

Conundrums in implementing a green economy in the Gauteng City-Region

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The Gauteng City-Region (GCR) is the economic heartland of South Africa, anchored on Johannesburg and the national capital Pretoria. The region's growth path has historically been tied to exploitative and resource-intensive mining and industrial activities. It faces a mounting sustainability challenge, evidenced by high energy intensity, sprawling urban-forms, increasing air and water pollution, growing water-supply insecurity, and unique phenomena such as acid-mine drainage — perhaps the most visceral symptom of past tendencies to externalise environmental costs to future generations. Recent strategies, a Developmental Green Economy Strategy (2010) and its successor the Green Strategic Programme (2011), seemingly promised a more sustainable future. However, progress on their implementation has been weak, suggesting that, on a continuum of interpretations of what it means to build the green economy, government finds it easier to emphasise limited industrial-policy style interventions rather than a vision of a fully regenerative economy. This paper analyses how these green economy strategies have faced conundrums that narrow the thinking on future growth paths, in turn threatening to reproduce a profoundly unsustainable regional economy.

Addresses

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Some of these are framed as city-level climate change mitigation or adaptation plans, though the distinction between these approaches is dissolving [1,2]. Others, while taking climate variability risks as given, do not expressly address climate change *per se*. Rather they take as their object a full sustainability transition of the urban system [2]. They aim simultaneously to insulate against growing resource constraints, ward off slow-onset and catastrophic-event disasters, and reduce the environmental impact of production and consumption processes. Some of these responses are framed as green economy strategies.

This article reflects on one such strategy, the *Gauteng Green Strategic Programme* (GGSP), adopted in 2011 in South Africa's (SA) Gauteng City-Region (GCR).

The GCR is an agglomeration of interlinked cities and towns and the country's economic heartland. Gauteng, the 18 178 km² provincial space that contains most of the region, holds 12.9 million people [3], though urban forms extend seamlessly across the provincial boundary, and house 17 million in total [4]. The region contributes a third of the country's GDP.

The GCR's economy has historically been tied to resource-intensive extraction — principally of gold in Johannesburg and more recently of platinum group metals — and industries closely linked to this. It faces significant sustainability challenges, some related to this past, that are likely to be exacerbated by climate change. Challenges include: growing water security concerns, with large parts of the region built alongside mineral deposits where there were no major watercourses [5]; water quality issues, especially in light of the unique problem of acid mine drainage (AMD) [6,7]; more variable rainfall patterns, with increasingly violent storms causing acute local flooding events [8]; high resource consumption, especially of energy, because of sprawl, apartheid geographies and inappropriate peripheral development; and poor air quality [9] and high GHG emissions, largely driven by the region's reliance on industries dependent on cheap, coal-fired power [10].

The GGSP emerged in the context of a growing awareness of these pressing environmental challenges and resource constraints, as well as, like many green economy strategies, a severe economic downturn. The region lost 250 000 jobs, 6% of its total employment, between the first quarters of 2008 and 2010. The GGSP seemingly

Introduction

Cities and urban regions across the world are formulating responses to mounting environmental challenges [1].

promised a different, more sustainable future, but commitment to implementation has been weak for reasons that need deeper analysis.

Our analysis is based on participant observation, as members of the team that drove the strategy's formulation, and qualitative research on its subsequent implementation, involving document analysis and interviews with key government personnel.

Contribution to the literature

Our review of the GGSP addresses a perceived gap in current scholarship on the green economy. Much of the literature tends to plough the field of conceptual definitions and does not yet pay enough attention to actual green economy practice. Emerging green economy ideas are certainly important in themselves, and indeed this article also covers some of this ground. However our premise is that prospects for urban sustainability transitions will be determined by how governments are able to digest these ideas within their policies, programmes and projects. To date, research on how green economy thinking fares in public decision-making spaces has been limited.

A first generation of green economy scholarship was largely normative and policy oriented, seeking to build definitions of, and a case for, the green economy. The United Nations Environmental Programme (UNEP), for example, issued various seminal papers in the wake of the 2008 recession, promoting the 'greening' of fiscal stimulus packages, and defining those 'green jobs' that could bring a 'double dividend' of employment growth and environmental protection [11,12].

A second generation saw more academic reflections on these earlier policy-toolbox pieces. Some of these are neutral, simply aiming to distinguish between different discursive framings, or supportive of the ideas [13^{**},14]. For example, Borel-Saladin and Turok [13^{**}] review the different green economy ideas of UNEP, the World Bank and the OECD and conclude that, notwithstanding emerging critiques, the notion has significant transformative potential. Tienhaara [14] usefully discusses similarities and differences between the current conceptualisations, showing that they differ mainly on their perception of whether growth can and should be sustained in a green economy.

Others are more critical. They dissect green economy ideas to demonstrate contradictions or to counter overly hopeful claims in the early thinking [15^{*},16–18,19^{*},20,21^{**},22,23]. For example, Schmalensee [19^{*}] considers rhetorical positions for and against the green economy, concluding that unproven optimism around a costless transition must be replaced with more careful cost–benefit analysis. While this strand of writing certainly deepens

understanding of the green economy, it is based largely on theoretical argument, not on studies into real world evolutions in green economy policy and practice.

A third, more recent generation of writing, such as a series of new studies by the OECD, does analyse implementation [24,25], but with the aim of drawing out best practice to further champion the green economy. It does not critically analyse how green economy ideas are being constrained by the difficult processes of their implementation.

Certainly there is reflection on why green economy ideas are difficult to implement [26–29]. For example, Van der Ploeg and Withagen [29] highlight how renewable-energy policies will inevitably throw up a 'green paradox' by inducing accelerated resource extraction. But as yet this analysis is largely at the theoretical and macro level.

We could also find only a few studies on green economy implementation challenges in urban contexts, either at a general register [30,31,32^{**}], or in specific cities [33^{**}]. However McFarling [32^{**}] should be noted for his careful analysis of how 'institutions' such as zoning regimes, highway maintenance funds, and utility tariffs — charged equally regardless of distance or density — are likely to counteract suburban retrofits that 'mine the inefficiency of suburbs for growth'. There is little that matches up to the growing number of fine-grained city-level explorations into how climate change adaptation policies are faring in implementation [34,35^{*}], though Taylor *et al.* [36^{**}] stand out for their study comparing institutional pathways for defining and implementing both climate-change and green economy strategies in three cities.

Overview of the Gauteng Green Strategic Programme

The GGSP had a prehistory in a number of provincial policy statements. In mid-2009, the Gauteng Provincial Government's (GPG) *Medium Term Strategic Framework*, echoing 'green new deal' [11] commitments, promised to 'support sectors that create green jobs as a means to mitigate the impact of climate change'. In August 2009, on request from the political head of the Gauteng Department of Economic Development (GDED), the Gauteng City-Region Observatory (GCRO) researched what urban areas worldwide were doing to manage the global recession. Many cities were putting recently unemployed residents to work in public-works retrofit projects, and identifying industries such as renewable energy as future growth leaders [37]. This preliminary analysis was taken forward, again on request by the head of GDED, in a draft *Strategy for developmental green economy for Gauteng* [38]. Though never formally adopted, its core policy ideas were incorporated in the *Gauteng Employment Growth and Development Strategy* approved in 2010 as the

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