



## College of Agriculture, Engineering and Science | Annual Report 2009

by Professor Rob Slotow



The College of Agriculture, Engineering and Science flourished in 2009 as it continued to focus on meeting the challenges and changing needs of the multi-faceted society it serves. With 1400 staff, including 800 academic and specialist support staff, we have the largest group of scientists, engineers and technologists under one structure in Africa. In 2009 our main fund budget was R260 million, with an additional research and contract budget of over R250 million.

**Professor Rob Slotow**  
Deputy Vice-Chancellor  
and Head of the  
College of Agriculture,  
Engineering and  
Science

### **Consolidation**

In 2009 the College achieved further consolidation of the Agricultural Disciplines and related groups into the School of Agricultural Sciences and Agribusiness (SASA). Plant Pathology and the African Centre for Crop Improvement (ACCI) moved from the School of Biochemistry, Genetics and Microbiology and the move of Rural Resource Management and the Farmer Support Group's from School of Environmental Sciences (SES) to SASA was approved. The Centre for Environment, Agriculture and Development was renamed the Centre for Environmental Development and fully incorporated into the SES.

The Faculty of Science & Agriculture embarked on a size and shape process, whereby all Schools interrogated their staffing and operating budgets, making substantial cuts to improve efficiency and effectiveness. Concurrently, the curriculum was revised for 2010, resulting in consolidation of offerings, including discontinuation of some majors, removal of streams within programmes, reduction of electives, and consolidation of redundant modules. Monetary savings through efficiencies, and increased time for academic staff to conduct research, contribute to achieving key management goals.

### **Intake**

For the first time since merger, the Faculty of Science and Agriculture met and surpassed its enrolment of new intake on the Westville campus, and met its overall enrolment target for 2009. This, combined with the increased academic support put in place to deal with challenges over the National Senior Certificate placed substantial pressure on resources at Westville. The Faculty of Engineering continued to meet its Department of Higher Education and Training (DOHET) enrolment target. The College is now on track to meet its DOHET targets by 2011, a significant turn-around.

### **Teaching Innovations**

The College hosted several teaching enhancement workshops, facilitated by international experts, focussed on real, effective teaching delivery. New, innovative teaching technology included audience response systems (clickers - interactive teaching devices for engaging students in large classroom environments) and dedicated servers to enhance the use of Moodle, an open source course management system.



An exciting teaching initiative was the first intake into the Northern Cape Teachers Project. Twenty-five teachers registered for a BSc with majors in Mathematics and Physics, and will visit the Westville campus during their vacations to attend modules, completing their degree over five years. This programme is being funded by the SAMANCOR Foundation (R10 million over five years), with a contribution of R850 000 from Nedbank Eyethu Community Trust. A second innovation is the new Bachelor of Agriculture in Agricultural Extension, to be jointly offered with the Department of Agriculture on the Cedara Campus. Furthermore, the Moses Kotane Institute is providing R9.4 million to fund 200 disadvantaged students, enrolled in the Centre for Science Access, per year.

Sasol, Eskom, BHP Billiton and the Development Bank of South Africa contributed R 2 million to a Winter School for 400 Grade 12 learners from disadvantaged backgrounds. The South African Biosystematics Initiative of the National Research Foundation supported a Poster Competition run by the School of Biological & Conservation Sciences to illustrate their understanding of Systematics among Grade 12 learners. UKZN staff provided learning materials and support packs for teachers, and the quality of submissions was such that a Calendar illustrating the best posters has been produced.

## **Research**

Agriculture, Engineering and Science maintained its high research profile and, for the sixth consecutive year, generated the highest research output within the University and produced the most research publications. The year started on a high note when an additional two of its academic staff members achieved the prestigious A-rating from the National Research Foundation (NRF). In 2009 the College recorded the following number of NRF-rated researchers: four A (leading international researcher); 24 B (internationally acclaimed researcher); 55 C (established researcher); 13 Y (young researcher with potential) and one P (young researcher with exceptional leader potential). Our P-rated researcher is one of only two in the country.

The College continued close engagement with a range of industry partners across the Disciplines. Examples of substantial financial support were from Sasol, Distell, Herman Olthaefer and the Carl and Emily Fuchs Foundation. The Faculty of Engineering, which already has a Trust fund that stands at approximately R25 million, actively pursued the formation of discipline-specific trusts in an effort to gain the support of the Engineering profession. Energy research was strongly supported by Eskom, with close linkages with the Eskom Academy. Mechanical Engineering received a small state-of-the-art wind turbine test facility from Inkanyiso Sustainable Systems that will enable it to conduct trials and research to benefit small-scale power producers.

In 2009 the College achieved NEPAD and SADC recognition as a Centre of Excellence in Water, an initiative combining five Schools in the College that focus on water-related activities. Furthermore, Umgeni Water is providing R15 million for the establishment and sponsorship of an Umgeni Water Chair of Water Resources Management at UKZN. Water is a critical resource, and UKZN is positioned to lead research and teaching in this area.

Noteworthy successes worthy of mention include the work by the Pollution Research Group (PRG) which drew the attention of Bill Gates, who interacted with the team to find out more about water, sanitation and hygiene interventions. The PRG has been researching the biotransformation mechanisms occurring in VIP latrines and urine diversion toilets for the past five years, linking closely with eThekweni Municipality to solve waste-management challenges. The ACCI received global exposure by featuring in a speech presented by Bill Gates at the 2009 World Food Prize International Symposium. The Mechatronics and Robotics Research Group produced the first prototype of its Contractible Arms, Elevating Search and Rescue Robot (CAESAR), which automates dangerous urban search rescue operations.



UNIVERSITY OF  
**KWAZULU-NATAL**™  
INYUVESI  
**YAKWAZULU-NATALI**

---

**College of Agriculture, Engineering and Science**  
**iKolishi lezoLimo, ubuNjiniyela kanye neSayensi**

**Postal Address:** Private Bag X01, Scottsville, 3209, South Africa

**Telephone:** +27 (0)33 260 5420/5618/6116 **Facsimile:** +27 (0)33 260 6780 **Email:** [sciencepmb@ukzn.ac.za](mailto:sciencepmb@ukzn.ac.za) **Website:** [caes.ukzn.ac.za](http://caes.ukzn.ac.za)



100 YEARS OF ACADEMIC EXCELLENCE

Founding Campuses: ■ Edgewood ■ Howard College ■ Medical School ■ Pietermaritzburg ■ Westville

**INSPIRING GREATNESS**