“Social justice and sustainability transitions in the Gauteng City-Region”

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Introduction

Local governments are under significant pressure to take responsibility for sustainability transitions, and climate change adaptation and mitigation, while ensuring equitable access to services and infrastructure. Cities have quickly become the primary place where people live, and are where resource consumption and environmental impacts are concentrated. Urban spatial form and infrastructure networks play a critical role in influencing the flow of resources, urban sustainability and social justice (Monstadt, 2009). Ensuring both of these outcomes is a critical aspect of the developmental agenda. The recently developed 'Sustainable Development Goals' (the post-2015 iteration of the Millennium Development Goals) emphasise the importance of, amongst others, reducing inequality, enhancing sustainability and fostering inclusivity (United Nations, n.d.). Despite the assertion that these goals are mutually desirable and attainable, planning development that concurrently achieves these goals has proved difficult.

Swilling and Annecke (2012, p. xiii) emphasise that

> "what is at stake is not simply a transition to a mode of production and consumption that is not dependent on resource depletion and environmental degradation, but as important is the challenge of a just transition that addresses the widening inequalities between the approximately one billion people who live on or below the poverty line".

There is a burgeoning literature that focuses on the areas of commonality between sustainability and social justice, and which highlights that justice is a precondition for attaining a truly sustainable society (Agyeman et al., 2002; McDonald, 2002; Agyeman, 2005; Swilling and Annecke, 2012; Heynen, 2013). Research into the disproportionate impact of environmental ills on poor and vulnerable groups, suggests that reducing negative environmental consequences will have the additional benefit of improving the quality of life for the affected communities. In these contexts, issues of justice and sustainability are mutually attainable.

Marcuse (1998, p. 103) posits that although "programmes and policies can be sustainable and just… they can also be sustainable and unjust", and conversely just policies can have unsustainable outcomes. In this paper it is argued that despite the literature emphasising the 'nexus' between sustainability and social justice agendas, there remains a relatively unexplored muddy terrain of where these agendas stand diametrically opposed. The challenge that this paper aims to explore is not where "urban environmental and social change co-determine each other" (Heynen, 2013, p. 1), but where they stand in opposition. In these instances decision-makers have to balance the benefits and disbenefits of each agenda to find a compromise between the two, without compromising either.

This paper presents some of the analytical frameworks that attempt to reconcile sustainable and social justice agendas, including: sustainable development, environmental justice and urban political ecology. Although these offer some insight into understanding the identified challenge, none is truly able to illuminate the path towards just sustainability transitions in the face of competing agendas.

This challenge is explored through a series of case studies from the Gauteng City-Region (GCR) in South Africa. The GCR has a sprawling spatial form, which results in long daily commutes for both the poor and wealthy alike. Although wealthier people may choose to live on the urban edge, the majority of poor people who live on the edge do so as a result of a range of external factors such as lingering apartheid planning, the locations of recent government housing developments and the high cost of living close to the urban core. This spatial form has a complex set of implications for fostering an inclusive and affordable, yet low-carbon and sustainable city-region. The three case studies present various government programmes related to the spatial form and mobility in the GCR, where the goals of sustainability and social justice are diametrically opposed. The case studies highlight the complex set of challenges that decision-makers are confronted with in trying to marry these two agendas.

The broader research within which this paper fits, explores the complexity of the trade-offs that have to be negotiated by decision-makers. This research attempts to unravel the set of agendas, power relations and decision-making processes that influences how the trade-offs are made and why these decisions are reached. The aim is to get to the heart of these issues and to inform the process of how to tackle a transition in the GCR that will bring it towards a more just and sustainable city-region. This paper does not attempt to provide answers, but concludes with a set lingering conundrums.

The following section provides a sense of the key environmental challenges and socio-economic challenges that exist in the GCR. The paper then explores a few of the approaches in international literature that attempt to reconcile these challenges.

Multifaceted sustainability and socio-economic context of the GCR

The GCR is the economic heartland of South Africa located in the north eastern interior of the country. Johannesburg and Pretoria are at the core of the city-region, with the urban development footprint extending beyond the Gauteng provincial boundary. The GCR attracts people from across the country, continent and around the world because of the promise of economic opportunities, services, and so on. The GCR has been envisioned as a competitive, environmentally sustainable, equitable, cohesive, and inclusive city-region (GPG, 2009), however the potential for a high quality of life for all GCR residents is undermined by the inequality and unsustainability entrenched in the spatial form and function of the city-region.

During the apartheid era, the government restricted not only the movement of non-white people, but also where they were allowed to live. Urban and economic areas across the country were identified as white areas and settlements beyond the urban edge were designated for black, Indian and coloured people. These areas were typically isolated from economic opportunities, services and infrastructure, and mobility was limited to lengthy public transport trips. Since the start of democracy in 1994, the new government endeavoured to include all of these previously isolated communities into urban areas and increase access to housing, services and opportunities, to raise the quality of life of people living in these previously isolated and underserved areas.

Despite significant changes and development in the post-apartheid era, more than twenty years since the start of democracy, urban development in the GCR has not yet managed to deconstruct the apartheid spatial form, and in some cases has entrenched the segregated and unequal space. The majority of 'new' government housing projects are located on the urban edge, in the former apartheid townships, far from economic centres. Residents in these areas spend a large proportion of their income on long daily commutes, most of which are via public transport.

In addition to the government-led housing developments, there has been substantial growth in private residential developments, which mostly comprise townhouses, estates and security villages. The majority of these private developments are also located on the urban edge, and lock residents into long car-based commutes. The lengthy home-to-work commutes, undertaken by a large portion of GCR residents, places strain on commuters as well as the increasingly congested road network, as limited public transport causes high levels of private vehicle use.

This pattern of new residential growth on the urban edge of the GCR not only places a heavy burden on communities as a result of high transport costs (both financial and time costs), but it limits accessibility for marginalised groups. Urban growth, particularly development on the urban fringe, leads to urban sprawl, has a significant impact on increasing resource consumption, urban-based pollution, congestion, environmental degradation, land use segregation, and the cost of infrastructure, services and transport (Camagni et al., 2002; Mubiwa and Annegarn, 2013). Reducing poverty and inequality is significantly hampered by the continued investment into unsustainable systems, and it is necessary to shift the current wasteful expenditure that locks neighbourhoods and cities into resource intensive pathways (Swilling, 2006). In the long term, these patterns of unsustainable growth entrench society into expensive ways of living and traveling, where the associated cost burden is most obvious for the poor.

It is clear that unless there is a change in the current trajectory of development on the urban edge in the GCR, the city-region will become an increasingly polluted, congested, environmentally degraded and inequitable place. Government is faced with

the challenge of restructuring the spatial form and function of the GCR in a way that addresses both historical inequality and sustainability concerns, while managing the cost implications, public transport routes and land availability for new developments. Recently developed policies and plans (e.g. City of Johannesburg's corridors of freedom project and the Gauteng provincial 25 year Integrated Transport Master Plan) emphasise the importance of finding solutions that address both environmental and social justice concerns. Despite significant efforts to address these key developmental issues identified in the policies, there is a paucity of cases where government has been able to make decisions in both interests.

The nexus between social justice and sustainability goals

The idea that sustainability and social justice issues are interrelated has permeated through academic and public discourses over the past few decades. A significant portion of this engagement has been framed from an environmental perspective which has acknowledged that the relevance of an environmental agenda, which does not incorporate social concerns, will never extend beyond a conservation agenda. Agyeman and Evans (2004, p. 2) emphasises that

> "Sustainability … cannot be simply an 'environmental' concern, important though 'environmental' sustainability is. A truly sustainable society is one where wider questions of social needs and welfare, and economic opportunity are integrally connected to environmental concerns".

A few of the main theoretical approaches that have been developed to help negotiate the interaction between these two agendas are explored. This paper does not attempt to provide a comprehensive analysis of these (or all) analytical approaches, but presents some of the frameworks that endeavour to blend sustainability and social agendas.

SUSTAINABLE DEVELOPMENT

The first major attempt to bring a common focus to environmental and social issues was through the concept of sustainable development (SD). SD was pushed into the international spotlight through the Brundland Commission report (1987), as well as subsequent international fora and agendas. SD hinges on the principle that current generations should consume resources and undertake development in such a way as to ensure that there are sufficient resources to meet both their needs and the needs of future generations. It encompasses the idea that development should take intergenerational justice into account in decisions that may have direct or indirect implications on environmental quality, degradation and resource availability.

SD has been widely incorporated into plans and visions at all scales of government as well as the private sector across the world. The principles of SD have strongly influenced the climate change discourse, which emphasises that global warming is a

direct result of unsustainable resource use. Internationally protocols and commitments have been developed and signed by the majority of nation states. Like the climate change commitments, the fundamental principles of sustainability have been widely acknowledged as honourable and right. However, the focus on future generations at the cost of current generations has undermined the implementation of SD goals (Agyeman et al., 2002; Jasanoff, 2010). Jasanoff (2010, p. 242) emphasises that the "'future' is an open-ended concept, stretching to infinity, whereas the scope of moral thinking is ordinarily confined to the immediate past and near-term future". The idea that decisions need to be made in the interests of an abstract group of people has contributed to the notion that the concepts of sustainability and development in fact lie in opposition to each other.

The belief that environmental and developmental concerns are not compatible has been entrenched in South Africa by the environmental impact assessment policies, which, ironically, were designed as a way to ensure SD. Despite these policies meeting best practice, the experience of this legislation by developers has been that the environmental considerations pose a barrier to growth and development, as these assessments add cost and risk to potential projects (Lawhon, 2013).

These conceptual limitations and the desire to demonstrate the commonality between these concepts, have motivated the uptake of the concept of environmental justice (EJ) by academics and grassroots organisations working on environmental and social issues (Agyeman, 2005).

ENVIRONMENTAL JUSTICE

EJ has emerged as a concept that specifically focuses on the nexus between environmental sustainability and social justice, by drawing direct links between environmental ills (e.g. pollution and environmental degradation), and the uneven consequences on society of unsustainable development and resource consumption. Much of the EJ literature focuses on case studies (typically local-based cases) where environmental ills, place a disproportionately higher burden on the poor. By bringing to light actual communities that suffer as a result of various environmental ills, the abstract consequences highlighted in the SD discourse are given a 'face'.

In contrast to the top-down origin of the SD discourse, EJ has emerged out of a set of grassroots organisations and community movements. Agyeman et al. (2002, p. 83) posit that the success of the EJ "can be attributed to its ability to tap into the discourse and rhetoric of the civil rights movement". It appeals to people's morality in terms of both socio-economic and environmental issues, and by doing so, aims to bolster the support for environmental sustainability. However, the appeal to social- or environmentally-minded people is both its success and downfall, as this approach entrenches the discourse as a movement instead of a legitimate academic or political project (Swyngedouw and Heynen, 2003). Furthermore, the focus on individual cases

limits the generalisability of the research, which in turn limits the relevance of the discourse for unrelated contexts.

The EJ movement has been criticised for restricting its focus on the consequences of unsustainable development, and thus it provides little insight into the processes by which these injustices arise (Swyngedouw and Heynen, 2003; Lawhon, 2013). Ruiters (2002, p. 112) highlights that although it "raise[s] a set of problems that go to the heart of inequality in spatial form and social processes … [EJ] fails to pay adequate attention to the spatial and production sides of environmental inequalities". This in turn limits the guidance it can provide to decision-makers who have to navigate this complex terrain. The urban political ecology (UPE) discourse has emerged as an attempt to explore the complex drivers that lead to environmental injustice.

URBAN POLITICAL ECOLOGY

UPE is a framework that attempts to explore the socio-ecological production of urban change that results in the uneven spread of environmental injustices (Swyngedouw and Heynen, 2003). Lawhon et al. (2014) argues that UPE reacts against the technocratic solutions proposed for addressing the unequal distribution of environmental impacts and unsustainable development. Instead, it attempts to explore the power dynamics, agendas and processes that result in these undesirable impacts.

UPE acknowledges the importance of looking beyond a particular example of inequality (as in the case of EJ) to explore the regional, national and international influences that produce inequality (Swyngedouw and Heynen, 2003). The power dynamics within and between actors across all scales plays a critical role in influencing why decisions are made, by whom and in what or whose interest (Swyngedouw and Heynen, 2003; Koch et al., 2007). A strong focus of the UPE discourse is placed on the role that capitalism plays in directing the complex web of urban metabolism, power dynamics and urbanisation processes that lead to environmental injustice (Swyngedouw and Heynen, 2003). UPE scholars posit that the drive towards capital accumulation has a fundamental influence over decisions regarding urban landscape production, and the unequal spread of the resources and the negative impacts associated with urban development (Swyngedouw and Heynen, 2003; Braun and Castree, 2005).

While scholars emphasise the political importance of the UPE discourse in understanding the processes that lead to environmental injustice (Braun and Castree, 2005), beyond the assertion that the current socio-political-economic processes increase inequality, the framework provides scant guidance for how government can start making decision that will not inevitably lead to unjust and/or unsustainable outcomes.

Case studies from the Gauteng City-Region: Mobility and spatial form

Although each of the theoretical approaches presented brings us a little closer to understanding the complexity of balancing the sustainability and social justice agendas in decision-making processes, none fully satisfies the need for a framework of analysis that gets to the heart of this challenge in a way that can guide decision-makers to navigate the trade-offs better. The following case studies focus on issues related to spatial form and mobility in the GCR, and the complexity of managing a transition towards a more sustainable and just city-region.

E-TOLLS: THE LOST OPPORTUNITY

The Gauteng Freeway Improvement Project (GFIP) was approved by national government in 2007, as a way to increase the freeway capacity and reduce the growing congestion caused by the growing volumes of daily long-distance commuters. The GFIP involved a largescale upgrade and improvement of the freeways in the province. Tolling (or e-tolling) was identified by government as the appropriate means of financing the multi-billion rand project. The first phase of the construction is complete and the e-tolls are now in effect. E-tolls are monitored by a set of gantries across the upgraded freeway sections. Each has a designated amount payable depending on the size of vehicle, and time of day. The fee structure includes a cap on the maximum amount any single vehicle can be charged per month.

The GFIP and the South African National Roads Agency (SANRAL) - the primary implementation agent - have come under significant pressure from civil society since the introduction of the e-tolling system. The e-toll debate has become a highly controversial topic that has led to widespread boycott by civil society. The argument against e-tolls focuses on a few key aspects of the decision to use e-tolls including: the poorly conducted public participation processes; the expense of the e-tolling system compared to other alternatives; the unaffordability of the system; the disproportional impact on the poor; and the paucity of alternative transport options. In response to the massive boycott by society, the national government adjusted the original cost structure through significant cost reductions and allocating each vehicle with 30 free toll passes per year.

This case study does not directly engage with the public boycott debate, but assesses the potential for urban tolling to assist in shifting travel behaviours and mobility patterns in the province, and how this potential has been undermined in the GCR.

International evidence (Cervero et al., 2013; Hommes and Holmner, 2013) highlights that urban tolling has the potential to help shift away from daily long distance commuting and encourage people to shift to more sustainable lifestyle and mobility patterns. It can be thought of as a progressive tax that places a higher cost on high users, and which provides a disincentive for long daily commutes and travel during peak congestion times. The increased cost could have the added benefit of

encouraging a modal shift away from single occupant car use towards car-pooling and public transport.

In the weeks subsequent to the e-tolls coming into effect, the Gautrain (high speed train that links Pretoria and Johannesburg) saw a significant jump in ridership. This supports the assertion that tolling will cause people to shift modes, where good travel alternatives exist (Victoria Transport Policy Institute, 2014). The limited public transport alternatives, however, undermines the likelihood of such a widespread modal shift.

A fundamental hindrance to the potential for e-tolls to shift society away from car-centred and long distance commutes (a primary sustainability objective), is that the tolls are the financing structure for increasing the capacity of the freeway network, and thus increasing the potential for long distance commuters. In addition, although the discounts applied to frequent users (cap on the maximum amount payable per month) prevents e-tolls from becoming completely unaffordable, the cap disproportionately benefits high users making each of their individual trips cheaper. This method for trying to ensure that the tolls are not unaffordable undermines the potential to change travel demand and commuter patterns.

Because the majority of poor people in the GCR are situated on the outskirts and comprise a significant proportion of the long distance commuters, ensuring that e-tolls do not limit their access to services and work is an important consideration. The system guarantees that the majority of poor commuters, who travel far distances via public transport, do not have to pay e-tolls, as public transport is exempted from these fees. However, the low-income commuters who travel by car bear a disproportional cost relative to their monthly income. This portion of the population thus faces the double burden of poor spatial form and the costs of urban tolling.

These arguments highlight some of the challenges of addressing urgent congestion issues while achieving a solution that incorporates both pro-poor and low-carbon goals. The impact of e-tolls is likely only to be measurable over the long-term; however, this brief analysis suggests that the e-tolls in Gauteng will likely just increase the cost of travel with limited sustainability benefits.

THE BUS FARE DEBATE

The City of Johannesburg (CoJ) is in the process of a large-scale investment into a Bust Rapid Transit (BRT) network, which will improve the quality of public transport and to help improve access to economic opportunities and services in a just and affordable way. The BRT routes have been earmarked by the City as the primary corridors for the transit oriented development (TOD) strategy. These corridors are envisioned as sites for densification and the development of mixed use and mixed income areas. This development strategy (branded as ‘Corridors of Freedom’) is the CoJ’s systematic attempt to address the inequalities and unsustainability of the existing spatial form.

The City however faces a significant obstacle in the fee structure for bus fares along these routes, in order to achieve the desired outcomes.

There are two primary options for the BRT fare structure: a single flat fee regardless of the distance travelled; or an increasing fare based on the length of the trip taken. The first option (a single flat fee) ensures that marginalised communities living far from the urban core have improved access to opportunities and services. This provides an affordable and fair transport option that is likely to provide significant quality of life benefits to low income groups. However, this option forgives the ills associated with sprawling urban form, and provides no incentive for people to live closer to where they work or from where they access services. The second option (increasing fare with the length of trip) places a significantly higher burden on long distance commuters. This pricing structure ensures that the high cost of providing quality long distance public transport network is paced on those whose travel demands require the extended service. While this option increases the cost of unsustainable mobility patters, it disproportionately affects marginalised groups that have limited residential and economic options.

At the time of writing this paper, a decision was not yet finalised regarding the COJ's preferred fare option. This case study exemplifies the challenge of marrying the City's objective for restructuring the apartheid urban form to achieve sustainability, inclusivity and accessibility for all residents, while ensuring that marginalised and low income groups are not forced to bear the compounded burden of the apartheid and post-apartheid spatial strategies.

NEW DEVELOPMENT AND THE PARADOX OF THE URBAN EDGE

In attempting to redress apartheid ills through reshaping the urban spatial form, government in the GCR is faced with the challenge of whether to allow development beyond the existing urban extent or to restrict development by imposing a defined boundary (urban edge) which concentrates development to the urban core. The choice between the two plays transport and housing costs off each other, and sustainability against short-term social justice.

As discussed earlier in this paper, development that extends the urban edge and enhances sprawl and is associated with high transport and infrastructure costs, as well as higher resource consumption. However, land far from the urban core costs significantly less than land in or close to the core. This means that government funded development on the urban edge frees up additional funds to pay for the higher infrastructure cost, and has the potential to allow for larger scale developments to be built. These new developments will be more affordable for the poor because of the sub-optimal location. The limited access to services and high transport costs reduce saving capacity and other spending that could stimulate economic growth and enhance social inclusion.

Alternatively, constraining development to the urban core ensures good access to services and economic opportunities, shorter commuting time and costs, and can contribute to a more inclusive and diverse communities. However, development within the urban core is expensive and the process of attaining the necessary building permissions can be slow. This limits the ability to build a sufficient number of units to address the housing shortage quickly. Restricting potential development areas has an additional consequence of driving up housing prices within the urban core, making houses too expensive for the poor. This could lead to higher levels of informal development on the outskirts.

The short-term benefits of large scale peripheral housing developments in providing adequate shelter to the poor has longer-term implications for sustainability, the cost of living and quality of life. While the preference from a sustainability perspective leans towards densifying the urban core, this option risks marginalising the poor even further through an inflated property market. In addition, without careful planning of green spaces and transport routes, densification could have negative implications on air quality, congestion and environmental justice. The choice between these two options is neither simple nor clear.

Conclusions and lingering conundrums

Transforming society and bringing about justice in post-apartheid South Africa is a challenge that is especially evident in the GCR. At the same time, the long term plans for the city-region cannot ignore the need to reduce the resource consumption and environmental impact associated with urban growth and development. The current paradigm 'lock-in' that is evident in the GCR's sprawling spatial form poses a significant barrier to people realising the benefits of a more just and sustainable city-region, not only in the direct benefits of reduced environmental ills, inclusivity and so on, but also in the potential multipliers such as access to economic opportunities, and reduced travel costs that increase saving capacity. This paper has highlighted that despite the clear sense that the current paradigm is far from what is desirable, making decision to transition the city-region away from both an unjust and unsustainable trajectory is incredibly difficult. Government in the GCR is currently juggling these two, often opposing, agendas with competing interests and unclear solutions.

Some of the theoretical frameworks that attempt to understand the relationship between environmental sustainability and social justice have been explored – including sustainable development, environmental justice and urban political ecology. Although these provide insight into the complex interplay between the two agendas, none is sufficiently able to guide how the sometimes competing interests are kept in balance. The case studies presented show some of the complexity in trying to achieve both sustainable and just outcomes through government programmes related to the urban spatial form and transport system in the GCR.

This paper highlights the need to extend the discourse on justice and sustainability beyond the superficial blending of the 'green' and 'brown' agendas. This requires an engagement with difficult debates around the trade-offs between environmentally sustainable and socially just programmes and a deeper understanding of the complexities inherent in the decision-making process. The stakes of dropping either ball are incredibly high, and unless government is able to keep both justice and sustainability agendas simultaneously in focus, it is unlikely that society will transition away from a resource-intensive growth trajectory that has disproportionate benefits for society.

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