leverage other resources, for example, private sector and local university partners who may be in a position to contribute towards some costs, if they are satisfied that other donor funding has been secured.

6. Entrench the knowledge management function

There is a strong case to be made for establishing a small but dedicated unit or team to coordinate learning and capacity building as part of its strategic function. Ideally, this unit should be located within the Office of the City Manager and work closely with city strategy, research and policy functions. This team must be given the mandate to work across departments and with the intergovernmental office to secure suitable capacity and skills from the relevant departments that will be committed for the long-term duration of the project.

7. Tailor the methodology to local needs

As each local context is unique, the plan needs to be robust and responsive to local realities, while being able to use or adapt any international innovations. Many innovative models and tools are available (e.g., UCLG Learning offers a digital Learning Forum containing many peer-learning technologies).

8. Invest in building relationships and trust

Real and permanent transformative action results from the building of strong trusted ties. Therefore, the learning team must be able to engineer a process that maximises social interactions in order to facilitate the process of building trust. During learning exchanges, practitioners must be able to spend personal time with each other, whether travelling or socialising outside of the formal exchange sessions.

9. Design a change management plan for implementing the learning

The municipality must have the will and the capacity to make major changes to the way it operates. As innovations and good practices are identified, these need to be incorporated into a change management plan that will support the implementation process. Again, the roles of both the City Manager and the senior management team, fully backed by the political leadership, are key.

10. Seek partnership support from local government associations

Most African municipalities rely heavily on their LGA for support in C2C learning partnerships, to provide additional capacity or to ensure direct involvement from national ministries. In South Africa, SALGA should be included as a partner, especially in the early phase of the process, as it has forged good relationships with other international LGAs and could play an important brokerage and trust-building role. Together with SALGA, the SACN could assist in the dissemination of lessons learned to other South African cities.

A Final Word

There is no single silver bullet to ensure C2C cooperation and learning will be effective. Any approach needs to be tailored to a city's unique local context. Cities need to be bold and experimental, and to remember that they will not necessarily get everything right the first time. Allowing the city learning team to make mistakes and learn from them, to innovate and experiment as part of the organisational culture will help build an appetite for risk-taking and innovation. Lastly, cities should be encouraged to take full advantage of the range of C2C learning online resources that are made available by the UCLG's Learning Forum. Good luck in your learning journey!

Recommendations for Action by the SACN

At the request of the SACN, we offer a set of recommendations for actions to be considered by the SACN that are based on the knowledge of where South African cities are currently, and a vision of what needs to be done in order to maximise southern African learning.

1. Organise a learning exchange for city practitioners

This guide to C2C learning for South African cities is an important first step. The next step in re-energising C2C learning in South African cities is to organise an in-person learning exchange for C2C learning practitioners, where they can engage with the content of the guide and begin to share the lessons learned. The aim would be to assist practitioners in making their current methodologies more robust.

2. Craft a coordinated and needs-based learning agenda

What is lacking is a well-coordinated learning agenda for South African cities. Although this may be part of the mandate of SALGA, the SACN should take the lead (working in collaboration with SALGA) to help metros identify their learning needs and potential learning partners within South and southern Africa and beyond. This idea could be tested at the suggested learning exchange for city practitioners.

3. Re-claim South African cities' leadership role in C2C learning

Over the last four years, the leadership role once played by South African city practitioners and institutions has slowly been eroded, due to a complex set of governance reasons. This leadership role needs to be reclaimed, through the nurturing of previous relationships and the forging of new strategic relations, which could be facilitated by both the UCLG and United Cities and Local Governments of Africa (UCGLA) Learning Teams.

4. Build institutional capacity in knowledge management

South African metros should consolidate their knowledge management functions and, where possible, build capacity for creating, organising, sharing and storing municipal knowledge. The SACN, supported by SALGA, has a role to play in this.

5. Update the SACN website's C2C learning offerings

The SACN website is a powerful knowledge tool for South African practitioners and a platform for disseminating cutting-edge research reports, publications and media updates with easy links to each of the metros. The website should include a 'C2C learning' section, with links to resource materials, as part of the SACN contribution to promoting effective knowledge management and learning in South African cities.

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City Diplomacy and Climate Change

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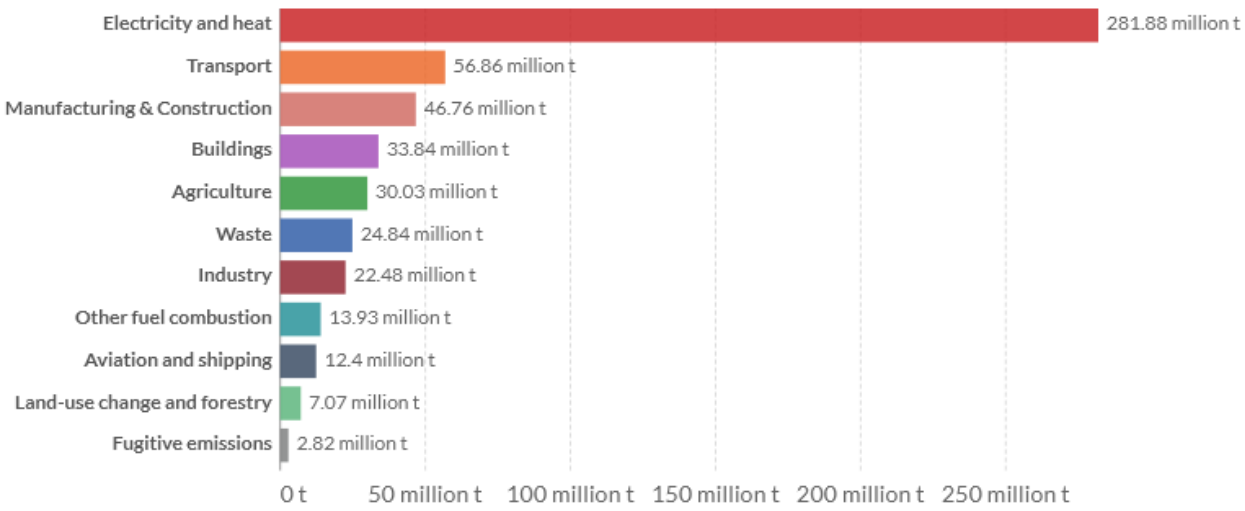
Introduction

National and subnational governments are seized with finding appropriate mechanisms to confront the consequences and impact of climate change. Climate change is defined as a long-term change in average temperature and weather patterns, and its impact varies in intensity across the world. Climate change is to some extent the result of natural events (e.g., solar cycle variations) but is mostly due to human behaviour, primarily the burning of fossil fuels (coal, oil and gas) that produces greenhouse gas (GHG) emissions, which trap the sun's heat and raise temperatures by acting like a blanket wrapped around the earth. As the earth's temperature increases, other aspects of climate are affected, manifesting in droughts, water scarcity, rising sea levels, flooding, fires and storms, among others. Currently, the earth's temperature is 1.1ºC warmer than in the late 1800s and is projected to be 3.2ºC warmer by the end of the 21st century if human behaviour continues along the same path.[51] The result will be an unliveable climate in certain areas of the planet, affecting small island nations and other developing countries, in particular.

GHGs, which include carbon dioxide, water vapour, nitrous oxide, fluorinated gases and methane, emanate from coal used for electricity generation, petrol and diesel for motor vehicles, deforestation and landfills. In 2022, ten countries have been responsible for 68% of global emissions: China (28%), the USA (14%), India (7%), Russia (5%), Japan (3%) Germany (2%, but 10% for entire EU), Korea (2%), Iran (2%), Canada (2%) and Saudi Arabia (2%).[52] South Africa is the 14th largest source of GHG emissions, contributing 1% to the global figure, and its emissions per person are higher than the global average. The electricity and heat sector contribute most to South Africa's GHG emissions (Figure 1), with the two largest individual contributors being Eskom and Sasol.[53]

Figure 1: GHG emissions by sector in South Africa (2018)



Note: Emissions are measured in carbon dioxide equivalents (CO_2eq). This means non-CO_2 gases are weighted by the amount of warming they cause over a 100-year timescale.
Source: https://ourworldindata.org/co2/country/south-africa?country=~ZAF

[51] https://www.un.org/en/climatechange/what-is-climate-change
[52] https://worldpopulationreview.com/country-rankings/greenhouse-gas-emissions-by-country
[53] https://www.polity.org.za/article/south-africa-the-12th-biggest-source-of-greenhouse-gases-yes-but-thats-not-the-only-measure-that-matters-2021-04-19#:~:text=A%202020%20report%20by%20South,and%201.16%25%20from%20fluorinated%20gasses

COP (United Nations Climate Change Conference)

Recognising, understanding and engaging with the full global impact of climate change is led by the United Nations Climate Change Conference, which has been held annually for the last three decades. This global climate summit is referred to as the 'Conference of Parties' (COP), which brings together almost every country to discuss and mitigate the impact of climate change. This is no longer a fringe issue but a global priority.

> Climate Change is the defining issue of our time and [the 2019 Climate Action Summit on 23 September needs to] inject momentum in the "race to the top" among countries, companies, cities and civil society […] to achieve the objectives of the Paris Agreement.[54]

In 1992, 178 countries met in Brazil for the United Nations Conference on Environment and Development Earth Summit meeting, where they agreed, under the United Nations Framework Convention on Climate Change (UNFCCC) treaty, to commit to reducing GHG emissions but without any individual quantified targets or national accountability. In 1997, the Kyoto Protocol, which came into effect in 2005, recognised that the responsibilities for reducing GHG emissions should not be shared equally among countries, but rather that the developed countries, as the primary parties responsible for the increase in GHG emissions, should drive the reductions. In 2012, the Doha amendment increased the emission targets until 2020, but these are not legally enforceable because the amendment was not ratified by the required number of states.

The Paris Agreement

In 2015, the Paris Agreement focused on GHG emissions, mitigation measures and financing. The objective was to gain global consensus on the policies and actions required to reduce GHG emissions, to ensure that the Earth's average temperature remains lower than 2ºC above pre-industrial levels, with the aim of limiting the increase to 1.5ºC. A total of 193 parties (192 countries and the EU) signed the Paris Agreement, which required each country to develop national plans that outline how and by how much carbon emissions will be reduced, and include a finance strategy for achieving the planned reduction in emissions. This is known as the National Determined Contributions (NDCs) and must be updated every five years. However, as with the UNFCCC treaty, the NDC levels are not internationally binding and there is no enforcement to ensure countries adhere to their own NDCs, but the progress of each country is tracked through reports prepared every two years.

COP26

As a precursor to attending the COP26 summit held in Glasgow in November 2021, each country was required to update their NDCs. In its revised NDCs, South Africa committed to reducing its domestic carbon emissions to between 420 and 350 megatons by 2030. Under the banners of mitigation and adaptation, parties at COP26 also agreed to the following:

- To stop using coal to generate energy because it is currently the single biggest contributor to GHG emissions. Coal power would be 'phased out' or 'phased down', and the world's largest economies agreed to end international coal finance.
- To halt and reverse deforestation in 91% of global forests by 2030, as part of the plan to restore ecosystems and manage land sustainably, including conserving coastal wetlands and peatlands. This has the added benefit of supporting the adaptation strategy of promoting biodiversity and climate vulnerability.
- To accelerate the switch to electric vehicles (EVs), as part of the strategy to reduce road transport's contribution to GHG emissions. Vehicle manufacturers have committed to phase out fossil-fuelled vehicles, and seven European OEMs (original equipment manufacturers) have committed to producing 100% zero emission vehicles by 2035.
- To reduce methane gas by 30% by 2030, which six of the world's top 10 methane emitters committed to do.
- To provide funding packages to support vulnerable countries to adapt to the intensified weather events that are common impacts of climate change, ideally under the respective countries' National Adaptation Plan.

[54] https://media.un.org/en/asset/k1d/k1dx4m3xar

Just Energy Transition Declaration

For South Africa, the most significant implication was the 'phasing out' or 'phasing down' of coal power, as 90% of the country's current energy is generated from coal-fired power stations. Given South Africa's commitment to the NDCs, reducing carbon emissions will require introducing climate change mitigation policies, which will have a significant impact on the workforce, especially in the energy sector. Therefore, the introduction of climate change response measures must be accompanied by a just transition of the national workforce, through creating decent work and quality jobs. At COP26, a Political Declaration on the Just Energy Transition in South Africa was signed by South Africa, the UK, USA, France, Germany and the EU. Under this agreement, South Africa's partner countries committed to provide R131-billion funding over the next 3−5 years for South Africa's just energy transition from coal to renewable energy. The funding will be channelled into the country primarily through grants and concessional finance. The intent is to assist South Africa in its "pathway to low emissions and climate change resilient development, to accelerate just transition and decarbonisation of the electricity system and develop new economic opportunities such as green hydrogen and electric vehicles."[55]

South African Policy and Legislation

Over the last two decades, South Africa has developed various policies and legislation related to climate change, of which the most relevant are:

- The National Climate Change Response Policy White Paper (NCCRPP, 2011), which is the foundation for the other legislation.
- The Carbon Tax Act (2019), which imposes taxes or levies on various activities that emit emissions, including electricity generation using fossil fuels and vehicles, with the aim of promoting the use of renewable energy and the sale of low-carbon emission vehicles.
- The Climate Change Bill (2022), which is currently being tabled before Parliament and underpins the regulatory landscape for managing emissions, placing emission caps on sectors and companies.

National Climate Change Response White Paper[56]

The White Paper's aim is to provide guidance on climate change mitigation and adaptation over the short (five years), medium (20 years) and long term (until 2050). The main objectives are to manage climate change impact and to contribute to the global effort of reducing GHG emissions. The mitigation and adaptation strategies are intended to be reviewed every five years, to ensure that the interventions proposed consider any scientific advances and the latest global trends. A crucial aspect is measurement and evaluation, to monitor the success of the measures implemented.

- The mitigation strategy includes emission reductions for each sector, with a cost-benefit analysis using carbon budgets. As part of the evidence-based policymaking, all programmes proposed would include research and development (R&D), data collection and analysis that would be used to review and refine the strategies (as data becomes available) and to encourage investment in lower carbon and energy-efficient technologies.
- The adaptation strategy focuses on understanding and planning for long-term climate projections, potential resource requirements and disaster risk planning, which could then be used as input for the sectoral planning on water resources, agriculture, biodiversity, health, human settlements and the national framework for disaster risk management.

Carbon Tax Act[57]

Introduced in May 2019, the Carbon Tax Act is built on the principle of the 'polluter pays', i.e., the cost of environmental damage is borne by those responsible. It is applicable to industries whose activities result in the release of GHGs above certain thresholds (as stipulated in Schedule 2). The Act focuses on six main GHGs: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride. The gases are multiplied by their global warming potential to get to a common denominator (CO_2eq), which was developed by the Intergovernmental Panel on Climate Change (IPCC). To determine the

[55] https://ukcop26.org/wp-content/uploads/2021/11/COP26-Negotiations-Explained.pdf; https://ukcop26.org/the-glasgow-climate-pact/
[56] https://climate-laws.org/geographies/south-africa/policies/national-climate-change-response-policy-white-paper-nccrp#:~:text=National%20Climate%20Change%20Response%20Policy%20White%20Paper%20(NCCRP),-Executive&text=The%20policy%20has%20two%20main,resilience%20and%20emergency%20response%20capacity
[57] https://www.thesait.org.za/news/498153/The-Carbon-Tax-Act-Explained.htm#:~:text=The%20Carbon%20Tax%20Act%20specifies,year%20until%2031%20December%202022

carbon tax, CO_2eq is multiplied by the current rate of tax (currently at R120 per tonne of CO_2eq, subject to the consumer price index of the respective year), with taxpayers allowed to use tax-free allowances to reduce their tax obligations. Although the impact of the Carbon Tax Act on reducing GHGs is not yet evident in South Africa, after the introduction of a carbon tax, GHGs reduced by 10% in Denmark (1992−2000) and 26% in Sweden (1990–2017), while both economies continued to grow.

Climate Change Bill[58]

In February 2022, the Climate Change Bill was tabled in Parliament. Aligned to the NCCRP and South Africa's commitments under the Paris Agreement (see earlier), the Bill allows for the introduction of a National Adaptation Strategy, which is intended to guide how South Africa will implement climate change adaptation measures in the short, medium and long term. It also introduces five-year sectorial emission targets (SETs) that are applicable to sectors and their subsectors, which will be guided by a Sector Adaptation Strategy. These targets should align with the national GHG emission reduction trajectory, which is monitored and reviewed every five years. The carbon budget allocation system tabled under the NCCRP is intended to link to the Carbon Tax Act. The Bill provides the mandate for the Presidential Climate Commission (PCC) and for local and provincial forums to coordinate a response to climate change adaptation and mitigation.

Just Transition

The concept of a 'just transition' was introduced in the USA during the 1970s, when environmental protection policies started to have an impact on the energy sector job market. In 2015, the International Labour Organization (ILO) developed the "Guidelines for a just transition towards environmentally sustainable economies and societies for all", which expanded the concept to include poverty, global inequality, racism, food and energy justice.

As the world moves to more sustainable energy generation, South Africa is one of the countries most vulnerable to transition risk because of changing global policy and demand for goods, services and technology. A just transition is required to manage the economic and social impacts of climate change, which were evident in the recent floods in KwaZulu-Natal. Fairness and justice are inherent to the concept of just transition (C40 Cities, 2021: 6). This includes the following concepts:

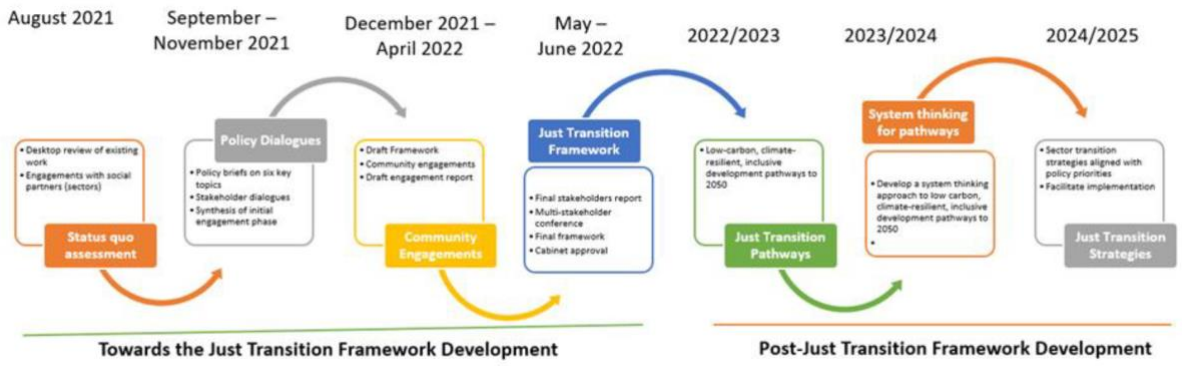
- Distributive justice (the equitable distribution of risk and responsibilities related to the transition) is about the "socially just allocation of resources during and after the transition" to renewable energy.
- Restorative justice is about repairing historical environmental injustices and ensuring that they do not recur.
- Procedural justice is about recognising the importance of who makes decisions and how they are made, specifically whose voices are heard and where.

In South Africa, the concept of a just transition was included in the 2011 climate change policy framework developed by the Congress of the South African Trade Unions, and cemented in the 2012 National Development Plan (NDP), which introduced the concept as part of the move towards a low-carbon economy. Since then, the National Planning Commission (NPC) year-long stakeholder engagement process identified energy, water and land use as the sectors requiring intervention. Poverty, inequality and unemployment are the central themes of the just transition work.

In 2018, the PCC was proposed and tasked with the oversight and coordination of a national just transition towards a low-carbon, inclusive, climate resilient economy and society. Established in September 2020, the PCC's mandate is governed by the Climate Change Bill currently before Parliament. One of the Commission's first tasks was to develop a framework for a just transition, which is currently out for public comment. The framework builds on the work done by the NPC and was informed by a series of public dialogues in 2021 that considered transition in relation to water, coal, finance, governance, unemployment and sustainable livelihoods, and both local and international policy. The framework aims to deal with the practical issues of jobs, local economies, skills, social support and governance, during the transition from a fossil, fuel-driven economy to an environmentally sustainable one. It is the first building block in facilitating a national just transition to a low-carbon, climate-resilient, inclusive economy and society (Figure 2). In building such an economy and society, no-one should be left behind and "we need to ensure decent work for all, social inclusion, and the eradication of poverty. We also need to protect those most vulnerable to climate change, including women, children, people with disabilities, the poor and the unemployed, and protect workers' jobs and livelihoods." (PCC, 2021: 3)

[58] https://www.webberwentzel.com/News/Pages/Climate-change-bill-introduced-in-Parliament.aspx

Figure 2: Process for creating and implementing the Just Transition Framework



Source: PCC (2022: 3)

National Directives

As part of its commitment to the Paris Agreement and NDCs, South Africa has implemented several initiatives, which require further funding for expansion, and is exploring other initiatives that will require funding by the respective national, provincial and local government departments. As its name indicates, the Just Energy Transition (JET) funding commitment will focus on the energy sector, through loans and/or concessional grants.

Energy

The national Department of Public Enterprise (DPE, including Eskom), Department of Mineral Resource and Energy (DMRE, including mining) and Department of Fisheries, Forestry and the Environment (DFFE, which is responsible for climate change issues) have multiple projects that could be eligible for the funding.

Eskom[59]

This state-owned entity is currently responsible for energy generation, transmission and distribution, with 90% of the energy provided by coal-powered stations. In 2020, Eskom established the JET office, which is responsible for driving the transition to clean and green energy and is part of Eskom's long-term strategy of achieving 'net-zero' emissions by 2050 while being financially sustainable. Eskom has a pipeline of JET projects and plans to establish a market of manufacturing and service industries for the renewable energy market that can be ringfenced in special economic zones (SEZ). A just energy transition financing facility is being set up to provide concessional funding for clean energy projects based on pay-for-performance, with progress payments made at agreed-upon milestones. The JET programme outlines Eskom's intent for transitioning generation, transmission and distribution and is aligned to the Integrated Resource Plan (IRP2019) for South Africa.

- Generation: Eskom's aim is to decommission 5400 MW of coal-generated electricity by 2022, 10 500 MW by 2030 and 35 000 MW by 2050, including retiring nine coal-fired plants by 2030. These decommissioned plants will be re-purposed and redeveloped as solar power, wind and gas plants – Komati is the pilot site.
- Distribution: The aim is to allow Independent Power Producers (IPPs) to connect to the grid. In June 2021, amendments to the Electricity Regulation Act (2006) were published to enable businesses and individuals to generate up to 100 MW of electricity without a licence from the National Electricity Regulator South Africa (NERSA) which necessitates the strengthening of the corridors.
- Transmission: The intent is to install 8 000 kilometres of transmission grid over time to allow for new capacity with a particular focus in the Northern and Eastern Cape, where renewable energy capacity is already established and expanding.

[59] https://www.eskom.co.za/; https://www.eskom.co.za/wp-content/uploads/2021/12/JET_FactSheet002.pdf

Renewable energy: solar and wind projects[60]

South Africa's climate makes solar and wind power viable alternates to coal-powered energy. Over the last decade, the cost of renewable energy has decreased considerably and, with continued investment in solar and wind projects, should become cheaper than fossil fuels.

In partnership with the National Treasury and the Development Bank of Southern Africa (DBSA), the DMRE has established the IPP Office, whose main function is to secure electricity from private sector renewable and non-renewable energy sources in an effort to diversify South Africa's energy mix. The aim is to incorporate the national objectives of job creation, social upliftment and broadening of economic ownership into each project. Each project must give a percentage of its revenue to socioeconomic development of the surrounding community and black-owned enterprise development, as well as meet local ownership requirements. The department is currently running Bid Window 6 for the renewable energy IPP procurement programme.

If South Africa is to achieve 'net zero' emissions by 2050, investment in the renewable sector is crucial. Concessional finance reduces risk for innovative investment and accelerates the just energy transition, as illustrated by projects in the Northern Cape that have been in operation since 2015 and 2017 respectively.

- The Sere Wind Farm came into operation in 2015 at a cost of $243-million and was financed with public funds from a range of funders. Eskom owns and operates the project, which is an example of implementing a just transition that focuses on skill transfer and training.
- The Xina Solar One Concentrated Solar Power project began operations in 2017 and uses innovative technology to store and distribute power for 5.5 hours after sunset, which allows energy to be used during the evening peak demand. It has cost over $908-million and has supported black ownership, created local jobs and used local suppliers.

Manufacturing and technology

The national Department of Trade, Industry and Competition (DTIC, which includes manufacturing) and the Department of Science and Innovation (DSI, which includes technology) are also contenders for the JET funding, to support projects that assist South Africa's export industries to meet changing global trends.

Electric vehicles[61]

At COP26, General Motors, Jaguar, Fiat, Volvo, Ford and Volkswagen committed to manufacturing 100% EVs from 2035. Therefore, If South Africa wants to continue supplying automotive vehicles to the international market, its industry needs to move towards manufacturing hybrid and EVs at existing automotive plants. South Africa is a net exporter of vehicles, and the automotive sector currently accounts for 4.9% of gross domestic product and 27% of manufacturing output. OEMs, which include BMW, Ford, Mercedes-Benz, Volkswagen, Nissan, Toyota and Isuzu, are located in three manufacturing hubs in the Eastern Cape, Gauteng and KwaZulu-Natal.

The DTIC may drive investment, but the national Department of Transport (DoT) governs the regulatory and policy environment in this sector. In 2018, the DoT published a Green Transport Strategy, which outlines principles and aims for reducing GHG emissions for the transport sector. In partnership with the DTIC and National Treasury, the DoT offers incentives to producers and sellers of EVs, and promotes research into EV batteries and the use of EVs by government – government accounts for 2.9% of vehicle sales in South Africa.

In May 2021, the DTIC published the Auto Green Paper on the Advancement of New Energy Vehicles in South Africa for public comment. The paper highlights the challenges and possible instruments that can be used to minimise disruption in the transition to EVs; e.g., tax reforms and specifically the *ad valorem* luxury item tax that is currently charged on imported EVs over and above the import tax. The manufacture of EV batteries often accounts for half the cost of the vehicle and is an area that needs exploring (and funding), along with the skills required to build and maintain EV vehicles.

[60] https://www.ipp-renewables.co.za/; https://www.ipp-projects.co.za/Home/About; https://www.climateinvestmentfunds.org/news/supporting-just-transitions-south-africa

[61] https://www.greencape.co.za/assets/EV_MIR_6_4_22_FINAL_DIGITAL.pdf; https://www.gov.za/sites/default/files/gcis_document/202105/44606gen308.pdf; https://www.transport.gov.za/documents/11623/89294/Green_Transport_Strategy_2018_2050_onlineversion.pdf/71e19f1d-259e-4c55-9b27-30db418f105a

Green hydrogen[62]

Hydrogen has become a viable means of reducing GHG emissions, especially in the transport and industrial sectors. It is used in various industrial processes, such as the production of ammonia and refining of oil, and can be produced both from fossil fuels (coal and natural gas) and from renewable energies (solar and wind). Currently, it costs more to produce 'green' hydrogen from renewable resources than from fossil fuels. However, this cost will reduce, as countries, such as Germany, Japan, South Korea and Australia, invest more in R&D for hydrogen projects. Furthermore, these countries do not have the necessary natural resources to supply green hydrogen at scale, whereas the South African climate has ideal weather conditions for solar and wind generation, providing an opportunity to produce green hydrogen for the export market at competitive prices. To make this a viable export commodity, investment is needed to understand better how to manage the volatile nature of the gas and determine the best storage and transportation infrastructure. The DSI's Hydrogen Society Roadmap (HSRM) is a framework for integrating hydrogen-related technologies into the various sectors of the economy.

Special economic zones[63]

SEZs are designed to facilitate private sector investment through a partnership among all three spheres of government, investors and the community. The Greentech SEZ in Atlantis, Cape Town is the first of its kind in Africa. Established in 2018, it has attracted investment of more than R700-million rand and created 322 permanent jobs. It is the primary source for green manufacturing facilities, being home to three large manufacturing companies and 60% of South Africa's green developers. Products that are and will be manufactured in this SEZ include wind turbines, solar panels, insulation, biofuels, materials recycling and green building materials. With the launch of Bid Window 6, the potential is enormous for the SEZ to expand and be part of the just transition for Atlantis, which is an economically depressed area. The SEZ engages with the Atlantis community, through a community stakeholder network that focuses on training for local youth.

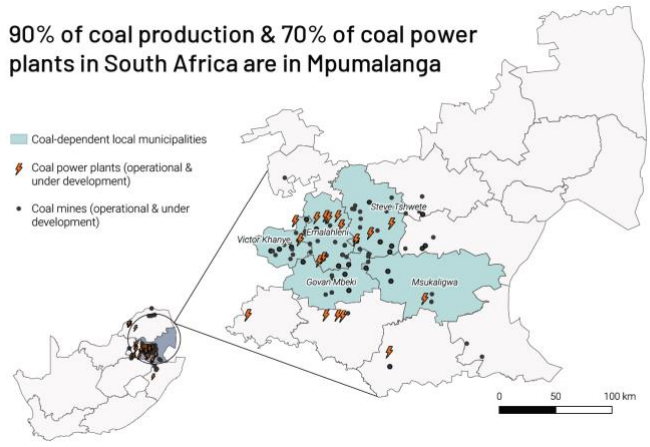
Provincial directives

Mpumalanga: Just transition for coal mining towns

Mpumalanga is home to 90% of South Africa's coal production (controlled by the private sector) and 70% of its coal power plant capacity (controlled by Eskom). The coal mining business is owned locally by Seriti and Exxaro, following the exit of Anglo American, South 32 and Glencore from the industry. The sector employs 10% of the province's workforce, with mines concentrated in two district municipalities (Nkangala and Gert Sibande) and four local municipalities (eMalahleni, Steve Tshwete, Govan Mbeki and Msukaligwa), as shown in Figure 3.

Figure 3: Mpumalanga's coal-centred economies

The coal mines and power plants are concentrated in the western and central parts of the province.



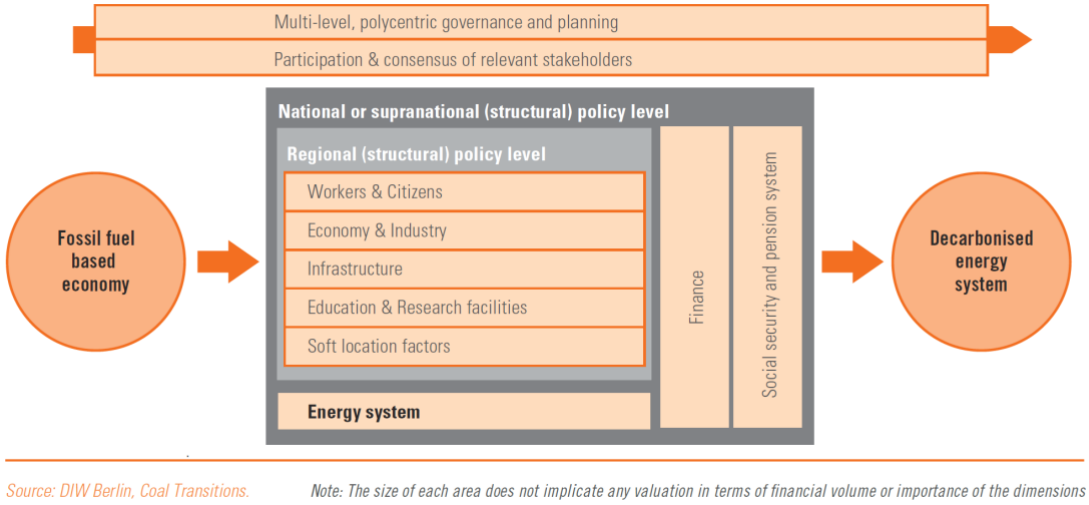
Source: Pai (2021: 7)

[62] https://www.dst.gov.za/index.php/resource-center/strategies-and-reports/3574-hydrogen-society-roadmap-for-south-africa-2021; https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067137/fugitive-hydrogen-emissions-future-hydrogen-economy.pdf

[63] https://c40.my.salesforce.com/sfc/p/36000001Enhz/a/1Q0000001lGx/hSbfzKMiqFAGycz_lVfdL2rQzSXYUKxdk.ENKNSFLbk; http://greencape.co.za/assets/Atlantis-SEZ-tech-brochure/ASEZ-Annual-Report-FINAL-v2.pdf; https://www.greencape.co.za/assets/Atlantis-SEZ-content/Atlantis-Brochure-Short-version.pdf

Transitioning to a non-coal energy sector would have a significant impact on the province, and so any just transition plan would need to create new industries for the current coal-dependent towns. This would require meaningful consultation and participation of all stakeholders early on in the process, in particular the affected communities – in the Netherlands and Germany, unions were represented on the committees overseeing the transition. Figure 4 highlights the range of issues to be discussed within the various levels of government, using Germany as an example.

Figure 4: Multi-level governance requirements for coal transition



Source: Sartor (2018: 33)

The just transition plan could include diversification strategies, the location of nationally relevant innovation or energy transition projects, the strengthening of local entrepreneurial networks, and the improvement of local infrastructure and other factors such as land reclamation and beautification. In Mpumalanga, options include:

- Establishing solar power plants, as the current energy-distribution infrastructure positions the province well for distributing renewal energy – and IPPs are now allowed to produce 100 MW per site without a licence from NERSA.
- Diversifying business through repurposing coal plants under Eskom's JET programme, for battery storage and hydrogen technology, bottled water packing, and developing industrial parks.
- Expanding the production of nuts and fruits for local and export markets (Mpumalanga is currently the leading producer of nuts and fruits in South Africa and has a well-connected road network), provided suitable arable land and water resources are available.
- Rehabilitating the environment around decommissioned mines and power plants, to provide short-term job opportunities that require limited training.

A just transition is an opportunity to address the social and economic challenges of coal-dependent communities, while providing a pathway out of coal by 2050.

Municipal directives: Climate action plans

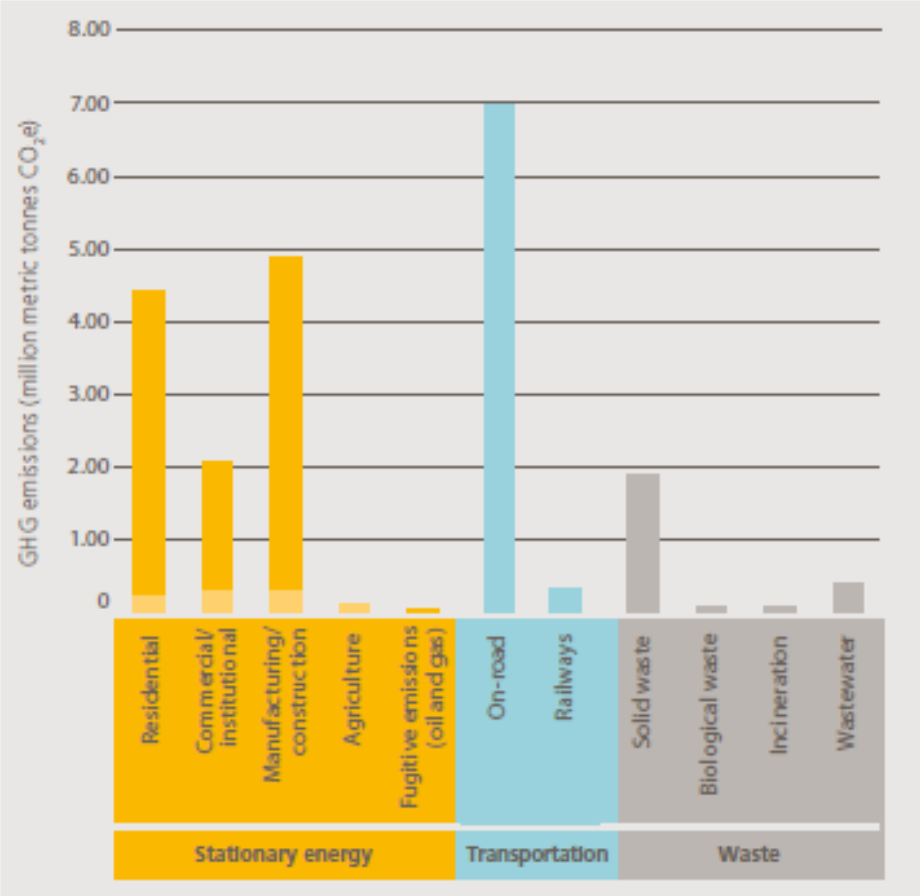
Three metros in South Africa, in conjunction with private sector partners, have developed individual city climate action plans (CAPs) that outline climate change adaptation and mitigation actions. The CAPs align with national directives, including reducing reliance on Eskom for energy generation and distribution. As other national directives gain momentum, the cities will need to adjust their processes related to energy-efficient buildings, vehicle emissions and waste disposal, although they are already in the process of passing the relevant bylaws that allow them to implement stricter controls.

Johannesburg

In 2021, the city's Environment and Infrastructure Services Department (EISD) developed a CAP, with support from the C40 Cities Climate Leadership Group (COJ, 2021). The CAP aligns to the city's 2040 Growth and Development Strategy (GDS) and the Paris Agreement, setting a target of net zero emissions and a resilient city by 2050. It is underpinned by the city's commitment to achieving an equitable low-carbon transformation that is pro-poor. Under the Edmonton Declaration, the city also commits to scientific and technological collaboration to develop innovative adaptive and mitigation solutions.

In Johannesburg, buildings and industry account for 54%, transport for 35% and waste sectors for 11% of GHG emissions (Figure 5). The city's emission reduction targets (from current baseline) are: 25% by 2030, 75% by 2040 and 100% by 2050.

Figure 5: City of Johannesburg GHG emissions (2016)



Source: COJ (2021: 32)

The adaptation measures proposed are informed by evidence (from the city's Climate Change Risk and Vulnerability Assessment and the Council for Scientific Innovation and Research's Green Book[64]) and focus on ensuring water security, creating resilient human settlements, implementing flood and drought management strategies, and developing resilient infrastructure. The funding for capital investment is estimated at R1.3-billion and R650-million for operations, with 60% of the operations budget being sourced directly from the city.

The mitigation measures for reducing GHG emissions include stricter building standards and codes for energy efficiency, grid decarbonisation and rooftop solar photovoltaic (PV) technology for renewable energy, a modal shift from private to public transport, the use of electric and hybrid vehicles, stricter vehicle emission standards for transport and waste, reduced solid waste through recycling and composting, reduced landfill emissions and the use of wastewater biogas for energy production. Funding for capital investment is estimated at R10-billion and R25-billion for operations until 2050.

In 2014, the City of Johannesburg issued a Green Bond (the first of its kind in South Africa) worth R1.5-billion in order to fund a range of mitigation measures. The results include the following:

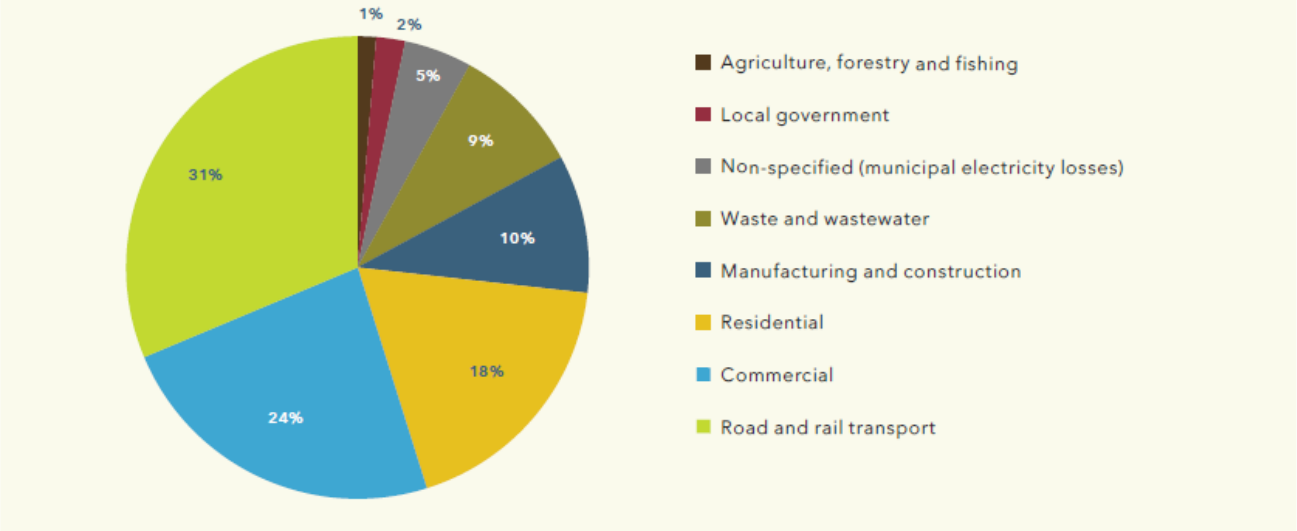
- A 19% reduction in GHG, as a result of sustainable waste management
- A 10% reduction in electricity demand at a wastewater treatment plant, through converting biogas to electricity
- The development of a sustainable urban drainage system for Diepsloot to prevent flooding
- The conservation of a wetland in Cedar Lofts, while densifying the residential area
- The creation of enabling environments for farmers to grow and sell their own food through the city's food resilience programme

[64] Developed by the CSIR, the Green Book is aimed at supporting municipalities in developing climate-resilient settlements, i.e., it facilitates the mainstreaming of climate change adaptation into local government planning

Cape Town

In 2021, the City of Cape Town (COCT) adopted its Climate Change Action Plan, which was developed with support from the C40 Cities Climate Leadership Group, Sustainable Energy Africa, Ricardo Energy Environment, l'Agence Française de Développement (AFD) and Western Cape Economic Development Partnership (COCT, 2021). It builds on the city's Climate Change Policy (2017), Resilience Strategy (2019) and Climate Change Strategy (2020). Like the COJ's CAP, the COCT's Climate Change Action Plan features the just transition prominently, as a way of addressing the high local inequality. The city's GHG emissions per sector are reflected in Figure 6.

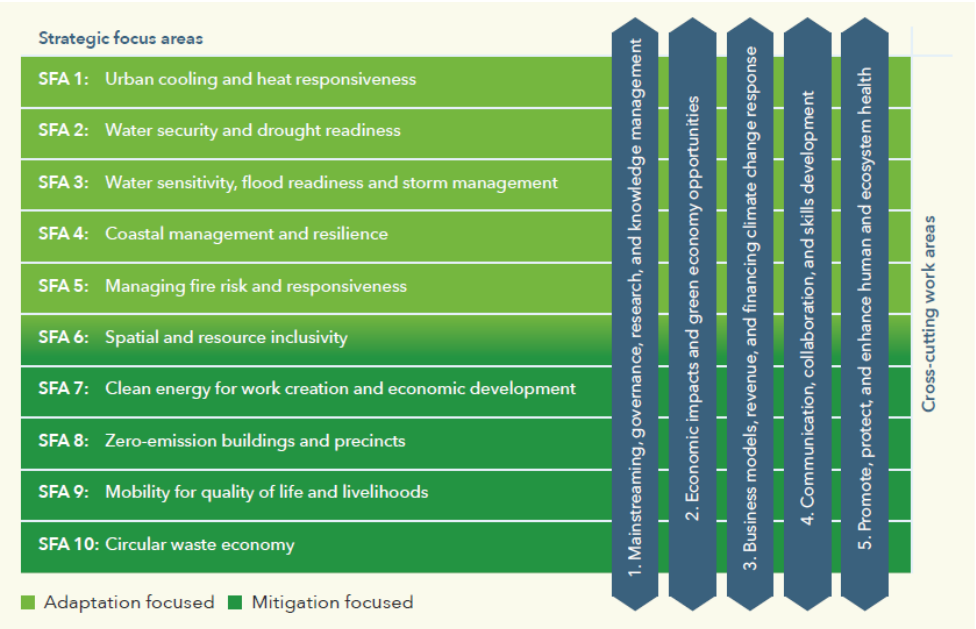
Figure 6: City of Cape Town GHG emissions per sector (2018, excluding marine and aviation)



Source: COCT (2021: 19)

By 2050, the city aims to reduce emissions by 90% (optimistic scenario) or by 54% (pessimistic scenario that takes into account external factors not within city control, i.e., institutional and regulatory barriers). Its approach to mitigation and adaptation is based on strategic focus areas (SFAs) and cross-cutting working areas, in order to align with existing city structures and to facilitate departmental integration working towards a common purpose. Figure 7 shows the organising framework of the Climate Change Action Plan: SFAs 1−5 are adaptation areas, SFA 6 is adaptation and mitigation areas, while SFAs 7−10 are mitigation areas.

Figure 7: City of Cape Town Climate Change Action Plan framework



Source: COCT (2021: 29)

The city intends achieving its GHG emissions targets through electricity generation and distribution, efficient buildings (medium term) and transport emissions (longer term). In line with this, the city has implemented the following:

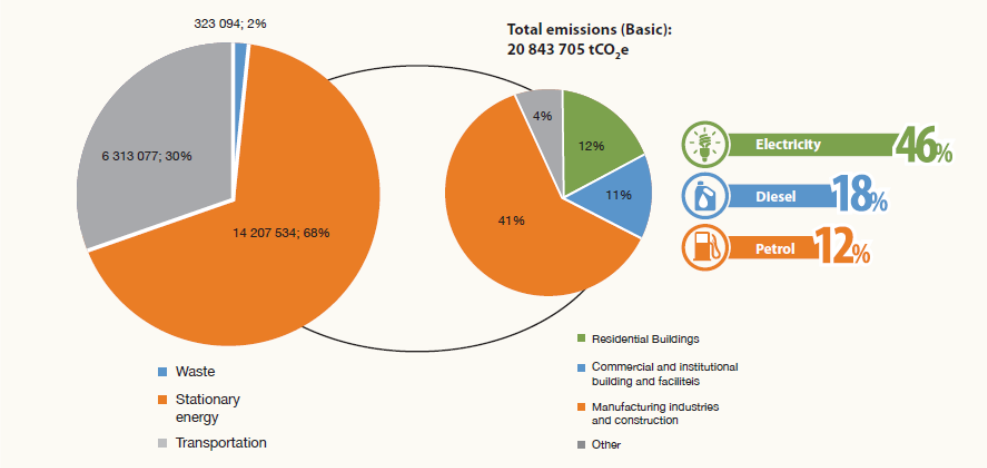
- The Small-Scale Embedded Generation (SSEG) programme, which aimed to achieve 120MW of citywide rooftop solar PV SSEG by 2020 – this has not yet been achieved but is ongoing.
- The Energy Efficiency and Demand Side Management (EEDSM) and Smart Facility programme, which allows electricity demand at 700 facilities to be monitored and benchmarked, allowing for proactive management of energy consumption.
- The Atlantis SEZ, which is part of the city's strategy to promote the green economy.

In July 2017, COCT issued a green bond that raised R1-billion and was listed on the Johannesburg Stock Exchange. The funds have been used to partially fund various capital investment projects focused on resilient infrastructure.

eThekwini

In 2019, the eThekwini Municipality developed its CAP, with support from the C40 Climate Leadership Group (eThekwini Municipality, 2019). It was the first African city to develop a CAP aligned to the Paris Agreement. The plan builds on the 2015 Durban Climate Change Strategy, which provides a pathway to climate resilience and carbon neutrality while ensuring 'no one is left behind'. The municipality's GHG emissions are shown in Figure 8.

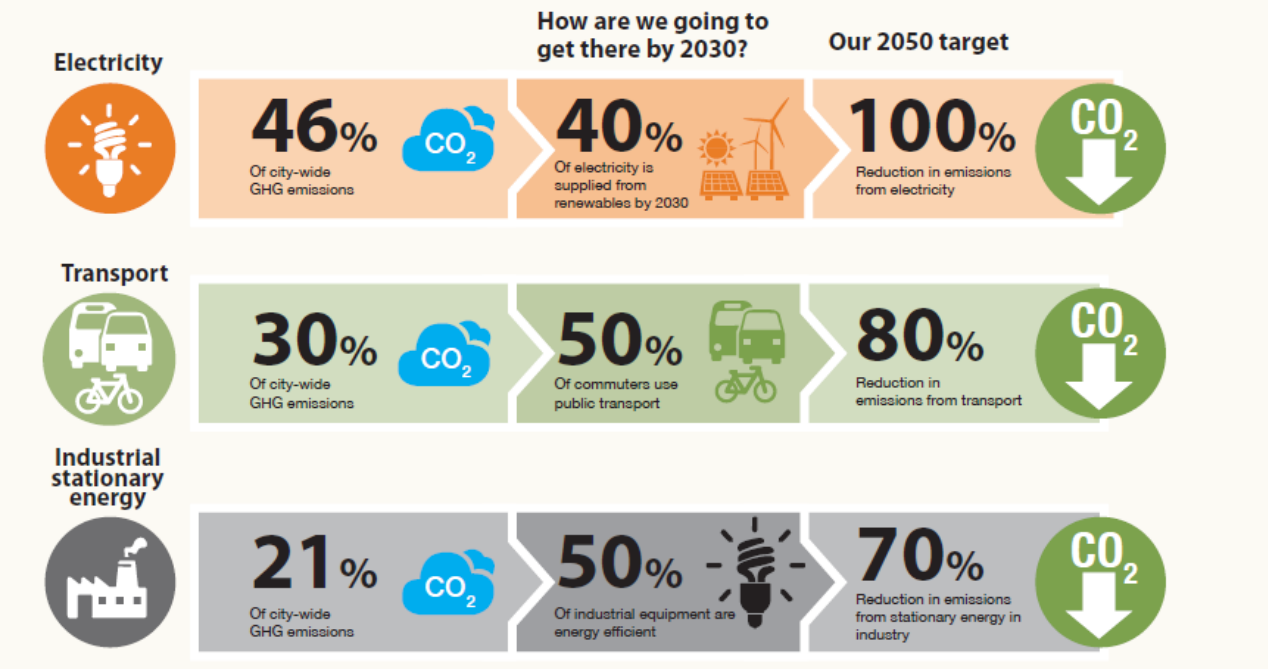
Figure 8: eThekwini Municipality's GHG emissions per sector (2015)



Source: eThekwini Municipality (2019: 18)

The municipality aims to reduce GHG emissions by 40% (by 2030) and 80% (by 2050) compared to the baseline year of 2015. As Figure 9 shows, three priority sectors will be targeted: electricity (shift to renewal energy), transport (increased use of public transport) and industry (energy-efficient buildings and industry). Other initiatives include reviewing the Durban Metropolitan Open Space System programme and reforestation projects.

Figure 9: Priority sectors for GHG emission reductions



Source: eThekwini Municipality (2019: 21)

To make the city more resilient to various climate change impacts, such as increased temperatures, flooding and rising sea levels, the municipality has identified adaptation measures to be taken in the energy, water, transport, health and waste sectors by 2050 (Figure 10).

Figure 10: Long-term targets for mitigation and adaptation measures (by 2050)

Source: eThekwini Municipality (2019: 29)

In line with its CAP, eThekwini has implemented the following:

- Gas-to-electricity projects at Bisasar Road and Marianhill landfill sites
- A SSEG programme, which is coupled with the Shisa Solar programme and the national solar water heater programme for homes
- An EEDSM programme

In addition, the municipality has 23 recycling centres that facilitate waste separation, while the Agro-Ecology Unit provides active support to community farmers (via co-operatives), including training and setting up agro-ecology zones that aid in distributing resources to small-scale farmers. The Forecast Early Warning System, which should allow the city to forecast floods, is still under development and is urgently needed for better planning, as demonstrated by the April 2022 floods in KwaZulu-Natal.

Funding Sources and Technical Assistance

The projects, initiatives, technology and R&D aimed at achieving the proposed NDCs and GHG emission reductions will require funding. Various options are available, including concessional grants, loans, bonds, and existing city and provincial operating budgets. Table 1 provides a list (which is not exhaustive) of organisations that provide funding and/or technical assistance for climate change adaptation and mitigation projects.

Table 1: Funding organisations for adaptation/mitigation projects

Organisation	Funding/assistance	Resource
C40	Technical assistance	https://www.c40.org/
Green Fund	Funding	https://www.dffe.gov.za/projectsprogrammes/greenfund
Green Climate Fund	Funding & technical assistance	https://www.greenclimate.fund/projects
City Climate Finance Gap	Funding & technical assistance	https://www.citygapfund.org/what-we-offer
AFD	Funding & technical assistance	https://www.afd.fr

C40

C40 is an organisation comprising mayors from nearly 100 cities around the world who collaborate “to deliver the urgent action needed right now to confront the climate crisis”. The C40’s mission is “to halve the emissions of its member cities within a decade, while improving equity, building resilience and creating conditions for everyone, everywhere to thrive”.

Unlike many organisations, C40 member cities do not pay membership fees but “earn their membership through action”. The organisation’s ‘Leadership Standards’ set the minimum requirements for all member cities and ensure the integrity of C40 as a network of climate leaders committed to achieving a zero-carbon future through implementing adaptation and mitigation measures. Within the C40 network, cities interact and learn from each other in groups focusing on the following sectors: water provision, air quality, energy and buildings, food systems, transportation, urban planning and waste management.

C40 offers technical assistance to cities within the network, including the development of city-specific CAPs for Johannesburg, Cape Town and eThekwini. Two other metros – Tshwane and Ekurhuleni – are also members of the C40.

The Green Fund

In 2012, the DFFE (formerly DEA) established the Green Fund, with initial funding of R800-million and the DBSA as implementing agent. The fund invests in innovative green initiatives that support job creation and poverty alleviation, but cannot be used to fill a funding gap. The fund is open to applications from the private sector (small and medium enterprises), research institutions, non-governmental organisations, community-based organisations, as well as municipalities.

Municipalities can apply for funding under the Green Cities and Towns funding window. Projects must be related to infrastructure and services, primarily within adaptation planning, including sustainable transport, waste management, water management, renewable energy, EEDSM and resilient human settlements. Funding can be used for feasibility studies, pilot or demonstration phases, as well as project implementation. Applications are reviewed in relation to the fund’s objectives and their contribution to the SDGs. The projects are required to have environmental performance indicators, be scalable, and generate a demand for green products and services.

Examples of municipalities that are implementing projects funded by the Green Fund include (DEA, 2016):

- Stellenbosch Municipality: iShack is a social enterprise that provides "off-grid solar electricity to low-income residents of informal settlements [Enkanini] who do not have grid-electrification".[65] The programme includes training local entrepreneurs to maintain the solar system.
- COCT: the thermal efficiency in low-cost housing project retrofits Reconstruction and Development Programme (RDP) houses with insulated ceilings, efficient lighting and weatherproofing, creating houses that are more energy efficient and help to prevent the spread of tuberculosis.
- City of Tshwane: in conjunction with the CSIR, a feasibility study was conducted for the installation of energy efficient lighting in 15 municipal buildings.
- eThekwini Municipality: in conjunction with the Wildlands Conservation Trust, the reforestation programme involves the local community in planting and maintaining trees in degraded natural habitats, extending from the landfill buffer zone at the Buffelsdraai landfill site to Inanda Mountain and to Paradise Valley in Durban.

Green Climate Fund[66]

Operating since 2015, the Green Climate Fund (GCF) was established as part of UNFCC and the Paris Agreement, as a dedicated financing vehicle for developing countries, and is open to both the public and private sectors. GCF funding options include concessional instruments, low-interest loans, credit lines to banks, as well as offering risk mitigators (guarantees and first loss protection). The readiness grants programme is designed to lay the foundation for developing countries to use climate finance, by strengthening their institutional capacity, governance mechanisms and planning frameworks.

The GCF focuses on eight climate change areas related to adaptation and mitigation, encompassing transport, energy generation and access, building and industries, forests and land use, health, food and water security, ecosystems, infrastructure, and livelihoods of people and communities. Projects are implemented through partnerships with 'accredited entities', which present the funding application to the GCF and then oversee, supervise, manage and monitor the overall project – but are not necessarily the executing agent.

The GCF has funded a range of projects, including helping Jamaica set up its regional green bond exchange (the development of the institutional framework for the green bond was managed through the GDF readiness grant) and large-scale renewable energy projects in developing countries (in partnership with banks).

City Climate Finance Gap Fund

Established in 2020, the City Climate Finance Gap Fund is implemented by the World Bank and the European Investment Bank. The fund aims to bridge the finance gap for cities that are implementing climate change adaptation and mitigation strategies, and to provide technical assistance and feasibility funding for projects that help cities with their low-carbon and resilience planning. It also facilitates connections between cities and financing partners, through the World Bank, European Investment Bank or other financiers, as the projects move into implementation.

Projects should align to the city, provincial or national strategies and should focus on adaptation and mitigation in the following sectors: urban mobility, energy efficiency, waste management, water management, green building and affordable housing. The fund has provided support for:

- technical assistance for solid waste management in Mangalore and Kolar, India,
- technical assistance on green affordable housing in Dakar, Senegal, and
- the rollout of low-cost solar tricycle taxis to address mobility needs in Danane, Côte d'Ivoire.

AFD[67]

AFD is a public agency that "funds, supports and accelerates the transitions to a fairer and more sustainable world", and focuses on climate, biodiversity, peace, education, urban development, health and governance, with the aim of contributing to the economic, social and environmental progress of low- and middle-income countries. Assistance to the countries is in the form of loans, donations and expertise.

[65] https://www.sustainabilityinstitute.net/research-learning/collaborative-projects/ishack/
[66] https://www.greenclimate.fund/sites/default/files/document/gcf-means-business_0.pdf; https://www.greenclimate.fund/projects/process
[67] https://www.afd.fr/fr/carte-des-projets?page=all&view=start

FICOL (the French Local Authorities Financing Facility) allows AFD to directly finance climate change projects that are implemented by French local authorities. Projects must support the SDGs and be for a maximum duration of three years, with financing split between AFD, the French local authority and the local authority responsible for the project – the local authority is required to provide a minimum of 30% of the funding. Funded projects must align to low-carbon development and commitments made at COP by the respective country, involve reducing GHG emissions below a certain level or be adaptation orientated. Projects are monitored from an environmental and social perspective throughout the life cycle of the project to ensure the objectives of the project are achieved.

AFD has funded 42 projects in South Africa, including nine in the Western Cape and 25 in Gauteng. The projects range from biodiversity, wind power generation, electricity access improvement, water supply management, affordable housing and just transition initiatives in relation to sustainable living.

Conclusion

Climate change is one of the defining issues of this century. Its varied environmental impacts are being felt more frequently and have a significant effect on economies and society. As the world adapts to the changing environment, national and subnational governments need to find ways to confront the impact and consequences of climate change. South Africa has signed the Paris Agreement and developed a national plan for reducing emissions. In its latest NDCs, updated in 2021, South Africa committed to reducing its domestic carbon emissions by between 350 and 420 megatons by 2030. At COP26, the UK, USA, France, Germany and the EU agreed to provide South Africa with R131-billion to assist in accelerating its just energy transition. South Africa needs to utilise these commitments, as tools to prepare infrastructure and resilient communities that are better equipped to deal with the changes sent by nature, while ensuring a just transition that 'leaves no one behind'.

South Africa may rank among the top 15 nations in the world that are driving green growth, based on its tax incentives for green manufacturers and service companies, but further work is required to consolidate the regulatory framework that will assist in driving the net zero emissions target for 2050.

Cities have an opportunity to learn from each other about how best to implement climate change mitigation and adaptation plans. The C40 organisation is a useful network that can be leveraged to adopt the best international practices for mitigation and adaptation implementation at a city/municipal level. Given that five South African metros are already C40 members, there is ample opportunity for cities to engage and collaborate on how best to fund and implement the measures.

The CAPs developed by eThekwini, Johannesburg and Cape Town serve as a useful learning tool for other metros that are just starting to plan for more resilient cities. The CAPs highlight success stories and projects that have already been funded and implemented through the various funds, offering lessons on what works and what can be improved. In addition, Johannesburg and Cape Town have successfully used green bonds as a funding avenue, which is something other metros may consider as they implement their CAPs.

The experiences of the three cities provide other cities with a template to understand what funders are looking for (e.g., governance, monitoring and evaluation requirements). Aligning to national directives affords cities the opportunity to leverage national government's access to international funding and private sector investment.

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City Diplomacy and Smart Cities: Exploiting data for development

Malindi Neluheni, David Monyae and Sizo Nkala

Introduction

The growing role of data in driving development processes and practices, or the datafication of development, is widely acknowledged (Heeks & Shekhar, 2019). Tens of billions of connected digital technologies have made possible the generation and processing of new streams of data in enormous volumes, velocity and varieties in ways that were hardly imaginable just a decade ago (WEF, 2021).

According to the McKinsey Global Institute (MGI), open data (big and small datasets that are open to public use) could unleash economic value of between $3-trillion and $5-trillion in just seven sectors including transport, education, electricity, consumer finance, healthcare, oil and gas, and consumer products (MGI, 2013). The World Economic Forum (WEF) found that applying big data analytics in healthcare, agriculture, manufacturing, energy, banking and insurance, automobiles, telecoms, and logistics sectors could add US$500-billion to India's economy by 2025 (WEF, 2021), while the impact of the data market on the economies of the European Union and the United Kingdom was estimated at €440-billion in 2020.[68]

In cities, data has become an integral part of urban development, and "cities today are dependent upon their data to operate properly — and even to function at all with regard to many domains of urban life" (Bibri & Krogstie, 2020: 5). The use of data-driven applications in transport, water, energy, waste management, health and retail systems is defining the new frontier of urban development, as a part of innovative solutions for coping with the relentless pace and challenges of urbanisation (Batty, 2013; Hashem et al., 2016; Maayan, 2020). The nexus between datafication and urban development has propelled the global adoption of the concept of smart cities. This concept has evolved over time and is interpreted in various ways. Although there is no single definition of the smart city concept, it is widely used to refer to the widespread deployment and integration of information and communications technology (ICT), comprising hardware, software and networks, with infrastructure across different city systems, such as water supply, transport, waste management, environment, energy management, administration and policing (Hollands, 2008; SALGA, 2019). In brief, smart cities exploit ICT to improve their residents' quality of life, make urban services and operations more efficient and boost their competitiveness (DCOG, 2021).

City managers across the world have applied ICT enthusiastically in almost every domain of urban life, motivated by the pursuit of economic growth, innovation, efficiency, safety and environmental sustainability. The smart city has been sold as an efficacious way to address the persistent urban challenges of growing populations, resource inefficiency and environmental degradation. A fundamental element of the smart city ideal is the ability to collect, process and analyse huge volumes of near real-time data, to be used for evidence-based and empirical decisions in city management (Batty, 2013; Bibri & Krogstie, 2020). The smart city embodies the datafication of an expanding range of urban development questions by framing them as data questions (Söderström et al., 2021). The smart city phenomenon reflects "the data explosion that has occurred over the past decade, the role of cities as key sites in the production of such data, and how these data are being used to re-imagine and regulate the urban life" (Kitchin, 2014: 4) Technologies such as sensors, actuators, facial recognition, smart meters, various software applications, cloud computing, big data analytics, licence plate number recognition and closed-circuit television cameras are at the centre of today's data-driven urban transformation. The centrality of data in urban management is akin to what Van Dijk (2014: 201) has called 'dataism', which is believed to be a "a new social-scientific paradigm […and] a new gold standard of knowledge".

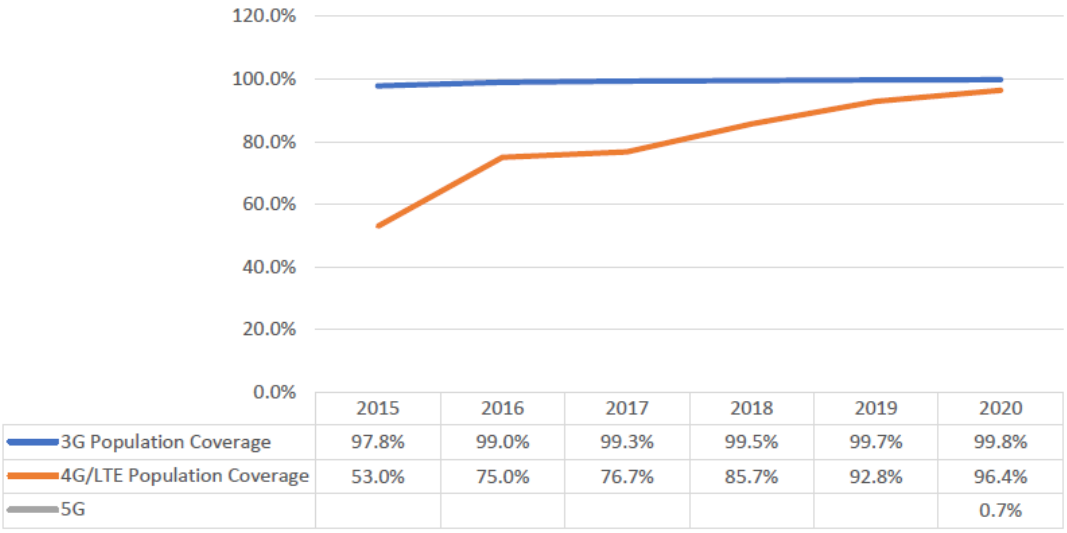
Even the United Nations (UN) has formed the United Smart Cities programme, in a bid to accelerate progress towards the sustainable development goals (SDGs) through encouraging the adoption of smart cities on a global scale.[69] In South Africa, since 2019, President Cyril Ramaphosa has consistently promoted the use of innovative technologies in building new smart cities in his annual state of the nation address. He has also commissioned the building of the new Lanseria Smart City which will serve as the symbol of the government's

[68] https://www.statista.com/statistics/1134993/value-of-data-economy-eu-uk/
[69] www.unitedsmartcities.com

paradigm shift towards smart cities.[70] South Africa is keenly aware that data is going to be central in the development trajectory of its cities and urban areas. Cities are poised to play a crucial and strategic role in harnessing data which informs positive and progressive development outcomes. As hosts of two-thirds (67%) of South Africa's population and as arenas where digital transformation has advanced most rapidly both in scale and scope, cities are places where data-driven policies and operations could have the greatest developmental impact (World Bank Group, 2021).

South Africa's digital infrastructure is far greater than the rest of Africa, where one in five people do not have access to any mobile broadband network and only half have access to a 4G network (Delaporte & Bahia, 2021). In contrast, as of January 2021, South Africa's internet penetration rate stood at 64%, far above the African average of 40% and slightly above the world average of 62%. Out of a population of 59.7 million, 38-million South Africans were internet users. Almost every person and business in South Africa lives within the reach of a 4G network, which covers 96.4% of the country, although the fifth generation (5G) network is still in its infancy covering only 0.7% of the population (Figure 1). Between 2016 and 2020, the number of smartphone subscriptions increased from 25 million to over 60 million, demonstrating that South African citizens are becoming increasingly connected.

Figure 1: National population coverage for 3G, 4G/LTE and 5G networks



	2015	2016	2017	2018	2019	2020
3G Population Coverage	97.8%	99.0%	99.3%	99.5%	99.7%	99.8%
4G/LTE Population Coverage	53.0%	75.0%	76.7%	85.7%	92.8%	96.4%
5G						0.7%

Source: ICASA (2021: 30)

The paper starts by discussing the approach to data-driven development in South African cities and then delves into the challenges faced by cities, as they seek to derive developmental value from their data. After examining city diplomacy and data-driven development, the paper looks at the state and evolution of global governance in relation to data governance, which informs the global governance issues that cities will need to deal with. The paper ends by identifying what is required for successful city diplomacy and who are the strategic stakeholders for engagement, as cities seek to create smart urban systems to serve their residents.

Data-driven Urban Development in South Africa

At the end of the 2000s, the approach to urban management and development in South Africa underwent a paradigm shift that was marked by an increasing emphasis on the smart city concept, which emerged during the advent of the fourth industrial revolution (4IR). Over the following ten years, national government introduced policies and plans aimed at bringing the country closer to a data- and information-driven society.

- The National Development Plan of 2012 acknowledges the importance of information technology, envisioning a connected information and knowledge society by 2030 underpinned by a universally available and seamless information infrastructure, which would meet the needs of citizens, the public sector and business.
- The National Broadband Policy of 2013 was designed to operationalise the vision set out in the NDP through deploying broadband technology with the intention of achieving universal coverage.

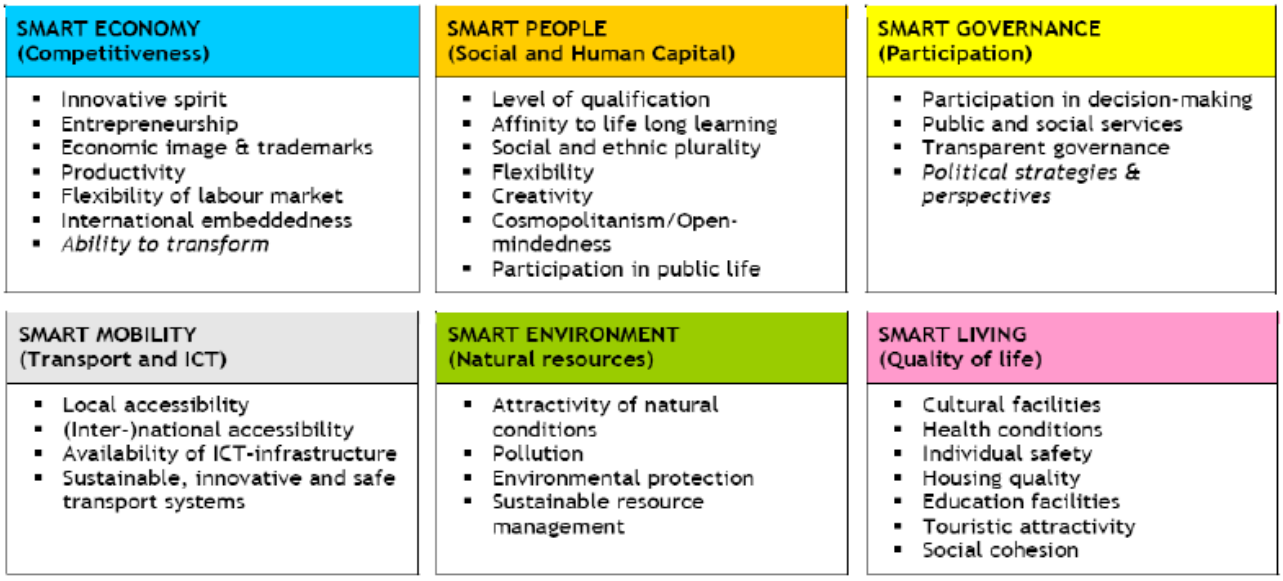
[70] Mzekandaba S. 'SONA: Ramaphosa's smart city dream becomes "reality in the making"', *ITWeb*, 12 February 2021. Available online: https://www.itweb.co.za/content/raYAyModR6nqJ38N (accessed 6 May 2022).

- The National Integrated ICT Policy White Paper of 2016 seeks to create a unified digital ecosystem underpinned by the principles of interoperability and compatibility.
- The National eGovernment Strategy and Roadmap, which was approved in 2017, is a quest to digitise all spheres of government in South Africa, with the aim of improving governance and public service provision, and facilitating citizen participation in governance.
- The draft National Data and Cloud Policy of 2021 aims to create a national data ecosystem by means of a national public cloud: the High-Performance Computing and Data Processing Centre (HPCDPC), where data can be stored, processed, analysed and then used to inform public policy and business decisions. The policy "seeks to strengthen the capacity of the State to deliver services to its citizens, ensure informed policy development based on data analytics, as well as promote South Africa's data sovereignty and the security thereof" (DCDT, 2021: 8).

These policies may be national government initiatives, but they are applicable to all spheres of government, including cities. Other initiatives aimed at promoting smart cities include two frameworks, detailed below

The **Smart City Maturity Development Framework,** which was released by the South African Local Government Association (SALGA) in 2019, is intended to serve as a blueprint for implementing smart city initiatives (Figure 2). It is a "coherent vision and Smart City strategy developed by municipalities towards developing smart and digital technologies intended to transform and modernise municipal functions and operations" (SALGA, 2019: 7).

Figure 2: Characteristics of smart cities



Source: SALGA (2019: 6)

In 2021, the Department of Cooperative Governance (DCOG) released the **Smart Cities Framework**, which is a policy guide to the development of smart cities in South Africa. It defines a smart city as a technology- and knowledge-intensive city characterised by innovative approaches, techniques and processes in its management and governance. The definition of a city is quite broad, including cities, towns and villages, municipalities, business and industrial parks, and residential complexes (DCOG, 2021). It identifies opportunities associated with smart cities, including more effective, data-driven decision-making; reduced environmental pollution; new economic development; improved quality of life for residents; safe communities and cost savings. The guiding principles for any smart city initiative are (DCOG, 2021: 18):

> It should be smart for all.
> It should use technology as an enabler rather than a driver.
> It should be shaped by, and respond to, the local context.
> It should be informed by the real needs of the community.
> It should embrace innovation, partnerships and collaboration.
> It should be sustainable, resilient and safe.

The Smart Cities Framework encourages South African municipalities to incorporate smart city initiatives in their integrated development plans (IDPs).

The national government's emphasis on digital transformation has laid the groundwork and given South African cities the impetus to explore ways of using data technologies in running city systems and delivering services to their residents. South African cities have enthusiastically embraced the vision of a smart city, as a possible panacea to their development malaise. At least nine municipalities in South Africa are working on various smart city projects. Table 1 illustrates the smart city policies that six cities have articulated in their IDPs.

Table 1: Smart city initiatives reflected in the IDPs of six South African cities

Municipality	**Smart city vision in IDP**
Johannesburg	• Create an efficient administration through data collection and analysis • Expand the city's broadband network (fibre) • Roll out free Wi-Fi in public hotspots, e-health clinics, e-learning (training youth in ICT) • Roll out smart meters • Initiate the Integrated Intelligent Operations Centre (IIOC) • Expand closed-circuit television (CCTV) cameras and monitoring for faster responses (smart policing) • Develop online services • Create a single citizen-engagement platform (Project Tlhabologo)
eThekwini	• Deliver stable IT-related systems to internal and external customers, including IT servers and disk storage, operating systems, databases and support hosted on various IT platforms and data centres across the municipal area • Upgrade servers, disk storage, operating systems and various other systems, ensuring that they are supported by the various vendors at all times • Develop digital skills among young people • Continue installing fibre in a phased approach, with the aim of connecting all municipal offices to the IT network, thus bringing services closer to citizens
Cape Town	• Build municipal-owned broadband network, by laying 1300 km of fibre optic cables to serve more than 600 office buildings • Increase the number of last-mile access links to connect buildings, such as clinics and libraries, and other critical service delivery systems, such as water management systems, traffic lights, metro police cameras, smart meters, environmental monitors and public Wi-Fi access points • Make city data available to the public through the open data portal, in a useable format, at no charge, thereby increasing the administration's transparency • Modernise social services IT and digital citizen interaction platforms
Nelson Mandela Bay	• Use enhanced information gathering and CCTV surveillance for improved security • Create online systems and consult with IT companies to make Wi-Fi widely available for businesses • Implement programmes, including provision of smart meters, ICT infrastructure and broadband provision • Establish a system of sensors, networks and applications to collect useful data, such as traffic congestion, energy use and CO_2 levels
Msunduzi	• Develop Msunduzi as an ICT incubator to provide an enabling environment for emerging ICT small businesses to be sustainable and competitive • Expand the fibre optic network, to increase connections • Establish a technology hub, to encourage innovation
Buffalo City	• Ensure that all municipal libraries have free Wi-Fi, and 63 public hotspots providing free Wi-Fi • Implement the citizen engagement mobile app, to automate service delivery • Automate manual processes for the city • Migrate to Office 365 (first metro in South Africa to deploy cloud-based Microsoft Office and email)

Source: Authors from COJ (2020/21), EMM (2021), COCT (2017−2022), NMBMM (2017−2022), MLM (2021/22), BCMM (2020/21)

Challenges of Data-driven Development

Data-driven development has produced positive results in cities around the world. Data initiatives have led to more equitable allocation of budget resources in Pune, India; the funding of more schools in poor areas in Nairobi, Kenya; and the building of 15 homeless shelters in Chennai, India (Heeks & Shekhar, 2019). South African cities have the potential to realise the development benefits of harnessing data for development, but they face considerable challenges.

Budgetary constraints

Building a smart city is an expensive endeavour requiring high initial investments, which are beyond the reach of many South African cities. The overall weak economy and effects of the COVID-19 pandemic have had an impact on local government's ability to generate revenue, while most of the 257 municipalities are in a fiscally unsound position and so unable to fund the ICT projects that underpin smart city initiatives. Furthermore, as there are no specific ICT or smart city grants, any smart city initiatives have to compete for funding against more urgent needs, such as water and housing (Kolandaisami, 2020). Nevertheless, municipalities have two funding avenues for smart city projects: the fiscus, which can be used to fund less risky and relatively less costly projects; and public-private partnerships (PPPs), where the project risk can be transferred to the private actor (SALGA, 2019).

Thin skills base

A smart city requires not only cutting-edge technology but also citizens with the necessary digital and IT skills for creating, operating and maintaining smart city infrastructure. However, South African municipal employees and residents lack these skills. The lack of skills contributes to the cost of smart city projects — cities have to rely on costly expatriates for implementation and operation — and to delays in rolling out e-Government programmes — digitally illiterate municipal employees are one of the major factors that have slowed down roll-outs (Mawela et al., 2017). Municipalities will need to embark on an aggressive digital training programme for their employees and their residents in order to create a vibrant digital ecosystem.

Limited developmental impact

In South Africa, one of the most unequal societies in the world, smart cities may be a misplaced priority (Balkaran, 2019; Musakwa & Mokoena, 2016). The majority of South Africans have meagre incomes and poor digital skills, and are not in a position to benefit from some of the smart city initiatives (Kolandaisami, 2020). Therefore, smart city projects tend to benefit disproportionately the better-off citizen, which may widen inequalities. Moreover, smart interventions do not deal with the structural issues that cause inequality, poverty and crime but instead seek to manage the problems. As a result, such interventions do not transform society in any far-reaching way but instead paper over the cracks (Kitchin, 2014).

Corporatism

Huge multi-national corporations are among the main proponents of data-driven urban development and management, which create demand for their digital products. Indeed, smart city policies could be characterised as data-driven, neo-liberalisation of public services (Söderström et al., 2021). The risk is that, in smart cities, the running of public services may be handed over to corporates, whose main priority is profit, which could lead to the further marginalisation of the poor. Therefore, although cities may desperately need access to the financial, technical and knowledge resources of the corporates, they should be careful not to lose control of the smart city programmes.

Data extremism

Smart cities are a manifestation of unbridled faith in data and based on the assumption that the data gathered through digital technologies contains inherent truth about society and, if carefully processed and analysed, may enable lasting and effective solutions to social challenges (Van Dijk, 2014). Another assumption is that automated and algorithmic decision-making eliminates the negative bias and ideologies of human beings. However, algorithms have been shown to disadvantage less privileged members of the society who are denied access to places and other benefits such as credit (Heeks & Shekhar, 2019).

City Diplomacy and Data-driven Development

The World Forum on Smart Cities estimates that, by the turn of the 21st century, the world will have up to 50 000 smart cities with embedded data technologies in their infrastructure, and systems to optimise their functions and services (DCOG, 2021). The strategic significance of data has catapulted its governance to the top of the global diplomacy agenda at multilateral, bilateral, regional and sub-national levels.

Cities are legitimate stakeholders in the global debate on data governance and use, and city diplomacy offers one avenue through which cities can participate in the debate. City diplomacy is the deliberate and intentional engagement by cities with actors across international boundaries with the aim of representing themselves and advancing their interests (Van der Pluijm & Melissen, 2007; Amiri, 2022). These actors range from fellow cities to multinational corporations, think tanks, civil society organisations, international organisations and even national governments. City diplomacy has been of tremendous value in addressing other equally important global issues, such as climate change and its mitigation (Pillay & Potgieter, 2021), nuclear non-proliferation (Leffel, 2017), knowledge co-production (Massey, 2021) and the COVID-19 pandemic (Pipa & Bouchet, 2020). The leveraging of data dovetails with the core dimensions of city diplomacy, which Van der Pluijm and Melissen (2007) identify as development, conflict and security, representation, networking, economic growth, and cultural ties.

Although foreign affairs departments usually deal with matters that are sensitive to national interests, such as the governance of data, a more effective approach is multi-layered diplomacy that includes cities, civil society organisations and the private sector. Cities are becoming more and more influential, as the 4IR has shifted the responsibility for governance and sovereignty from the central state to the local level (Khan, 2019). They have become the centres of political and economic power, technology, innovation and diplomacy, while emerging technologies enable them to connect with each other and form networks of sovereign cities. With accelerating urbanisation and the growing power of cities, cities are networking on transnational initiatives and bypassing states. However, although city networks have changed the texture of global governance and revitalised city diplomacy, they still face challenges of under-capacitation, duplication, lack of expertise in international relations and inadequate budget support (Pejic et al., 2019).

The UN is considering forming the UN-Urban to acknowledge the power and significance of cities. Cities are becoming more influential because of their adoption of technologies such as artificial intelligence (AI), machine learning, and virtual and augmented reality (Binda, 2019). The scale of data collected from these sources is informing and even forging ahead of national and foreign policy-making.

Cities are disrupting the international order and stretching their legal authority under international law, which has traditionally been viewed as the exclusive preserve of the nation state (Bantenka, 2019). Cities enforce and promote existing international norms, but they can also advocate for new norms through their networks, outside the strictures of international formalism. Cities are peculiar actors because, under international law, they are non-entities and seen as mere parts of the state, but they possess a democratic mandate and can implement policies that are different from those of central government. Cities occupy a unique position, being part interest groups, part associations and part governments, and are able to influence international law-making processes and outcomes in a way that non-governmental organisations (NGOs) cannot.

Cities have participated in policy and law-making processes, such as the Paris Climate Agreement, SDGs (11), the Addis Ababa Action Agenda and the UN Global Compact on Migration. They are taking a seat at the policy level on national and global issues and having an impact through new models of innovation (Binda, 2019). The increasingly prominent role of the city in international affairs will not replace territorial sovereignty as the organising principle of the international community, but it will transform the notion of statehood in a manner that paves the way for city agency. However, cities and states will have to collaborate on technology regulation, as financing smart cities is challenging and cities are looking abroad for capital (Wang, 2019).

State and Evolution of Global Diplomacy on Data Governance

Data has become an importance strategic asset and its management is one of the foremost objects of global diplomacy today. The widespread adoption of computers and the development of internet technology, which made communication between heterogenous computer networks possible in the 1970s, laid the foundation for the emergence of a global communication system (Leiner et al., 1997). This truly global data system transcends territorial borders and brings together previously separate and sovereign jurisdictions with far-reaching economic, social and security implications (Mueller, 2018). Since inception, the management of this global data system, has been a diplomatic endeavour, but the diplomatic landscape has evolved.

In the 1980s and for most of the 1990s, the governance of the internet was left largely to transnational structures dominated by non-state actors, such as engineers and researchers, who made decisions on standards, protocols and processes that shaped the internet's architecture. Organisations, such as the Internet Architecture Board (IAB) and the Internet Engineering Task Force (IETF) brought together scientists and experts who shaped the practices and technical aspects of internet technology. For example, the IETF decided on the internet protocol (IP) address registries, the domain name systems (DNS) and routing (the movement of data across networks) (Mueller, 2018). State actors were largely invisible in the internet governance frameworks until 1998, when Russia submitted a draft resolution on "Developments in the field of information and telecommunications in the context of international security" at the UN First Committee on Disarmament and International Security. The resolution highlighted the risks of terrorism and criminality that could be perpetrated through ICT, placing international and national security in jeopardy (Kurowska, 2020; Korzak, 2021).

In December 2004, the World Summit on the Information Society (WSIS) took place in Geneva, attended by 50 heads of states and governments and other high-level government officials, civil society and private sector actors. The resultant plan of action was a clear indication that states were no longer going to be bystanders in the information technology revolution, with Article 3(a) declaring that "governments have a leading role to play in developing and implementing comprehensive, forward-looking and sustainable national e-strategies".[71] The plan envisaged a multi-stakeholder approach to governing the internet and acknowledged the important roles of the private sector, civil society, and international and regional institutions. In 2005, the second WSIS was held in Tunis and produced several outcomes, including the formation of the Internet Governance Forum (IGF), a multi-stakeholder body whose mandate was to promote the sustainability, robustness, security, stability and development of the internet. The IGF has met every year since 2006 and has been actively involved in the governance of the internet.

As the new technology became entrenched in the social and economic fabrics of countries, states began to pay attention to the internet, focusing on cybercrime and international security. "Many states have formally declared the cyber domain to be the fifth domain of warfare — after land, sea, air, and space" (Broeders & Van Den Bergh, 2020: 1). The Edward Snowden and Cambridge Analytica scandals may have contributed to this stance (Pohle & Thiel, 2020; Polatin-Reuben & Wright, 2014).

- In 2013, Snowden, who worked for the USA's National Security Agency (NSA), revealed that the NSA was spying on the communications of prominent human rights groups, such as Human Rights Watch and Amnesty International, and that the NSA used a technology known as XKeyscore to screen trillions of private communications.[72]
- In 2016, one of the Big Tech companies sold users' data to a private consultancy (Cambridge Analytica), which used it to help its clients manipulate political preferences, possibly determining the political outcome of a high-stakes referendum in the UK.[73]

In 2004, the UN Group of Government Experts (GGE) was established, with the purpose of studying the risks associated with the use of ICTs and suggesting ways of mitigating these risks. The GGE was formed to address activities carried out by state and non-state actors in cyberspace that threaten individuals, businesses, and national infrastructure. The GGE has since produced four reports (in 2010, 2013, 2015 and 2021) that consistently emphasise the intersection between state sovereignty and cyberspace. The 2013 UN GGE report on ICT developments in the context of international security noted an explicit relationship between

[71] https://www.itu.int/net/wsis/docs/geneva/official/poa.html

[72] Harding L. 'How Edward Snowden went from loyal NSA contractor to whistleblower', *The Guardian,* 1 February 2014. Available online: https://www.theguardian.com/world/2014/feb/01/edward-snowden-intelligence-leak-nsa-contractor-extract; Macaskill E and Dance G. 'NSA
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[73]Carole Cadwalladr, as told to Lee Glendinning. 'Exposing Cambridge Analytica: "It's been exhausting, exhilarating, and slightly terrifying"', 29 September 2018. Available online: https://www.theguardian.com/membership/2018/sep/29/cambridge-analytica-cadwalladr-observer-facebook-zuckerberg-wylie

sovereignty and the digital domain. “State sovereignty and international norms and principles that flow from sovereignty apply to State conduct of ICT-related activities, and to their jurisdiction over ICT infrastructure within their territory” (UN, 2013: Article 20). This statement acknowledges that, while cyberspace operates on a global scale, its supporting infrastructure passes through the territories of states. Thus, states have sovereignty over the infrastructure, including the data that flows through it. The UN GGE’s reports in 2015 and 2021 re-emphasised the need for countries to adhere to the principles of sovereignty and non-intervention in their behaviour in cyberspace, in an effort to create a safe, open, accessible, and peaceful ICT environment (UN, 2021).

However, the UN’s efforts do not appear to have had much success in resolving the differences in approaches towards data management and governance. A panoply of approaches has emerged from states that subject data flows and content to national jurisdiction (expressed in laws, policies and regulations) in order to protect the confidentiality, integrity and availability of national data perceived to be sensitive (Polatin-Reuben & Wright, 2014; Nugraha et al., 2015). According to the United Nations Conference on Trade and Development (UNCTAD), 128 of 194 member-states have adopted legislation related to the protection and security of data and privacy (UNCTAD, 2021a; 2021b). Major countries, such as China, Russia and the United States, and regional organisations, such as the European Union, have competing and incompatible visions of data governance.

- The United States prefers a data governance model characterised by the global free flow of data without interference from the government and with limited border barriers.
- China and Russia advocate for a system in which the state enjoys some measure of control of the flow of data across their borders, including building new storage facilities, undersea cables and email systems to protect the integrity of the national data system (Kurowska, 2020; Creemers, 2020).
- The European Union prioritises personal digital sovereignty, which “refers to the control of an individual over their data, device, software, hardware, and other technologies” (Couture and Toupin, 2019: 2316).

These rigid ideological fault lines fracture efforts to reach a global consensus and are the diplomatic contours that cities will have to negotiate, as they attempt to use data to advance their development agendas.

Global Data Governance Issues

City diplomacy will need to deal with certain governance issues as a matter of priority. These issues will also guide cities in their strategic endeavours, as they seek to maximise the developmental impact of their data.

Data governance norms

Ideological divisions among major countries threaten to fragment the global data system: The USA and its allies in the West believe in the global free flow of data, while China and Russia believe in data sovereignty, which emphasises regulating the flow of data across national borders to better manage the security threats posed by the use of ICTs. The tussle over data norms is not simply a political contest, as the normative system that emerges victorious will determine data ownership rights, where data is stored, who can access it and who can process, use and benefit from it. Moreover, the norms will also determine the extent to which data (the city’s own and that of its residents) is protected from unscrupulous uses.

Cities should take the initiative to foster new global data governance norms to bridge the current counterproductive divide among national governments.

Cybersecurity

As cities digitise their systems, they become vulnerable to cyberattacks. For example, in 2019 ransomware attacks on the City of Johannesburg locked and encrypted the city’s data, thereby disabling its service provision. Dealing effectively with the malicious use of ICT for the purpose of committing crimes occurs at the transnational level, where countries share cybersecurity standards and technologies, and negotiate behavioural norms in cyberspace.

City diplomacy should be channelled towards finding sustainable and effective cybersecurity solutions to protect city data systems from costly attacks.

Technology standards

At the centre of the fierce contest around the global data system are technology standards. Protocols and procedures that underpin the architecture of the data system are important determinants of a city's ability to utilise its data for its own development. Standards ensure interoperability, while accommodating different products, create new markets, improve cost efficiency and enable technology to be sourced from multiple vendors, foster collaboration and competition, and make addressing regulatory issues easier. However, technology standards underpinning the data ecosystem are not immune to geopolitics, with countries such as China and the USA competing to be the standard leaders and thereby expand global market share for their technology products. Cities will need to be aware of these dynamics and factors when acquiring technologies to build their data systems.

City diplomacy should push for the harmonisation of technology standards at the global level.

Successful City Diplomacy

The following characteristics provide the impetus for city diplomacy in data governance.

Possessing knowledge of the topic

For city diplomacy to be effective, city representatives need to have a thorough knowledge of digital technology, which is a complex field. Knowledge refers to a mix of experience, contextual information and expert insight that enables a competent evaluation and incorporation of new experiences and information.[74] Having a good grasp of the topic that is the subject of diplomatic initiatives will ensure that cities are able to articulate their interests and identify actors best positioned to aid their causes. Therefore, cities need to educate their employees on the dynamics of smart cities.

Having clear values and interests

In securing the necessary infrastructure to digitalise their functions and services, cities need to clearly define their values and interests, i.e., what is good and valuable for the city's development, security and social cohesion. One of the primary functions of city diplomacy is to protect and advance the city's interests; without clear interests, diplomacy can be counterproductive. When engaging in diplomacy to pursue their smart city initiatives, cities need to ensure that they promote their own interests, to prevent being undermined by other actors.

Coordinating with other spheres of government

Cities cannot conduct diplomacy in isolation from national priorities related to digital technology. Therefore, city administrations need to engage the provincial and national spheres of government, to ensure that all spheres are aware of each other's interests and can coordinate their actions on the international stage. In this way, cities will be made aware of national positions, while national government will gain appreciation of local government interests. Moreover, through organisations such as SALGA and the South African Cities Network (SACN), cities can exchange ideas with others with similar interests, which in turn helps their diplomatic initiatives.

Strategic Stakeholders

To ensure that their diplomatic endeavours succeed in harnessing data for their development, cities must identify strategic stakeholders to help them realise maximum value for their data, including:

- International NGOs, such as the IETF, IAB and IGF. These NGOs influence the internet standards governing global data systems and possess technical expertise in building effective and functional data systems.
- International governmental organisations, such as the UN, African Union and European Union. These organisations play an instrumental role in shaping global data governance norms and are platforms with the potential to bring the world's countries to a point of convergence in the approach to data governance. By engaging with these organisations, cities can ensure that their interests are taken into consideration in the negotiating of a global data governance consensus.

[74] https://www.diplomacy.edu/resource/knowledge-management-and-diplomacy/

- Multinational corporations. These are the most important players in the digital technology industry, and possess the technical, knowledge and capital resources to fund, build and operate data systems and networks. They help cities to implement smart city policies, determine technology standards through innovation, can be a strategic partner for cities (through PPPs), and are able to provide the funds and know-how for implementing smart city systems.
- City networks, such as the United Cities and Local Government, Climate Leadership Group C40 and the Commonwealth Local Government Forum. These networks have become significant players in tackling global challenges and can use their considerable capacity and experience to protect the interests of the cities in the global governance of data.

Conclusion

The advent and the widespread adoption of digital technology and the internet have led to an explosion of data in unprecedented volumes, speed and size. New computing technology, such as cloud and quantum computing and big data analytics, has enabled the storage, processing and analysis of huge datasets that reveal actionable insights and patterns for making business and policy decisions. Cities are increasingly incorporating the latest computing technologies to collect and analyse data in real time, in order to optimise city services in areas such as governance, transport, water supply, power supply, sewer management and environmental management. The potential developmental impact of big data is immense.

City leaders are becoming increasingly confident that the future of their development lies in harnessing digital technologies. For example, in South Africa, major urban centres are aspiring to the smart city ideal and want to make data an integral part of their development processes. However, the use of data for development is undermined by lack of consensus on data governance norms, uneven distribution of resources, dominance of profit-chasing private corporations and cybersecurity threats, among other challenges. Cities must engage other players across international boundaries if they are to harness data for their development most effectively. It is important for cities to understand the issues that are at the centre of global diplomacy on data governance, such as data governance norms, cybersecurity and technology standards. To be effective in their diplomatic efforts, cities must have adequate knowledge of the issues, clearly define their values and interests, and engage horizontally and vertically with other cities and government spheres. Lastly, cities need to identify strategic stakeholders, such as relevant international NGOs, international government organisations, private corporations and city organisations, that can assist them in exploiting data for development.

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Abbreviations

4IR	Fourth Industrial Revolution
AFD	l'Agence Française de Développement (French Development Agency)
AI	Artificial Intelligence
ALAN	Association of Local Authorities of Namibia
C2C	City-to-city
C40	C40 Cities Climate Leadership Group
CAP	Climate Action Plan
CCTV	Closed-circuit Television
CDS	City Development Strategy
CO_2eq	Carbon dioxide equivalent (tCO_2eq = expressed in tonnes)
COCT	City of Cape Town
COP	(UN) Conference of the Parties/Climate Change Conference
CSIR	Council for Scientific Innovation and Research
DANIDA	Danish International Development Agency
DBSA	Development Bank of South Africa
DCoG	Department of Cooperative Governance
DEA	Department of Environmental Affairs
DFFE	Department of Fisheries, Forestry and the Environment
DMRE	National Department of Mineral Resources and Energy (formerly known as Department of Energy)
DNS	Domain Name System
DoT	National Department of Transport
DPE	Department of Public Enterprise
DSI	Department of Science and Innovation
DTIC	Department of Trade, Industry and Competition (formerly known as Department of Trade and Industry)
DUT	Durban University of Technology
EEDSM	Energy Efficiency and Demand Side Management Programme
EISD	Environment and Infrastructure Services Department
EU	European Union
EV	Electric vehicle
FCDO	(UK) Foreign, Commonwealth & Development Office
FCSA	Future Cities South Africa
FICOL	French Local Authorities Financing Facility
GCF	Green Climate Fund
GCOM	Global Covenant of Mayors for Climate & Energy
GDP	Gross Domestic Product
GDS	Growth and Development Strategy
GGE	(UN) Group of Government Experts
GHG	Greenhouse Gas
HPCDPC	High-Performance Computing and Data Processing Centre
HSRM	Hydrogen Society Road Map
IAB	Internet Architecture Board
ICLEI	International Local Government for Sustainability
ICT	Information and Communications Technology
IDP	Integrated Development Plan
IETF	Internet Engineering Task Force
IGF	Internet Governance Forum
IIOC	Integrated Intelligent Operations Centre
ILO	International Labour Organization
IMDF	INCA Municipal Debt Fund
IP	Internet Protocol
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
IR	International Relations
IRP	Integrated Resource Plan
JET	Just Energy Transition
LGA	Local Government Association
LOGIN	Local Government Information Network
M&E	Monitoring and Evaluation
MGI	McKinsey Global Institute

MILE	Municipal Institute of Learning
MoU	Memorandum of Understanding
NCCRP	National Climate Change Response Policy White Paper
NDC	Nationally Determined Contribution
NDP	National Development Plan
NERSA	National Energy Regulator of South Africa
NGO	Non-Governmental Organisation
NPC	National Planning Commission
NSA	National Security Agency
OEMs	Original Equipment Manufacturers
PCC	Presidential Climate Commission
PPP	Public-private Partnership
PRASA	Passenger Rail Agency of South Africa
PV	Photovoltaic
RDP	Reconstruction and Development Programme
SACN	South African Cities Network
SALGA	South African Local Government Association
SDG(s)	Sustainable Development Goal(s)
SET	Sectoral Emission Target
SEZ	Special Economic Zones
SFA	Strategic Focus Area
SMILE	Swakopmund Municipal Institute of Learning
SSEG	Small-Scale Embedded Generation
tCO_2eq	Carbon dioxide equivalent expressed in tonnes
TCT	Transport for Cape Town
UCGLA	United Cities and Local Governments of Africa
UCLG	United Cities and Local Governments
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCC	United Nations Framework on Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
WEF	World Economic Forum
WSIS	World Summit on the Information Society