

**SUSTAINABILITY RESEARCH UNIT
GEORGE CAMPUS**

**Research Output Report
2010**



ENTITY LEADER : Prof Christo Fabricius

Mission / purpose

The Sustainability Research Unit (SRU) was established in 2009 and develops the capacity for the sustainable management of ecological, social and economic systems through user-inspired research, training and policy-related work. The SRU raises awareness of sustainability issues amongst stakeholders. The Unit will bring together decision makers and researchers from various institutions such as Universities, local municipalities and the private sector to address challenges collaboratively, thereby adding value to existing expertise and financial resources.

The SRU focuses on four related activities:

1. Develop useful information systems and models, based on good science, to enable decision makers to understand the long term consequences of land and water use plans, policies and strategies;
2. Provide scientific information about the causes, impacts, consequences and good ecosystem management practices related to climate change;
3. Develop and implement practical strategies that can promote sustainability in urban development, tourism, agriculture, forestry, fisheries, and biodiversity conservation, and to promote the sustainable long term use of land and water and sustainable food production;
4. Offer training courses to raise the awareness of decision makers at all levels of the impacts of climate change, what can be done about it, and which practices should be avoided.

The principles guiding the SRU's work are:

- It takes a long term approach, inspired by the principles and practices of resilience and adaptive co-management;
- The users (decision makers and resource users) must inspire the work;
- Resources (funds and expertise) must be pooled;
- Approaches must be inter-disciplinary, with a strong "evidence-seeking" focus because of the complex nature of the challenges being addressed and the high levels of uncertainty;
- Its impact must build the capacity of government, municipal and civil society decision makers through data collection, awareness creation, learning, training and implementation.

Alignment with the vision and mission of the NMMU

With the SRU focus being on the provision of scientific information and the development of useful information systems and models and practical strategies to promote sustainability, the unit aligns itself with the NMMU vision of generating cutting edge knowledge for a sustainable future. The principles guiding the SRU, and in particular its inter disciplinary approach to complex challenges of high level uncertainty furthermore align the SRU with the NMMU vision.

The SRU's offering of training courses for example the conservation biodiversity stewardship and extension course and their involvement in events such as the International Erosion Control Association Conference and various research projects (Tierkop Research Project) guided by the principles of inter-disciplinarity, awareness creation, learning, training and implementing align the research unit focus and principles with the NMMU mission of offering a diverse range of quality educational opportunities. The sustainability focus and attention to building capacity of government, municipal and civil decision makers will make a critical and constructive contribution to regional, national and global sustainability as prescribed by the NMMU mission.

Governance structures

Governance structure meetings

The SRU reports to the George Campus Academic Board, and this is functioning well.

Staff members

The current members of the SRU include, Prof Christo Fabricius (leader), Ms Bianca Currie (Lecturer, PhD researcher), Dr Wietsche Roets (Research Associate, water resources specialist), Ms Jeanette Pauw (part-time Lecturer, statistician), Dr Suzanne Milton (Research Associate). Two new members, Professor Raymond Auerbach and Prof Victor Mmbengwa, joined the SRU in 2010.

Goals / Targets for the year under review

The major SRU aims for 2010 were a) To raise student awareness, b) Establish an environmental forum on campus, and c) Raise funds for sustainability research.

Strategies employed to achieve goals / target

Strategies employed to achieve the above mentioned goal of raising student awareness include the facilitation of student organised events for example the Green Campus Awareness Week. Presentations to the student body was also used as a strategy, for example the Green Campus Initiative. The media was also used for raising awareness amongst students and the wider community. Live radio broadcasts of student and staff interviews related to sustainability issues and efforts to improve campus sustainability were conducted.

In order to establish an environmental forum on campus a Green Campus Forum was initiated and managed by the student body. The forum is aimed at providing students with a platform to raise and drive student inputs and concerns relevant to the Green Campus Initiative. It also provides a platform for student engagement with one another and encourages student participation in the Green Campus Initiatives on campus.

Fund-raising has been only partially successful. A successful proposal to NRF for Community Engagement research has raised funds for a post-doctoral scientist, two Masters, one PhD and two BTech projects over three years, plus running expenses, and recruitment is going ahead. Additional NMMU funding for a post-doc researcher was received, and a proposal has been submitted for additional running expenses. SANPAD has allocated a capacity development grant to Bianca Currie. Discussions took place with Dept of Water Affairs: NRM about a service agreement for research and capacity

development. A joint proposal with Rhodes University was submitted to the DST Global Change Grand Challenge and the outcome is awaited.

Outputs

Official launch event of the SRU

The SRU was officially launched on the 28th of September 2010. The launch aimed to bring together decision makers and researchers from various institutions, creating a platform to interact and help continue building and developing the SRU. Work groups were formed to determine actual steps and process to further develop the unit. The event was attended by various industries, government departments and institutions in the country and included a key note address by Dr. Guy Preston, the national programme leader for the Working for Water Programme. Priorities for research were identified by the stakeholders present and a workshop report was compiled and circulated.

Hosting of various conferences and forums

The SRU facilitated and hosted several events namely the international Erosion Control Association Conference and two South Cape Wetland Forum meetings. The SRU also acted as host for three Garden Route Initiative (GRI) meetings. Prof Mmbengwa convened a workshop attended by a large group of emerging livestock farmers from Thembalethu, where a plan for future collaboration was developed. All events were well attended by a diversity of national and local entities. Christo Fabricius participated in two NRF Complexity Research initiative meetings, in Stellenbosch and Pretoria respectively, and Bianca Currie joined the NRF Akili Young Scholars group.

Green Campus Awareness Week

The first student-driven Green Campus Awareness Week was facilitated on the George Campus. The event included a stand display manned by communications students, live radio broadcasts, several competitions and a week of invasive alien plant removal on the campus grounds and surrounding areas. The event was well attended by NMMU students and was successful in raising awareness of the Green Campus Initiative and its associated projects (Tierkop Research Project, NMMU Recycling, Men on the Side of the Road Urban Agricultural Project).

Synthesis of Tierkop Sustainability Research Project results and year-end report

The Tierkop Sustainability Research Project was successfully initiated with the installation of two green technologies (rainwater harvesting system and solar geyser) in three of the six identical student residences at Tierkop. Data was captured throughout the year which was analysed and reported on. The findings were used to create awareness amongst the students on the NMMU George Campus.

NMMU Recycling Pilot Project

The NMMU George Campus recycling pilot project was initiated on campus. This involved the establishment of mini recycling depot points at strategic locations around the campus grounds for example the library and recreational centre. A central recycling depot point was also established for the appropriate separation of waste generated on campus. The pilot project also involved staff and student training.

Vermiculture and Composting Project

As part of the NMMU George Campus Recycling programme a vermi-culture operation and composting facility was developed. A site for both operations was identified and both a wormery and compost heaps were established. Organic waste generated on the campus grounds and in the kitchens are being used to produce vermi-compost, vermi-tea and compost. Both sites are utilized for teaching and learning purposes as well as contributing the sustainable operations on campus.

Stewardship and extension course

The second offering of the Conservation Biodiversity Stewardship and Extension Course was facilitated during 2010. The course was attended by stewardship officials from conservation agencies (Cape Nature, Wilderness Foundation, Eastern Cape Parks), governmental departments (City of Cape Town), private consultancies (Londoloza Consulting) and NMMU students from the School of Natural Resource Management.

Men on the side of the road urban agricultural project

A collaborative project with the non profit organisation, Men on the Side of the Road (MSR) has been entered into. The focus of MSR is to provide a structure to facilitate employment of the unemployed in the Garden Route. The partnership is aimed at addressing food insecurity amongst the unemployed in the George area by establishing an urban organic vegetable garden at the MSR site. The project was organised and managed by NMMU B.Tech Environmental Education students and resulted in the establishment of a garden and the roll out of a training programme for the members of the organisation.

Various media outputs including radio interviews on sustainability issues

Several pre scripted fifteen minute interviews as well as three, three-hour, fully scripted live broadcasts from the George campus were conducted during Open Day and the Green Campus Awareness Week. The focus was primarily on the George Campus sustainability initiatives, exemplified by the special projects/campaigns of students, the details of which are provided in the summary table of the outputs (Annexure A).

Several media releases and caption stories were compiled and issued during 2010, all which have been used by the media and posted on the NMMU George website, communicated to staff via the George Noticeboard and staff newsletters. Details of which are provided in the summary table of the outputs (Annexure A).

Self assessment of achievement of goals / targets

Upon reflection of the aims for 2010 provided above, it is felt that student awareness raising and the creation of an environmental forum has been achieved however requires further development in the up and coming years. In terms of raising funds, the allocation of an NRF Community Engagement Grant was a good start and it is anticipated that this will lay the foundation for rapid growth in the SRU, by enabling the establishment of a core research team of post-docs and post-graduate students.

Highlights and special achievements

The highlights of the year were the increase in peer reviewed papers and conference presentations, the SRU's launch, and the allocation of 3 years' NRF funding. The SRU is also making significant progress with community engagement as demonstrated by the many radio talks, community workshops and press releases during 2010.

Finances

Financial statements

	2010	2011
Opening Balance	29 000.00	41 222.62
Publication Fees 2008/2009	30 498.00	13 907.00
TSIBA	-325.00	
A Blackenberg	-3 500.00	
Bergsig B&B	-330.00	
Waltons	-793.67	
Elite Hire	-1 940.00	
Catering KKS	-11 386.71	
Closing Balance	41 222.62	55 129.62

Mandatory Summary for Senate

During 2011 the SRU focused on two key objectives: creating the impetus for a broader student Green Campus movement, and raising additional enabling funds. Both objectives were achieved with the establishment of a student organization, and the successful application for NRF Community Engagement Research funds for three post-graduate students and two post-docs. Significant progress was made with establishing national and international research networks with good prospects for additional funding. The SRU was highly successful with community engagement, with five talks on the local community radio station (Eden FM), hosting several community workshops on sustainability, and publishing at least 15 press releases on sustainability issues, all of which found their way to the SRU web site www.nmmu.ac.za/sru. SRU members published five peer reviewed academic papers and one book chapter during 2010, and co-organized one international and two national conferences. Five conference presentations were delivered by members, including one keynote address at a national conference and an invited paper at an international conference. The SRU is alive and well.

RESEARCH OUTPUTS/ACTIVITIES 2010

OUTPUTS/ACTIVITIES	NO	DETAILS	STAFF INVOLVED
CONFERENCES			
International Conferences	1	Co-hosted the International Erosion Control Association Conference (organizing committee)	B Currie, F Koch
National Conferences	1	Co-hosted two South Cape Wetland Forum meetings (organizing committee)	B Currie
	3	<ol style="list-style-type: none"> 1. Fabricius, C. 2010. Building the adaptive capacity of farmers at the threshold. <u>Invited keynote address</u>: Grassland Society of Southern Africa conference, Kimberley 2. Fabricius C. 2010. Slowly losing ecosystem services: the troll under the bridge. Invited paper, International Erosion Control Association (IECA), George 3. Fabricius C. 2010. Capacity Development for Ecosystem Management. Garden Route Initiative Inaugural Meeting, George. 	C Fabricius
	3	<ol style="list-style-type: none"> 4. Roets W. 2010. Climate Change - Wetlands - Healthy Aquatic Ecosystems. Paper presented at the Southern Cape Wetlands Forum, NMMU Campus. 2 September 2010. 5. Roets W. 2010. Climate Change: Implications for Erosion and Sedimentation. Paper presented at the Annual Conference of the "International Erosion Control Association Southern Africa Chapter" (IECA-SA), NMMU George Campus, 29 September to 1 October 2010. 6. Roets W. 2010. Development Planning in response to Climate Change. Paper presented at Development of Coastal Setback Lines, Stellenbosch Seminar/Workshop - 21 & 22 October, University of Stellenbosch: Civil Engineering. 21-22 October 2010 (Continual Professional Development points 2). 	W Roets
JOURNAL ARTICLES			
	5		
		Lombard, A. T., R. M. Cowling, J. H. J. Vlok, and C. Fabricius . 2010. Designing conservation corridors in production landscapes: assessment methods, implementation issues, and lessons learned. <i>Ecology and Society</i> 15 (3): 7. [online] URL: http://www.ecologyandsociety.org/vol15/iss3/art7/	C Fabricius
		Cundill, G. and Fabricius C. (2010). Monitoring the Governance Dimension of Natural Resource Co-management. <i>Ecology and Society</i> 15 (1): 15. [online] URL: http://www.ecologyandsociety.org/vol15/iss1/art15/	C Fabricius
		Lagabrielle E., Botta A., Dare, W.; David, D., Aubert S. and Fabricius, C (2010). Modelling with stakeholders to integrate biodiversity into land-use planning - Lessons learned in Réunion Island (Western Indian Ocean). <i>Environmental Modelling and Software</i> 25 (11): 1413-1427.	C Fabricius
		Fabricius C. and Cundill G. 2010. Building adaptive capacity in systems beyond	C Fabricius

		the threshold: the story of Macubeni, South Africa. In: Armitage D. and Plummer R. (Eds). <i>Adaptive capacity in Environmental Governance</i> . Springer Verlag.	
		Mmbengwa, V.M. , Jan A. Groenewald, Mazuru B. Gundidza, Herman D. vanSchalkwyk and Azwiangwisi N. Maiwashe, 2010. Critical assessment of the performance and sustainability of Land Bank customers among emerging farmers in South Africa. <i>African Journal of Business Management</i> Vol. 4(13), pp. 2753-2762	Victor Mmbengwa
MEDIA OUTPUTS			
	5	<p>EDEN FM PARTNERSHIP 2010 Fifteen minute interviews – all pre-scripted for total message management Three three-hour, fully scripted live broadcasts from the George campus – during Open Day; as part of the Closing Date Campaign; as well as the Green Campus Awareness Week, where the focus was primarily on the George Campus sustainability initiatives, exemplified by the special projects/campaigns of students.</p> <p>EDEN FM 18 August 2010 - 13h15 Martin Loubser Sustainable use of resources on the George Campus – Green Campus Initiative 08 September 13h15 Prof Raymond Auerbach Organic farming and how it fits in with the Green Campus Initiative 29 September 13h15 Bianca Currie Sustainability research Unit & Green Campus Initiative 27 October 13h15 Prof Victor Mmbengwa Thembalethu peri-urban farmers project – workshop at NMMU George Corporate Overview), 23 July (Closing Date focus: corporate), 22 October (Green CAW, students, marketing – green issues) – Bianca Currie</p>	<p>B Currie</p> <p>M Loubser</p> <p>R Auerbach</p> <p>B Currie</p> <p>V Mmbengwa</p> <p>B Currie</p>
	15	<p>MEDIA RELEASES COMPILED AND ISSUED: February – November 2010 4/11 Box cart race – Green CAW – full page in regional supplement – Suid-Kaap Motorgids – 60 000 copies 29/10 NMMU George students in invasive alien clearance 21/10 Thembalethu Peri-urban Farmers Workshop at George Campus 8/10 Green CAW – programme, invitation to public 7/10 Sustainability Research Unit Launched at NMMU George 23/9 Two high-profile conferences at NMMU George 10/9 Recycling implemented at George Campus 8/9 King of the Compost Heap (in co-operation with Prof Auerbach) 7/9 Seminar organic agriculture 1/7 International Scholarship won by lecturer, Bianca Currie 1/7 George students/lecturer involved in men on the Side of the Road</p>	<p>B Currie R Auerbach</p>

		Project 21/5 Eden FM live broadcast as part of Open Day event 6/4 Boost for Green Technologies at NMMU George – Tierkop Research Project 7/4 Sustainable campus initiative 4/3 Unique stewardship extension course (SLP) offered at NMMU George	
<u>ACADEMIC ENGAGEMENT</u>			
	4	Tierkop Sustainable Living Research Project end of year synthesis report Official SRU Launch Event Organic Agriculture Seminar Thembaletu Farmers Workshop	B. Currie, F Koch, C Fabricius R Auerbach V. Mmbengwa
<u>COURSES</u>			
	1	Conservation Stewardship and Extension Course	B. Currie
<u>OTHER</u>			
	4	Green Campus Awareness Week NMMU Recycling Pilot Project Launch Establishment of Vermiculture project Men on the Side of the Road Urban Agriculture Project	B. Currie B. Currie, M Loubser B. Currie B. Currie