

**SCHOOL OF PUBLIC LEADERSHIP**

**COLLOQUIUM**

**MPHIL IN SUSTAINABLE DEVELOPMENT  
PLANNING & MANAGEMENT**

**10 & 11 NOVEMBER 2014**

**SUSTAINABILITY INSTITUTE, LYNEDOCH**



# PROGRAMME

MONDAY 10 NOVEMBER 2014

## SESSION 1

<b>09:00 – 09:15</b>	<b>WELCOME</b>
09:15	Natural building in South Africa: Assessing the niche-regime relationship through a 'latent niche' mediation <b>Eamonn O'Rourke</b>
09:35	<i>Discussion</i>
09:45	Utility-scale Renewable Energy Job Creation: A Critical Analysis of the South African Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) <b>Sarah Stands</b>
09:05	<i>Discussion</i>
10:15	Fish-farming In South Africa: A study of the market and the product of choice <b>Alain Mahieu</b>
10:35	<i>Discussion</i>
<b>10:45 – 11:15</b>	<b>TEA</b>

## SESSION 2

11:15	Towards an inclusive green economy for South Africa: Engaging with the informal economy <b>Suzanne Smit</b>
11:35	<i>Discussion</i>
11:45	An analysis of the role of impact assessment legislation in facilitating sustainable development: A case study of Tanzania <b>Emanuel Alfred</b>
12:05	<i>Discussion</i>
12:15	Quantifying Food Plate Waste: Case Study of a University Dining Facility <b>Allan Alooh</b>
12:35	<i>Discussion</i>
<b>12:45 – 14:00</b>	<b>LUNCH</b>

## SESSION 3

14:00	Assessment of the Community Wildlife Management Partnership: a case study of Uganda Wildlife Authority and local communities around Mount Elgon National Park, Uganda <b>Hamidah Namatovu</b>
14:20	<i>Discussion</i>
14:30	"God has Locked the Sky": Exploring Traditional Farming Systems in Tigray, Ethiopia <b>Nava Derakhshani</b>
14:50	<i>Discussion</i>
15:00	Measuring household food security status in Taraba State, Nigeria: Comparing Key Indicators <b>Chinweoke Ike</b>
15:20	<i>Discussion</i>
<b>15:30</b>	<b>TEA &amp; END OF DAY ONE</b>



**TUESDAY 11 NOVEMBER 2014**

<b>SESSION 1</b>	
09:00	Integrating Aquaculture with Crop Systems: An Aquaponic Enterprise Project Proposal for the Ntinga Multipurpose Co-Operative in Philippi, South Africa <b>Marnus van der Merwe</b>
09:20	<i>Discussion</i>
09:30	Money for eating: Everyday urban food insecurity in Lusaka, Zambia <b>Frances Davies</b>
09:50	<i>Discussion</i>
10:00	Turning points: Exploring power transitions in an incremental upgrading process in Enkanini, Stellenbosch <b>Berry Wessels</b>
10:20	<i>Discussion</i>
<b>10:30 – 11:00</b>	<b>TEA</b>
11:00	A Study on the sustainable infrastructure of the Songdo City Project: From the Viewpoint of the Metabolic Flow Perspective <b>Insoo Baek</b>
11:20	<i>Discussion</i>
11:30	On my watch: a review of environmental education literature, with particular reference to South Africa and South African teenagers <b>Robin Murray</b>
11:50	<i>Discussion</i>
<b>12:00 – 12:15</b>	<b>CLOSING REMARKS</b>
<b>13:00</b>	<b>BRAAI</b>



**Natural building in South Africa:  
Assessing the niche-regime relationship through a 'latent niche' mediation**

Eamonn Christopher O'Rourke  
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**MPhil Programme in Sustainable Development Planning and Management**

The South African natural building movement is examined to determine the systemic influences that confine it to a small market operating at the edge of the building sector. The term '*latent technological niche*' is defined and examined as a technology with sustainability credentials that fails to break into the mainstream market, despite achieving technological maturity and constant though minimal market share. The research objectives of this thesis are to: (1) identify pathways for the natural building niche to move beyond its latent state; and (2) to determine how the translations of natural building practices to the building sector might occur. Two methodological approaches are applied. The first employs a critical review of articles and topical books on natural building and transition theory. Seven internal processes were identified as important indicators of a technology ready to break into the mainstream market. The second employs an action research method, referred to as a '*latent technological mediation*' to examine the natural building movement as a case study. Twenty individuals from natural building, regulation development and enforcement, and influential institutions participated in a process of facilitated 1<sup>st</sup> and 2<sup>nd</sup> order social learning. The aim was to identify the external forces acting on and internal processes of, the natural building movement. The action research findings suggest the seven internal processes of the movement are weakly developed and may explain its delayed entry into the mainstream building sector. The findings of this research suggest that the mainstream building sector is undergoing a transition of socio-technical transformation.



## **Utility-Scale Renewable Energy Job Creation: An investigation of the South African Renewable Energy Independent Power Producer Procurement Programme (REIPPPP)**

Sarah Reed Stands  
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The South African Government developed the REIPPPP to ensure the implementation of Green Economy and job creation policies, while mitigating the current power crises with the short lead times of RE technologies. Current South African literature is ambiguous when discussing the legitimacy of the REIPPPP and the overall understanding of the programme and its associated outcomes in terms of job creation, are therefore, vague. A need therefore exists to unpack the quantitative job creation submissions of the REIPPPP and to carry out an investigation into the opportunities and challenges associated with meaningful job creation. Through a non-linear iterative exploratory design, hinging on the researcher's position within industry, this empirical research comprises of two components. Firstly, a literature study informs the development of a meaningful job creation framework which is used to analyse the programme's bid documentation and publicly available data. Secondly, mixed-methods are utilised to collect quantitative data from the DoE and qualitative data from job creation stakeholders. The result is an enriched understanding of the REIPPPP in terms of meaningful job creation, identifying trends, similarities and unexpected outcomes across methods. The study concludes that the programme does create meaningful jobs yet data is misaligned and currently unavailable to the public. Secondly, since job creation is a feature of South African Government development policy, a more robust emphasis is required in the REIPPPP weighting and auditing process, which includes further research of intended benefits and suggested improvements to align job creation data.



## **Fish-farming In South Africa: A study of the market and the product of choice**

Alain Mahieu

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Global fish populations have experienced staggering declines as a result of excessive, wasteful and in some cases unregulated fishing practices. It has in fact been noted that over half of the known fisheries around the world are over exploited. Aquaculture, and in particular fish-farming, has begun to show much potential as a method of producing sustainable sources of fish. Whether this can be utilized in the South African context is a challenge that needs to be verified. Without a thorough understanding of the challenges and opportunities, and which fish should be used, fish-farming is unlikely to be successful in South Africa and it may become a missed opportunity. This research, which is presented as two articles, explores the potential for developing the fish-farming industry in South Africa, and recommends suitable species. This research aims to enhance the literature base on fish-farming in South Africa, as well as provide further evidence on what the true potential is for fish-farming in South Africa. The analysis revealed that the fish-farming industry and the cultivatable species in South Africa are met with an array of opportunities and challenges. Overcoming these challenges will open the doors to exploit the opportunities made available by a thriving fish-farming industry in South Africa.



## **Towards an inclusive green economy for South Africa: Engaging with the informal economy**

Suzanne Smit

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The informal economy is a vibrant and growing phenomenon, offering both opportunities and lessons on resilience and innovation. Within the context of sustainable development and poverty eradication, connecting the green economy to the informal economy is imperative. This paper therefore analysed the notion of an inclusive green economy for South Africa. The initial investigation indicated an absence of literature that connected the two seemingly disconnected fields, thus indicating a gap that required further investigation. The central research objective for this paper was to explore the range of possible connections between the green economy and in the informal economy in South Africa, whilst identifying a number of barriers, opportunities and possible support mechanisms at different levels of organisation. The research questions were approached from multiple perspectives. The study was informed by the grounded theory methodology, which supports the use of multiple methods, including content analysis, surveys, interviews and observations, in order for a theory to emerge from the data. The results indicate that despite a number of potential connections, the level and quality of engagement are generally inadequate. It is therefore argued that an inclusive green economy in the South African context requires a new 'lens' for considering the role and value of the informal economy. Such a broader conceptualisation may thus lead to a more informed and enabling policy and planning environment, which may be more conducive to socially equitable and environmentally sustainable development.



## **An Analysis of the Role of Impact Assessment Legislation in Facilitating Sustainable Development: A Case Study of Tanzania**

Emanoel Alfred

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This study explored the effectiveness of impact assessment and related legislation in contributing to sustainable development, by looking at Tanzanian legislation on impact assessment and related laws that claim to promote sustainable development and measuring them against the literature and comparative cases of other countries. The main objective was to make recommendations, based on the findings, on how to improve this legislation, in order to be more effective at promoting sustainable development. It was found that many of the key factors which are required to promote sustainability were lacking in Tanzanian legislation and practices. There is a lack of proper integration and coordination mechanisms; very little strategic and long-term planning which take note of complexity and systems thinking; no meaningful stakeholder participation; as well as a lack of good governance and the rule of law, especially as it relates to enforcement. The study recommended different measures to be taken to improve legislation, including the review of existing legislation in terms of their efficiency in integrating sustainability dimensions into the decision-making process. Also important was the introduction of mechanisms to promote participation of stakeholders, as well as benefit-sharing, social equity and poverty alleviation. The drafting of a separate NSSD was suggested, based on the five pillars of sustainability, and the proposed Sustainable Development Goals (SDG's) of the United Nations. Linking various policy documents was also suggested, as this can increase coherence and convergence and help ensure effective implementation, while at the same time minimise overlaps, potential conflicts and duplication of efforts.





## Quantifying Food Plate Waste: Case Study of a University Dining Facility

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Food Plate Waste (FPW) generated from University dining facilities contributes extensively to consumer food waste and is recognised as the highest component of overall food losses and waste. Lack of fairly accurate data on the quantity and composition of FPW has contributed to inefficient waste minimisation measures. The current study assessed the magnitude, financial cost, causes and level of awareness of FPW in a University dining facility at Stellenbosch University. Results on quantity and cost of FPW were presented in two levels: *only* those students with plate waste and the *entire* dining facility. 41% of the total student diners left FPW which amounted to 19.66 kg per day. Mean plate waste was  $40.42 \pm 2.05$  and  $6.35 \pm 1.25\%$  per day, among students who left FPW and the entire dining facility, respectively. Cost of FPW averaged R480.78 per day. Poor food taste was reported as the single largest cause of FPW followed by poor appearance and inappropriate temperature. 89% of students expressed their awareness of FPW as a problem while >75% believed that FPW is a problem in the halls of residence. Sixty and 39% of respondents left FPW or booked meals but never showed up to dine, respectively. These results indicate that while the magnitude of plate waste for the entire dining facility may be low, the high level of plate waste among students who had plate waste is undesirable. While students may be aware of the negative consequences of FPW, providing regular information to remind them to act in ways that mirror their awareness is key to curbing FPW. These results provide initial and valuable insights into FPW dynamics and hence offer a starting point for discussion on designing and implementing FPW reduction measures within University dining facilities.



## **Assessment of the community wildlife management partnership: A case study of Uganda Wildlife Authority and local communities around Mount Elgon National Park, Uganda**

Hamidah Namatovu

Supervisor: Francois Theron (Francois.theron@spl.sun.ac.za)

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Although Community Participation (CP) in Africa dates back to colonial times, it is more oriented towards embracing indigenous knowledge systems. CP in Collaborative Wildlife Management (CWM) should be more than embracing indigenous knowledge since it encourages self-reliance, community empowerment, capacity-building, social learning and sustainability among community members. The study describes how CWM was implemented in Ulukusi, a community neighbouring Mount Elgon National Park. It assesses livelihood strategies before and after the implementation of CWM. The study further identifies wildlife management strategies that would embrace the needs of the local community and Uganda Wildlife Authority (UWA). To achieve these objectives open ended questions were developed and administered through household and key informant interviews, focus group discussions and observations. Study findings indicate that the implementation of CWM led to the signing of a Resource User Agreement (RUA) which restricted resource harvest and Park access. CWM promoted a good working relationship between UWA and the community. Findings further indicate that CWM was inappropriately implemented considering the fact that UWA used a top-down approach to influence the signing of the RUA. This is evident in that communities did not directly participate in decision-making. In order to promote sustainable wildlife management, communities should participate in decision-making since they are affected by the mismanagement of wildlife. UWA should integrate indigenous knowledge into its management policies; promote continuous sensitisation meetings to empower community members. Above all, for any development to embrace stakeholders' needs, UWA should integrate the "building blocks" of development to promote conflict resolution.



**“God has locked the sky”  
Exploring Traditional Farming Systems in Tigray, Ethiopia**

Nava Derakhshani

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The Tigray region in northern Ethiopia is a historic centre of agricultural production where many subsistence farmers still use traditional farming systems and practise rain-fed agriculture. Natural resources farmers rely on including soil, water and trees have declined. This study sought to explore traditional farming systems of Tigray and to comprehend its environmental degradation through both a literature review of its agricultural socio-political history and a lived experience in the village of Abraha We Atsebaha among farmers of the village. The first journal article explores how Ethiopians have shaped their natural environment. It focuses on deforestation, soil degradation, governance and land-ownership change, and climate change. It demonstrates that traditional farming systems do not operate in isolation from their socio-political and environmental context. The second journal article provides an in-depth narrative inquiry conducted in Abraha We Atsebaha. Ethno-ecological *cosmos-corpus-praxis* guidelines were used to enable an integrated exploration of traditional farming, the causes of environmental deterioration and the resultant communal response. Both articles discuss government development work in the rural farming sector and the successes and challenges faced. They also show that elements of traditional farming, sustainability measures and environmental care were suspended in favour of short-term survival, due to social, political and population stressors. This study contributes to the small pool of literature on the region on traditional farming systems by providing a comprehensive overview of the drivers of degradation (historical and current) and offers a unique, experiential narration of a village allowing insight into farmer experiences, pressures and adaptation efforts.



## Measuring household food security status in Taraba state, Nigeria: comparing key indicators

Chinweoke Uzoamaka Ike

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The proposed Sustainable Development Goal of achieving food security requires comprehensive measurement for proper identification of the food insecure, the severity of food insecurity, its causes, and progress in reducing food insecurity. In the absence of a 'catch all measurement tool', comprehensive measurement of food security remains challenging due to its multidimensional nature, as all four dimensions (availability, access, utilisation, and stability) need to be achieved simultaneously. This study therefore identified how the three most widely used food security indicators, the Household Food Insecurity Access Scale (HFIAS), Dietary Diversity Score (DDS) and the Coping Strategies Index (CSI), can complement one another in capturing the multiple dimensions of food security. The study brought the three indicators together in one cross-sectional household survey of 409 randomly selected households in Taraba State, Nigeria. The results show that 69 percent of households in Taraba had a very low food security status, 23 percent had low food security, and 8 percent had high or marginal food security. About 34 percent of the households used erosive coping strategies. The analysis showed a significant difference ( $P < 0.01$ ) in DDS and CSI across HFIAS categories. The very low food security category is characterised by the lowest food diversity and highest CSI, revealing that the depth of food insecurity is intense among the extreme group. The study demonstrated that these three indicators can be used together for a fuller understanding of the relationships between the different dimensions of food security, and recommended more research in using complementary food security indicators.



## **Integrating Aquaculture with Crop Systems: An Aquaponic Enterprise Project Proposal for the Ntinga Multipurpose Co- Operative in Philippi, South Africa**

Marnus van der Merwe  
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Stellenbosch University's Aquaculture Division was approached to assist with developing a techno-financial model for an urban freshwater aquaculture system in Philippi, Cape Town. Rapidly growing urban areas are predominantly becoming concentrated zones for malnutrition and poverty which require attention. Having enough food to eat does not mean that a family is food secure, the problem is usually associated with the lack of access to nutritious food. Fish is seen as an extremely healthy food which has the potential to effectively support food security and alleviate malnutrition. Aquaculture is identified as a largely underdeveloped sector in South Africa. It is currently undergoing rapid transition, being promoted by government as an industry that has potential to develop and create jobs, provide food security and grow the South African economy. Aquaponics- a method to integrate aquaculture with growing crops in a symbiotic system is a highly resource efficient closed-integrated food producing technology which has the potential to benefit from South African biosecurity regulations and climate-geographic characteristics. It is viewed as an effective food production alternative to deal with the challenges of declining high quality freshwater resources and available arable land. It was identified that that a major lack of training and capacity building withholds the development of aquaponic technology. This study argues why aquaponics should be developed, reviews and assesses the fundamental principles of aquaculture and hydroponic production and management required to approach aquaponics. The study is concluded with a techno-financial project proposal which shows how aquaponic systems can be planned.



## **Re-thinking urban food security: an analysis of the everyday negotiations of food access in Lusaka, Zambia**

Frances Davies

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Based on qualitative work in Lusaka, Zambia, this analysis argues for acknowledgment of the lived experiences of urban food (in)security. A critical assessment of the dominant food security agenda in southern Africa is discussed in reference to the grounded understanding of a food insecure family living in an impoverished neighbourhood of Lusaka. Illustrations of the deeper empirical context of urban scaled food insecurity are examined from a feminist perspective. This identifies the gendered embodied experiences of crafting food security in the inequitable urban environment. Individual agency shapes alternative food security strategies that contain purpose, meaning and identity, beyond simplistic notions of food access and consumption. This speaks to the lived reality of negotiating food security that is currently unrecognised, and in some cases occluded from dominant misogynistic and neoliberal-centred food security perspectives. In contribution to the urban food security discourse in southern Africa, it is argued that the embodied realities of the inequitable urban and global food system need to be taken seriously. It highlights the role that individual agency plays in determining everyday food strategies. Urban scaled food security responses and the food system governance processes that underpin these need to understand ways to support the critical agentic interactions that are deeply embedded within the daily lives of urban food system actors. Lessons are drawn from theory outside narrow food security discourse that speaks to alternative inclusive governance processes. This offers an alternative paradigm for urban food security work in Zambia and the wider region.



## **Turning Points: Exploring power transitions in an incremental upgrading process in Enkanini, Stellenbosch**

Berry Wessels

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The research question for this transdisciplinary research study is as follows: if it is accepted that the locus of power needs to shift from government to citizens during the incremental upgrading of informal settlements, then how can the co-production of knowledge contribute to this shift? The formulation of this question was based on three observations made during the three-year study period conducted in the informal settlement of Enkanini, Stellenbosch. First, residents and local government expressed a power dynamic in a political form and as self-help strategies by residents. This led to a process of capacity building. Secondly, the co-production of knowledge allowed understanding to occur between residents and researchers. Thirdly, reflexivity on both the loci of power and the space from “within” allowed for a strategy of engagement to occur. The themes of “capacity”, “understanding” and “engagement” were produced by three respective interdependent methodologies that formed the framework of this study. They are transdisciplinary research, indigenous research and reflexive research. Their interdependency was conceptualised in the notion of co-arising. Co-arising formed the mechanism within this methodological triad that analysed data and experiences as turning points to produce results. The results of this study were identified as “agency”, “empowerment” and “identity”. The Enkanini Research Centre Association acted as the final product of this thesis built upon the notion of co-arising to shift the locus of power. The study concluded in an Enkanini research paradigm that may act as a window for future research to develop Enkanini towards a sustainable human settlement.



## **A study on the sustainable infrastructure of the Songdo city project: from the viewpoint of the metabolic flow perspective**

Insoo Baek

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The increasing role of cities and its negative effects has led to the necessity of sustainable cities. To ensure sustainability in cities, urban infrastructures play a vital role to achieve decoupling in the urban context. In this regard, the thesis attempted to conduct the case study of Songdo, one of the sustainable cities in South Korea. The main objective of this is to explore the overview of the New Songdo City (NSC) project and describes its sustainable urban infrastructures. Then it examines the material flow of inputs and outputs of the city in order to reveal their sustainability and suggests a guideline for the realisation of sustainable cities. Quantitative and qualitative methodologies are used to assess and compare the material and energy flow trends for this city. The findings show that, on average, Songdo consumes more resources than other cities in South Korea, on a per capita basis. It reflects the high-income households' consumption patterns in Songdo. In addition, one could see that the sustainable networks have merely contributed to the overall consumption. The findings from this study can be used to formulate sustainable development policies and strategies in terms of increasing the efficiency of resource and energy use in urban areas. Furthermore, this research is expected to provide a platform in terms of the realisation of sustainable cities by highlighting the important role of urban infrastructures and their material resource flow.





## **On my watch: a review of the environmental education literature with particular reference to South Africa, and South African teenagers**

Robin Anne Murray

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About half a million students matriculate from South African high schools each year, with limited environmental education and an underdeveloped capacity to live sustainable lives. This does not seem to be the case in some other parts of the world, where many high school students appear to be receiving education that is relevant to the socio-ecological crisis. The rationale of this thesis was to understand this phenomenon and explore what could be done to improve the situation for South African teenagers. This was a desktop study based upon systematic literature review design and methodology. The primary research objectives were to describe the local context of the study, explore emerging environmental education theoretical themes and detail a number of practical initiatives from around the world. The research process culminated in the fourth objective, which was to consolidate the work into key learnings for South Africa, with particular reference to South African teenagers. Among other key learnings, the value of the radical perspective is presented, as well as the benefit of perceiving environmental education through the lenses of history, social geography and psychology. It is suggested that the theory and praxis of place-based education exerts a gravitational pull on many aspects of this work. It seems that place-based education provides a “holding space” for environmental education in South Africa, and a starting point for future research or practical application.

