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Metropolitan  
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# **‘Greening’ NMMU: Perceptions of staff and students Short report**

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## **INTRODUCTION**

Climate change is one of the greatest challenges the world has ever faced, and will affect NMMU and all its stakeholders in the future through a combination of associated physical, regulatory, economic and market related risks. The issue of climate change has never been higher on the agenda than now. Locally, the South African Government has released a long-term mitigation strategy and is planning to release a white paper on climate change during 2010, with a full regulatory, fiscal and legislative climate change policy by 2012. South Africa has recently committed to the Copenhagen Accord and has set an internal emissions reduction target to reduce the country's current emissions baseline by 34 percent by 2020 and 42 percent by 2025 (Mundy 2009). At international level, governments are defining their levels of reduction and the Intergovernmental Panel on Climate Change continues to launch new reports outlining deterioration in climatic conditions.

A rise of 2°C in global temperatures, the point considered to be the threshold for catastrophic climate change which will expose millions of people to drought, hunger and flooding, is now considered "very unlikely to be avoided" (IPCC 4<sup>th</sup> Assessment Report 2007). Coupled with the physical impact of climate change is the additional financial driver of ever increasing energy and water costs, waste costs through landfill tax charges and the increasing cost of fuel.

To minimise NMMU's exposure to climate change related risks, the University should be proactive and develop a comprehensive environmental management system that comprises a detailed climate change strategy and carbon management plan. Moreover, NMMU has the opportunity to support a sustainable society by incorporating environmental principles into their qualifications and conducting 'green' research. In the process students will develop the knowledge, skills and values that society needs for real progress towards a low carbon economy of the future.

## **RESEARCH OBJECTIVES**

In light of the above, the researchers set out to:

- ♦ determine the perceptions of a representative sample of staff and students on environmental management at NMMU, incentives for 'going green', 'green' education and research at NMMU and 'green' practices whilst on campus.
- ♦ investigate significant differences in the perceptions of NMMU students on these topics based on gender, the faculty in which the student is registered, level of study (undergraduate or postgraduate), campus where the student is studying and whether the student is living off campus or in a University residence / student village.
- ♦ determine significant differences in the perceptions of NMMU staff on these topics based on gender, age, level of education, job description (administrative or academic) and the campus where the staff member is working.
- ♦ investigate significant differences in the perceptions of staff and students on environmental management at NMMU, incentives for 'going green', 'green' education and research at NMMU and 'green' practices whilst on campus.
- ♦ To provide recommendations to the NMMU Council on the process and the framework whereby NMMU can 'go green'.

## **RESEARCH DESIGN AND METHODOLOGY**

A total of 326 students and 252 staff members participated in an online survey in August 2009.

### **Student sample**

Slightly more than half of the students participating in the survey (54.1%) were female. Most of the students that responded to the survey (54.0%) were between 18 and 21 years of age. The majority of students were either registered in the faculty of Business and Economic Sciences (30.4%) or the faculty of Science (22.1%). The large response from students registered in the Business and Economic Sciences faculty is not surprising considering that the majority of students enrolled at NMMU (29.5%) are registered in this faculty (NMMU Student Profile 2009).

### **Staff sample**

More female staff members participated in the survey (57.9%) and the majority of respondents (59.9%) were older than forty years. There was an equal split between academic and administrative staff which included, amongst others, staff from the various faculty offices, library, technical services, marketing and corporate relations and horticultural services. The majority of academics who responded to the survey were employed in either the Science or Business and Economic Sciences faculties. More than half of the respondents worked at the Summerstrand South campus (54.0%) and most held a postgraduate degree (63.1%). Data from the NMMU Staffing Profile (2009) suggest that this sample is a fairly good representation of the staff population at NMMU in that most staff employed at the University in 2009 were females and based at the Summerstrand South campus.

## **SUMMARY AND CONCLUSIONS**

### **Student perceptions on 'greening' the University**

Students at NMMU perceived the conservation of the natural environment as very important. They had a great deal of respect for plant and animal life on campus, although some commented that the monkeys created a nuisance. Students felt strongly about maintaining plant and animal biodiversity on campus as well as establishing NMMU as a leader in environmental management among local universities and organisations.

Most students recognised that they have an impact on the natural environment and expressed their willingness to work towards mitigating this impact. At the time of the survey many students were already actively promoting good environmental management principles among their peers. Half of the students participating in the survey felt that 'green' initiatives will save the University money and will not be too expensive to implement. Although only a few students were involved in programmes aimed at conserving the natural environment on campus, a large percentage indicated their willingness to participate in such programmes, especially if incentives were offered. The most prolific suggestions for 'green' incentives involved money, competitions and prizes.

Students attached a high value to integrating selected environmental management topics into existing modules and developing dedicated modules, particularly those topics relating to 'green' design and construction, environmental law, ecological ethics and 'green' IT. In respect of 'green' research at NMMU, one in four students in this sample had already conducted such research in the 12 months leading up to the survey. A large percentage of students also expressed their willingness to do 'green' research if more opportunities and funding were made available to do so.

Students generally considered the natural environment in their daily activities whilst on campus. Ninety percent of students tried to conserve water whilst on campus while most kept doors closed between air-conditioned and non conditioned spaces. In addition many students switched off lights where possible and re-used scrap paper for notes. Most students staying in University residences / student villages were serious about conserving water, but seldom switched off lights or unplugged appliances that were no longer needed. This is a disconcerting finding, given the high cost of electricity.

Significant differences were observed in the perceptions of students based on gender, faculty, level of study, campus and whether the student lived on or off campus:

- ♦ Female students have generally become more aware of their impact on the natural environment, while male students placed more value on incentives to motivate them to become 'greener' in their daily activities.
- ♦ Students registered in the Science faculty placed a higher value on maintaining plant and animal biodiversity on campus. Science students were significantly more in favour of integrating environmental management topics that fall outside their immediate field of study into existing modules, compared to Business and Economic Sciences students. Science students were also more interested in conducting research on 'green' topics, especially if funding was made available.
- ♦ Undergraduate students were more active in promoting good environmental management principles among their peers than postgraduate students.
- ♦ Students studying at the Summerstrand South campus had more respect for plant life on campus and also attached more value on incorporating 'green' topics into existing modules than students studying at Second Avenue campus.
- ♦ Students from the faculties of Arts and Business and Economic Sciences were the least likely to engage in 'green' actions whilst on campus (particularly when it came to switching off lights and using water sparingly).
- ♦ Students living off campus were more concerned about the conservation of the natural environment on campus than students living in University residences / student villages and also had more respect for animal life on the campus.

The high response rate of students offering suggestions on how NMMU can become a 'greener' University suggests that students are aware of the need for University to 'go green'. Many students stated that NMMU should be innovative in dealing with environmental management issues, by for example, harnessing wind and solar power to generate electricity for use on campus. Students called for more awareness campaigns to educate stakeholders about the consequences of climate change. They also requested more opportunities to participate in 'greening' activities (such as recycling) on campus. They suggested that the University place more emphasis on commemorating national and international environmental awareness 'days' and provide electronic tips on 'going green'. Students also raised

considerable concern about the inefficient water and energy usage on campus citing that “cement is watered” and lights are left on unnecessarily.

### **Staff perceptions on ‘greening’ the University**

As in the case of students, staff at NMMU felt that it was very important for the University to become a leader in the field of environmental management in South Africa. Staff expressed their willingness to work towards this goal by participating in ‘green’ initiatives on campus and many were already actively promoting good environmental management principles among their colleagues and students.

The majority of staff members were of the opinion that ‘green’ initiatives would save the University money and would not be too expensive to implement. Awards for initiatives to protect the natural environment and competitions among faculties and departments for ‘green’ status were highlighted as incentives that would motivate staff to become ‘greener’ in their daily activities on campus. Other initiatives suggested by staff included money and prizes as well as opportunities to participate in decision making processes on environmental management at NMMU. A large number of staff in the sample also stated that they do not need any incentives to ‘go green’ and merely called for more awareness and education about environmental management issues. This finding corresponds with an earlier report at the erstwhile UPE in 1996 on the attitudes and opinions of students and staff toward the environment (Fullard, Gilbert, Lahav & O’Brien 1996).

Very few of the academics who participated in the survey presented modules that incorporated environmental management topics in 2009. As could be expected most of these modules were offered in the Science faculty. In line with the students’ responses, academics viewed the most important ‘green’ topics to be incorporated into existing modules and to be developed into dedicated modules as those dealing with ‘green’ design and construction, environmental law and ecological ethics. Academics called for more Government funding for the development of dedicated ‘green’ modules as well as a full undergraduate qualification in environmental management. This finding suggests that academics are not well informed on the range of environmentally orientated modules that already exist at NMMU. Academics were generally willing to present ‘green’ topics / modules, although several requested support to increase their knowledge on selected topics.

Regarding ‘green’ research at NMMU only 26 percent of academics who responded to the questionnaire had done such research in the twelve months leading up to the survey. Most academics were however of the opinion that conducting ‘green’ research at NMMU was important. Several academics called for more funding to enable them to do research into environmental management topics.

Staff members, both academic and administrative, performed various ‘green’ activities on campus to mitigate their impact on the natural environment. Many were actively conserving water and switching off lights where possible. They also re-used scrap paper and recycled paper even though hardly any facilities are available on campus to do so. Several staff also raised concerns about inefficient energy management on campus and called for funding to implement alternative energy sources on campus. Staff furthermore requested infrastructure that would allow them to make double sided prints and copies.

Significant differences in staff perceptions were identified based on gender, age, educational level, job description, faculty, and campus:

- ♦ Males showed a greater interest in NMMU's reputation as a leader in environmental management in South Africa compared to females. Males have also become more environmentally conscious in the 12 months leading up to the survey. Female academics attached more value to incorporating environmental management topics into existing modules and also thought it was more important that support and development opportunities be made available to enable them to present 'green' topics / modules. At the time of the survey, males engaged in more 'green' activities whilst on campus than females.
- ♦ Older staff members, particularly those older than forty, were more concerned about conserving the natural environment, placed a higher priority on maintaining plant and animal biodiversity on campus, had a greater realisation of their impact on the natural environment, engaged in more 'green' initiatives on campus and were more willing to be involved in 'green' programmes at NMMU.
- ♦ Staff possessing a postgraduate degree was more likely to promote good environmental management principles among their peers and students. They also perceived maintaining plant and animal biodiversity on campus as more important than less qualified staff.
- ♦ Compared to academics, administrative staff had become more aware of their impact on the natural environment in the twelve months leading up to the survey. Academics were however more concerned about maintaining plant biodiversity on campus and were also more active in promoting good environmental management principles among students. Concerning incentives, administrative staff was more likely to be motivated by 'green' awards than academic staff who might be more encouraged by intrinsic motivators.
- ♦ Academics in the Science faculty attached less value to integrating environmental management topics into existing modules and developing dedicated modules at undergraduate level compared to their peers in the Business and Economic Sciences faculty. Academics in the Science and Business and Economics Sciences faculties were more interested in conducting research in the field of environmental management than academics in other faculties.
- ♦ Staff employed at Summerstrand North campus was more skeptical about the financial benefits of implementing an EMS at NMMU compared to staff working at the Summerstrand South and Second Avenue campuses. Academics from Summerstrand South campus showed greater interest in conducting research on 'green' topics provided that funding and development opportunities were made available.

### **Significant differences in staff and student perceptions**

A number of significant differences in the perceptions of staff and students were observed. Staff members felt more strongly that 'greening' the NMMU would save the University money, while students were more active in encouraging their peers to engage in 'green' activities. Staff showed more respect for animal life and attached more value to maintaining animal biodiversity on campus.

Students were more motivated by incentives for 'going green' than staff which raises some moral concerns. Compared to students, lecturers viewed incorporating environmental management topics into existing modules as more valuable, especially when it comes to topics such environmental reporting (accounting), environmental economics and ecological ethics. Academics were also more in favour of developing a dedicated module in

environmental economics than students. It should be noted that such a module actually already exists in the Faculty of Business and Economic Sciences. Students generally wanted all NMMU lecturers to incorporate environmental management topics into modules at both undergraduate and postgraduate level.

Compared to students, academics perceived it as more important that 'green' research be conducted at NMMU. Students were however more willing to conduct research on environmental management topics, particularly if incentives were offered to do so. Staff members participated in more 'green' actions than students whilst on campus. This might be attributed to the fact that staff has more access to facilities that allow them to do so (for example access to printers that can print on both sides of a page).

## RECOMMENDATIONS

In terms of **'green' education** at NMMU the following recommendations are made:

- ♦ A link should be placed on the 'carbon footprint webpage' of the NMMU intranet outlining the details of environmentally-orientated modules that are currently offered at the University. The existence of these modules suggests that a great deal of expertise is already available within NMMU and that better communication and collaboration are needed to create awareness of 'green' issues. Information sharing will also lead to improved interdisciplinary teaching and learning.
- ♦ Academics should integrate the following topics into existing modules (as far time and credit values allow): 'green' design and construction, environmental law, ecological ethics, 'green' IT, environmental journalism, environmental economics and environmental reporting (accounting).
- ♦ An investigation should be undertaken into developing dedicated modules on the following four environmental management topics: 'green' design and construction, ecological ethics, environmental law and 'green' IT. This should best be done at programme level to avoid duplication.
- ♦ An investigation should be undertaken into developing a specialised undergraduate qualification in environmental management. Given that a number of modules dealing with environmental management are already offered at NMMU, close cooperation at faculty level is required. Particular attention should also be given to the needs of private practice as well as competitive qualifications offered at other South African universities.
- ♦ Responsibility should be assigned to a particular academic or support department within NMMU to develop workshops and training sessions on various 'green' topics. This department should also be responsible for inviting knowledgeable guest speakers in the field of environmental management.

Regarding **'green' research** at NMMU, the following recommendations are made:

- ♦ A link should be placed on the 'carbon footprint webpage' of the NMMU intranet, highlighting details of 'green' research projects undertaken at the University. This 'database' will showcase interesting projects and allow for information sharing across faculties and campuses.
- ♦ A link should also be placed on the 'carbon footprint webpage' of the NMMU intranet containing details of research grants and bursaries in the area of environmental management.
- ♦ The development of a 'green' researcher of the year award should be discussed at the faculty and NMMU Research, Technology and Innovation (RTI) committees.

As NMMU funds are increasingly being allocated to research projects that are in line with faculty and NMMU 'research themes', researchers are encouraged to familiarise themselves with these themes when applying for funding internally.

With regard to '**green**' engagement with stakeholders it is recommended that NMMU staff investigate opportunities to conduct research and present 'green' awareness campaigns in communities surrounding NMMU campuses.

To be an effective change agent, NMMU has to get its own house (i.e. **internal operations**) in order first. To do so it is recommended that NMMU develop a comprehensive environmental management system (EMS). The EMS, which requires top management's full commitment, should consist of a climate change strategy and carbon management plan. The purpose of a climate change strategy will be to guide managers in formulating an effective response to the challenges posed by climate change and to align the University with Government's objectives to reduce South Africa's greenhouse gas emissions significantly within the next decade. Developing a tailored climate change strategy in conjunction with specialist consultants will allow NMMU to:

- ♦ Assess and manage the physical risk of climate change to NMMU.
- ♦ Develop academic/private/government partnerships that help demonstrate NMMU's environmental commitment.
- ♦ Develop and articulate a clear position and objectives related to climate change.
- ♦ Respond to changing staff, student and stakeholder attitudes and demand patterns, higher or fluctuating prices of inputs such as energy and water as well as actions by other local universities.
- ♦ Respond to changing stakeholder and community priorities in relation to climate change, by developing stakeholders' understanding of climate change and the impact thereof. This would serve the public good and allow NMMU to place its climate change initiatives in a favourable light.
- ♦ Generate revenue by exploring opportunities to grow revenue streams through 'green' qualifications, modules and short courses, whilst offering 'green'-related products/services to public and private enterprises.
- ♦ Create new opportunities for sponsorships and academic/private partnering through 'green'-related research and consulting.
- ♦ Improving market opportunity by building capacity to succeed in a low carbon economy, firstly by attracting students, and thereafter preparing them appropriately through 'green'-orientated module content.

Creating a tailor-made carbon management plan will provide a framework that NMMU can apply to maximise environmental outcomes and drive business benefits in relation to energy and greenhouse gas management as well as waste reduction. NMMU's carbon management plan could be applied to decision making processes having regard to the specific economic, technological and social considerations of each situation. Other benefits of developing a carbon management plan will include:

- ♦ Managing the University's carbon emissions footprint.
- ♦ Implementing energy efficiency and emission reduction opportunities.
- ♦ Reducing input costs by driving energy, water and efficient materials consumption.
- ♦ Reducing business risk by reducing exposure to increasing energy costs, possible future carbon prices and future regulation.
- ♦ Developing greenhouse gas indicators to measure and track performance over time.



- ♦ Developing systems to capture greenhouse gas data.
- ♦ Setting targets to drive improvement in indicators to ensure continual improvement.
- ♦ Preparing for impending carbon related legislation.
- ♦ Displaying environmental leadership and enhancing the Universities reputation.
- ♦ Generating revenue through the development of carbon projects within NMMU's asset portfolio or on NMMU property.

In developing the university-wide EMS, attention should be given to recommendations of Fabricius and Du Preez (2009) as well as the recommendations of staff and students who participated in this survey (the full report is available from the authors). Finally, responsibility should be assigned to a particular academic or support department within NMMU to develop a 'green' employee of the year award and facilitate 'green' competitions between faculties, departments and residences. This department should also be responsible for creating greater awareness of 'green' initiatives, infrastructure and programmes at the University.

*"It's not that hard. Lets stop talking...and actually start doing!"*

## **REFERENCES**

Fabricius, C & Du Preez, E. 2009. Towards integrated sustainable energy management at NMMU. June, [Online] Available: <http://my.nmmu.ac.za/default.asp?id=1488&bhcp=1> [Accessed 1 August 2009].

Fullard, J.P.P., Gilbert, C., Lahav, N. & O'Brien, M. 1996. Attitudes and opinions of students and staff towards the Summerstrand campus environment at the University of Port Elizabeth. Unpublished research report, University of Port Elizabeth, Port Elizabeth.

Intergovernmental Panel on Climate Change (IPCC) 4<sup>th</sup> Assessment Report. 2007. [Online] Available: [http://www.ipcc.ch/publications\\_and\\_data/publications\\_and\\_data\\_reports.htm#1](http://www.ipcc.ch/publications_and_data/publications_and_data_reports.htm#1) [Accessed 1 November 2009].

Mundy, S. 2009. SA surprises with pledge of 42% emissions slowdown. Business Day, 8 December, [Online] Available: <http://www.businessday.co.za/Articles/Content.aspx?id=88994> [Accessed 8 December 2009].

NMMU Staffing Profile 2009. 2009. Data provided by Mr B. McGuire, Human Resources Information Services, NMMU. Excel sheet available from the researchers.

NMMU Student Profile 2009. Data provided by Ms M. Voges. CPID Management Information, NMMU. Excel sheet available from the researchers.