



ANNUAL REPORT

2021/22



The GCRO comprises a partnership of:









GCRO ANNUAL REPORT 2021/22

© 2022 Gauteng City-Region Observatory

Design: Breinstorm Brand Architects **Cover images:** Nomonde Makhudu (top)

Clive Hassall (bottom)

Typesetting: Lumina Datamatics
Publication manager: Simon Chislett

Published by the Gauteng City-Region Observatory (GCRO), a partnership of the University of Johannesburg, the University of the Witwatersrand, Johannesburg, the Gauteng Provincial Government and organised local government in Gauteng (SALGA).

Gauteng City-Region Observatory Annual Report 2021/22



Contents

INTRODUCTION	01
Foreword from the Chair of the GCRO Board	02
Message from the Executive Director: Introduction and overview of the year	04
GOVERNANCE AND ORGANISATIONAL DEVELOPMENT	07
Board	08
Staff and structure	08
Staff development and wellness	09
GCRO staff members and titles, 2021/22	10
GCRO policies and governance	12
Review of institutional change and the 2020–2025 Strategic Framework	12
SUPPORT TO GOVERNMENT	15
Strategic support to the Gauteng Policy Support Unit	16
Other ad hoc government support and responses to external requests	16
APPLIED RESEARCH	19
Overview	20
1. Data analytics, informatics and visualisation	21
2. Governing the GCR	24
3. Histories and futures of the GCR	20
4. Inclusive economies	28
5. Poverty, inequality and social mobility	30
6. Social change	32
7. Spatial transformation	35
8. Sustainability and just transitions	38
9. Understanding quality of life	4
GCRO OUTPUTS AND ACTIVITIES	45
GCRO major published outputs	40
GCRO data outputs	4r
Other key outputs	48
Conferences, seminars and symposia organised by the GCRO	48
Published works	49
Presentations	50
Media	54
Teaching, supervision, external examining	57
Wider academic citizenship	57





Introduction

Foreword from the Chair of the GCRO Board

I have had the pleasure of getting to know the Gauteng City-Region Observatory (GCRO) in my first year as Chair of the GCRO Board, a position which I will hold every second year in my capacity as Deputy Vice-Chancellor of Research and Innovation, University of the Witwatersrand (Wits), Johannesburg, and which alternates with my counterpart at the University of Johannesburg.

The April 2021-March 2022 financial year was a busy time in the life of the organisation. A key transition was that Mr Rashid Seedat began his term as Executive Director in June 2021, following the retirement of the previous Executive Director. Dr Rob Moore. Mr Seedat brings with him a wealth of experience on urban governance in Gauteng that he accumulated as an activist in the 1980s, an employee of the non-governmental organisation Planact, a councillor for the City of Johannesburg early in the democratic era, the head of the Central Strategy Unit in the Executive Mayor's office in the City of Johannesburg and as head of the Gauteng Planning Division in the Gauteng Provincial Government's Office of the Premier. He has had a longstanding relationship with the GCRO, having served on its Board over a number of years. The current Board is extremely pleased with the smooth leadership transition and the energy that Mr Seedat has brought to the implementation of the 2020–2025 GCRO Strategic Framework.

Mr Seedat's arrival coincided with the intense final months of preparation for the launch of the sixth iteration of the GCRO's Quality of Life (QoL) Survey. The QoL fieldwork began in October 2020 and was completed in May 2021, with a large survey team interviewing 13 616 carefully sampled individuals from each of Gauteng's 529 wards.

The achievement of this exercise was remarkable given the pandemic. The results of the survey were launched at a high-profile online workshop on 9 September 2021, accompanied by an extensive overview report and a special GCRO Data Brief on the effects of the pandemic on the city-region. The survey provided a unique opportunity to understand the impact of the pandemic on the city-region, with the devastation to jobs being particularly evident. The dataset is treated as a public resource and has been made available via the University of Cape Town's Datafirst website.

The GCRO Board follows a programme of scheduled meetings to review operational reports and to engage the leadership of the organisation on strategic issues. The GCRO remains an important partnership between government and academia, and the Gauteng Provincial Government's ongoing commitment to evidence-based decision-making is evident in all GCRO Board interactions. I particularly acknowledge the collaboration between the Gauteng Provincial Government, the South African Local Government Association, Wits and the University of Johannesburg for ensuring that the GCRO continues to produce research of value to all the residents and decision-makers of the province. We are gratified by the achievements captured in this Annual Report.

I look forward to the GCRO growing from strength to strength due to the effective implementation of its 2020–2025 Strategic Framework.

Prof. Lynn Morris GCRO Board Chair and Deputy Vice-Chancellor: Research and Innovation, University of the Witwatersrand, Johannesburg

From left: Prof. Saurabh Sinha (2021 Chair) and Prof. Lynn Morris (2022 Chair) | Photograph by Graeme Götz



QoL 6 (2020/21) data collection | Photograph by GeoSpace fieldworker



Message from the Executive Director: Introduction and overview of the year

On 1 June, three months into the 2021/22 financial year, I took over the helm of the GCRO from Dr Rob Moore, who retired from a distinguished career in academia and who had very ably steered the GCRO as Executive Director for over five years.

Before my arrival at the GCRO, I had spent more than a quarter of a century working as a senior strategic and urban planner and policy specialist for the City of Johannesburg and the Gauteng Provincial Government. I was fortunate to have been part of the first generation of post-apartheid public servants that sought to fundamentally transform government based on the tenets of the Constitution of our new democracy.

My association with the GCRO started in the last quarter of 2011 when I was appointed by the Premier of Gauteng as one of the Gauteng Provincial Government's representatives on the GCRO Board. I served continuously in that capacity until my appointment as Executive Director in 2021. It was this accumulated knowledge that enabled me to secure the leading position in what I consider to be an extremely innovative and unique organisation.

In June 2021, South Africa remained in the midst of the COVID-19 pandemic. The GCRO had by then adapted to these unprecedented and challenging circumstances. Business continuity was maintained due to the effective use of technology coupled with a commendable work ethic. During this period, work continued on the 'Responding to the COVID-19 pandemic' project, albeit at a lower tempo than in 2020/21. Attention had been focused on in-depth analyses, including contributions to the national Department of Planning, Monitoring and Evaluationled country report on South Africa's response to COVID-19, various journal articles drawing on GCRO analysis and government support work.

A few days prior to my arrival, data collection for the GCRO's flagship Quality of Life Survey 6 (2020/21) (QoL 6) was completed. A final sample size of 13 616 was attained, with all municipal targets met

and with an appropriate distribution of interviews across all wards. The QoL 6 results were launched during a high-profile event on 9 September 2021. The launch was held online, with over 300 people in attendance. The QoL 6 results have received extensive media coverage, with most GCRO researchers participating in one or more interviews. Subsequent to the launch, a number of QoL 6 presentations have been delivered to provincial and local government departments and other stakeholders.

Work in 2021 began on the 'Metropolis mobility in African city-regions' project, which will see Gauteng, Maputo, Dakar and Barcelona work together towards the development and piloting of sustainable and inclusive mobility indicators over the next few years. Work on this project began to pick up pace, with a preliminary meet-and-greet session among project participants held in late July and a first full project workshop planned for 20 October.

The GCRO and the Mapungubwe Institute for Strategic Reflection (MISTRA) have partnered to host an exciting series of three webinars under the theme 'Rebuild SA'. These three dialogues responded to the July 2021 turmoil in KwaZulu-Natal and Gauteng in the wake of the devastating impact of COVID-19. Three seminars were convened in September, October and November 2021 on the themes of rebuilding communities, rebuilding economies and rebuilding government. Overall, the three webinars were very well attended and generated extremely useful and productive discussions.

In the third and fourth quarters (October 2021 to March 2022), the GCRO convened several processes on the 2020–2025 GCRO Strategic Framework to assess progress so far, define further work required and to adjust the framework given the new vantage point in time. The processes consisted of a two-day retreat in November 2021 and a half-day workshop in January 2022. One of the key innovations following these workshops was the implementation of a system of 'theme leads', in which each of the nine GCRO research

themes has a senior researcher, or above, as the 'lead'. Following the establishment of this structure, theme leads chaired meetings on progress in projects in their themes and have begun chairing annual workplanning processes for these projects. A second area of work has been the reformulation of a table of high-level goals and how these translate into actions and annual activities. The GCRO's Management Committee spent several sessions on this document, and this has helped to draw the strategic plan into a more operational position within the organisation.

This Annual Report spells out the work of the GCRO in some detail for the 2021/22 financial year, 1 April 2021 to 31 March 2022. I highlight some of our key achievements for the year as follows:

- The 'Green assets and infrastructure' project's third report, Towards applying a green infrastructure approach in the GCR, published in December of 2019, was announced as the winner of the 2019/20 AfriSam-SAIA Sustainable Design Award for 'Research in sustainability'.
- The 'Scale, belonging and exclusion in Gauteng'
 project culminated in the publication of a special
 issue of the *Urban Forum* journal in June 2021.
 The special issue, edited by Drs Alexandra Parker
 and Richard Ballard, consists of five articles
 (four written by GCRO staff or associates) and a
 synthetic introduction.
- September 2021 saw the publication of the 18th GCRO Occasional Paper, entitled Rescaling municipal governance amidst political competition in Gauteng: Sedibeng's proposed re-demarcation.
- In November 2021, the GCRO published its 12th Research Report, entitled In pursuit of just sustainability. The report is the product of a research collective that brought together researchers from different backgrounds to explore just sustainability in the Gauteng City-Region.
- In December 2021, the GCRO published its 19th Occasional Paper, entitled Spatial trends in Gauteng, a review of six major spatial processes that are shaping the city-region.

- The GCRO was invited by the South African Human Rights Commission (SAHRC) to provide QoL-related insights to the National Investigative Hearing into the July 2021 Unrest in KwaZulu-Natal and Gauteng. The GCRO prepared a ten-page written submission and presented this to the SAHRC Investigative Hearing on 2 March 2022.
- The GCRO participates in a research project on the 'Long durée of the water-energy-food nexus in post-mining landscapes', which commenced in May 2022. This is a multi-partner project that includes the Wits School of Architecture and Planning and the Delft University of Technology. It is funded by the Dutch Research Council and South Africa's National Research Foundation through the Ronde Merian Fund.

As we enter a new financial year, an ambitious programme of work has been set for the period ahead, solidifying our national and international reputation as a leading urban observatory that is underpinned by a unique and solid partnership between government and the academy.

Mr Rashid Seedat GCRO Executive Director

Mr Rashid Seedat | Photograph by Graeme Götz







Governance and organisational development

Board

The GCRO is a partnership between the University of the Witwatersrand (Wits), Johannesburg, the University of Johannesburg (UJ), the Gauteng Provincial Government (GPG), and organised local government in Gauteng (SALGA – Gauteng). The Constitution of the GCRO provides for a Board, comprising two representatives each of all the partners, as the overarching policy-making body for the organisation. Members of the Board during the 2021/22 financial year were as follows:

- Professor Lynn Morris, Deputy Vice-Chancellor: Research and Innovation, Wits, GCRO Deputy Chairperson for 2021; GCRO Chairperson for 2022
- Professor Saurabh Sinha, Deputy Vice-Chancellor: Research and Internationalisation, UJ, GCRO Chairperson for 2021; GCRO Deputy Chairperson for 2022
- Professor Fiona Tregenna, SARChI Chair in Industrial Development, UJ
- Professor Mfaniseni Sihlongonyane, Associate Professor, School of Architecture and Planning, Wits
- Mr Khululekile Mase, Deputy Director-General, Department of Urban Planning and Cooperative Governance and Traditional Affairs, GPG
- Mr Mduduzi Mbada, Head: Policy, Research and Advisory Services, Office of the Premier, GPG
- Ms Pilisiwe Twala-Tau, Provincial Executive Officer, SALGA – Gauteng
- Councillor Matshidiso Mfikoe, Executive Committee, SALGA – Gauteng (until November 2021)

- Councillor Nonkoliso Tundzi-Hawu, Deputy
 Chairperson, SALGA Gauteng (since June 2022)
- Dr Rob Moore, Executive Director: GCRO, ex-officio (until 31 May 2021)
- Mr Rashid Seedat, Executive Director: GCRO, ex-officio (since 1 June 2021)

The function of the Board is to approve policy, annual budget, annual work plan, annual report and annual financial statements. The day-to-day functioning of the GCRO is managed by the Executive Director and the Management Committee.

Staff and structure

The year 2021/22 saw some changes within the GCRO's staff complement. The GCRO team said goodbye to Dr Julia de Kadt, who moved to Sightsavers, an international charity based in the United Kingdom working to prevent avoidable blindness, support equality for people with disabilities and advocate for change; and to Dr Alexandra Parker, who has taken up a position at Global Health 50/50, an independent, evidence-driven initiative registered in the United Kingdom to advance action and accountability for gender equality in global health. Drs de Kadt and Parker have both made an enormous contribution to the GCRO over a number of years.

In addition to the arrival of Mr Rashid Seedat as Executive Director, noted in the Introduction, the GCRO is delighted to announce the appointment of Dr Laven Naidoo, Senior Researcher in the field of GIS, data analytics, informatics and visualisation, from November 2021. Within the GCRO, Dr Naidoo will expand his research into the development of advanced

artificial intelligence/machine learning techniques, geospatial data science approaches and novel remote sensing applications within the urban environment and Sustainable Development Goals space.

Mr Sthembiso Mkhize was promoted to the position of Junior Researcher, focused on the GCRO's 'Understanding quality of life' programme of research.

The GCRO has facilitated the appointment of project-based postdoctoral research fellows for the 'Off-grid cities' project, co-funded by the University of Johannesburg. Further appointments are expected in the next financial year.

A new GIS intern, Ms Cher Petersen, was selected at the end of the 2021/22 financial year out of 108 applicants. She will be supporting the GCRO's GIS-related projects as well as developing her own professional profile and skill set.

We wish those who have left the GCRO every success in their future careers, and we warmly welcome all the new staff, who are sure to make this an exciting new phase for the GCRO.

Staff development and wellness

Ongoing staff development is a key organisational commitment for the GCRO, and some of our staff members participated in important development opportunities locally and abroad through various online platforms.

The GCRO senior research and management teams continued to embark on an introductory course on 'Gestalt – Living and leading in challenging times', presented by Baobab Consulting & Training and Distillery. This course is designed to support leaders, managers and facilitators who wish to gain insight into themselves and develop their ability to impact teams, organisations and clients. A cohort of senior researchers attended the Gestalt Resistance Masterclass as part of this process.

 $\label{eq:courses} \operatorname{Dr} Laven\, \operatorname{Naidoo}\, \operatorname{undertook}\, \operatorname{courses}\, \operatorname{on}\, \operatorname{Python}\, \operatorname{and}\,$ $\operatorname{Adobe}\, \operatorname{Illustrator}.$

The launch of the Quality of Life Survey 6 (2020/21) (QoL 6) in September 2021 promised to be more eventful than normal for the GCRO. There were new questions in QoL 6 that were likely to garner media attention. The survey had been conducted through the COVID-19 lockdown – and that in itself was newsworthy. In addition, the survey results were notable as a citizen-satisfaction gauge in the context of the local and provincial government elections planned for October 2021.

From April to June 2021, a Statistical Package for Social Sciences (SPSS) refresher course was run by Dr de Kadt with the assistance of Mr Hamann. The course covered several aspects of SPSS, including working with syntax files, variable creation and sub-group analyses; using SPSS analyses to generate graphs in MS PowerPoint and MS Word; and weights and confidence-interval calculation. The refresher course was open to all researchers in the organisation and was mainly attended by junior researchers and researchers.

While some of the 18-strong GCRO research team had considerable experience in public presentations and media interviews, many had next to none. Quote This Woman+ was contracted and all the GCRO research team members successfully completed three presentation skills and media training masterclasses, enabling them to expertly deliver their key messages and to respond confidently to multiple forms of media requests while increasing the dissemination and impact of the critical results of QoL 6. Based on an assessment of media coverage following the launch, the GCRO achieved an advertising revenue equivalent of approximately R1.4 million worth of exposure from the various interviews and news articles quoting GCRO researchers on QoL 6 findings. This suggests a solid return on the investment made in the media training.

As the pandemic allowed throughout this financial year, GCRO staff have remained productively working from home as well as intermittently from the office. The use of online technology has allowed us to offer webinars and launch events without risk to our staff, and this approach also provided several opportunities to connect more widely.

GCRO staff members and titles, 2021/22



Ms Nadine Abrahams, Office Administrator



Dr Richard Ballard, Principal Researcher



Ms Christina Culwick Fatti, Senior Researcher



Dr Julia de Kadt, Senior Researcher



Mr Graeme Götz,Director, Research Strategy



Mr Christian Hamann, Researcher



Ms Gillian Maree, Senior Researcher



Mr Sthembiso Mkhize,Junior Researcher



Mr Thembani Mkhize, Researcher

GOVERNANCE AND ORGANISATIONAL DEVELOPMENT



Dr Mamokete Matjomane, Researcher



Ms Ruth Mohamed, Finance and Office Manager



Dr Ngaka Mosiane, Senior Researcher



Dr Darlington Mushongera, Senior Researcher



Dr Laven Naidoo, Senior Researcher



Ms Samkelisiwe Khanyile, Researcher



Ms Yashena Naidoo, Junior Researcher



Dr Alexandra Parker, Senior Researcher



Mr Rashid Seedat, Executive Director



Ms Melinda Swift,Operations and Partnerships Manager

GCRO policies and governance

During 2020/21 and 2021/22, the GCRO worked on a set of proposals to revise the GCRO Constitution.

In close consultation with all staff, the GCRO promotions policy was reviewed, particularly as regards promotion criteria, and a revised promotions policy was presented to the GCRO Board in March 2022. The Board also approved the GCRO Internship Programme, with a particular decision to limit internships in the GCRO to 12 months and consider ways to provide more opportunities for workplace experience to young graduates.

Review of institutional change and the 2020-2025 Strategic Framework

The GCRO is currently guided by a five-year strategic framework extending from 2020 to 2025, which was

prepared in 2019 by organisation staff through a series of reflective meetings. The appointment of a new Executive Director, together with rapid and dramatic changes in the world and province, necessitated a review and update of the existing strategic framework and the development of an annual plan for 2022/23. The GCRO Management Committee (ManComm) led this review process, which included a series of engagements with all staff.

Following a period of planning between ManComm and its service provider (Distillery), a strategic session with all staff was held in November 2021, the first inperson session of its kind since COVID-19 hit in March 2020, with a follow-up session in January 2022. The strategic review process has confirmed that the existing strategy remains relevant and resilient. A number of areas have been adjusted to accommodate changes in the external and internal contexts of the GCRO. The process of review has had the added benefit of facilitating the return of in-person engagements for all staff, consolidating the arrival of the Executive Director and strengthening the relational capital of the organisation as a whole. The GCRO is well placed to address the opportunities and challenges it faces with sharpened focus and heightened energy. The recalibrating of the





GCRO's strategic direction was approved by the GCRO Board on 24 March 2022.

The context, areas of continuity and areas of change were synthesised into four revised goals. These goals highlight areas of the GCROs' functioning that will be in focus for the remainder of the strategic planning period:

- To help build the knowledge base of the GCR by producing high-quality primary data, evidence-based research outputs and relevant conceptual engagements;
- 2. To actively and effectively disseminate GCRO research products in the public domain;
- To build strategic partnerships across the academic-policy interface and with other key engaged research partners; and
- ${\it 4.} \quad {\it To ensure the continued institutional stability}, \\ {\it coherence and growth of the GCRO}.$

The staff as a whole agreed to the creation of 'theme leads' for each of the nine themes. As theme leads, these

staff members are tasked with helping the organisation to think *across* projects rather than just within them. As senior researchers, they will also support project teams as they shape and execute their research and develop their written research results. The theme leads are as follows:

Laven Naidoo: Data analytics, informatics and visualisation

Graeme Götz: Governing the GCR **Rashid Seedat:** Histories and futures

 ${\bf Research\ Oversight\ Committee\ (as\ caretaker):}$

Inclusive economies

Darlington Mushongera: Poverty, inequality and social mobility

Richard Ballard: Social change

 $\textbf{Ngaka Mosiane:} \ \textbf{Spatial transformation}$

 $\textbf{Gillian Maree:} \ \textbf{Sustainability and just transitions}$

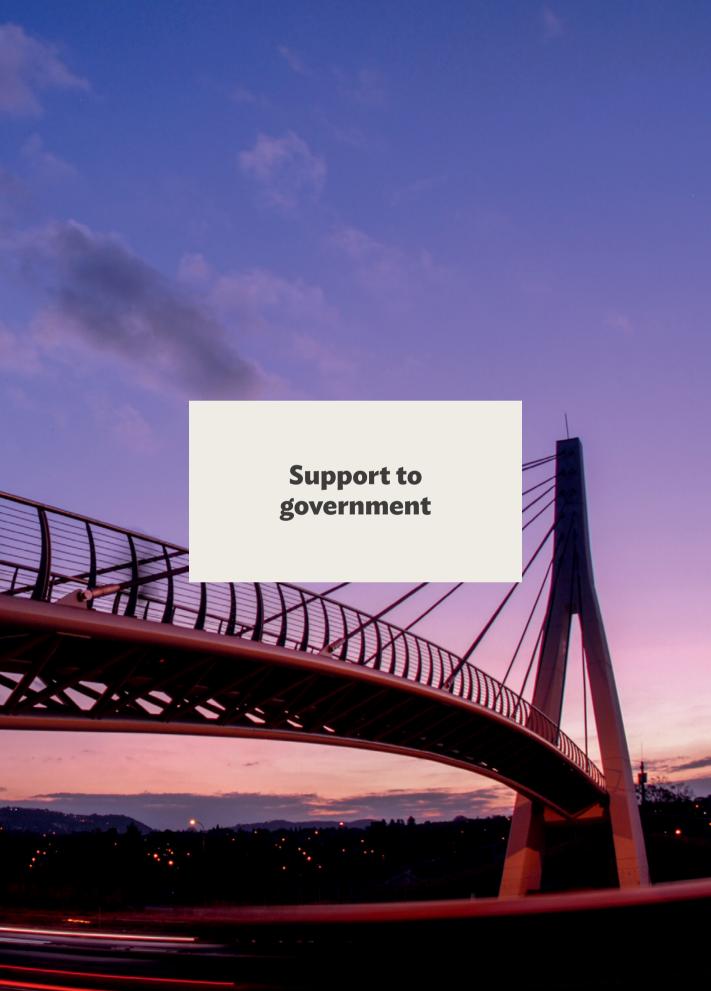
Christina Culwick Fatti: Understanding

quality of life

Strategic breakaway, November 2021 | Photograph by Graeme Götz







Support to government

Strategic support to the Gauteng Policy Support Unit

Work to support the Policy Support Unit in the Gauteng Office of the Premier, and related policy initiatives in Gauteng province and the metropolitan municipalities, has focused on the COVID-19 response, the launch of the GCRO Quality of Life Survey 6 (2020/21) (QoL 6) results and various priority areas of work.

In 2021/22, the GCRO continued to interact with the Gauteng Office of the Premier around COVID-19 support, albeit less intensively than in 2020/21. Dr Moore, the previous GCRO Executive Director, continued to serve on the Premier's Advisory Committee on COVID-19 after his departure at the end of May 2021.

The GCRO has met with the Policy Support Unit throughout this financial year to discuss shared objectives, ensure closer alignment of these objectives and develop the proposed Research Programme in Inclusive Economies. The Office of the Premier presented to all GCRO staff the Gauteng Provincial Government's mid-term review of progress on the goals of the 2019–2024 term of office, as well as on the Growing Gauteng Together: Towards 2030 (GGT2030) plans for the remainder of the term. In March 2022, Rashid Seedat and Graeme Götz guided a Gauteng Provincial Government Community of Practice workshop through the GCRO's website and available data for use as evidence in policy-setting for the GGT2030 strategy.

Following the launch of the QoL 6 results in early September 2021, several presentation requests were received from the Office of the Premier. These included a presentation to Gauteng Provincial Government Heads of Department in a workshop on a mid-term review of socio-economic trends, and a meeting of the Broad Management Team in the Office of the Premier, both in early October. On 8 December 2021, QoL 6 findings were formally presented to the Provincial Executive Council.

Other ad hoc government support and responses to external requests

In the first quarter, several discussions were held with the Gautrain Management Authority (GMA) to clarify the terms of a partnership between the GMA and GCRO around transport data analysis. Over the course of the financial year, this partnership began to be solidified, including the signing of an agreement with the Institute for Security Studies (ISS) to collaborate with the GCRO on spatial data analysis of safety and security concerns linked to differential landuse around Gautrain stations and rail reserves. The work will be completed in 2022/23. The partnership with the ISS also saw GCRO-contracted researcher Geoff Bickford contribute to a GMA public transport knowledge seminar in October 2021.

In the second quarter, the GCRO contributed to a national Department of Cooperative Governance and Traditional Authorities (COGTA) process of reflecting on 21 years of local government.

The GCRO was approached by the World Bank with a view to contributing a short background paper and text box to a major report on cities and climate change. An abstract for the contribution, to be focused on water security, was submitted in December 2021 and then revised in the last quarter following a positive response and comments. The paper will be prepared in the 2022/23 financial year.

In the third quarter, the GCRO was approached by the Group Strategy division in the City of Johannesburg to look at ways to model gross value added (GVA) data at a sub-metro level. This work aligns with an existing GCRO project on mapping night lights and economic activity in Gauteng (see the project report on 'Understanding urban spaces using satellite imagery' in the next section).

The GCRO met several times with the Mpumalanga Office of the Premier to discuss the possibilities around the establishment of a Mpumalanga equivalent of a research observatory.

In the final quarter of the year, the GCRO was invited to send representatives to a number of the new Gauteng Provincial Government War Rooms being established. Christian Hamann began representing the GCRO at an Urban Poverty and Hunger War Room meeting, and Rashid Seedat and Mamokete Matjomane represented the GCRO at an Economic Acceleration and Job Creation War Room event.

Following the launch of QoL 6 results in September 2021, the GCRO was asked to present headline findings to a number of provincial government departments and municipalities, including the Department of Social Development in September 2021: the Gauteng Department of Agriculture and Rural Development in October 2021; the City of Johannesburg's Executive Management team in November 2021; the Gauteng Provincial Legislature's Standing Committee of Committee Chairpersons in December 2021; the Gauteng Department of Health in December 2021; and the Gauteng Department of Roads and Transport in February 2022.

Finally, the GCRO was invited by the South African Human Rights Commission (SAHRC) to provide QoL-related insights to the National Investigative Hearing into the July 2021 Unrest in KwaZulu-Natal and Gauteng. The GCRO prepared a ten-page written submission that was presented to the SAHRC Investigative Hearing on 2 March 2022.











From left, photographs by Ruth Manda, Simon Wolfson and Thandeka Zwane





Applied research

Overview

The GCRO had 39 active projects during the 2021/22 financial year, of which 12 were new. These projects were organised under nine different themes to provide the basis of cross-project learning. At the start of the financial year, in April 2021, each project team presented an annual plan for their project to the GCRO's Research Oversight Committee.

This took the form of a week of brief meetings with each project team. Annual plans consist of intended project outputs and activities outlined on a Gantt chart, and a budget for the year. In October, a follow-up week of meetings with each project team provided a space for taking stock, planning ahead and troubleshooting.

Table 1: Number of projects per theme, 2021/22

Themes	Number of projects
1. Data analytics, informatics and visualisation	4
2. Governing the GCR	4
3. Histories and futures of the GCR	3
4. Inclusive economies	3
5. Poverty, inequality and social mobility	4
6. Social change	7
7. Spatial transformation	5
8. Sustainability and just transitions	5
9. Understanding quality of life	4

1. Data analytics, informatics and visualisation

With the current influx of voluminous and multidimensional spatial datasets from a variety of primary and secondary sources, extracting, reporting on and visualising key trends from these datasets are of utmost importance. Besides the availability of a large amount of traditional survey data that is mostly structured, big data also includes sets of unstructured data (e.g. texts, images, video, voice notes) collected from social media platforms as well as from citizen science sources. A considerable amount of big data is also made available through remote sensing imagery obtained from sensors aboard satellites orbiting the earth or from flying drones and aircraft. This theme seeks to explore innovative ways of analysing complex datasets using machine learning/artificial intelligence approaches for trend mapping and predictive modelling, visualising data trends via informative graphs and maps, as well as ways of communicating the outcomes in a meaningful fashion (e.g. via story maps and data viewers). Packaging and communicating the key trends and research outputs in an approachable manner is crucial for stakeholders such as policy-makers, decisionmakers and managers.

Website and dissemination

Sections of the GCRO website are updated on an ongoing basis, for example following the publication of new outputs and news items, the creation of new project pages, updates to existing project pages, and creating or removing staff profiles. Furthermore, there are a series of activities in place to maintain the ongoing hosting of the website and any adjustments to its architecture. These activities are disbursed among a large team of GCRO staff. In the 2021/22 financial year, this grouping was constituted as a GCRO project, with the result that it develops an annual plan and meets on a quarterly basis to track the allocation and execution of responsibilities.

One important initiative over the past year has been to transform the seven research-theme structure of the previous strategic framework into the new nine-theme structure of the current strategic framework. A second initiative over this financial year has been the allocation of digital object identifier (DOI) numbers to all new outputs and the registration of metadata (e.g. titles, authors) for each output with Crossref, a DOI registration organisation. Crossref



GCRO website landing page

then distributes this metadata to referencing systems and other databases to improve the discoverability of GCRO outputs. A process has been developed for the 2022/23 financial year to allocate, and then register, DOI numbers to the extensive back catalogue of GCRO publications.

Understanding urban spaces using satellite imagery

Satellite imagery has become a valuable data source for understanding the change in the Earth's physical environment. As it is not limited to geographical units or boundaries, satellite imagery can be used to provide consistent coverage of the Earth's surface. Remotely sensed imagery can be used to monitor and detect the changes in urban areas, and being able to map and visualise urban areas at different scales is important for discerning how urban expansion is changing and affecting its surroundings.

Satellite data can provide an alternative source of information not only of the physical environment but also as a proxy for socio-economic data in predictive modelling. For example, in recent years, there has been increasing use of night-time lights data to understand and quantify economic activity in urban centres. The 'Understanding urban spaces using satellite imagery' project aims to use night-time lights data to investigate the spread of economic activity across Gauteng to determine if it is a viable alternative to traditional economic data that is typically only available at large spatial scales. Gross value added (GVA) data will be used as the primary variable of economic data since it is available at the finer mesozone level.

The output of this project will be a journal article and a rapid research report. The rapid research report will be produced in collaboration with the City of Johannesburg metropolitan municipality, focusing on this metro's results.

GCRO data governance strategy

The GCRO is a smart, data-driven organisation that recognises the importance of having a sustainable strategy to utilise data assets to its best capabilities and capacities. A set of data principles, created

during the development of the 2020–2025 Strategic Framework, was adopted by the organisation on 15 September 2020 and the 'GCRO data governance strategy' document was finalised in March 2022. The data principles aim to align with the GCRO's core vision and mission. Future work includes the implementation of the data governance strategy within the organisation and ensuring all staff are empowered to practise good data governance. A GCRO Brown Bag Seminar was held in May 2022 to inform staff on this strategy.

Visualising and speculating Gauteng

This is an interdisciplinary project, combining the disciplines of Urban Design, Architecture, Data Analytics and Computer Science, to test, develop and implement new visualisation technologies in order to provide interactive data visualisation strategies. The project is a partnership between the GCRO and colleagues at the University of Johannesburg (UJ) Faculty of Art, Design and Architecture. It explores innovative ways to visualise data by incorporating digital 3D-models, virtual, augmented and artificial realities, interactive projections, and drones. These novel models will be used in conjunction with existing analogue technologies such as physical modelling, fabrication, prototyping, photography and film to produce innovative and augmented representations for users to explore, understand and experience the Gauteng City-Region through data. The project seeks to investigate the possibility of innovative modelling by way of future urban speculation and future scenarios as well as data and model interactivity in order to allow users to interact with the data and predict future outcomes. The project will run over several years and culminate in an international exhibition, a web-based platform and a journal article. The key initiative over this financial year has been the development of a concept for an exhibition at the World Urban Forum in 2024. The GCRO project team members have shared several key datasets with the UJ team and are working with them on the exhibition concept.



2. Governing the GCR

The 'Gauteng City-Region' is both an existing place, holding more than a quarter of South Africa's population and a third of its economy, as well as a political project for better government and governance in this all-important part of the country.

Research in this theme focuses on two dimensions of governing the GCR. The first relates to the macro-scale concerns of how to build more integrated and coordinated city-region governance, and to improve associative governance with the private sector, civil society and communities. The second focuses on more micro-scale issues and uses an 'ethnography of the state' lens to study governance practices, processes and systems in the city-region.

Metro form of government in Gauteng

Work on this project was resumed in late September when the project team, now including new Executive Director Mr Rashid Seedat, met to map out a structure and process for a GCRO Occasional Paper. An ethics clearance application was submitted in November 2021, and approval, subject to minor revisions, was received from the ethics committee in December.

A revised ethics application was subsequently submitted in March 2022 and received final approval. During further planning in March, the project team agreed that the view of the paper would expand slightly to encompass other efforts to institutionally solve the strategic misalignment between parts of local government and between provincial and local government (including the new District Development Model). The work will be taken forward in 2022/23.

Ethnographies of the state

This is a multi-year ethnographic study into internal decision-making processes around development and service delivery planning in the City of Johannesburg. During the last three to four years, lead researcher Dr Darlington Mushongera focused on a PhD, resulting in a thesis entitled 'An actor-network reading of water services governance in the City of Johannesburg', which was successfully examined during the 2021/22 financial year. In addition, Dr Mushongera also submitted a book chapter based on his PhD work. This chapter, entitled 'Who is who in the zoo? An analysis of water services governance



Photograph © GCRO

in the City of Johannesburg, will be published in *Practices of the state in urban governance*, edited by Prof. Claire Bénit-Gbaffou. Project work also continues on a GCRO Provocation on ethnographic methods applied to water services planning in the City of Johannesburg.

Governing the GCR Provocations Series

This ongoing project saw the release of one report in the financial year, and the finalisation for imminent publication of another. Thembani Mkhize's Occasional Paper on party politics in the proposed re-demarcation and metropolitanisation of the Sedibeng District, initially planned as a Provocation, was published in mid-September 2021. A Provocation on governing the spatial edges of the GCR – entitled Displaced urbanisation or displaced urbanism? Rethinking development on the peripheries of the Gauteng City-Region – was finalised for production in January 2022 and was scheduled to be published early in the 2022/23 financial year.

City-region governance in the BRICS

This is a book project based on a year of fieldwork by Prof. Philip Harrison in four city regions (São Paulo, Moscow, Shanghai and Delhi) to examine governance and intergovernmental arrangements in comparison to those in the GCR. A full book manuscript has been developed and is in the process of being refined for submission to Wits University Press (WUP). A deadline has been negotiated with WUP and submission is scheduled for the first quarter of 2022/23. If the manuscript is accepted, the book will be published in mid-to-late 2023.

New Executive Director Mr Rashid Seedat has also started a separate initiative to compare innovative city-region planning processes in Barcelona, Beijing, Gauteng and Istanbul. The collaboration is based on a session held at the Marmara Urban Forum in October 2021 entitled 'International experience exchange: Good examples of innovative planning'. Experiences with innovative strategic planning are being written up by representatives in each region and will be collated into a GCRO Occasional Paper. Because of this additional element, as well as other components in discussion, the 'City-region governance in the BRICS' project will be retitled 'International comparative city-region governance' in 2022/23.



Photograph © GCRO

3. Histories and futures of the GCR

This programme of research focuses on relevant histories and possible futures of the Gauteng City-Region (GCR) in comparison with other regions in different parts of the world, with two key dimensions. First, by asking what makes the GCR similar to or different from other large urban formations elsewhere, we are better able to theorise what constitutes this area as a city-region, and in turn, understand the trends and dynamics shaping its progress. Second, we are interested in how potential futures might be constrained by certain path dependencies given the particular histories of the GCR. And in light of this concern, we hope to learn how city-regions elsewhere are reshaping their futures by addressing constraints inherited from their pasts.

Futures of the Gauteng City-Region

This project has seen an external specialist – Prof. Edgar Pieterse – commissioned to write a GCRO Occasional Paper that provides a 'futures perspective', situating the GCR within projected long-term global and continental urban trends and dynamics. Drafting on the Occasional Paper continued after a number of discussions with the author to clarify the approach and framework.

Status of GCRO Occasional Papers on spatial trends, environmental trends and social mobility

Following the preparation of a series of thematic reports in 2018 for the previous Gauteng administration's end of term, two of these reports have been developed into fully fledged documents for publication. In December 2021, one was published as GCRO Occasional Paper No. 19, entitled *Spatial trends in Gauteng*. It incorporates updated material including maps of urban sprawl in Gauteng from 1990–2020. A second report on environmental

trends was revised following a peer review and is scheduled for production in the 2022/23 financial year. A third report, on poverty, inequality and social mobility, is also being finalised for review but is being taken forward as part of a dedicated project on social mobility.

Responding to the COVID-19 pandemic in Gauteng

This project continues to be a major area of activity and productivity for the GCRO. The project was initiated in April 2020 following the publication of the March 2020 Map of the Month, Mapping vulnerability to COVID-19 in Gauteng, which focused on understanding a range of social, economic and health vulnerabilities and risks across the GCR at the lowest level of analysis possible. Although on-call government support work and smaller outputs did continue, work in the 2021/22 financial year shifted towards deeper and longer-term reflective outputs. This includes contributions to an international book on the impact of COVID-19 on urban inequalities and significant contributions to the Gauteng provincial and South African country reports on COVID-19.

A journal article co-authored by Dr Rob Moore and Prof. Phil Harrison and two colleagues from Kerala, India, was finalised for submission to the *Politics*, *Territory, Governance* journal. The paper compares the evolution of capacity in the Gauteng and Kerala provincial government responses to COVID-19. Significant planning work was done this year on a book project on governing COVID-19 for which a contract has been signed with Routledge. A revised deadline for the manuscript of December 2022 was agreed with the publishers. An ethics application for the book was submitted at the end of January and was approved subject to minor revisions.

Table 2: Summary of project outputs

Date	Publication	Туре
28 May 2021	COVID-19 in children and adolescents – changes since December 2020	Vignette
30 June 2021	Chapter 5.3. Impact on vulnerable groups, South Africa COVID-19 country report [First edition] (date reflects final submission; to be published in June 2022)	Book chapter
30 June 2021	Chapter 5.4. Gender equality, South Africa COVID-19 country report [First edition] (date reflects final submission; to be published in June 2022)	Book chapter
30 July 2021	Aging at home: Gauteng's elderly in the context of COVID-19, Volume 2: Housing and home, global reflections on COVID-19 urban inequalities	Book chapter
9 September 2021	Effects of the COVID-19 pandemic on the Gauteng City-Region: Findings from the GCRO's Quality of Life Survey 6 (2020/21)	Data Brief
10 December 2021	Dynamics of entrepreneurship in the context of COVID-19	Vignette
10 December 2021	Patterns of new work for those economically impacted during COVID-19	Vignette

The project team gave many presentations to a range of stakeholders including the Gauteng Command Council, various provincial workstreams, the Premier's Advisory Committee, academic conferences and other seminars. GCRO staff members continued to provide support to a number of Gauteng Provincial Government work streams including 'Data and analytics' and 'Prioritisation of target population (vaccination)'. The GCRO has also continued to provide support to local government on request.

The GCRO was approached by the National Institute for Communicable Diseases of South Africa to contribute to a Water Research Commission-funded project to explore the relationship between levels of SARS-CoV-2 detectable in wastewater and population health during the COVID-19 pandemic. The project will start in the new financial year and explore the use case of using wastewater data to understand the dynamics of communicable diseases in urban areas.



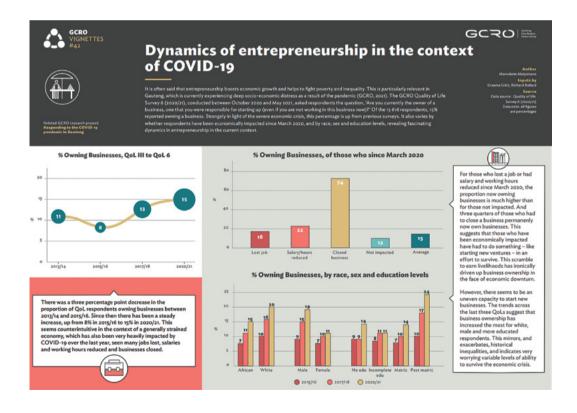
Photograph by James Oatway

4. Inclusive economies

The Gauteng City-Region (GCR) is a bustling regional economy that contributes significantly to the South African national economy as a whole. While Gauteng province is the economic engine of the country, it is still shaped by structural conditions set by past development paths. This theme aims to understand the conditions for inclusive growth in the city-region context, focusing on issues affecting the GCR's economic geography through a collection of research projects on various dimensions of the city-region economy, including the urban space economy as well as township and informal economies.

Gauteng's urban space economy

This project will see the publication of a GCRO Occasional Paper that provides an updated analysis of key trends driving the GCR's space economy. Some analysis that will ultimately be included in the Occasional Paper was done in preparation for the Quality of Life (QoL) survey launch, with various launch outputs including some analysis of the economic impacts of COVID-19. A prospective co-author, who previously supported the firm survey work, has been reengaged. As a joint output with the 'Responding to the COVID-19 pandemic in Gauteng' project, two



GCRO Vignettes on the economic impacts of the COVID-19 period (one on the uneven recovery of employment and the other on entrepreneurship) were published in December 2021. Initial work was also done on a GCRO Map of the Month (published in April 2022) that considers the spatial impacts of economic disruptions related to COVID-19.

Following discussions in 2021/22, it has been agreed with external author Shirley Robinson, who previously worked for the Government Technical Advisory Centre (GTAC), that the GCRO will publish a historical account of efforts to resolve the deficit in available spatial economic data through anonymised tax records. Shirley Robinson did a GCRO Brown Bag Seminar on her work in June 2021 and submitted a draft of the Occasional Paper for peer review in November 2021. Following peer review and revision, the work went into production during the first quarter of 2022 and will be published in 2022/23.

Township economies in the GCR

The Gauteng Provincial Government is pursuing policies with the intent to 'modernise', 'formalise' and 're-industrialise' township economies in the province. Yet, it is not always clear how these terms, nor the implications of government interventions on township economic development, are understood. Through a GCRO Provocation, the project aims to interrogate the concept of township economies and how it is understood.

The project also investigates the different ways of intervening in township economies by focusing on three main aspects: the regulatory environment; programmes to boost entrepreneurship; and the provision of infrastructure. This investigation will culminate in a GCRO Occasional Paper.

Towards the end of 2021, a Provocation titled Interrogating the concept of township economies in the Gauteng context was revised with input received at an internal GCRO workshop. In March 2022, the revised Provocation was sent for external review. In preparation for the second part of the project, a research proposal was drafted and presented to the GCRO Research Oversight Committee for feedback in March 2022. Based on the feedback, the lead researcher applied for ethics clearance from the Wits Human Research Ethics Committee (nonmedical) in February 2022, following which fieldwork will commence

Street trader organisations in policy processes

This project investigates the role and influence of street trader leaders in urban governance through a comparative study of Gauteng's three metropolitan municipalities (Ekurhuleni, Johannesburg and Tshwane) with reflections from Ahmedabad, India. The project investigates a number of dynamics, including the history of street trader mobilisation, street trader leadership and representation, encounters between street trader leaders and the state, and systems of trading-space allocation.

At the end of June 2021, lead researcher Mamokete Matjomane submitted her PhD thesis for examination, which she passed with minor revisions. The final thesis was submitted to the Faculty of Engineering and the Built Environment at Wits University in December 2021 and subsequently published on the GCRO website. A book chapter titled 'From the margins of the state to quasi-state bureaucrats: The shifting nature of street trader leaders' agency in Tshwane, South Africa' was published in an edited book titled The question of agency in African studies. A book chapter titled 'Acting like the state: Leaders' participation in street trade management in the Gauteng City-Region' was prepared for peer review in November 2021. This chapter was also presented at the Department of Agriculture, Land Reform and Rural Development's Spatial Planning and Land Use Management Forum in November 2021.

5. Poverty, inequality and social mobility

Poverty, unemployment and inequality (the so-called 'triple threat') are usually presented as societal features that we need to ameliorate or eradicate. Research, as well as public and political commentary on these issues, often focuses only on describing how bad the situation is and how it has changed over time. Rarely does research or policy consider the processes that enable people to move out of poverty, or that reduce inequality over time. Accordingly, the GCRO has projects under this theme that seek to understand the processes and underlying structural conditions that enable or inhibit social mobility by asking the question: How do we ensure that residents of the GCR have meaningful opportunities to improve their lives?

Hungry city-region

This project explores the various aspects of food insecurity facing the GCR, as well as possible food security enhancement strategies, which will be published as a GCRO Occasional Paper. This year, progress was made on data analysis on the food security findings from the GCRO Quality of Life Survey 6 (2020/21) (QoL 6), which was included as a chapter in the final QoL 6 findings report. This analysis is being expanded and will ultimately be included in the planned Occasional Paper.

Poverty and policy: Using a capability framework to analyse responses to and impacts of COVID-19 in the GCR

The emergence of COVID-19 in 2020 and the government's subsequent policy interventions severely impacted existing poverty conditions and dealt a heavy blow to people's freedom to exercise the various capacities that they value. However, research in this domain has so far been speculative, hasty, unsystematic and based on anecdotal evidence, leaving us with little to no knowledge of the actual impact of COVID-19 on the GCR society. GCRO researcher Darlington Mushongera proposed a study that attempts to close this gap and provide some initial indication of how the pandemic has affected

society in terms of poverty. The intention of the project was to undertake a comparative analysis with partners identified in the United Kingdom and Venezuela. However, the other two partners lacked data comparable to the GCRO's Quality of Life surveys, and as a result, the comparison was dropped from the project. The project, which was carried over into the next financial year, will thus be solely focused on the GCR.

Everyday economies of megaprojects

The purpose of this project is to develop and pilot a financial diaries instrument to track the income and expenditure of construction workers employed in the building of megaprojects in Gauteng. Between March and June 2021, eight construction workers living in Diepsloot were phoned each week to capture detailed household financial information for the previous week. This material has been transferred to the principal investigator of the project, Nihan Akyelken, at the University of Oxford. The Johannesburg case will be used alongside related research in Istanbul to prepare for a larger-scale study using financial diaries data.

Conditions for social mobility: A cross-metro comparison

This multi-year project aims to provide a better understanding of the structural conditions that enable Gauteng to function as an 'urban escalator', both facilitating, but also in many ways inhibiting, social mobility. Using QoL 6 data, various insights were produced for the launch of the survey results, including a section on poverty, inequality and social mobility in the main overview report.

Among multiple planned deliverables in the project, the main focus during this financial year was the finalisation of a GCRO Occasional Paper that updates and expands work done for the Gauteng Provincial Government's end-of-term review in 2018. Several sections in the Occasional Paper were updated with more recent data, and a process to frame the paper within a theoretical framework is under way.



6. Social change

The projects under this theme examine social dynamics in Gauteng. Two projects look into the symbolisation of urban space, for example through graffiti and street renaming. A second pair of projects explores socio-spatial relationships, in one case examining the process of desegregation, and in another, considering the way in which belonging has been transformed in the post-apartheid period. A third pair of projects relates to gender, including a project on motherhood and a network for gender and urban research. Finally, one project examines the theme of social change itself as a focus of social movements and other actors attempting to achieve social justice.

Understanding different scales of social mixing

This data-driven output, supplemented with literature, represents different dimensions of social mixing in Gauteng at different geographic scales. Such a nuanced understanding of different scales and dimensions of social mixing is important for making appropriate policy interventions and because segregation is not just about the shares of population groups in space, but also how segregation limits access to opportunity. The first part of a GCRO Occasional Paper was drafted during the 2021/22 financial year and shared internally with

selected colleagues for a preliminary review. Work on the rest of the Occasional Paper, including further analysis and data visualisations, continues into the 2022/23 financial year.

Graffiti in the city

This project stems from the idea that public art in the GCR, whether legal or illegal, is an important historical marker of culture, politics and society, and is tied to urban renewal and the creative economy. The main focus of this project in 2021/22 has been the drafting of a journal article using visual and spatial analyses of creative visual inscriptions (graffiti and street art) to illustrate the need for a more nuanced understanding of the potential impacts of implementing a creative city discourse in cities of the global South using Maboneng, Johannesburg, as a case study. The paper was submitted to the Social and Cultural Geography journal for review in January 2022 and was accepted with favourable feedback from the editors. Another focus of this project has been on finalising the development of a mobile application that will serve as a collaborative space for sharing spatially referenced photographs of graffiti and street art across the GCR. The development of the application was completed in February 2022.



Street renaming in the Gauteng City-Region

This ongoing project is inspired by the controversies that have resulted from the renaming of streets after struggle icons in big cities of post-apartheid South Africa as well as by the unevenness of the process in different contexts within the country and across Gauteng. The project is a comparative study of two fundamentally distinct cases in Gauteng - Pretoria/ Tshwane (where the renaming has been very emotive and fiercely contested) and Johannesburg (where the renaming has gone relatively smoothly and unnoticed). It concerns itself with the dynamics of street renaming in the two cases, which involve the proponents, motivations/rationales, processes, stakeholders, opponents and the implications for urban governance. Part of this work was presented at the Research Committee 21 (RC21) Conference held virtually in June 2021, benefitting immensely from feedback. The focus of the project in late 2021 and early 2022 has been on getting clearance from the Wits Ethics Committee, doing ethics training and obtaining permission/consent from officials and politicians at the City of Johannesburg and City of Tshwane metropolitan municipalities, A GCRO Occasional Paper is anticipated to come out of this work.

Scale, belonging and exclusion in Gauteng

This project was concluded in June 2021 with the publication of a special issue of *Urban Forum*

entitled 'Scale of belonging: Gauteng 30 years after the repeal of the Group Areas Act'. This special issue consists of five articles and an introduction, reflecting the work of a longstanding collaboration among a group of GCRO staff and several outside partners. The interest of this collective was in the changing spatial scales at which groupings of people in Gauteng were said to 'belong', with apartheid having reduced the scale of belonging and the post-apartheid era increasing it. The research articles in the special issue include papers on school catchment zones, the interactions between a lifestyle estate and the construction workers who work within it, a ward with boundaries that incorporated diverse communities, debates on the proposed metropolitanisation of Sedibeng municipality and conflicts that were interpreted as 'racial' in Davidsonville, Johannesburg. An article published subsequently examined the nature of belonging in Mabopane.

Mothers in the city

This project explored the spatial dynamics of mothers in Johannesburg: how mothers navigate their and their families' daily lives in the city; the challenges and obstacles that they face; and the routes, supports and efforts that typify their lives. It concluded in the 2021/22 financial year, with activities focusing on submitting articles to journals



and presenting the work to conferences, including the Association of American Geographers annual conference. In previous years, the project produced a series of GCRO outputs, including Occasional Paper No. 11 in 2017.

Network for gender and urban research

The 'Network for gender and urban research' aims to bring together scholars and practitioners to raise the profile of research examining the intersection of gender and urban studies. During May 2021, a Google group was established to facilitate communication between members of the network. In March 2022, the project team met to plan a hybrid event in Cardiff, Wales, towards the end of the year. The event will bring together members of the network as well as distinguished speakers to share experiences of conducting gender-focused research. Preparations for the event are currently under way.

Social change

The primary output of this project is an edited volume by Richard Ballard and Clive Barnett entitled The Routledge handbook of social change. During this financial year, the editors completed a peer review process begun in the previous financial year, ensuring that each of the 30 chapters in the volume were reviewed by two blind reviewers. Revisions were then returned by the authors and the editors spent the final months of 2021 editing each chapter a second time and applying the volume's editorial style. All material for production was submitted in December 2021 and the book is slated for publication in September 2022. Celebrations of this submission were short lived, with the tragic and unexpected death of Clive Barnett just a few weeks later. Prof. Barnett was a University of Exeter-based researcher who had been doing research in South Africa for two decades, and whose death is mourned among many in the South African urban studies community.



Photograph © GCRO

7. Spatial transformation

The spatial transformation thematic area examines the urban landscapes of Gauteng with respect to their original construction and transformation by those who use them. Three projects on this theme are ongoing, with one having already published a book chapter, a journal paper, a GCRO Provocation and two Maps of the Month. Two other projects, having delivered other outputs in the past, will publish more in 2022, including a GCRO Research Report. Various spatial transformation projects have established strong local and international collaborative networks in academia as well as within provincial and city governments.

Spatial imaginaries

The purpose of this project is to link together a series of discrete studies on the way in which space in Gauteng is conceived by politicians, officials, planners, developers and ordinary users of space. In 2017, this research resulted in a special issue of the

Transformation journal on megaprojects. A further output in preparation has been a GCRO Research Report entitled South African urban imaginaries: Cases from Johannesburg. This report was approved by blind reviewers during the 2021/22 financial year and was submitted to the GCRO production manager in December 2021. The volume was published in the first quarter of 2022/23, thereby concluding the project.

Landscapes of peripheral and displaced urbanisms

A GCRO Research Report on this subject provides a broad visual and textual overview of the outer reaches of the GCR, exploring in some detail how the people of Mabopane, Soshanguve, Rustenburg and former KwaNdebele are remaking their lives and landscapes. In 2021, the authors and contributors took part in an internal workshop. The revised draft of the report was subsequently reviewed at a second GCRO workshop in February 2022. The manuscript has since been sent out for editing before undergoing the



Photograph by Brian Boshoff



Photograph by Zimisele Gqamane

external review process. The writing and publication process also produced the August 2021 Map of the Month. During the same month, a book chapter was published in an edited volume, *Mining and community in the South African platinum belt*. In February 2022, a paper on 'Mobility, access and the value of the Mabopane Station Precinct' was published in *Urban Forum*. By the end of this reporting period, a GCRO Provocation titled *Displaced urbanisation or displaced urbanism? Rethinking development on the peripheries of the Gauteng City-Region* was going through the publication process.

Drosscapes of the GCR

This project explores the historiography of the GCR's post-mining landscapes; their locations; their economic, demographic, social, and environmental forms; their scholarly debates and policy works, including their restoration. The main project initiative in 2022 was the commissioning of four case studies on different aspects of post-mining landscapes for the project's main output, a GCRO Research Report. Moreover, the outputs from this project are also expected to contribute to the NRF-Merian Fund initiative on post-mining landscapes and their impact on the water, energy and food nexus. The funding application for this multisector and international project, which includes the Wits School of Architecture and Planning and the

Delft University of Technology, was announced as successful in November 2021. The other initiative for this project is the continuing collaborative work with colleagues from the University of the Free State and the University of Fort Hare. The collaboration is currently developing three chapters for a book proposal on mine downscaling and closure and its social and economic consequences.

Micro-dynamics and macro-processes: A Maputo-Johannesburg comparative study of intra-household decision-making and state investment in transit

This project, initiated in January 2020, seeks to explain the ways in which transport infrastructure is used by residents in selected sites in Johannesburg and Maputo, covering the nuances of household mobility, access and decisionmaking. It locates these everyday experiences relative to government transport plans and policies in each location. The project team held a collective workshop on 7 May 2021 to discuss preliminary analysis and findings, followed by another internal workshop to further develop analytical themes on 18 June. An abstract for a chapter in the Handbook on cities and infrastructures was accepted and feedback received. The project team responded to a request for media information from the funders (Volvo Research and Educational Foundations) and



finalised the report by the end of July. The project team made a presentation on the project at the Association of American Geographers conference in April 2021 and at the Spatial Methods for Urban Sustainability conference and the Faces of the City seminar in September 2021, as well as a presentation for the release of the Handbook on cities and infrastructures. This project also delivered to the funders two workshop reports, policy recommendations, a revised curriculum memo and three master's research projects. With Dr Alexandra Parker leaving the GCRO in February 2022, and with the project's goals largely achieved, the Research Oversight Committee formally agreed to close the project on 22 February 2022. The network partners will be taking forward further outputs, which will be reported on the project page as and when they are finalised.

Transport planning and governance in the GCR

This project flows from the award of grant funding from Metropolis, a network of cities and metropolitan areas. A partnership between the GCRO, the Gauteng Department of Roads and Transport, the Àrea Metropolitana de Barcelona (AMB) as well as authorities in Dakar and Maputo will develop a set of indicators for more effective governance of transport in metropolitan areas in Africa. In the first quarter, work on the Metropolis

Mobility in African City-Regions project began to pick up pace, with a preliminary meet-and-greet session among project participants held in late July, and a first full project workshop in October 2021. Briefings were held with Geoff Bickford, who has been contracted to the GCRO to support the project. Further discussions to frame the project were also held with the Gauteng Department of Roads and Transport. The first official workshop of the Africa Mobility Network (the name selected by the group) took place in November 2021. The GCRO worked closely with the AMB to host the workshop, which focused on introducing the various transport and mobility contexts of the participating city-regions. Group discussions followed each region's presentation. Emergent themes included informality and the challenges it presents, governance challenges associated with multiple modes and operators, challenges of information and data collection and availability, and the transport infrastructure and urban growth disconnect. The project contracting required a revision, and much of the last quarter was spent addressing contractual matters related to the project's duration and financial administration. Planning for the second workshop in May 2022 has since taken place. The focus of the next workshop is expected to be on each city-region's experience using transport and mobility indicators.

8. Sustainability and just transitions

This research theme seeks to expand the evidence base into the related socio-ecological dynamics within the city-region. Projects within this field of research focus on some of the key areas of concern in Gauteng, exploring key aspects of the sustainability challenges facing the city-region such as water security. Other projects continue to examine possible alternative development paths that could potentially sustain the region's growing population and economy within the limits of available natural resources. Furthermore, projects within this theme deepen the enquiry into the governance complexities at play in pursuing justice and sustainability as equally important but sometimes conflicting goals.

Metabolic flows and infrastructure transitions

It is no longer possible to grow economies while assuming unlimited resources and researchers have concluded that it is vital to determine cities' ability to reduce their material and energy inputs as well as their waste outputs. The starting point for this determination is the study of 'urban metabolism', linked to the question of how cities can lead 'infrastructure transitions' that enable reduced resource flows. These issues are explored through a case study of attempts in the City of Johannesburg to develop capacities and techniques for long-range infrastructure planning. This financial year saw several interviews with key informants and a partial draft of a GCRO Occasional Paper.

Water security

Water security remains an area of ongoing engagement for the GCRO, and this project builds on earlier work, in particular to support the development of a water-security perspective for the GCR on behalf of the Gauteng Provincial Government. During the 2021/22 financial year, Gillian Maree participated in several local government workshops on local water security and gave presentations to Wits students. Gillian is also co-supervising two MSc students completing research projects on water security. Project members also participated in several print media and TV interviews during the year.

Green assets and infrastructure

The 'Green assets and infrastructure' project's third GCRO Research Report, *Towards applying a green infrastructure approach in the GCR'*, published in December 2019, was shortlisted for the 2019/20 AfriSam-SAIA Sustainable Design Award. The report was presented to a selection panel in December 2020, and on 10 June 2021, it was announced as the winner in the 'Research in sustainability' category.

A journal article by Samkelisiwe Khanyile and Christina Culwick Fatti, entitled 'Interrogating park access and equity in Johannesburg, South Africa', was submitted to a special issue of the *Environment and Urbanization* journal in the second quarter and accepted for publication. Following minor revisions, the article was scheduled for publication in April 2022.

Just sustainability transitions

During the first quarter of the financial year, the final draft of the GCRO's 12th major Research Report, In pursuit of just sustainability, was submitted and approved by the Research Oversight Committee. This significant, multi-chapter report is the product of a research collective that brought together researchers from different backgrounds to explore several dimensions of 'just sustainability' in the Gauteng City-Region. The volume was published in November 2021.

This project is also the home for lead-researcher Christina Culwick Fatti's PhD and includes the submission of several journal articles over the course of this financial year that will become chapters in her doctoral thesis. In the second quarter, a journal article entitled 'Towards just sustainability through government-led housing: Conceptual and practical considerations' was submitted to a special issue of the *Current Opinion in Environmental Sustainability* journal. The paper was accepted and published in the fourth quarter.

Following its presentation to a Society for South African Geographers writing workshop in September 2021 and subsequently to a GCRO Brown Bag Seminar, an article entitled 'In pursuit of just sustainability: Decision-making and conflicting rationalities in government-led housing projects' was submitted to the journal *Local Environment* and is currently under review.

During the third quarter, lead researcher Christina Culwick Fatti also finished a draft of the introductory chapter of her doctoral thesis; and during the fourth quarter, Christina worked on finalising a full draft, which she plans to submit for examination later in 2022.

Off-grid cities

In the first quarter of the financial year, the 'Off-grid cities' project advertised two postdoctoral research fellowship positions, one based at the GCRO and the other at the University of the Western Cape (UWC). Dr Simbarashe Nyuke joined the GCRO team in July 2021, and Dr Temba Middleman joined as the UWC postdoc in November 2021.

The project team, first constituted in 2021/22, held monthly meetings throughout the financial year, providing a space for master's and PhD students, and postdoctoral fellows to conceptualise their respective projects with guidance from senior academics.

The second quarter saw the procurement of project laptops and fieldwork devices, paving the way for fieldwork to begin in early 2022. A dedicated project website, initiated in the third quarter, will be updated with new content over the duration of the project, starting with a series of blog posts by students.

In September and October 2021, the project held the first and second sessions of a project design and methods workshop, where students and postdocs presented their work, and project components such as ethics applications were discussed. Following the workshop sessions, students finalised their proposals, and the project's ethics applications were submitted. The overall project's ethics application was conditionally approved by Wits, subject to the receipt of permission from the various municipalities at which research will be conducted.

The final quarter saw initial preparations for a fieldwork workshop scheduled to take place in early 2022/23, as well as the submission of various NRF-required progress reports at the end of the first year of the project.



Photograph by Christina Culwick Fatti



9. Understanding quality of life

Enhancing the quality of life and multidimensional well-being of residents is a fundamental objective of governmental policy- and decision-making across multiple domains. Given the GCRO's background in the domain of quality of life, and the Gauteng Provincial Government's unique support of this work. the GCRO is ideally situated to conduct research around understanding, measuring and enhancing the quality of life of residents in the city-region. The work under this theme contributes to local and international debates and literature on quality of life, provides regular, high-quality data to facilitate measurement of multiple dimensions of quality of life in the GCR, and provides support to meet the expressed needs of provincial and local government in the development of evidence-based policies to support multidimensional well-being. During this financial year, our investigations into understanding quality of life centred around the implementation and dissemination of the Quality of Life (QoL) Survey 6 (2020/21), a ten-year review of QoL surveys undertaken by the GCRO, and preliminary work towards the upcoming QoL survey.

QoL 6 survey implementation

This project covered the implementation of the Quality of Life Survey 6 (2020/21) (QoL 6), ranging from the tender process and data collection through to dataset finalisation and the preparation of various technical reports. Overall, the survey implementation, led by Dr Julia de Kadt, was an efficient team effort that was highly adaptive to the changing context and data collection challenges throughout the duration. The survey implementation was a huge success, which was primarily built on learnings from previous surveys and thanks to a proactive and collaborative team. The GCRO is exceptionally proud of the success of this project.

Data collection for QoL 6 began in October 2020 and was completed in May 2021. During this time, significant effort was invested in quality-control checks to strengthen the quality of the dataset. The final attained sample size of 13 616 approved interviews was slightly above the target of 13 500. All municipal targets were met or exceeded, and the distribution of interviews across wards was extremely satisfactory. The rest of the financial year was focused











mainly on three broad tasks: dataset finalisation; writing various technical reports that accompany the final dataset; and a comprehensive debriefing process.

Extensive work on quality assurance, dataset finalisation and weighting took place in April and May 2021, drawing on internal and external expertise. All quality-control and data-finalisation processes were completed in June 2021. Various technical reports were finalised, including the fieldwork report, data report, QoL Index methodology, sampling report, weighting report, and the weighting implementation guidelines. The final dataset, along with all technical documentation, was made available to the public via the University of Cape Town's DataFirst repository.

As the end of the project approached, it was important to reflect on the various stages of the project. This was done in a series of debriefing sessions that included field managers, team leaders and selected fieldworkers, as well as GCRO staff members and the core project team. The debriefing process generated valuable suggestions on how implementation might be strengthened in the future, as well as insights into appropriate interpretations of the data. The quality of the feedback was a reminder of the level of experience, skill and engagement provided by the fieldwork team. The debriefing process highlighted the strengths of the project, aspects that should be retained in future projects, as well as suggestions for changes. The results of the debriefing process were presented to the GCRO, and the project was closed at the end of February 2022. The work related to analysing the data and producing outputs is included under a separate project, 'QoL 6 survey dissemination and outputs' (see below).

QoL 6 survey dissemination and outputs

The purpose of this project was to track and steer various outputs related to Quality of Life Survey 6 (2020/21) (QoL 6). This included the development and dissemination of outputs based on the survey data and ensuring that survey findings reach relevant audiences. The work started long before the first output or presentation became publicly available. An intensive period of planning preceded preliminary analysis of a Beta dataset to draw out initial trends, but also to allow colleagues to familiarise themselves with the data and prepare

analysis files for inclusion in the final QoL 6 dataset. The preliminary work was refined through a series of internal workshops that allowed researchers to pull results together quickly when the final dataset was made available. Data exploration and analysis took shape around a series of thematic areas: COVID-19 impact; quality of life and well-being; safety and experiences of violence; health; community and social attitudes; poverty, inequality and social mobility; hunger and food security; migration and moving home; environment and extreme events; basic service access and satisfaction; and governance and satisfaction with government.

When the final dataset became available, the entire GCRO team collaborated to update draft analysis, ensuring quality by refining the content through a series of workshops, internal data checking and reviews. During this time, a fully remote launch event was meticulously planned that drew on the Wits media and events team, the Gauteng Provincial Government and University of Johannesburg colleagues. The official launch of the survey results on 9 September 2021 included a launch presentation, an overview report and a COVID-19-focused GCRO Data Brief. The online launch attracted about 300 attendees as well as significant media attention in the form of post-launch radio and TV interviews. Shortly after the launch event, this project also produced one interactive visualisation, three municipal reports, four op-eds, one GCRO Map of the Month and two vignettes. GCRO staff continue to work with the QoL 6 dataset to produce journal articles, presentations and various other GCRO outputs.

Quality of Life ten-year review

The Quality of Life (QoL) review process provided an opportunity to celebrate the accomplishments of this remarkable survey while also exploring ways in which to strengthen future QoL surveys. This project was enormously productive and resulted in several technical workshops and reports that have helped to shape future QoL surveys. During this financial year, the project also produced the QoL V WaziMaps viewer as well as a journal article (in the *Social Indicators Research* journal) on the development of the new QoL Index. After Dr Julia de Kadt left the GCRO at the end of February 2022, this project was closed, but the lessons remain relevant and useful.

Quality of Life Survey 7 (2023/24) project start-up and piloting

This project provided space and budget for preliminary planning and preparations to deliver the Quality of Life 7 survey (QoL 7) by 2023/24. During this financial year, the key focus areas included a pilot study, stakeholder engagement, internal consultations regarding the finalisation of timelines, anticipated budget, sample size and appropriate staffing models. The pilot study aimed to support the development of the most appropriate and cost-effective approach to data collection for QoL 7. Given the challenges and costs of household, in-person data collection, now exacerbated in the context of COVID-19, the pilot project tested

whether other modes of data collection could work well for future QoL surveys. The pilot project was conducted by GeoSpace International as an extension to their QoL 6 implementation contract and was completed in February 2022. GeoSpace International completed a feasibility report, which refines our understanding of the data collection challenges and the strategies that were most helpful in data collection. The pilot study highlighted the importance of proactive communication in areas where access to respondents is difficult, confirmed that the quality of fieldworkers is a key component of successful delivery, and made suggestions for alternative sampling strategies that might reduce respondent refusals in some areas.



Photograph by Alet Pretorius





GCRO outputs and activities

GCRO major published outputs

- Ballard, R., Hamann, C. and Mosiane, N. (2021).
 Spatial trends in Gauteng. GCRO Occasional Paper No. 18. December 2021.
- Culwick Fatti, C. (Ed.) (2021). In pursuit of just sustainability. GCRO Research Report No. 12. November 2021.
- Maree, G., Culwick-Fatti, C., Götz, G., Hamann, C. and Parker, A. (2021). Effects of the COVID-19
- pandemic on the GCR: Findings from the GCRO Quality of Life Survey 6 (2020/21). GCRO Data Brief No. 11. September 2021.
- Mkhize, T. (2021). Rescaling municipal governance amidst political competition in Gauteng: Sedibeng's proposed re-demarcation. GCRO Occasional Paper No. 18. August 2021.

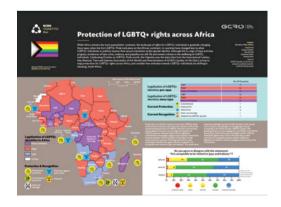


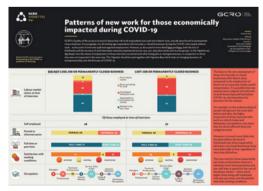




GCRO data outputs

1st quarter	2nd quarter	3rd quarter	4th quarter
	Маро	f the Month	
June 2021: Ballard, R., Namponya, A. and Tshangana, A. Gauteng's property gradient three decades after the repeal of the Group Areas Act.	July 2021: Khanyile, S. and Culwick Fatti, C. Mapping the geographies of travel using volunteered app data. August 2021: Mosiane, N. and Murray, J. Distribution of population vs economic activity across the GCR.	December 2021: Götz, G., Mkhize, T., Naidoo, L. and Seedat, R. Voting patterns in the 2021 local government elections.	February 2022: Mosiane, N. and Murray, J. Economic and commuting connections in the northern GCR. March 2022: Ballard, R. and Hamann, C. Gauteng's urban land cover growth: 1990–2020.
	Vignettes and	l data visualisations	
May 2021: Götz, G. COVID-19 in children and adolescents in Gauteng: Changes since December 2020. Vignette.	August 2021: Hamann, C., Mkhize, S.P., de Kadt, J. and Naidoo, Y. Quality of Life V (2017/18) survey viewer. Visualisation. September 2021: Naidoo, Y. The Quality of Life Index 2020/21. Visualisation.	October 2021: Mkhize, S.P. Protection of LGBTQ+ rights across Africa. Vignette. December 2021: Matjomane, M. Dynamics of entrepreneurship in the context of COVID-19. Vignette. December 2021: Götz, G. Patterns of new work for those economically impacted during COVID-19. Vignette.	





Other key outputs

- Khanyile, S. and Parker, A. with Open Cities Lab. (2022). Mapping graffiti. Interactive visualisation. March 2022.
- de Kadt, J., Hamann, C. Mkhize, S.P. and Parker, A. (Eds). Quality of Life Survey 6 (2020/21): Overview Report. September 2021.
- Quality of Life Survey 6 (2020/21). Database, 13 616 respondents. Launched September 2021.

Conferences, seminars and symposia organised by the GCRO

Launch of the results from the Quality of Life Survey 6 (2020/21), 9 September 2021.

Rebuild SA Webinar Series (organised in partnership with the Mapungubwe Institute for Strategic Reflection):

- 'Rebuilding government', 24 November 2021.
- 'Rebuilding economies', 28 October 2021.
- 'Rebuilding communities', 29 September 2021.

The GCRO is a co-convenor of the Faces of the City seminar series, organised in partnership with the South African Research Chair in Spatial Analysis & City Planning, the Centre for Urbanism and Built Environment Studies, and the School of Architecture and Planning at Wits. The GCRO specifically arranged the following presentations:

- Prof. Sarah Charlton, Dr Margot Rubin and Dr Alexandra Parker, 'Responding to the indifference of infrastructure: Comparative research in Johannesburg and Maputo', 7 September 2021.
- Dr Thomas Coggin, 'Recalibrating everyday space: Using Section 24 of the South African Constitution to resolve contestation in the urban and spatial environment', 24 August 2021.
- Dr Gilbert Siame, 'Seeing co-production through the lens of political settlements: The case of Kampala (Uganda)', 17 August 2021.
- Dr Evance Mwathunga, 'Urban planning history of Malawi: Case study of the capital Lilongwe', 10 August 2021.
- Ms Romy Stander, 'Remediating the Jukskei Daylight Point', 3 August 2021.





Published works

- Culwick Fatti, C. (2022). Towards just sustainability through government-led housing: Conceptual and practical considerations. Current Opinion in Environmental Sustainability, 54, 101150. https://doi.org/10.1016/ j.cosust.2022.101150
- Mosiane, N. (2022). Mobility, access and the value of the Mabopane Station Precinct. *Urban Forum*. https://link.springer.com/article/10.1007/ s12132-021-09454-4
- van Deventer, H., Linström, A., Durand, J.F., Naidoo, L. and Cho, M.A. (2022). Deriving the maximum extent and hydroperiod of open water from Sentinel-2 imagery for global sustainability and biodiversity reporting for wetlands.
 WaterSA, 48(1), 75-89. https://doi.org/10.17159/ wsa/2022.v48.i1.3883
- Ballard, R., Hamann, C. and Mkhize, T. (2021).
 Johannesburg: Repetitions and disruptions of spatial patterns. In A. Lemon, R. Donaldson and G. Visser (Eds.), South African urban change three decades after apartheid: Homes still apart? (pp. 91–109). Cham, Switzerland: Springer. https://link.springer.com/chapter/10.1007/978-3-030-73073-4_3
- Ballard, R., Jones, G.A. and Ngwenya, M. (2021).
 Trickle-out urbanism: Are Johannesburg's gated
 estates good for their poor neighbours? *Urban* Forum, 32(2), 165–182. https://link.springer.com/
 article/10.1007/s12132-021-09425-9 (access the
 article: https://rdcu.be/clQyD)
- Ballard, R., Parker, A., Butcher, S., de Kadt, J., Hamann, C., Joseph, K., Mapukata, S., Mkhize, T., Mosiane, N. and Spiropoulos, L. (2021). Scale of belonging: Gauteng 30 years after the repeal of the Group Areas Act. *Urban Forum*, 32(2), 131–139. (access the article: https://rdcu.be/clsKI)
- Bohlmann, J., Chitiga-Mabugu, M. and Mushongera, D. (2021). Youth and unemployment: Our present problem and a missed opportunity. Africa Today, 68(2), 142–148. https://www.jstor. org/stable/10.2979/africatoday,68.2.01
- Mkhize, T. (2021). Rescaling municipal governance in Gauteng: Competing rationalities

- in Sedibeng's proposed re-demarcation and metropolitanisation. *Urban Forum*, 32(2), 205–223. https://doi.org/10.1007/s12132-021-09427-7 (access the article https://rdcu.be/cksvY)
- Mkhize, T. (2021). Social cohesion in an improvement district? The exceptional case of the Ekhaya Neighbourhood Improvement Programme (Hillbrow, Johannesburg). Special Issue: Discussing Social Cohesion in South Africa. Lesedi Field Notes (IFAS-Research), 24, 31–46. http://www.ifas.org.za/research/2021/ lesedi-24-december-2021/
- Mosiane, N. (2021). Livelihoods, the body and the space of Phokeng, Rustenburg. In L. Marais, M. Campbell, S. Denoon-Stevens and D. van Rooyen (Eds.), Mining and community in the South African platinum belt: A decade after Marikana (pp. 38–64). New York: Nova Science. https://novapublishers.com/shop/mining-and-community-in-the-south-african-platinum-belt-a-decade-after-marikana/
- Parker, A. and de Kadt, J. (2021). Aging at home: Gauteng's elderly in the context of COVID-19.
 In B. Doucet, P. Filion and R. van Melik. (Eds.), Volume 2: Housing and home, global reflections on COVID-19 urban inequalities (pp. 119–127).
 Bristol: Bristol University Press.
- Parker, A., Hamann, C. and de Kadt, J. (2021).
 Accessing quality education in Gauteng:
 Intersecting scales of geography, educational policy and inequality. Urban Forum, 32(2), 141–163. https://link.springer.com/article/10.1007/s12132-021-09418-8 (access the article: https://rdcu.be/clRkn)
- Steward, W.T., Agnew, E., de Kadt, J., Ratlhagana, M.J., Sumitani, J., Gilmore, H.J., Grignon, J., Shade, S.B., Tumbo, J., Barnhart, S. and Lippman, S.A. (2021). Impact of SMS and peer navigation on retention in HIV care among adults in South Africa: Results of a three-arm cluster randomized controlled trial. *Journal of the International AIDS Society*, 24(8), e25774. https://doi.org/10.1002/jia2.25774

Presentations

- Samkelisiwe Khanyile (March 2022). 'Justice and sustainability in cities'. Online presentation at the Roundtable on Just Sustainability, National Treasury, 23 March 2022.
- Christian Hamann (March 2022). 'Overview of the GCRO and urban dynamics of the GCR', Online presentation at the School of Architecture and Planning, Wits, 11 March 2022.
- Rashid Seedat and Graeme Götz (March 2022). 'Introduction to the GCRO, its website, and available data and information'. Gauteng Provincial Government Community of Practice on the use of evidence in policy setting for Growing Gauteng Together (GGT) 2030, 11 March 2022.
- Richard Ballard (March 2022). 'Development concepts'. Guest lecture for planning master's students, School of Architecture and Planning, Wits, 8 March 2022.
- Mamokete Matjomane (March 2022). 'Research journey: From Honours to PhD'. Guest lecture for Honours Research Methods students, School of Architecture and Planning, Wits, 8 March 2022.
- Rashid Seedat, Mamokete Matjomane, Laven Naidoo and Graeme Götz (March 2022). 'Quality of Life Survey 6 (2020/21): Submission to the South African Human Rights Commission (SAHRC). SAHRC National Investigative Hearing into the July Unrest in Gauteng and KwaZulu-Natal Provinces, 2 March 2022. [Recording of presentation and hearing.]
- Graeme Götz (February 2022). 'Quality of Life Survey 6 (2020/21): Headline findings, with a focus on transport indicators'. Gauteng Department of Roads and Transport, 15 February 2022.
- Alexandra Parker and Sthembiso Pollen Mkhize (February 2022). 'Quality of Life Survey 6 (2020/21), with a focus on children'. PlayAfrica Board online meeting, 10 February 2022.
- Mamokete Matjomane (February 2022). Panel member: 'Inclusive socio-economic return'. SALGA Gauteng Provincial Conference, 8 February 2022.
- Graeme Götz (February 2022). 'Introduction to the Gauteng City-Region Observatory – data and data outputs, especially in sustainability'. Heat

- and Health in Africa Transdisciplinary (HEAT) Center research meeting, 4 February 2022.
- Gillian Maree (January 2022). 'Environmental futures for the Gauteng City-Region'. Gauteng Department of Agriculture and Rural Development (GDARD) Focus Group on the Environment, 19 January 2022.
- Rashid Seedat and Graeme Götz (October 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Gauteng Provincial EXCO, 8 December 2021.
- Alexandra Parker, Gillian Maree and Yashena Naidoo (December 2021). 'Data and decisionmaking: The COVID-19 pandemic in the Gauteng City-Region, South Africa'. Online presentation for the Visual Interest Group, Alan Turing Institute, 7 December 2021.
- Julia de Kadt and Thembani Mkhize (December 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Gauteng Provincial Department of Health, Senior Management Strategic Planning and Review and Lekgotla, 3 December 2021
- Sthembiso Mkhize and Gillian Maree (December 2021). 'Quality of Life Survey 6 (2020/21):
 Headline findings'. Standing Committee of Chairpersons Mid-Year Review Session, 2 December 2021.
- Darlington Mushongera (November 2021).
 'Quality of Life Survey 6 (2020/21) and multidimensional poverty in the GCR'.
 Gauteng Provincial Government Anti-Poverty Strategy Workshop, Capital Hotel, Sandton, 29 November 2021.
- Graeme Götz (November 2021). 'Social attitudes to government in Gauteng'. GCRO/ MISTRA Webinar 3: Rebuilding government, 24 November 2021.
- Mamokete Matjomane (November 2021).
 'Governing with/through non-state actors:
 Leaders' participation in street trade management in Gauteng municipalities'. Online presentation for the Department of Agriculture, Land Reform and Rural Development, SPLUMA Forum, 24 November 2021.

- Mosiane, N. (November 2021). 'Ecology of an egalitarian city'. A Domestic Revolution: City Life in a Pandemic, a webinar series on Pandemic Pangolins hosted by the Adler Museum of Medicine and the Department of Family Medicine and Primary Care, 17 November 2021.
- Margot Rubin and Alexandra Parker (November 2021). 'Mobility intersections: Gender, family, culture and location in the Gauteng City-Region'. Online presentation at the African Urban Mobility: Past, Present and Future workshop, 9 November 2021.
- Richard Ballard and Yashena Naidoo (November 2021). 'Quality of Life Survey 6 2020/21'. Online presentation to the City of Johannesburg Executive Management Team, 8 November 2021.
- Gillian Maree (October 2021). 'Quality of Life Survey 6 (2020/21) headline findings and environmental trends'. Keynote presentation at the Annual GDARD Environmental Research Symposium, 15 October 2021.
- Christina Culwick Fatti (October 2021).
 'Deconstructing just sustainability in government housing: Knowledge, decision-making and conflicting rationalities in government housing projects'. UCT Postgraduate Colloquium, 11 October 2021.
- Rashid Seedat (October 2021). 'Quality of Life survey 6 (2020/21): Headline findings'. Ahmed Kathrada Foundation, 8 October 2021.
- Graeme Götz and Rashid Seedat (October 2021).
 'Quality of Life Survey 6 (2020/21): Headline findings'. Gauteng Office of the Premier,
 7 October 2021.
- Julia de Kadt, Graeme Götz and Rashid Seedat (October 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Gauteng Office of the Premier. 6 October 2021.
- Julia de Kadt (September 2021). 'Quality of Life Survey 6 (2020/21): Understanding community and social attitudes in Gauteng'. Rebuild SA Webinar Series, 29 September 2021.
- Julia de Kadt (September 2021). 'Quality
 of Life Survey 6 (2020/21): Understanding
 community and social attitudes in
 Gauteng'. Rebuild SA Webinar Series,
 29 September 2021.



Photograph by Sanet Oberholzer



Photograph by Veronica Chipwanya

- Samkelisiwe Khanyile (September 2021).
 'Mapping movement using volunteer-generated data myJozi Moves (2016)'. Master's and PhD guest lecture, 29 September 2021.
- Christina Culwick Fatti (September 2021). 'In pursuit of just sustainability: Knowledge, power and conflicting rationalities in government housing projects'. GCRO Brown Bag Seminar, 29 September 2021.
- Rashid Seedat (September 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. SALGA Extended Executive Management Team Lekgotla (national), 21 September 2021.
- Graeme Götz (September 2021). 'Introduction to the Gauteng City-Region Observatory'. University of Cape Town SDG Africa Summit, Thematic Track 5: 'Building responsive and resilient systems', 14 September 2021.
- Rashid Seedat (September 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Wits School of Governance, 14 September 2021.
- Rashid Seedat (September 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Gauteng ANC, 13 September 2021.
- Graeme Götz and Mamokete Matjomane (September 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Gauteng Department of Social Development, 10 September 2021.
- Margot Rubin and Alexandra Parker (September 2021). 'Mothers in the city: Household mobility in Gauteng'. Gautrain Management Agency online seminar: Ideas@Gautrain, 10 September 2021.
- Julia de Kadt and Graeme Götz (on behalf of GCRO staff) (September 2021). 'Quality of Life Survey 6 (2020/21): Headline findings'. Quality of Life Survey 6 (2020/21) results launch, 9 September 2021.
- Sarah Charlton, Margot Rubin and Alexandra Parker (September 2021). 'Micro-dynamics and macro-processes: A Maputo-Johannesburg comparative study of intra-household decisionmaking and state investment in transit'. Faces of the City online seminar, 7 September 2021.
- Rashid Seedat (August 2021). 'Social, spatial and governance contours of the Gauteng City-Region'.
 Wits University Alumni Relations, 26 August 2021.

- Julia de Kadt (August 2021). 'Measuring quality of life in Gauteng, South Africa, during the COVID-19 pandemic'. Online presentation at the 2021 International Society of Quality of Life Studies Annual Conference, 26 August 2021.
- Graeme Götz (on behalf of Rob Moore and Rashid Seedat) (August 2021). 'Adaptive governance: What are we learning from the pandemic?'. Government Technical Advisory Centre Winter School, 18 August 2021.
- Thembani Mkhize (July 2021). 'The politics of street renaming in Gauteng province: Johannesburg and Pretoria/Tshwane'. Research Committee 21 Conference, 17 July 2021.
- Graeme Götz (on behalf of the GCRO's
 'Responding to COVID-19' team) (June 2021).
 'Spatial analysis and making spatial data
 accessible in responding to COVID-19 in Gauteng'.
 Geo-Information Society of South Africa-Gauteng
 quarterly meeting, 30 June 2021.
- Thembani Mkhize (June 2021). 'What's in a name? The politics of street renaming in Gauteng province: Johannesburg and Pretoria/Tshwane'. GCRO Brown Bag Seminar, 23 June 2021.
- Rob Moore and Graeme Götz (May 2021). 'Adaptive governance: What are we learning from the pandemic?' Gauteng Provincial Government/ Government Technical Advisory Centre 'Provinces in the frontlines' learning event, 21 May 2021.
- Rob Moore and Graeme Götz (May 2021).
 'Adaptive governance: What are we learning from
 the pandemic?' Provincial Disaster Management
 Command Centre (Gauteng War Room)
 'Gauteng City-Region COVID-19' case study
 workshop, 7 May 2021.
- Alexandra Parker (May 2021). 'Denver micro-dynamics'. Online presentation at the Micro-Dynamics and Macro-Processes workshop, 7 May 2021.
- Sarah Charlton and Alexandra Parker (May 2021). 'Micro-dynamics and macro-processes: A Maputo-Johannesburg comparative study of intra-household

- decision-making and state investment in transit'. Volvo Research and Education Foundation's Mobility and Access in African Cities Research Forum, 19 May 2021.
- Gillian Maree (April 2021). 'Water security in the Gauteng City-Region'. Infrastructure South Africa Visit to Gauteng Province, 30 April 2021.
- Gillian Maree (April 2021). 'Water security in the Gauteng City-Region'. Water Sustainability under Scarcity: Alternatives for Future Water Supply in Johannesburg, 20 April 2021.
- Christian Hamann (April 2021). 'Overview of the GCRO and urban dynamics of the GCR'.
 Leadership Programme in Urban Transformation, University of Pretoria, 19 April 2021.
- Thembani Mkhize (April 2021). 'Conceptualising, contextualising and critiquing city-regions: Insights from the Gauteng City-Region'. Municipal Demarcation Board Research and Knowledge Management Committee, 15 April 2021.
- Christian Hamann, Alexandra Parker,
 Christina Culwick Fatti and Yashena Naidoo
 (April 2021). 'Population density in the
 post-COVID-19 development era: Realities for
 the Gauteng province, South Africa'. Online
 presentation at the 2021 American Association
 of Geographers (AAG) Annual Conference
 2021, 9 April 2021.
- Margot Rubin and Alexandra Parker (April 2021). 'Many ways to care: Mobility, gender and Gauteng's geography'. Online presentation at the 2021 AAG Annual Conference, 9 April 2021.
- Philip Harrison, Rob Moore, Margot Rubin and Graeme Götz (April 2021). 'COVID-19 as a diagnostic lens? Pandemic governance in the Gauteng City-Region, South Africa'. Online presentation at the 2021 AAG Annual Conference, 7 April 2021.
- Rob Moore (April 2021). 'Adaptive governance: What are we learning from the pandemic?' Gauteng Provincial Government Centre of Government Workshop, 7 April 2021.

Media

Op-eds written by GCRO staff

- Yashena Naidoo, Julia de Kadt and Alexandra Parker published 'Quality of life declines in Gauteng, deepening inequality' in the Daily Maverick, 13 October 2021.
- Abigail Hatcher, Julia de Kadt, Sthembiso
 Pollen Mkhize and Alexandra Parker published
 'Fixing data blind spots is the key to solving
 violence against women and children' in the
 Daily Maverick, 5 October 2021.
- Alexandra Parker published 'Eighteen months after the start of the COVID-19 pandemic women are faring worse than men, Quality of Life survey shows' in the Daily Maverick, 21 September 2021.
- Sthembiso Pollen Mkhize, Alexandra Parker and Julia de Kadt published 'Gauteng health and wellbeing survey highlights the plight of women and black Africans' in the *Daily Maverick*, 19 September 2021.
- Richard Ballard, Julia de Kadt, Graeme Götz, Sthembiso Pollen Mkhize, Yashena Naidoo, Alexandra Parker and Rashid Seedat published 'COVID fallout: Vulnerability and signs of recovery in Gauteng' in the Daily Maverick, 9 September 2021.

Media appearances

Note: In this list, the GCRO Quality of Life Survey 6 (2020/21) has been abbreviated as QoL 6.

- Mamokete Matjomane was interviewed on job losses in Gauteng in the context of COVID-19 on MetroFM, 3 March 2022.
- Gillian Maree participated in a debate on water in Gauteng for *Politics Unscripted*, Newzroom Afrika, 14 November 2021.
- Gillian Maree was interviewed on the QoL 6
 (2020/21) findings for water on The Pulse,
 NewzroomAfrika, 15 November 2021.
- Sthembiso Pollen Mkhize was a guest speaker talking about whether public spaces are created with inclusivity in mind on *Daily Thetha*, SABC1, 14 October 2021.
- Christina Culwick Fatti was interviewed on the impact of long commutes on 702, 12 October 2021.
- Alexandra Parker spoke to John Matham about 'Fixing data blind spots is the key to solving

- violence against women and children' on Cape Talk, 7 October 2021.
- Yashena Naidoo was interviewed on the overall quality of life on SAFM, 17 September 2021.
- Sthembiso Pollen Mkhize was interviewed on the overall quality of life in Gauteng by Wits Vuvuzela, 15 September 2021.
- Ngaka Mosiane was interviewed about the QoL 6 results by David Mashabela on Radio 2000, 13 September 2021.
- Ngaka Mosiane was interviewed about the QoL 6 results on YouFM, Rustenburg, 13 September 2021.
- Graeme Götz was interviewed about the QoL 6 results on Radio 786, 11 September 2021.
- Graeme Götz was interviewed about the QoL 6 results by Shahan Ramkissoon on ENCA, 10 September 2021.
- Graeme Götz was interviewed about the QoL 6 results by Stephen Grootes on SAFM, 10 September 2021.
- Darlington Mushongera was interviewed about the QoL 6 results on PowerFM, 10 September 2021.
- Julia de Kadt was interviewed about the QoL 6 results on CapeTalk/702, 10 September 2021.
- Julia de Kadt was interviewed about the QoL 6 results on Cape Talk and 702 with Mandy Weiner, 10 September 2021.
- Rashid Seedat was interviewed about the QoL 6 results on Radio Islam, 9 September 2021.
- Christian Hamann was interviewed about the QoL 6 results by the Sunday Independent and University World News, 9 September 2021.
- Graeme Götz was interviewed about the QoL 6 results on Newzroom Afrika, 9 September 2021.
- Christian Hamann was interviewed about the QoL 6 results by Beeld, 9 September 2021.
- Alexandra Parker was interviewed about the QoL 6 results by John Perlman on 702, 9 September 2021.
- Gillian Maree and Samkelisiwe Khanyile were interviewed about the QoL 6 results on SABC TV News, 9 September 2021.

- Alexandra Parker was interviewed about the QoL 6 results on KayaFM, 9 September 2021.
- Sthembiso Pollen Mkhize was interviewed on youth wellbeing and quality of life in Gauteng on YFM, 9 September 2021.

GCRO citations in media and social media

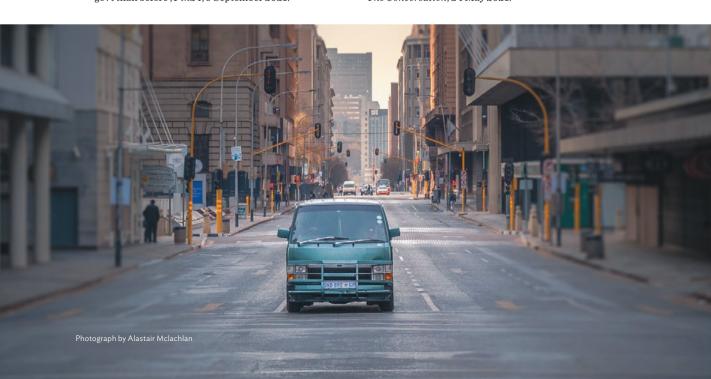
Note: In this list, the GCRO Quality of Life Survey 6 (2020/21) has been abbreviated as QoL 6.

- Rashid Seedat was cited in "Humble, dedicated": Masebe lauded at memorial service', Jacaranda FM. 21 April 2022.
- The GCRO's research was featured in 'Promises at hearings on July riots ring hollow', New Frame, 8 April 2022.
- QoL 6 was cited in 'Residents give Pikitup's service delivery the thumbs up, according to survey', City of Johannesburg Newsroom, 1 April 2022.
- QoL 6 was cited in 'Half of Joburg residents unhappy with service delivery', Sowetan Live. 19 March 2022.
- QoL 6 featured in 'SAHRC hearing: Research organisation says 18% of people in Gauteng lost jobs during Covid-19 pandemic', IOL News, 2 March 2022.
- Mamokete Matjomane provided comment on the July unrest in a One News article, 3 March 2022.
- QoL 6 was cited in 'Special report: Gauteng provincial government state of the province', News24, 26 February 2022.
- QoL 6 was cited in 'Unproven that Hillbrow, nearby areas are "80% foreign national" as video claims', Eyewitness News, 21 February 2022.
- QoL 6 was cited in 'Makhura's state of the province address to focus on making Gauteng great again', Business Day, 20 February 2022.
- QoL 6 was cited in 'We've had enough fires already, thank you', Times Live, 30 January 2022.
- QoL 6 was cited in 'Former mayor Bongani Baloyi DA's Gauteng premier candidate for 2024', Business Day, 21 November 2021.
- QoL 6 was cited in 'Joburg's uncertain political future', New Frame, 17 November 2021.
- Gillian Maree provided comment on water security in Johannesburg in a Sunday Times article, 14 November 2021.

- The GCRO's vignette was cited and featured in 'New publication shows how the landscape for LGBTQ+ rights is gradually changing in Africa', The Rustin Times, 4 November 2021.
- QoL 6 was cited in 'ANC's Mpho Moerane elected Joburg's new executive mayor', Business Day, 1 October 2021.
- QoL 6 was cited in 'Gauteng premier calls on Joburg mayoral candidate to improve quality of life', Business Day, 30 September 2021.
- The GCRO's work featured in 'Gauteng premier calls on Joburg mayoral candidate to improve quality of life', Business Day, 21 September 2021.
- The GCRO's work featured in 'Green shoots start offsetting mushrooms of decay in recovery', Business Day, 21 September 2021.
- QoL 6 was cited in 'Voter turnout will be key in upcoming local elections', Sunday Times, 19 September 2021.
- QoL 6 featured in 'How COVID-19 has reduced the quality of life in Gauteng', *Jacaranda FM*, 15 September 2021.
- QoL 6 was cited in 'Demand for electric vehicles could get Eskom back on the road to recovery – expert', Fin24, 14 September 2021.
- QoL 6 was cited in 'Will the state of governance sway electoral outcomes?', IOL News, 14 September 2021.
- QoL 6 was cited in 'University of Johannesburg: Quality of life in Gauteng declines amidst pandemic – study', *India Education Diary*, 13 September 2021.
- QoL 6 featured in 'Disinformation in a time of COVID-19: While lying delights in darkness, transparency shines a light', Daily Maverick, 12 September 2021.
- The GCRO's work featured in '11% of Gauteng residents lost a job during pandemic – survey', Eyewitness News, 11 September 2021.
- The GCRO's work featured in 'Quality of life in Gauteng has decreased during COVID-19 pandemic – survey', News24, 10 September 2021.
- QoL 6 featured in 'Quality of life in Gauteng is deteriorating – survey', Cape Talk, 10 September 2021.

- QoL 6 was cited in 'Survey shows quality of life is declining in Gauteng', Eyewitness News, 10 September 2021.
- QoL 6 was cited in 'SA records nearly 281 COVID-19 related deaths', Times Live, 10 September 2021.
- QoL 6 was cited in "SA going in wrong direction" Gauteng residents more fed up with govt than before', Cape Talk, 10 September 2021.
- QoL 6 was cited in 'Tough election ahead for Gauteng ANC as trust in government plummets', Business Day, 10 September 2021.
- The GCRO's work featured in 'Covid-19 takes a scythe to Gauteng's quality of life', Daily Maverick, 9 September 2021.
- The GCRO's work featured in 'Gauteng Quality of Life Survey: Informal settlements are hit the hardest by effects of climate change', Daily Maverick, 9 September 2021.
- The GCRO's work featured in 'Quality of life in Gauteng declines amid pandemic, survey finds', Engineering News, 9 September 2021.
- The GCRO's work featured in 'Despite suffering, most Gautengers happy with state's response to pandemic', *Times Live*, 9 September 2021.
- The GCRO's work featured in "SA going in wrong direction" Gauteng residents more fed up with govt than before', Fin24, 9 September 2021.

- The GCRO's work featured in 'Palm Ridge leaks waste water while Joburgers have to contend with restrictions', 702 News, 9 September 2021.
- QoL 6 was cited in 'Despite extreme impact, most in Gauteng satisfied with govt's response to COVID-19 – survey', Fin24, 9 September 2021.
- QoL 6 was cited in 'Return to employment more likely for whites, men and highly educated people – survey', News24, 9 September 2021.
- QoL 6 was cited in 'COVID-19 hits Gauteng residents hard as more people lose their jobs: survey', Times Live, 9 September 2021.
- QoL 6 featured in 'Why Midvaal mayor Bongani Baloyi (34) is so effective year after year', Cape Talk, 7 September 2021.
- The GCRO's work featured in 'COVID-19 forced us all to experiment. What have we learned?', IEEE Spectrum, 20 July 2021.
- The GCRO's work featured in 'Full dams don't mean water security – Gauteng can't afford to be complacent', Daily Maverick. 10 June 2021.
- The GCRO's research featured in 'Dolomite hinders residential development in Gauteng', Sowetan Live, 2 June 2021.
- The GCRO's work featured in 'Why full dams don't mean water security: A look at South Africa', The Conversation, 24 May 2021.



Teaching, supervision, external examining

- Samkelisiwe Khanyile is currently cosupervising two GIS and Remote Sensing MSc students at Wits.
- Mamokete Matjomane examined two Honours research reports at the Wits School of Architecture and Planning in January 2022.
- Mamokete Matjomane is currently co-supervising one Honours and one MSc student at the Wits School of Architecture and Planning.
- Gillian Maree is currently co-supervising two MSc students at Wits.
- Richard Ballard's doctoral student at the
 University of KwaZulu-Natal has been
 examined and their PhD is now complete.
 A second doctoral student has been examined
 and has revised their PhD for re-examination.
 Darlington Mushongera and Mamokete
 Matjomane were successfully examined.
 Richard also examined a master's dissertation
 for the School of Architecture at the
 University of Cape Town.
- Christina Culwick Fatti examined a Wits MSc dissertation in Urban Planning in May 2021; and an MSc from the Wits School of Animal, Plant and Environmental Sciences in June 2021.
- Alexandra Parker was the external examiner for research proposals for the MPhil in Conservation of the Built Environment at the University of Cape Town.
- Yashena Naidoo is currently co-supervising a GIS BSc Honours student at the University of Pretoria.
- Laven Naidoo is currently supervising one GIS MSc student, co-supervising two GIS MSc students and co-supervising one doctoral GIS student, all at the University of Pretoria.

- Ngaka Mosiane was a reader for a PhD proposal at the Wits School of Governance in November 2021.
- Ngaka Mosiane examined a master's dissertation at the University of the Free State's Business School in October 2021.

Wider academic citizenship

- Samkelisiwe Khanyile reviewed a paper for the Environment and Urbanization journal in March 2022.
- Laven Naidoo reviewed papers from December 2021 to March 2022 for the following journals: Wetland, Remote Sensing of Environment, International Journal of Applied Earth Observation and Geoinformation, and Science of the Total Environment.
- Sthembiso Pollen Mkhize is now an official reviewer for the *Journal of Homosexuality*.
- Darlington Mushongera reviewed a paper for the South African Journal of Economics.
- Christina Culwick Fatti reviewed a paper for the Sustainability Science journal in April 2021 and re-reviewed the revised paper in August 2021.
- Ngaka Mosiane reviewed a paper for the Indilinga African Journal of Indigenous Knowledge Systems Development.
- Ngaka Mosiane reviewed a manuscript for Antipode: A Radical Journal of Geography.
- Ngaka Mosiane reviewed a paper for the Town and Regional Planning journal.
- Ngaka Mosiane reviewed a paper for the Social Dynamics journal.
- Julia de Kadt continues to serve as a guest editor for the *Scientific African: Special Edition on COVID-19*.
- Richard Ballard has conducted journal article reviews for *Urban Studies*, *Urban Forum* and the *Journal of Urban Affairs*.



GAUTENG CITY-REGION OBSERVATORY

6th Floor University Corner 11 Jorissen St (Cnr Jorissen and Jan Smuts) Braamfontein Johannesburg Gauteng, South Africa

> tel +27 11 717 7280 email info@gcro.ac.za www.gcro.ac.za

