Colloquium

MPhil in Sustainable Development Planning & Management

9 - 10 November 2015
Sustainability Institute, Lynedoch
# PROGRAMME

## MONDAY 9 NOVEMBER 2015

### SESSION 1

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<td>WELCOME (Dr Josephine Musango)</td>
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<td>09:15</td>
<td>Currie, PK.</td>
<td>A Resource Flow Typology of African Cities</td>
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<td>09:45</td>
<td>Davies, ML</td>
<td>Intermediaries and learning in sustainability-oriented urban transitions: a transdisciplinary case study from Stellenbosch Municipality</td>
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<td>10:15</td>
<td>Du Plessis, J-P.</td>
<td>The resource requirements of future urbanisation: A critical assessment</td>
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<td>11:45</td>
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<td>Van Rooyen, C.</td>
<td>Incorporating an Earth Jurisprudence approach into South African environmental law for the protection of endangered species: Options and challenges</td>
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<td>Food security and the informal economy in South Africa: The state of knowledge and perspectives from street-food traders in Khayelitsha</td>
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<td>09:00</td>
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<td>Mohamed, R.</td>
<td>Exploring shared value and open innovation approaches in the context of Broad-Based Black Economic Empowerment (B-BBEE): Enterprise Development</td>
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<td>The Dynamics Influencing Progress Towards Responsible Investment: A Process Study of CRISA’s Agency</td>
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### TUESDAY 10 NOVEMBER 2015

### SESSION 4

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### CLOSING REMARKS (Prof Mark Swilling)
A Resource Flow Typology of African Cities

Paul Klugman Currie

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Co-supervisor: John Fernandez (fernande@mit.edu)

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The second urbanisation wave expects to see vast increases in population and resource demands in African and Asian cities. In a context of global sustainability imperatives and imbalanced resource access, effective urban planning is necessary to address resource flow challenges, and build resilient, equitable cities. However, preliminary investigation suggests a lack of data-supported decision-making in cities of the global south, leading to many urban development programmes being implemented with minimal scientific backing to support the success of policy or infrastructure innovations. A quantitative assessment of cities’ resource profiles can support policy makers’ decisions about infrastructure configurations in order to improve their resource management. To this end, methods to accurately estimate and analyse these data are necessary. The primary objective of this study was to establish a resource consumption typology for African cities, using eight material and energy indicators. Due to limitations in the availability and form of secondary data, this study shifted focus to explore how best to form a typology from limited data. It made use of data for 53 African nations and urban-scaling theories to estimate city-level economic and resource data for 120 African cities. The resultant resource profiles were normalised and clustered in a number of ways to produce two national typologies and four city typologies. These typologies both inform the method for categorising cities by socioeconomic or resource indicators, and provide insights into the shape and magnitude of resource profiles for multiple African cities. They also highlight some key drivers of resource consumption in these spaces.
Intermediaries and learning in sustainability-oriented urban transitions: a transdisciplinary case study from Stellenbosch Municipality

Megan Davies

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This research explores the role of intermediaries and learning in sustainability transitions at the urban scale and deploys a particular transitions perspective in a transdisciplinary case study of the Rector-Executive Mayor Forum in Stellenbosch, a major town in Stellenbosch Municipality in the Western Cape Province of South Africa. A transdisciplinary methodology shaped a period of extensive embedded research as the researcher participated in the Rector-Executive Mayor Forum and its substructures, the Infrastructure Innovation Committee and the Integrated Planning Committee. The perspective on sustainability transitions framing this research is formulated around the strategic centrality of cities and stresses the importance of the conceptual notions of space, intermediaries and learning therein. Overall, a comprehensive analysis of the sustainability transitions literature with special reference to space, intermediaries and learning motivates a more detailed exploration of intermediation and learning processes in particular and therefore advances a framework of urban learning to enhance this perspective. The conceptual framework of urban learning combines transition management, the Learning City and Assemblages approaches. The sustainability transitions perspective and the accompanying framework of urban learning is used to analyse the development of the Infrastructure Innovation Committee and Integrated Planning Committee’s guiding strategic documents. The outcome of this research investigation is the development of a unique sustainability transitions perspective that is complemented by a comprehensive framework of urban learning. Through the transdisciplinary case study in Stellenbosch, this is shown to be helpful in attainment of a deeper understanding of the particularities of how urban transitions unfold and how these might be stimulated, facilitated or steered towards sustainability.
The resource requirements of future urbanisation: A critical assessment

Jay du Plessis

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It is now generally agreed that in order to avoid the severe threats posed by the “global polycrisis” of climate change, ecological degradation, biodiversity loss, food- and water-insecurity, resource scarcity and poverty, a pathway of sustainable development must be found. It is also increasingly recognised that urban areas, where the majority of the people on the planet now live, and where the vast majority of energy and materials are consumed, are not only key contributors to the global polycrisis, but also hold the key to a pathway of sustainable development. However, with 2.4 billion people projected to be added to the global urban population by 2050, serious questions need to be asked about the sustainability of such urban growth – particularly because the mainstream urbanisation narrative seems to assume that urbanisation will continue unabated, and that somehow the resources will be found to make this happen. Nobody is asking, “what are the resource requirements of this future urbanisation?” So, this study set out to try and find an answer to this vital question. However, in the process fundamental and far-reaching problems were uncovered in the three key datasets on which such a study would rely, namely estimates and projections of (1) urbanisation, (2) population and (3) resource consumption. So, an extensive literature analysis of these three underpinning spheres were done, in order to assist a consequent study on the topic – or any study relying on these three types of data. A new perspective for assessing urban resource consumption on the global level is then proposed.
Exploring Design towards a Sustainable City: 
Through the lens of Cape Town as World Design Capital 2014

Marjorie Lanette Naidoo

Supervisor: Anneke (JI) Muller  (Anneke.Muller@spl.sun.ac.za)

Co-supervisor: Byron Qually (i-am@byronqually.com)

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This case study explores the contribution of Design towards sustainable cities, through the lens of Cape Town as World Design Capital 2014. A survey of historic design movements, technological revolutions, and the evolution in the design of cities, reveals that Design has frequently been enlisted in the service of ideologies, such as Colonialism, Modernism, Consumerism, and Neoliberalism. The outcomes of the design industry, therefore, have significant ethical implications, and intimate interaction exists between Design and its socio-political-economic context. An examination of the sustainability challenges of cities – environmental, social and economic – reveals that Design has often not contributed to sustainability, but has rather been a handmaiden towards social inequity and ecological loss. Cape Town is marked by the unsustainable consequences of many of the design movements and their linked ideologies - in its segregated urban form, splintered social construct, and environmental challenges. Some of these outcomes are wicked problems, which City Management is attempting to redress, but within the ambit of Neoliberalism (addressing the symptoms, while the real problem continues unrestrained). Although the City’s WDC Bid highlighted socio-spatial challenges, but not ecological challenges, citizen-driven projects and meaningful City projects formed the year-long event, and reflected a shift from 20th Century indulgent design to 21st Century responsible design. However, for design to fundamentally address urban unsustainability, an activist Sustainability Design Movement is needed, directed at the three spheres of sustainability. Design practitioners need to bear in mind that they are not practicing their ‘craft’ in an ideology-free zone.
Benefits and Limitations of the Informal Economy in Promoting Sustainable and Inclusive Local Economic Development: A Stellenbosch Case Study

Lelethu Tshofuti

Supervisor: Suzanne Smit (Suzann3sm1t@gmail.com)
Co-supervisor: Candice Kelly (candice@sustainabilityinstitute.net)

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Poverty, inequality and unemployment are major challenges facing South Africa. The government is struggling to create jobs in the formal economy, as economic growth rates are low and falling. The informal economy, on the other hand, provides livelihoods to thousands of people, but it is poorly understood and therefore poorly supported. Within the context of the developing world, promoting and supporting the informal economy is imperative. This study therefore sets out to: (i) investigate the benefits and limitations of the informal economy in promoting sustainable and inclusive local economic development; (ii) assess Stellenbosch Municipality's approach to the informal economy and the impact this approach has on livelihoods and local economic development and; (iii) review a number of comparative cases to find best practices. The study is informed by both a literature review and a case study methodology. The case study methodology includes document analysis and interviews whilst a review of comparative case studies is used to draw lessons from other municipalities. The study found that despite several ways in which the informal economy could contribute to sustainable and inclusive local economic development, it is generally disregarded or undervalued in such discussions. Furthermore, Stellenbosch Municipality's approach to the informal economy has had a negative impact on the participants' livelihoods and local economic development through its top-down approach and the exclusion of the informal sector in the LED process. However, Stellenbosch Municipality is now looking at implementing ways to engage and support the sector. The findings suggest that the local economic process of Stellenbosch has the potential to create a vibrant informal economy to meet all local requirements for reducing poverty, inequality and unemployment in a way that also restores the environment.
Incorporating an Earth Jurisprudence approach into South African environmental law for the protection of endangered species: Options and challenges

Carla van Rooyen

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Co-supervisor: Eve Annecke (eve@sustainabilityinstitute.net)

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Many South African species and habitats are threatened by various human activities including illegal poaching of species such as rhinos. These activities threaten the survival of an array of species. This study explores the anthropocentric basis of the South African legal system and the resulting failure of our legal system to protect the environment. Furthermore, this study examines the concept of Earth Jurisprudence as an alternative to the aforementioned traditional anthropocentric legal system. Earth Jurisprudence is a legal philosophy which proposes that rights be extended to other species to ensure the protection of nature. Through the conceptual study of available literature on the subject, including legal historical research, this research explores the core principles of Earth Jurisprudence and identifies key case studies where Earth Jurisprudence has been incorporated in legislation. By utilising phenomenological and comparative techniques to analyse the qualitative data, this study makes recommendations as to how this approach can be incorporated into a South African context, including a cross-cutting limitation clause which could potentially limit the friction between rights for nature and existing human rights.
This study makes a contribution to the research about the emergence and functioning of innovation systems in the agricultural sector in developing countries. It determines the current status quo of the South African Agricultural Innovation System and its limitations and shows possible solutions to overcome these. The agricultural sector in South Africa faces many challenges. Water scarcity, climate change and increasing resource pressure are just some of the obstacles, which need to be overcome. In order to meet these challenges and to ensure and improve food security, new solutions need to be found and innovations need to be implemented. This study explores the ability of the South African Agricultural Innovation System to support the emergence and implementation of innovative solutions and to enable long lasting change of the agricultural sector and the overall food system. The first part of the research seeks to portray the South African Agricultural Innovation System, its maturity and ability to face and meet the existing challenges. The second part describes the ability of the South African agricultural sector to support a long-term transition towards more sustainability. The concepts of transition theory, the multi-level perspective and strategic niche management are presented and discussed. Limiting factors for a transition towards a more sustainable agricultural and food system in South Africa were identified during interviews with various parties involved in agricultural innovation. Potential solutions to overcome these limitations are described and reviewed.
The Sustainability Institute’s cookbook: recipes for food and community building

Eduardo Shimahara

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The Sustainability Institute in South Africa is an institution that is dedicated to bring forth an education that promotes sustainable development through different courses from Post Graduation to PhD in partnership with Stellenbosch University that attracts students from different countries all over the planet. Food and food systems are embedded in Sustainable Development so the question that rises is: What is the role of food at the Sustainability Institute? This work of Participatory Action Research aims to deeply analyse the food systems at the SI also bringing an action intervention in order to bring a reflection about food in this institution. To achieve this objective, different methodologies were used mixing quantitative research, semi structured interviews, observational research and a Brazilian Methodology (Elos) as an inspiration to create a game that would bring the whole SI team to cook together and to share a series of meals based on their interpretation of themes: family, local, Africa.
The South African Hemp Story: saviour crop or business as usual

Camila Coogan

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Co-supervisor: Stefanie Swanepoel (stefannieswanepoel@yahoo.co.uk)

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Hemp production has been prohibited in the country since the early 1900s, although South African hemp research trials have been ongoing since the 1990s. The increased global interest in hemp is fuelled by the need to find alternative sustainable materials and its nutritional and medicinal benefits. While other countries have begun removing restrictions on hemp production to investigate its potential, South Africa is still to realize any benefits from investment in research. This study aims to unearth the barriers – both obvious and more hidden – in an effort to contribute to overcoming them and realising a viable, inclusive and sustainable hemp industry in South Africa. A qualitative research approach was employed, informed by grounded theory methodology. Utilizing multiple methods including a literature review and semi-structured interviews with 16 key stakeholders. The first article explores the visible barriers. These barriers are legislation, the desire for hemp to contribute towards solving South Africa’s socioeconomic challenges, the lack of clarity about whether hemp production would be commercially feasible in South Africa, and, the model it would follow. The lack of a clear vision from government for the industry in terms of its desired socioeconomic contribution and commercial feasibility is identified as the biggest stumbling block. The second article highlights the ‘invisible’ barriers, including the differing expectations and vision for the industry, the existing silo mentality, dispersed and misdirected funding streams, absence of a public champion, and industry fatigue. The study intends to provide an accurate reflection of the industry and open up discussions about alternative ways forward.
Investigating the challenges and opportunities of traditional medicine:
Case study Tanzania

Shaun Dunn

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Co-supervisor: Claude Mung’ong’o (claude_gasper@yahoo.com)

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Traditional medicine is still widely practised in many developing countries, and is an important part of cultural life in Tanzania. There are heightened challenges that face the traditional medicine sector. These include the appropriation of the benefits that could be derived from traditional medicine knowledge and products as well as factors like climate change, habitat loss for medicinal plants that make it harder to practise traditional medicine. A better understanding of the various benefits and challenges faced by those who practise and seek out traditional medicine in Tanzania will help ensure that traditional medicine contributes positively to sustainable development. The two objectives of the study were firstly, to investigate what were the challenges to and benefits of traditional medicine in Tanzania and secondly, to explore the experiences of rural and urban traditional healers with regard to the challenges and benefits of traditional medicine. The main finding was that traditional medicine is widely available, affordable and has multiple benefits. For Tanzanian’s, traditional medicine was an important primary health care option often was linked to culture. Another finding indicated that while there were regulations governing the practice and use of traditional medicine; many healers remained unregulated in their practise of it. Some challenges included theft of plants, inadequate conservation and unsustainable use of biodiversity as well as irregular rainfall which impacted on its accessibility and availability to healers. The main outcome of the study was that traditional healers needed support from the government in terms of infrastructure and the protection of biodiversity. The contribution of this study would hopefully assist communities to engage with government to address challenges facing traditional medicine as well as working with government to harmonise the current legal framework with the Nagoya Protocol for the protection of traditional medicine.
Food security and the informal economy in South Africa: The state of knowledge and perspectives from street-food traders in Khayelitsha

Etai Even-Zahav

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MPhil Programme in Sustainable Development Planning and Management

There is a need to re-evaluate the global food security (FS) agenda; from small-farmer production, towards a ‘complex food systems perspective’; from hunger to malnutrition in all its forms; from the dichotomy of ‘farm’ and ‘fork’, to the impact of an increasingly consolidated food value chain. The current FS agenda is anachronistic, having little to say urban dimensions of food security because of these traditional foci. Over half of humanity lives in cities where lack of food access, not availability is the key determinant of food insecurity. Most urban food security research however imposes the ‘farm’ or ‘fork’ agenda, failing to grasp the food value chain’s ‘missing middle’ and the food environment central role in prescribing who gets to eat what, when and how. While Big Food dominates food retail sector in formal settlements, in informal ones, a hybridised formal-informal food system exists. It has been convincingly shown that informal food economies offer a key food utilisation and access node across cities in the global South, including South Africa. In light of these assertions, this research systematically reviewed contemporary literature on what is known about the informal food economy in South Africa. It found a deeply fragmented literature, steeped in technoscientific evaluations, but missing human-centred accounts. This research then undertook an ethnographic apprenticeship with street-food traders in an informal settlement to evaluate their everyday lived experiences, constraints and desires. The findings challenge much of what is assumed about this economy and its relationship with food security.
Informing Responsible Investment Practices through Environmental, Social and Governance Analysis: A Perspective from South African Broad-Based Black Economic Empowerment and Transformation Disclosure

Delene Francis Taute
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MPhil Programme in Sustainable Development Planning and Management

Responsible Investment (RI) is a continually growing and changing space that encompasses institutional investors, asset managers, companies and financial service providers in South Africa and abroad. This thesis aims to contribute to the fields of sustainability and RI, explore best practices and frameworks informing RI practices, to highlight the obstacles to RI in South Africa, to explore the disclosure of a purposefully selected sample of Johannesburg Stock Exchange (JSE) listed companies, and to improve the disclosure of listed companies in South Africa in order to inform the process of environmental, social and governance (ESG) inclusion in investment decision-making.

The broad problem relates to the obstacles to RI, namely the 1) qualitative nature, poor quality and inconsistency; and 2) incomplete and non-disclosure of ESG data available in the market, combined with a general lack of understanding of ESG issues and impacts, that leads to a failure to adequately interpret, incorporate and integrate ESG factors into investment decision-making. This problem is researched by exploring Broad-Based Black Economic Empowerment (B-BBEE) and transformation disclosure within South African listed companies to determine the nature of the disclosure (whether it is qualitative or quantitative in nature) as well as the availability, quality, and consistency of the disclosure. The main findings of this thesis indicated that the analysis of the impact of ESG issues on company performance is problematic when companies are selective in their ESG disclosure; disclosure is a pre-requisite for quality performance analysis; and the approach to, and absence of, disclosure highlights investment risks that cannot be evaluated.
Exploring shared value and open innovation approaches in the context of Broad-Based Black Economic Empowerment (B-BBEE): Enterprise Development

Riyaadh Mohamed
Supervisors: Alan Brent (acb@sun.ac.za)
Co-supervisor: Pieter van Heyningen (pieter@sustnet.com)

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This study was motivated by the Amended Codes of Good Practice 2013 and its aim of being more supportive towards entrepreneurship and the diversification of value chains. The research study seeks to investigate whether shared value and open innovation approaches may be adopted by large South African companies as an Enterprise Development (ED) strategy. Shared value is a concept and practice propagated by Michael Porter and Mark Kramer from Harvard Business School. Open Innovation is a concept and practice propagated by Henry Chesbrough from MIT Sloan Business School. The primary objective was to identify whether these approaches had been adopted by companies in the context of ED. The research employed a qualitative approach and data was analysed using content analysis techniques. A focus group discussion, which included practitioners who engage with ED, was held to assess the relevancy and suitability of the research area and method. Interviews were conducted with managers who engage in ED. The objectives of the interviews were to investigate how large companies approached ED as well as identify whether share value and open innovation approaches had been adopted. The focus group discussion results provided an indication of the relevancy of the research area and made recommendations which strengthened the research design. The interview results identified elements of shared value and open innovation approaches being adopted in the context of ED. In conclusion, the results of the study indicate that approaches from the shared value and open innovation concepts may be used for purposes of developing an ED strategy.
The Dynamics Influencing Progress Towards Responsible Investment: A Process Study of CRISA’s Agency

Cecile Feront
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Co-supervisor: Jess Schulschenk (jess@sustainabilityinstitute.net)

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Changes in investment strategies and capital flows are needed in order to support a transition to a sustainable economy. However, despite the rise in popularity of the concept of responsible investment, the pace of change within the investment industry appears slow and disconnected from sustainability challenges. In the context of a process study, the research investigates the dynamics influencing progress towards responsible investment, the effectiveness of supporting institutional strategies and assesses the agency of the Code for Responsible Investment in South Africa (CRISA). Providing insights into the multi-level dynamics influencing progress towards responsible investment, the research's conceptual framework reveals that the current implementation of responsible investment is unlikely to shift investment practices in time to support a sustainable economy. The dynamics of change are too slow relative to the time horizon to generate a meaningful transformation. In South Africa, empirical findings indicate that the agency of the Code for Responsible Investment in South Africa (CRISA) is limited and difficult to substantiate. Except for a few leaders, the industry is characterised by an instrumental and discretionary approach to responsible investment. The outcome of the research challenges the strategies used so far to promote responsible investment. The research advances that unless the regulatory environment offers conceptual clarity and takes a consistent stance in support of the sustainability imperative, the Code for Responsible Investment in South Africa (CRISA)’s agency on the dynamics of change in South Africa is likely to remain limited, inconsistent and temporarily disconnected from the problems it tries to address.
The green economy within an emerging new cosmology perspective: rethinking sustainability

Michele Maynard
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MPhil Programme in Sustainable Development Planning and Management

The concept of the ‘green economy’ was revived as a result of the recent global financial crisis of 2007-2011, with no clear international definition, meaning, or usefulness for policy implementation. The financial crisis has been interpreted in many different ways, with multiple solutions proposed about sustainability. However, the different analyses and discourses on the green economy have remained dualistic. The (green) corporate industrial capitalist growth economy has, thus, continued to be the dominant discourse with little shift to considerations of sustainability. This study provides a philosophical-conceptual analysis on the various identified discourses on the green economy, namely, green revolution, green transformation, green growth, green resilience, developmentalism and just transitions. This cosmological analysis of the different discourses aims to address the dualisms found in scientific (historical) materialism and to provide an alternative vision and discourse on the green economy and sustainability. The scientific method of a rational discursive dialectic has been the dominant methodology under postmodernism, whereas this study aims to broaden this to include more intuitive, imaginative, speculative and visionary aspects. New insights from an emerging new cosmology and the discourse on integral ecology, together with the emerging new discipline of archetypal cosmology, provide a critique of the underlying assumptions found in the current discourses on the green economy. In addition, an emerging new archetypal cosmology provides a new philosophy, cosmology and consciousness in the journey towards rethinking sustainable futures.
Methods of engagement:
A transdisciplinary learning approach (in words and pictures) to the problem of the Eerste River

Gwendolyn Meyer

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Co-supervisor: Eve Annecke (eve@sustainabilityinstitute.net)

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This discussion is concerned with global ecological stress and an arguable need for resilience particularly in African cities, which face increased resource pressure from urbanization. Using the persistent crisis of the Eerste River in Stellenbosch as a lens with which to view the splintered nature of this African town, the river crisis is situated as a wicked, persistent problem with relevance in the Anthropocene. To address it, this research examines sustainability as a social movement, and foregrounds ideas of imagination, complexity and relationships. The river is framed as part of a larger social-ecological knowledge environment of a watershed, a common Thing, which is complex and diverse. The discussion examines the communication tool of photography as a boundary object to connect these diverse networks and strengthen local resilience. However, when trying to apply a co-production of knowledge approach in the vulnerable or slow variable of the system, using participatory photography, power imbalances surfaced. The Enkanini ecologically designed Research Centre was a research base and the novel methods of walking and conversation become ways of knowing the territory, and becoming known. These methods enabled relationship building for the participatory photography workshop with residents of Enkanini. When the photographs were publically exhibited, a novel outcome of a visual public ethnography of place emerged. Here the agency of the visual activated a public. This strengthened local identity, if only fleetingly within the slow variable of the system.
Towards a “new moment” in Life Sciences Education: mainstreaming critical complexity thinkers in South African secondary schools

Gerard Noel

Supervisor: Eve Annecke (eve@sustainabilityinstitute.net)
Co-supervisor: Robin Murray (raferguson1965@gmail.com)

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The global polycrisis is an epistemological crisis that has been created by an industrial, mechanistic and reductionist way knowledge creation. As our knowing informs our way of being and acting in the world, this study attempts to answer the call for urgent educational reform in promoting a critical complexity approach to Education for Sustainable Development (ESD). Using the South African Life Sciences curriculum and a theoretical framework developed through literature on complexity theory, systems theory, ecoliteracy and ESD, a pedagogical experience entitled the Working with Nature (WWN) project was developed. Six diversely different secondary schools from the Western Cape participated in this project which through participatory action research, explored the effect that it had on the thinking, values and knowledge of both teachers and learners. From a thematic analysis on the emergent narratives, it was found that that the learning experience did promote integrative thinking and value tendencies and that there was growth in both the explicit-formal and explicit-informal knowledge typologies of the participants. Other key themes that emerged were: diversity values, grit and resilience and contextual thinking. Themes that were more teacher specific were process rather than product learning and learner-centeredness. The implications of this research suggest that mainstreaming a critical complexity learning experience is possible and that perhaps this may be the start of a transitioning towards a “new moment” in Life Sciences education, which translates not only into ESD, but also a complexity ethic – creating mindful teachers and learners who engage and participate in the world sustainably.