

STUDENT PERCEPTIONS

INTRODUCTION

Climate change is the greatest challenge humanity has ever faced. The scientific consensus, reflected by recent reports from the Intergovernmental Panel on Climate Change (IPCC), is that the earth's climate is warming and that greenhouse gas emissions from human activity are responsible for most of the increase in global average temperature.

The impact of this increase in global surface temperature can be observed in increases in extreme weather, altered precipitation patterns, sea level rise, reduced snow cover and shrinking sea ice. These consequences can in turn threaten the survival of millions of plant and animal species, threaten food and water security and create an increased potential for conflict due to resource scarcity.

The role of higher education institutions in creating a sustainable future through its different facets namely education, research, operations and community engagement cannot be understated. It is after all the people coming out of the world's best colleges and universities that are leading us down the current unhealthy, inequitable, and unsustainable path. In the light of the above it was deemed necessary to gauge the perceptions of students and staff with regard to 'green' education and research at NMMU, incentives for 'going green' and 'green' practices at NMMU. Thus a survey was conducted during August 2009 of which the findings are presented here.

STUDENT SAMPLE DESCRIPTION

In total 326 students participated in the survey. Slightly more than half of the students participating in the survey (54.91%) were female. Most of them (53.99%) were between 18 and 21 years of age. The majority of students were either registered in the faculty of Business and Economic Sciences (30.37%) or the faculty of Science (22.09%). Almost eighty percent (79.45%) were undergraduate students and 61.35 percent studied at the Summerstrand South Campus. The majority (76.69%) stayed off campus and the rest (23.31%) lived in a University residence or student village.

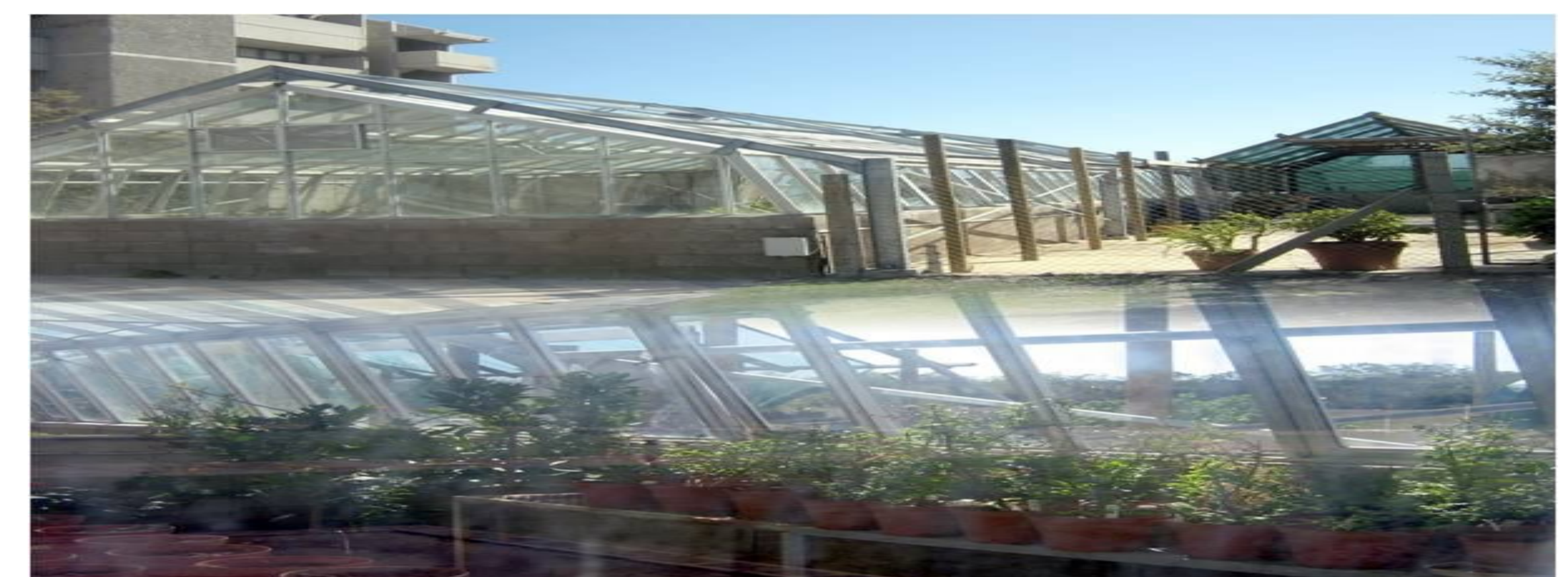
ENVIRONMENTAL MANAGEMENT AT NMMU

The conservation of the natural environment at the various NMMU campuses was perceived as very important by the student respondents. Most students were of the view that 'greening' NMMU was a "great idea" and that more should be done as soon as possible to implement an environmental management system. The majority of students indicated that they respect plant life (89.27%) and animal life (84.61%) on the NMMU campus where they study. Their positive attitude toward the natural environment is reaffirmed by their responses to statements dealing with the protection of the natural environment and maintaining plant and animal biodiversity on campus. It is also very important to students that NMMU becomes a pioneer in the field of environmental management in South Africa.

Slightly more than two thirds of students (68.88%) recognised that they have an impact on the natural environment of the NMMU campus where they are studying. Furthermore, 67.39 percent of students felt that participating in 'green' initiatives would not be too much effort for them. A similar percentage of students (62.3%) expressed a willingness to be involved in a student society / programme geared toward conserving the natural environment. These findings indicate students' awareness of and willingness to mitigate their impact on the natural environment. However very few students (only 8.59%) were involved in such programmes in 2009. Students participating in this survey (58.57%) also actively promoted environmental management principles among their peers.

Almost 52 percent of the students thought that 'greening' initiatives will save the University money and nearly half (47.22%) thought that it would not be too expensive to implement environmentally friendly initiatives.

One of the first initiatives at 'greening' the University was declaring the erstwhile UPE (now Summerstrand South Campus) a private nature reserve in 1983. Internationally recognised environmentalist and researcher, Prof Graham Kerley was instrumental in this regard. In 1995, the Grysbok Environmental Education Trail on the Summerstrand South Campus was also designed to act as an environmental education and recreational resource for the University and the broader community.



INCENTIVES FOR 'GOING GREEN'

The study revealed that incentives could play a pivotal role in motivating students to become more environmentally friendly whilst on campus. Two thirds of students in this sample (66.36%) expressed a willingness to engage in 'greening' actions at the University if incentives were offered. Incentives such as competitions between residences or faculties for 'green' status were seen as particularly important in encouraging students to become 'greener' in their daily activities. The majority of students (55.56%) furthermore indicated that a recognition-based award such as a " 'Green' student of the year award " would motivate them to become more environmentally sensitive.

The following is a summary of the suggestions made by 166 NMMU students (this represents one in every two students participating in the survey). This high response rate is an indication of the interest that students have in 'greening' the University.

- Almost 60 percent of students that gave their suggestions stated that competitions, prizes or money will motivate them to become more environmentally sensitive in their daily activities.
- Other popular proposals were competitions for 'green' status among residences and faculties. Prizes for these competitions included money, bursaries, NMMU merchandise (such as T-shirts), vouchers that can be used at the cafeteria or to purchase books as well as certificates that can be included as part of their CVs.

It should be noted that the most prevalent incentives that were mentioned by students all related to money, suggesting that this is seen as a major driver for change. The fact that so many students suggested one or other form of monetary compensation for changing their behaviour raises a moral dilemma. Although it could be argued that students are always cash strapped and in search of means to supplement their income, it could also be argued that true behavioural change should come from a mindset shift and not as a result of financial incentives being offered.



STUDENT PERCEPTIONS (cont...)

'GREEN' EDUCATION

Of the 326 students who participated in the survey, less than a fifth (19.02%) were enrolled for at least one module that included environmental management topics in 2009. Students felt that integrating 'green' topics such as 'green' design and construction, environmental law, 'green' IT and ecological ethics into existing modules would be valuable. The same situation prevailed in terms of developing dedicated modules on environmental management topics. Topics dealing with 'green' design and construction and environmental law were seen as the most valuable in both cases followed by 'Green' IT and ecological ethics. Almost two thirds (64.24%) of students thought developing an entire qualification in environmental management would be 'valuable' or 'extremely valuable'. Students also felt strongly about the Government's role in funding the development of dedicated environmental management modules and even a full qualification in environmental management.

'GREEN' RESEARCH

Less than a quarter of NMMU students (only 23.31%) have done research on an environmental management topic in the 12 months leading up to August 2009. However it is evident from the statistics that NMMU students place a high value on 'green' research being conducted at the University and would be willing to do so if more opportunities were available. Almost 74 percent of the respondents 'agreed' or 'strongly agreed' to the statement "It is important to me that 'green' research is conducted at NMMU."



'GREEN' PRACTICES/OPERATIONS

The 'green' practices that were performed the most by students pertained to water usage on campus. More than 86 percent of students closed taps properly after using them and 80.13 percent only opened taps minimally when using them. Students mentioned the inefficient use of water on campus stating that "cement gets watered instead of plants" and watering takes place at the hottest times of day when most of the water evaporated quickly.

A large percentage of students (70.16%) stated that they keep doors closed between air conditioned and non-conditioned spaces. When asked if they re-use used paper, 65.71 percent responded that they did it 'frequently' or 'always'.

Furthermore, 56.12 percent of the student sample indicated that they turn off lights where possible. Students suggested that NMMU be innovative in conserving energy by making use of alternative energy sources such as harnessing wind power to generate electricity. Students also commented widely on the inefficient use electricity on campus citing that lights are left on when not needed.

Some questions were only directed at students staying in University residences / student villages. These students tried to conserve water by not leaving water running while they brush their teeth. Despite their efforts to conserve water these students did not care much about conserving energy. They failed to switch off lights or make use of natural light. The energy wastage of this group of students is a major concern and more awareness, maybe in the form of energy saving competitions between residences, is needed to address this problem.

The majority of students who gave their opinions in an open-ended question called for awareness campaigns and more student involvement in 'green' initiatives. Many stated that training sessions or seminars could be effective in raising awareness. Some also suggested the use of nature walks on the Summerstrand South Campus (which is a private nature reserve) as a possible mechanism for raising awareness. The second most prolific suggestion pertained to establishing an effective and widely publicised recycling program on campus. Students requested that recycling bins be placed strategically to reduce the effort of recycling.

NMMU has been making moves in the right direction. The construction of a 'green' library on the Missionvale Campus is a praiseworthy initiative. When completed, this library will be one of the first buildings in South Africa to use new environmentally friendly technology such as a lighting system that makes use of sensors to control lighting levels inside the building. The new library will also be equipped with carbon dioxide sensors in the ventilation system to ensure energy efficiency. The Summerstrand South Campus library is also being upgraded to make it a more environmentally friendly building. 'Green' building efforts also extend to the construction of a 'green' Business School on Second Avenue Campus.

SIGNIFICANT DIFFERENCES IN STUDENTS' PERCEPTIONS

Significant differences were identified in students' perception based on gender, faculty in which the student is registered, level of study, campus where the student is studying, and whether the student lived off campus or in a University residence.

Female students were more aware of their impact on the natural environment on campus while their male counterparts indicated that they would be more motivated by a 'green' research of the year award to engage in 'green' activities. Male students were also more in favour of incorporating environmental management topics existing NMMU modules.

Students in the Science faculty had more respect for plant and animal life on campus and attached more value to maintaining plant and animal biodiversity on campus. They were also more in favour of 'green' education and more willing to undertake research on environmental management topics. Students in the Arts faculty engaged in fewer 'green' practices on campus compared to Science and Business and Economic Sciences students.

In terms of level of study undergraduate students were more concerned about promoting good environmental management principles among their peers than postgraduate students

Students studying at Summerstrand North Campus were more concerned about conserving the natural environment than Second Avenue students. South Campus students had more respect for plant life on campus than students at other campuses and were also more in favour of incorporating environmental management topics into NMMU curricula.

Students living off campus were generally more aware of and concerned about the natural environment than those living in University residences / student villages. They were also more in favour of 'green' education at NMMU and expressed a greater willingness to conduct 'green' research.

STAFF PERCEPTIONS

STAFF SAMPLE DESCRIPTION

In total 252 staff members participated in the survey. Of this number 57.94 percent were female and almost sixty percent were older than forty years of age. 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. Most of the academics who responded to the survey were employed in either the Science or Business and Economic Science faculties. More than half of the respondents worked at the Summerstrand South Campus (53.97%) and most held a post-graduate degree (63.10%). Of the six NMMU campuses most of the staff respondents (53.97%) worked on the Summerstrand South Campus followed by 26.59 percent from the Summerstrand North Campus.

ENVIRONMENTAL MANAGEMENT AT NMMU

NMMU staff perceived a number of issues regarding the conservation of the natural environment on the campus where they work as very important. Close to 94 percent of NMMU staff who responded to the survey stated that the protection of the natural environment on campus is important to them. More than 90 percent of staff also indicated that they respected plant and animal life on the NMMU campus where they work. Their positive attitude to the natural environment is reaffirmed by them attaching high importance on maintaining plant and animal biodiversity on campus. Staff members also felt that it is very important for NMMU to become a pioneer in environmental management in South Africa.

Nearly 75 percent of the staff respondents recognised that they have an impact on the natural environment. Staff members further expressed a willingness to make NMMU a 'greener' university. With regard to the perceived financial impact of 'greening' the University, many staff members reacted positively. Large percentages (62.90% & 50.2%) felt that 'greening' initiatives would save the University money and would not be too expensive to undertake.

Other positive findings show that staff members were already promoting good environmental management principles among their colleagues and students. Forty six percent of staff already motivated fellow staff members to become 'greener' in their daily activities, while close to 45 percent did the same with students. The ideal would be to increase this percentage substantially in time to come.

Less than 15 percent of staff (only 13.89%) was involved in programmes to conserve the natural environment at NMMU in 2009. The majority of these programmes were informal in nature and involved paper recycling as well as mechanisms to reduce energy consumption on campus. More than 60 percent of staff (62.25%) however indicated that they would be willing to engage in more 'greening' activities at NMMU if formal programmes were available. This disparity should be addressed in an innovative manner e.g. engaging staff members in interdepartmental competitions for 'green' status or other incentives to be discussed in the section to follow.

Two staff members expressed their support for 'greening' NMMU in an open-ended question. One suggested a pro-active approach to this issue and indicated that it will save NMMU money in the long run. Another said that "It is GREAT that the NMMU is finally beginning to think about greening" while also stating that the University is lacking in this field compared to other institutions.



'GREEN' EDUCATION

Of the 126 academics who participated in the survey, less than a third (27.78%) presented at least one module that included environmental management topics in 2009. Most of these modules were offered in the Science faculty. However academics at NMMU placed a high value on incorporating environmental management topics into *existing NMMU modules*. They viewed the development of *dedicated modules* on environmental management topics as valuable. Some similarities in the ranking of environmental management topics to be integrated and developed into dedicated modules could be observed. Topics dealing with 'green' design and construction, environmental law and ecological ethics were seen as the most valuable in both cases.

NMMU academics felt strongly about the Government's role in developing a full qualification as well as specific modules in environmental management. Academics also attached high value on increasing opportunities to develop their knowledge on environmental management topics. The majority of academics (70.97%) thought it would be valuable to develop a specialised undergraduate qualification in environmental management. Similarly, 70.18 percent thought it would be valuable to incorporate environmental management topics at postgraduate level.

NMMU teaching staff was generally willing to present environmental management topics/modules. Quite a large number of NMMU academics (42.22%) felt it would be valuable if a module in environmental management be made compulsory for all undergraduate students.



INCENTIVES FOR 'GOING GREEN'

'Green' awards and competitions for 'green' status between departments and faculties were highly regarded by staff as incentives for 'going green'. In an open-ended question staff members were requested to provide examples of other incentives that would motivate them in becoming 'greener' whilst on campus. As in the case of NMMU students, the most prolific incentives for 'going green' suggested by staff members involved money, prizes and competitions. It should however be noted that quite a number of employees (21.69%) stated that they do not need incentives to become 'greener'. As this was *not* the case with students. Intrinsically motivated staff can be valuable role models in NMMU's 'greening' campaign. They can show students and colleagues that a concern for the natural environment could (and should actually) stem from a sense of moral obligation and not merely because a reward is offered. One staff member remarked: " For me, going green is a rational decision, not based on incentives. Use information not incentives. "

Several staff members said that they will be motivated to 'go green' should visible and easy-to-use recycling infrastructure be made available. A small percentage of staff (6.02%) indicated that more awareness and education on the need for action against climate change was needed to motivate NMMU staff and students.

STAFF PERCEPTIONS (cont...)

'GREEN' RESEARCH

Just over a quarter of respondents (26.98%) had conducted research on an environmental management topic in the 12 months up to August 2009. A large percentage (78.10%) of academics was of the opinion that doing 'green' research at NMMU is important. They also expressed fairly strong views on the need for more staff development and funding opportunities that will enable them to conduct more research on environmental management topics.

Some staff members requested more support for staff and students involved in the Centre for Energy Research (CER). The CER is already doing stellar work in educating students in the field of energy management and doing strategic and competitive research on topics such as photovoltaics, energy storage and materials characterization as well as energy Forecasting and modeling.



'GREEN' PRACTICES /OPERATIONS

At the time of the survey, NMMU staff was very serious about conserving water whilst on campus. Mean scores for staff on these statements were higher than the mean scores of students, probably because they were more aware of the financial implications of water wastage and perhaps because they have a greater sense of moral obligation in terms of conserving this precious commodity. Almost eighty three and ninety seven percent of staff respectively indicated that they only opened taps minimally when using them and closed them properly after doing so. However as with students staff members raised concern about water usage on campus, noting that sprinklers wet the concrete instead of the grass and that irrigation takes place during the hottest times of the day.



In terms of paper usage, 73.41 percent of staff re-used the reverse side of used paper, while 51.20 percent recycled paper whilst working on campus. The relatively low percentage of staff that recycled paper can be explained by the lack of recycling infrastructure on NMMU campuses. A very large percentage of staff called for more and easier access to recycling facilities and suggested that more funding be put into this. Staff members also indicated a willingness to re-use scrap paper to print drafts, but said that the current printing facilities do not allow for this. Similar concerns were raised by students. Some staff members requested that other materials such as plastic and glass be recycled too.



With regard to energy usage, 79.92 percent of staff turned off lights where possible. Staff members also attempted to conserve energy on campus by switching off their computers when leaving at night as well as using natural light instead of artificial light where possible. However it should also be noted that some staff members commented on the inefficient energy practices across NMMU campuses. They mentioned that a single switch operates multiple lights in different offices which prevent them from switching off lights out of consideration for other staff members. It was also indicated that lights are left on unnecessarily and that some staff members refuse to turn off lights (even if they are not needed). Two staff members also suggested the use of solar geysers for residences.

A large percentage of staff members who responded to the survey indicated that more awareness is needed to sensitise staff and students on issues pertaining to the natural environment. Some of the suggestions included incorporating 'green' education into staff and student induction processes sending a 'green tip for the day' via email to all staff and students, weekly environmental education sessions to discuss progress on environmental issues, using signage and staff outings to the NMMU nature reserve as educational tools and encouraging staff to arrange hikes with their students.

SIGNIFICANT DIFFERENCES IN STAFF PERCEPTIONS

Significant differences in the perceptions of staff were investigated based on gender, age, highest level of education, job description (administrative vs. academic) and campus where the staff member is working.

Male were generally more concerned about environmental management at NMMU, particularly in terms of their impact on the natural environment and NMMU's reputation in becoming a leader in environmental management in South Africa. Female academics viewed the integration of environmental management topics into existing modules as more important than their male counterparts and also expressed stronger views with regard to support required for 'greening' NMMU syllabi (such as the availability of funding and staff development opportunities). Furthermore males engaged in more 'green' practices whilst on campus compared to females.

Staff members older than 40 were more aware of their impact on the natural environment, more willing to engage in 'greening' initiatives at NMMU and more concerned about maintaining plant and animal biodiversity on the campus where they work. However younger colleagues (in the 22-30 age category) were more willing to engage in 'green' initiatives on campus should incentives such as money, prizes or awards be offered. Academics older than 40 were more concerned about integrating environmental management topics into existing NMMU modules and also showed greater concern for the natural environment when going about their daily activities on campus.

Staff members with higher levels of education tended to be more concerned about environmental management at NMMU than their less qualified colleagues. They were also more active in promoting 'green' practices among their peers and students. Better qualified staff furthermore showed a greater concern for maintaining animal biodiversity on campus.

Administrative staff became more aware of their impact on the natural environment in the 12 months before August 2009. On the other hand academics viewed maintaining plant biodiversity on campus as more important than administrative staff. Administrative staff was more motivated to become environmentally sensitive by 'green' awards (such as 'green' employee of the year or a 'green' award for any initiative to protect the natural environment on campus).

Lecturers in the Business and Economic Sciences faculty were more in favour of integrating environmental management topics in modules offered at undergraduate level than colleagues in other faculties. Academics in the Science and Business and Economic Sciences faculties were more interested in conducting research about environmental management topics. Academics in the Science faculty further indicated a significantly higher level of interest in doing research on environmental management topics should funding be available to do so.

Staff working at the Summerstrand North Campus was less convinced than colleagues on other campuses that 'going green' will save the University money while academics at the Summerstrand South Campus were more willing to conduct research on environmental management topics provided that funding and development opportunities were made available to do so.