

GREEN INFRASTRUCTURE

The Gauteng City-Region Observatory (GCRO) is launching a *Green Infrastructure Citylab* to facilitate a strategic dialogue amongst government officials concerned with the development of more sustainable urban infrastructure. The Green Infrastructure Citylab builds on the base laid by GCRO's *State of Green Infrastructure in the GCR report*, released in July 2013. It aims to further promote shared understanding of how green infrastructure can be incorporated into spatial and service-delivery planning for our region's fast growing cities and towns.

Context

Government in the Gauteng City-Region (GCR) is under pressure to provide infrastructure to meet the needs of a growing population and economy. Historically, infrastructure development has been achieved at the expense of environmental systems because of a limited emphasis on sustainable development. This situation is changing with government – guided by an array of national, provincial and local strategies – increasingly required to take into account principles of sustainability. However a *fundamental paradigm shift is still required* in planning and developing infrastructure, including how we understand the role of ecological assets in sustainable service-delivery.

The concept of *green infrastructure* has emerged internationally as a way of understanding how *green assets* and *ecological systems* can work as part of the infrastructural fabric that supports and sustains society. Green Infrastructure is multifunctional and provides numerous benefits in the form of ecosystem services. These benefits are being recognised by city and regional governments in other parts of the world, valued in quantifiable terms, and incorporated into service-delivery planning and capital investment decision-making. This is not yet happening in the Gauteng City-Region. There has been some interest in the idea of greening, and some important projects have been implemented, but municipal planning and finance systems are not yet geared towards valuing the services provided by green infrastructure, or thinking long term about how green infrastructure can be used instead of or in tandem with conventional grey infrastructure.

What is Green Infrastructure?

"Green infrastructure refers to the interconnected set of natural and man-made ecological systems, green spaces, and other landscape features. It includes planted and indigenous trees, wetlands, parks, green open spaces and original grassland and woodlands, as well as possible building and street-level design interventions that incorporate vegetation, such as green roofs. Together these assets form an infrastructure network providing services and strategic functions in the same way as traditional hard infrastructure."

State of Green Infrastructure in the Gauteng City-Region (GCRO 2013)

What is a Citylab?

A Citylab is designed to create a platform that facilitates the co-production of policy relevant knowledge between practitioners and researchers, in this case on the development of a Green Infrastructure Plan for the Gauteng City-Region. Citylabs provide an opportunity for government officials to reflect on the broader context of their day-to-day work, and for researchers to deepen their understanding of the practical application of ideas.

The aim of the *Green Infrastructure Citylab* is to bring together key people from municipalities in the GCR, as well as selected provincial government departments and other stakeholder groupings, to explore what a *Green Infrastructure Master Plan* means for the GCR. This plan would outline how region-wide planning decisions can be made to include green infrastructure approaches, which in turn can inform tailored local level infrastructure design choices. This may entail developing a set of *guidelines* to assist decision-makers on how to incorporate such approaches into spatial and infrastructure investment plans.

The Green Infrastructure Citylab will entail a series of dialogues, one held every two months, spanning the course of about 2 years. The success of the Citylab depends on the *commitment* and *active participation* of the participants to all the discussions. Each participant is required to provide critical insights on the formulation of a green infrastructure plan for the GCR, based on their departmental programmes and work experiences.

Examples of Green Infrastructure Plans

The idea of a green infrastructure plan is not a fixed concept. It has been interpreted and applied differently in various contents to meet diverse interests in the conservation of and planning for green assets. Generally, these plans consist of processes to map, value, design and develop networks of green assets. Central to developing a green infrastructure plan is the involvement of relevant stakeholders. Two examples of where this concept has been applied include New York City and the City of London.

The New York City Green Infrastructure Plan (2009) identifies green infrastructure as “an adaptive approach to a complicated problem that will provide widespread, immediate benefits at a lower cost”. In the City’s search for a solution to increasing pressure on its storm-water and wastewater systems, it found that the traditional approach of using concrete or grey infrastructure – building more drains and water treatment plants – would take longer to implement and be more expensive than alternative green infrastructure such as street-level bio-infiltration sites and rain gardens. The City’s analysis showed that the benefits of a green infrastructure solution would accrue immediately and appreciate over time, in contrast to all grey strategies where benefits would only be seen after long-term construction, and where the built infrastructure would need substantial recurrent expenditure on maintenance and depreciate over time.

Similarly, the All London Green Grid sets out a plan for the city that integrates grey and green infrastructure through a landscape-wide view that focuses on managing natural and built environments together. It explicitly recognises the value of man-made green infrastructure and the role of well-designed spaces in urban infrastructure provision.

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Benefits of green infrastructure

“Ecosystem services are the benefits supplied to humans from nature. They are the naturally occurring functions of ecological processes, ranging from air purification, water flow regulation, reducing erosion and disaster risks associated with environmental change, the provision of green space for growing food and in which people can relax, as well as the provision of habitats and ecosystems that support biodiversity”
State of Green Infrastructure in the Gauteng City-Region (GCRO 2013)



Outcomes

The *Green Infrastructure Citylab* is designed around the following deliverables, which will be co-produced by the participants. Each person will have an important role in achieving these objectives:

1. A framework for a Green Infrastructure Plan, to be published as a GCRO Occasional Paper *April 2014*
2. A Green Infrastructure Plan for the GCR *2016*

In addition to being involved in producing these deliverables, each participant in the Citylab will benefit by obtaining increased knowledge on green asset data collection and mapping, methods of valuing green assets, and design options for green asset alternatives to conventional grey infrastructure approaches. The potential of participants doing a formal course with an accreditation certificate is being investigated.

Dates to diarise

Please diarise the first four dates of the Green Infrastructure Citylab, with provisional topics.

Thursday 23 January 2014
Introduction to green infrastructure & defining the Citylab agenda

Thursday 20 February 2014
How to value green infrastructure and spatial data challenges

Thursday 27 March 2014
A process towards a Green Infrastructure Plan for the GCR

April 2014
Presentation and discussion on the draft Occasional Paper