



# Research Report

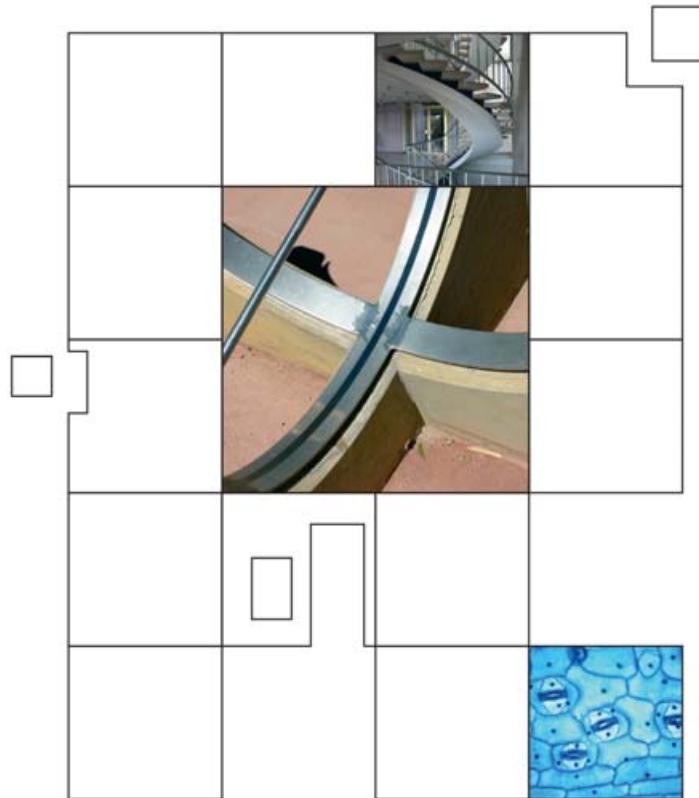
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**Celebrating research development and  
excellence at the UFS:**

# **An assessment of progress**



**Issued by**

The Directorate Research Development  
University of the Free State, South Africa

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In cooperation with The Write Company

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**Prof Frederick Fourie, Rector and Vice-Chancellor of the University of the Free State**

**T**he start of 2008 marked the beginning of my second five-year term as Rector and Vice-Chancellor of the University of the Free State. As is appropriate at such times, the University embarked upon an institutional process of reflection and planning for the future. Looking back over the accomplishments and challenges of the past five years, we asked: *If we are to reposition ourselves to a significantly higher level in five years' time – both in terms of our intrinsic institutional qualities and functioning, and in the minds of our external stakeholders – what are the key successes that we must achieve?*

To answer this critical question, we considered our vision, our mission and our values; our strengths and our shortcomings; our context and our objective. Ultimately, we identified a set of new and continuing initiatives which will be our most important building blocks towards the successful management of excellence and diversity at the University. These include five key institutional 'mega projects', as well as two strategically critical generic enabling projects. Two of these seven projects focus specifically (but not exclusively) on research development, namely the Strategic Academic Cluster mega project, and the continued support

and enhancement of general research programmes and the general research culture of the University.

The Strategic Academic Cluster project was initiated towards the end of 2005 and involves the successful implementation of academic focus areas to direct and converge our teaching and research expertise. The Strategic Academic Cluster initiative is a critical component of our endeavours towards quality and excellence and aims to position the University as a world leader in six focused research areas, termed Clusters. These Clusters represent comprehensive academic foci and are not only research-based. They will therefore include community involvement and postgraduate programmes, and hopefully also filter down to undergraduate learning programmes and curricula.

The six Clusters were developed through an extensive internal and external consultative process. This process was concluded early in 2008 with the formal approval of the final descriptions of each Cluster's content and focus. The six Clusters are:

- *Water Management in Water-scarce Areas*
- *New Frontiers in Poverty Reduction and Sustainable Development*
- *Transformation in Highly Diverse Societies*
- *Technologies for Sustainable Crop Industries in Semi-arid Regions*
- *Materials and Nanosciences*
- *Advanced Biomolecular Research*

## Message from Prof Frederick Fourie

# Foreword

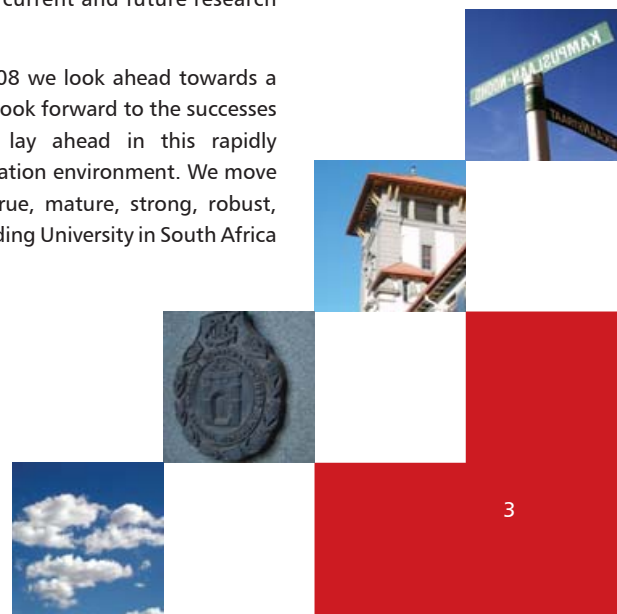
Thus far, academics from more than 30 departments and ten centres and units are involved with the Cluster initiative. Even though the development of University-wide consensus within the Cluster context was at times challenging, it was a fascinating journey of discovery of common ground for most participants – of uncovering unexpected opportunities for synergies, and of seeing colleagues being surprised at how much mutual enrichment there could be between their different areas of expertise.

An allocation of R10 million has been made in the 2008 budget, bringing the total allocation in three years to R28 million for the Clusters. While an interim Cluster Allocation Committee has been functional for the past year (so as not to miss opportunities), the Cluster financing model has still to be resolved during 2008. The same applies to the appropriate management model. These models or structures are both critical elements of the Cluster process which requires careful consideration. The entrepreneurial element of each Cluster will be an integral part of the design and focus of a financial model, while the appropriate management model must allow for the different needs of different Clusters.

There are many challenges ahead to really get these Clusters working as a beehive of academic work and innovation. This will be a major task of research leaders, heads of departments, and especially Deans (in addition to the top management members concerned).

Apart from those outstanding research and entrepreneurial academic activities identified through the Cluster initiative, there are also many examples of exceptional research performance in departments and areas that are not currently part of an approved Cluster. We applaud these initiatives and will continue to support them. Thus, the first of the two strategically critical generic enabling projects identified during 2008 is concerned with continued support to, and enhancement of, not only the general University research culture, but also general Faculty research programmes. Even though the University will increasingly focus its energies on the success of the identified Clusters, it remains supportive and proud of excellence and quality in all its research, including general research activities. Not only is it possible that one or more of these research activities may become the kernel of a new Cluster in the future; this type of research continues to underpin our intrinsic scientific abilities and to form the basis of our current and future research profile.

At the start of 2008 we look ahead towards a promising future. We look forward to the successes and challenges that lay ahead in this rapidly changing Higher Education environment. We move forward by being a true, mature, strong, robust, outward-oriented, leading University in South Africa and Africa.





**Prof Teuns Verschoor, Vice-Rector:  
Academic Operations and University  
Research Committee Chairperson**

**T**he University of the Free State is consistently striving towards excellence in its research activities. We have articulated our intention of becoming a research-intensive University and within this context we respond with appreciation and optimism to both the praise and advice offered by the recent Institutional Audit Panel of the Higher Education Quality Committee (HEQC) of the South African Council on Higher Education.

The 2006 Audit Panel acknowledged the enthusiasm and commitment with which our staff members are working towards becoming a research-led University. The Panel confirmed that the dedication of our staff members, as well as our considerable financial and human investment in research capacity development, has positively assisted the University to progress with respect to its stated strategic research objectives.

The recommended revision of the University's *strategy* for the development of research was initiated during 2007. This revision includes the external evaluation of the previous five-year strategy and the development of a framework for a new strategy to guide research during the next five years (2008-2013). Changing internal and external imperatives will inform and direct this review process and, among other issues, the revised strategy will ensure that our

intention to become a research-led University will be appropriately supported at the operational level.

The Panel commended and congratulated the University on its adoption of a focused approach to the development of research. The *Strategic Academic Cluster* initiative, as referred to by the Rector in his introduction to this report, resulted in the successful development of six strategic Clusters which will become central to all research and innovation activities at the University in the coming years. These Clusters will serve as axis for not only research, but also academic training at undergraduate and postgraduate level, and to our engagement with the communities around us.

Some HEQC recommendations are already in process of being addressed, either through the noted research strategy review, or via other related initiatives.

The University, cognisant of the challenges posed by a less than optimal management information system, joined the national *Research Information Management System* project early in 2007. The project is being supported by the national Departments of Science and Technology, Education and the National Research Foundation and entails the nationwide implementation of a software system tailored to the needs of the South African higher education sector. The system is being implemented at our University during the latter six months of 2008 and will enable the more efficient utilisation of monitoring data on research activities and output in strategic decision-making processes.





# Message from Prof Teuns Verschoor

The HEQC Audit results prompted the University to reconsider its *research governance structures*. For example, a restructuring of the University Research Committee in relation to the broader Portfolio Committee on Education and Research is being considered. The University further intends to clarify and formalise its approach to the management of research ethics. Research ethics management tools and information will be available via the central research information management system by the end of 2008, and we are discussing the establishment of an institution-wide Ethics Committee. This central Committee will bring together ethics boards and ethics working groups from all faculties, departments and disciplines and it is envisaged that it will manage not only issues related to research ethics, but all aspects of academic ethics.

In 2005, the University approved its *Policy for the Management of Intellectual Property*. Since then an acting Director for Entrepreneurship and Special Projects was appointed, and a process has been initiated to appoint a Director for Technology Transfer/*Research Commercialisation*. A candidate attorney was seconded to assist with contract management, and legal representatives were contracted to handle University patents. The HEQC acknowledged these positive steps being taken to not only expand the University's capacity for managing the commercialisation of research, but also to support our researchers to develop and realise the commercialisation potential of their activities.

Even though the University's *research output* has increased in terms of publication units, the HEQC Panel voiced a concern about the predo-

minance of staff publishing in local and in-house journals. A proposal to revise the current research output incentive system is being discussed, particularly with reference to the support required by our researchers to publish more frequently in international journals. At the same time, one of our in-house journals, the *Acta Theologica*, recently achieved ISI-status. Notwithstanding, a drive towards increased internationally accredited research publication will form part of the University's future research strategy.

Finally, the HEQC Audit identified the absence of formal *postgraduate student support services* as a possible impediment to quality and excellence in the University's postgraduate training activities. The Directorate Research Development (DRD) initiated the process to establish an institutional Postgraduate Student Support Office in 2005 and the University approved this initiative in 2007. At present, dedicated staff members are supporting the development of this service, and recommendations aimed at the improvement of postgraduate education at the University are being developed. Based on these activities, the role, responsibilities and structure of the Postgraduate Student Support Office will be clarified and the Office should commence operations by the end of 2008.

For their dedication and ingenuity of the past five years I thank the DRD management and staff. The strategies and support projects emerging from their offices have enriched and advanced the University research culture to ever-increasing heights and we remain confident in their support and leadership over the next five years.



**Prof Frans Swanepoel,  
Director of Research Development**

I am pleased to report that 2005 to 2007 has been a period of significant growth and development within the University of the Free State's (UFS) research environment.

Since 2003, the Directorate Research Development (DRD) facilitated the development and implementation of various strategic initiatives and support projects, with the aim of creating an environment at the University in which:

- *research would improve and flourish;*
- *researchers and postgraduate students would feel appreciated and valued; and*
- *the University's national and international profile would be enhanced.*

This focus on the development of the University's research culture has paid dividends in terms of all five of the key objectives of the University's Research Strategy, namely quality assurance, equity, financial sustainability, effective support systems and an output dimension.

The Strategic Academic Cluster initiative, emphasised by the Rector in his introduction to this report, is a critical element of the *quality assurance* objective of the Research Strategy. The Cluster initiative embodies our pursuit of quality and excellence. It is an intensive, institution-wide effort to focus our research activities, which is expected to

establish the University as a world leader in the specified strategic focus areas.

In line with this new focused approach, each Cluster is associated with at least one recognised National Research Foundation (NRF) Institutional Research Development Programme Research Niche Area (RNA). Eight RNAs were approved for the University in 2007 – the highest number of all universities in the country. These RNAs encompass 24 NRF-funded research projects, representing a combined total commitment of almost R30 million to the UFS over the next five years (2008-2012).

To further strengthen the Clusters, the process for the University to participate in the NRF South African Research Chairs Initiative was initiated by linking proposed Research Chairs to existing Clusters. The University has been awarded three such Research Chairs for 2008, with the possibility of a further three for 2009. These chairs will imply a significant boost to our research capacity, especially in terms of the corps of leading researchers at the University. The UFS houses 73 NRF-rated researchers. This number has not changed significantly over the past years and still represents between 10 and 15% of our permanent instruction and research staff members. In terms of the professional development of our researchers, however, it is encouraging that 11 of our current rated researchers obtained a first-time rating during 2007/2008, that five of these are under 40 years old, and that one is a former Thuthuka grant holder.

Postgraduate training is a prominent part of our *quality assurance* objective and we are therefore

# Message from Prof Frans Swanepoel

making a concerted effort to create an optimal environment for postgraduate students to achieve quality and excellence in their research activities. A Postgraduate Student Support Office was approved in 2007 to promote the interests of postgraduate students and postdoctoral research fellows in synergy with Faculty and departmental facilities. This Office will not only provide a critical resource to the Faculties in the form of a single database of postgraduate students, topics, supervisors and funding opportunities, but will also serve as a useful resource centre for early career researchers.

The development of the research capacity of *priority groups* is particularly important in support provided to our early career researchers. We therefore proactively encourage participation in the NRF Thuthuka Programme, aimed mainly at black and women researchers. Our tailored support mechanisms – for example identifying potential applicants and assisting them in proposal development through workshops and individual sessions – have resulted in a very significant increase in UFS Thuthuka participation over the past three years: grant holder numbers increased from 13 in 2004 to 44 in 2007, representing an additional R1.8 million in Thuthuka funding.

An initiative closely associated with both the objectives of *quality assurance* and *financial sustainability* is the internationalisation of the University. The DRD facilitated the establishment of the International Office and the appointment of a dedicated Head of Internationalisation in 2007. This comprehensive and dedicated service is aimed at creating research opportunities, facilitating

international visits, mobilising research funding, expanding and maintaining international research agreements, establishing administrative aid, expanding research membership and providing the needed support to international students and scholars visiting from abroad. A strategic plan outlining the proactive internationalisation of the University has been approved and is currently being implemented.

Internal and government research funding increased significantly since 2004, contributing to the objective of *financial sustainability*. Central research funds increased to R26 million in 2007, confirming the University's commitment to research. We also received almost R20 million in NRF funding in 2007, which includes R2.4 million in Thuthuka funding and R2.5 million from the National Equipment Programme. Moreover, the total 2007 allocation signifies an increase of more than 105% in NRF funding since 2004.

The period 2005 to 2007 also saw progress in terms of increasing external income related to research activities. Some very promising endeavours with respect to the commercialisation of research have been undertaken, in addition to many industrial partnerships through the Technology and Human Resources for Industry Programme (THRIP). Significant commercial investment was made by Sasol, Empowerdex (South Africa's foremost black economic empowerment ratings agency), and Netcare Private Hospital Group; and one successful research project led to the formation of a new company, Oxyrane. The company, a result of collaborative research between the University and



the South African Council for Scientific and Industrial Research, bought the intellectual property resulting from the research and attracted international investors. The University will further collect royalties on successfully marketed products. Most recently, the University was awarded a R13.7 million biotechnology contract to conduct research into prehistoric micro-organisms which live under extreme conditions. The contract was awarded to the University by BioPAD, a South African biotechnology company that brokers partnerships between researchers, entrepreneurs, business, government and other stakeholders to promote innovation and create sustainable biotechnology businesses.

The DRD prioritised the efficiency of its research information management system as a critical requirement to achieve its *support systems* objective. The UFS therefore joined the national Research Information Management System initiative in 2007 and implementation of the new system is scheduled to take place during 2008.

Associated with this *support systems* objective, the DRD cultivates loyalty and enthusiasm for research through the recognition of research achievement at all levels. To this end the University hosts an annual recognition function where outstanding progress and achievements are acknowledged and honoured, from postgraduate level through early career to established researchers.

Significant progress has also been made in terms of the *output dimension* objective. Publication outputs alone have increased by more than 30% since 2004. Research Masters and Doctoral degrees have also increased by almost 40% since 2004, with a total of 99 masters and 78 doctoral degrees being conferred in 2007. Subsequently, our total subsidy-bearing outputs increased to the extent that, by 2006, the University was one of only five universities in the country to exceed the benchmark for total research outputs set by the Minister of Education. In addition, a 2006 study<sup>1</sup> ranked the UFS in the top 1% globally based on its accredited publications, together with only five other South African universities. Findings also indicated that the number of UFS citations in clinical medicine and plant and animal sciences positioned the University as a world-class institution in these two disciplines.

On balance, our research achievements since 2003 demonstrate a dramatic improvement, which signifies a promising evolution of our research culture over the past five years. These changes are mostly the result of the enthusiasm, dedication and teamwork of our researchers and our research administrators. I myself and the DRD as a whole are proud of the research being conducted at this University and we will continue to work closely with all our academics and scholars to sustain and accelerate our development towards a truly research-led institution.

<sup>1</sup> Source: <http://www.be.up.co.za/images/documents/BEatUP-news-APouris-HighEducation.pdf>



## Future Vision

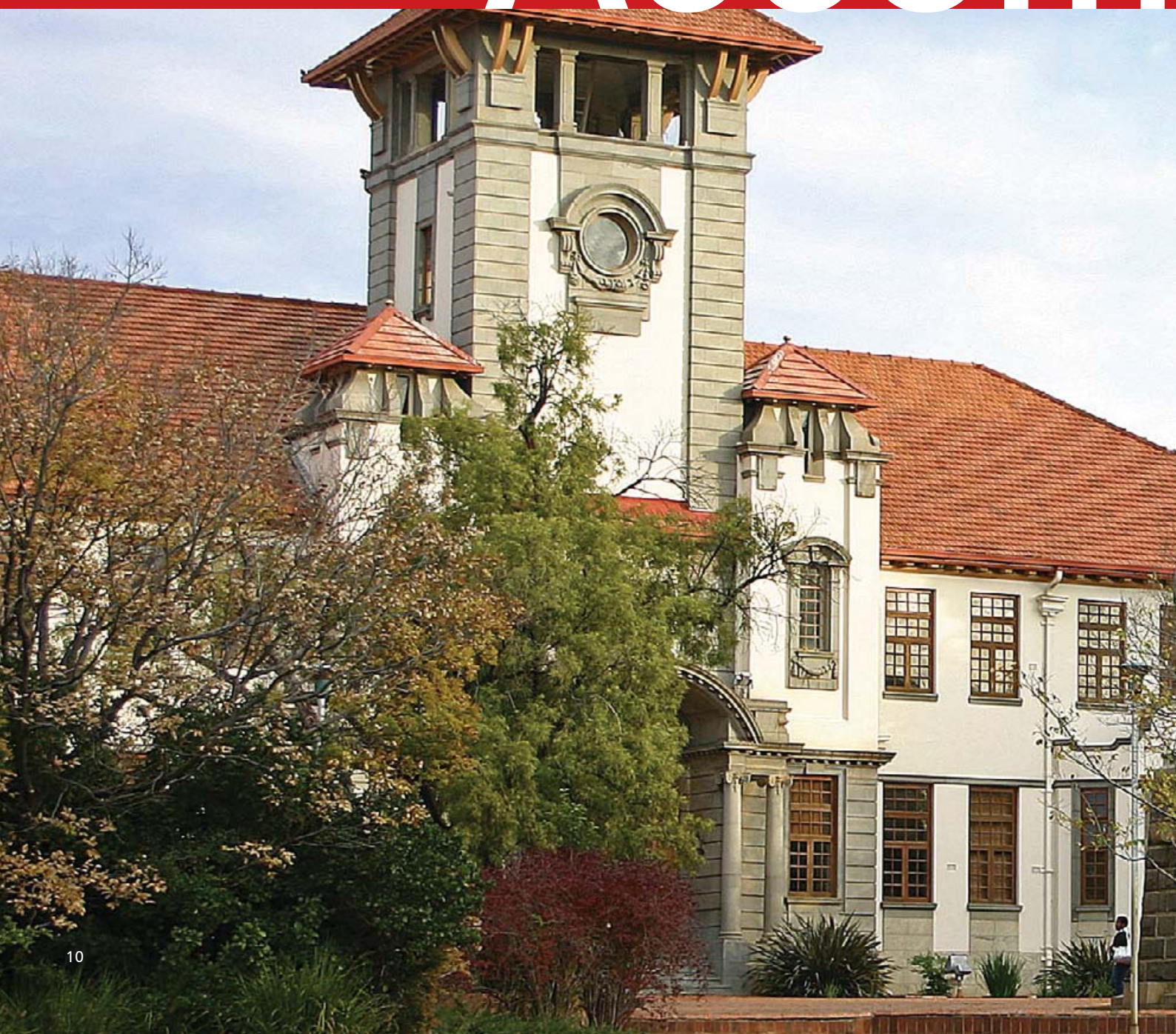
A new strategic framework to guide research development at the University of the Free State is currently under development. It is envisaged that this framework will pay particular attention to the evolution of the following areas of our research culture during the next five years:

- The Strategic Academic Clusters
- The professional development of our early career researchers
- The Postgraduate Student Support Office
- Increased postdoctoral fellowship involvement
- Alternative research funding frameworks
- International funding opportunities for research and postgraduate study
- Research commercialisation
- The research output incentive scheme
- The Research Information Management System project, including institutional knowledge management
- Institutional research governance structures, particularly our Research Committees and research ethics governance structure
- Research leadership programmes in support of the professional development of researchers at all stages of their careers

*Staff members at the UFS Directorate Research Development are, from the left: Dr Annelize Venter (interim Coordinator: Postgraduate Student Support Office), Prof Frans Swanepoel (Director), Dr Olihile Sebolai (Manager: Capacity Building Initiatives), Ms Anna-Marie Pienaar (Administration: Research Outputs), Ms Claudine Macaskill (Office Manager and Personal Assistant to the Director), Ms Lise Kriel (Manager: Special Projects and Researcher), Mr Nico Benson (Assistant Director); and seated: Ms Dineo Gaofhiwe (Coordinator: Strategic Academic Clusters).*



# Accom



Significant Institutional

# plishments



## A Strategy for Quality Research

*Developing a research culture through a strategic focus on research development*

The University of the Free State (UFS) committed itself to an innovative focus on research as one of the three core functions of the University, being the aspect that usually determines the reputation of a university. This was a significant and essential step. With more extensive resources and a stable academic environment, the University leadership perceived good potential for obtaining rapid results with innovative approaches. Consequently, a new Strategic Framework aimed at the proactive development of research at the UFS was implemented during 2003, with a shift of emphasis from the administrative to the strategic management thereof. In order to really make a difference within a short period, this Strategy was designed to be holistic, logically thought through, streamlined, focused and effective.

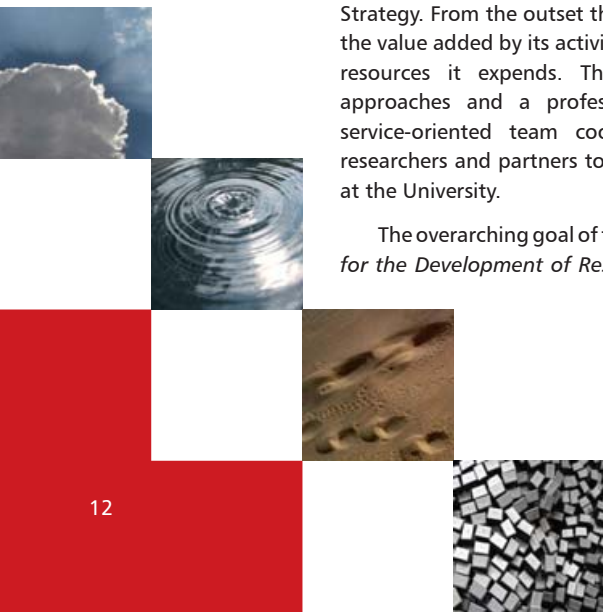
The Directorate Research Development (DRD) was established in 2002 and tasked with both the consultative design and implementation of the new Strategy. From the outset the DRD understood that the value added by its activities must far exceed the resources it expends. This required innovative approaches and a professional, dedicated and service-oriented team cooperating closely with researchers and partners to the benefit of research at the University.

The overarching goal of the *Strategic Framework for the Development of Research at the University*

of Free State is to develop a research culture through a strategic focus on research development. This was achieved through synergistic research policy directives, effective strategies and a strategic understanding of the research environment. An essential success factor to this goal remains a personnel corps who understands and accepts critical changes and new approaches in the university environment, both nationally and internationally.

This goal is underpinned by five supporting objectives, derived directly from the University's broad goals of excellence, equity and innovation and aligned with its overall strategic priorities.

- **Quality assurance:** Ensure an internationally competitive research system through high quality researchers and effective and quality postgraduate training.
- **Equity:** Development of the research capacity of priority groups.
- **Financial sustainability:** Enhance the profile of the UFS as a research-oriented institution, in order to effectively increase income from external sources.
- **Support systems:** Ensure user-friendly and effective systems that facilitate and support research at the University, and cultivate loyalty and enthusiasm for research through the recognition of progress and achievement at all levels.
- **Output dimension:** Stimulate research and increase research outputs by using internal funds effectively.





# Significant Institutional Accomplishments

These objectives have shaped the development of a vibrant research culture at the UFS since the implementation of the new Strategic Framework in 2003. This report will highlight the research-related accomplishments of the UFS within the framework of these five objectives, with specific emphasis on the period 2005 to 2007.

## Quality and Excellence

*Ensuring an internationally competitive research system through high quality researchers and effective and quality postgraduate training*

A critical element in the UFS pursuit of excellence is the Strategic Academic Cluster initiative. The Cluster initiative, which is described in depth elsewhere in this report, is included as one of the Big Five institutional mega-projects aiming to reposition the UFS to a significantly higher level in five years' time. The audit panel of the Higher Education Quality Committee (HEQC) congratulated the UFS in 2006 on the successful development of its Clusters, which is expected to establish the University as a world leader in a selected number of strategic focus areas.

In addition to the areas of excellence which constitute the UFS Clusters, high quality research activities may be found in many other academic disciplines within the University. The cultivation of such general research activities remain a key component of a dynamic and comprehensive institutional research cul-

ture, and consequently enjoy continued support from both UFS leadership and staff members.

Behind excellent research one will always find excellent researchers. In addition to the thriving corps of emerging researchers – many of whom are

## NRF ratings explained

B-rated researchers enjoy considerable international recognition by their peers for the high quality of their recent research outputs.

A B1 rating signifies that all reviewers on the rating panel concur that the applicant is an independent researcher of high quality, enjoying considerable international recognition with some of them, indicating that she/he is a leading international scholar in the field.

A B2 rating indicates that reviewers are firmly convinced that the applicant is an independent researcher enjoying considerable international recognition for the high quality and impact of her/his recent research outputs.

Most of the reviewers are convinced that a B3-rated researcher is an independent researcher enjoying considerable international recognition for the high quality and impact of her/his recent research outputs.

(source:<http://evaluation.nrf.ac.za/Content/Evaluation/Apply.htm#Definition>)

associated with the NRF Thuthuka Programme at the UFS – the University is proud to house 73 rated researchers. These researchers have successfully participated in a process of evaluation undertaken by national and international peers in their research fields. An individual's rating is based primarily on the quality of their research outputs. This rating system serves as a benchmark of research excellence and contributes to UFS's status as one of the top six universities in South Africa<sup>2</sup>. The UFS is home to 11 internationally acclaimed researchers, as well as 48 established researchers and 14 promising emerging researchers. More than ten UFS researchers obtained a first-time rating during 2007.

The proactive development of research leaders such as these is of particular importance at the postgraduate level. Therefore, effective and quality postgraduate training is essential in increasing the UFS corps of excellent researchers. The DRD is addressing this need through the establishment of a Postgraduate Student Support Office which will promote the interests of postgraduate students and postdoctoral research fellows in synergy with faculty and departmental facilities. More detail about this initiative is provided elsewhere in this report.



*Prof Lodewyk Kock, B1-rated researcher in Microbiology, Food Sciences and Technology, Health Promotion and Disease Prevention.*



*Prof Sakkie Pretorius, B1-rated researcher in Agriculture and Plant Production.*

<sup>2</sup> In 2005, the UFS was sixth in the country in terms of percentage of academic staff with a valid NRF researcher rating. Source: *Evaluation and Rating Facts & Figures 2007*, NRF Evaluation Centre.



*Prof James du Preez, B2-rated researcher in Microbiology and Biotechnology.*



*Prof Louis Scott, B2-rated researcher in Botany, Ecology and Environmental Science.*



*Prof André Roodt, B3-rated researcher in Inorganic Chemistry.*



*Prof Johan Grobbelaar, B2-rated researcher in Fresh Water Biology and Limnology, Biotechnology and Physiology.*



*Prof Max Finkelstein, B3-rated researcher in Statistics and Probability.*



*Prof Hendrik Swart, B3-rated researcher in Theoretical and Condensed Matter Physics.*



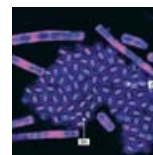
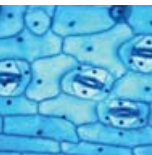
*Prof Johan Meyer, B2-rated researcher in Mathematics.*



*Prof Hugh Patterton, B3-rated researcher in Biochemistry and Genetics.*



*Prof Bennie Viljoen, B3-rated researcher in Microbiology, Biology, Food Sciences and Technology, Ecology and Environmental Science.*



## Equity and Diversity

### *Developing the research capacity of priority groups*

The University places a high premium on the development of its young researchers. This was clear in the *Research Turnaround Strategy* of 2002, which allocated financial support to many young researchers to bolster their research and their careers. The UFS further recognised the need to encourage black and women researchers in particular. Two significant schemes addressing this need at the University are the *Grow Our Own Timber Programme*, and the proactive promotion of participation in the NRF's *Thuthuka Programme*.

The NRF Thuthuka Programme has prioritised human resource development, research capacity development and the development of research or

knowledge areas for priority groups through three sub-programmes, namely Researchers-in-Training, Women-in-Research and a Research Development Initiative for Black Academics. At the UFS, potential Thuthuka applicants were identified and assisted in developing their proposals through workshops and individual sessions. These tailored support mechanisms have resulted in a very significant increase in Thuthuka participation (see Figure 1).

The *Grow Our Own Timber Programme* was introduced to prepare black graduate students who are interested in academic careers. The programme provides opportunities for graduate students to acquire Doctorate degrees and introduces these emerging researchers to University worklife. This is achieved through the successful utilisation of the Scholarship Programmes of the AW Mellon Foundation and the Atlantic Philanthropies. At this time 29 postgraduate

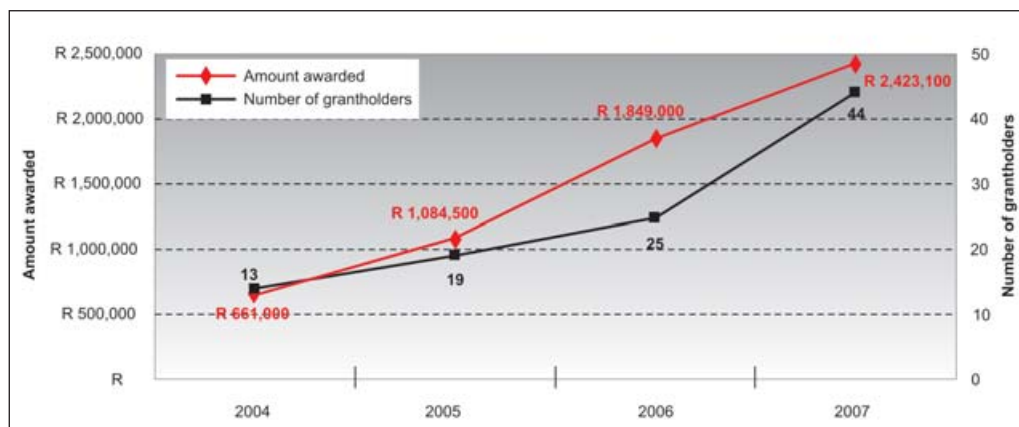


Figure 1: Thuthuka Funding and Grant Holders at the University of the Free State (2004-2007).

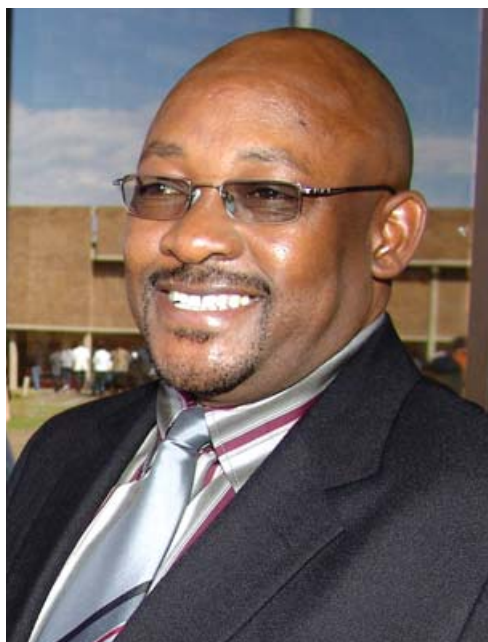
students from priority groups – exhibiting the necessary potential and interest in pursuing an academic career – are being prepared for academic positions through this Programme. The DRD benefited indirectly from this Programme through the recent appointment of Dr Olihile Sebolai, previously a Mellon Fellow working in Microbiology at the UFS Department of Microbial, Biochemical and Food Biotechnology, and currently Manager: Capacity Building Initiatives at the Directorate.

In addition to these directed programmes, the UFS is also taking more generalised actions to develop the research capacity of priority groups through activities at Faculty level. These efforts are aimed at developing not only young and emerging researchers, but also those who are already established in their respective fields. Faculty activities include:

- presenting research development and empowerment programmes to emerging researchers;
- securing the services of external experts;
- introducing a process of structured mentoring;
- developing writing and publishing skills by establishing forums and workshops for emerging authors;
- placing greater emphasis on team research involving these researchers;
- arranging exposure to leading national and international researchers;
- instituting annual junior and senior research prizes for faculty members;
- headhunting promising postgraduate students; and
- hosting annual research days where ideas are shared through general discussion and presen-

tations in different research categories by both Faculty and guest researchers.

The UFS Research Coordinators play a pivotal role in research capacity development at Faculty level and at the University's satellite campuses. This is particularly important for Qwaqwa, where the distance of this Campus from the Main Campus in Bloemfontein presents challenges in terms of research support. Here Dr Elias Malete, Head of the



*Dr Elias Malete, Head of the UFS Qwaqwa Campus, also fulfils the role of Research Coordinator at this campus.*

Qwaqwa Campus, also fulfils the role of Research Coordinator by liaising with the Main Campus and facilitating the mentorship of young and emerging researchers. Furthermore, the Strategic Academic Cluster on *New Frontiers in Poverty Reduction and Sustainable Development* includes a specific focus on the Qwaqwa region with the intention of utilising its distinctive research opportunities and involving emerging researchers from this Campus.

Evidence of the success of the University's investment in its young researchers is reflected in the

fact that 14 of our NRF rated researchers are considered to be promising emerging researchers (see Table 1). For the first time at the UFS, this group includes two researchers rated at the highest level (Y1), namely Prof Frikkie Booysen of the Department of Economics and Prof Gustav Visser of the Department of Geography. These two individuals are recognised by their peers as having demonstrated potential, through their research outputs, to establish themselves as outstanding researchers and to become future leaders in their respective fields.



*Prof Gustav Visser (left) of the Department of Geography and Prof Frikkie Booysen of the Department of Economics, are the UFS's first two Y1-rated researchers, confirming their demonstrated potential of becoming leading researchers in their respective fields.*

Table 1: Promising Emerging Researchers (Y- and L-rated) at the University of the Free State (2007)

Researcher	Research Field(s)
<i>L-rated* (late entrant into research)</i>	
Conradie, Jeanet, Dr	Chemistry
<i>Y-rated ** (promising young researcher)</i>	
Booyesen, Frikkie, Prof	Economics, Development Studies
Burger, Philippe, Prof	Economics
Du Plessis, Freek, Dr	Biophysics
Herselman, Liezel, Dr	Molecular and Cell Biology, Agriculture
Kroon, Ted, Dr	Physics, Material Sciences and Technologies
Marais, Johann, Prof	Development Studies
Maree, David, Dr	Chemistry
Meijboom, Reinout, Dr	Chemistry
Snyman-Van Deventer, Elizabeth, Prof	Law
Usher, Brent, Dr	Hydrology, Geology, Geochemistry
Van Heerden, Esta, Prof	Biochemistry, Microbiology, Mining Engineering
Visser, Gustav, Prof	Human Geography
Wepener, Cas, Dr	Theology, Religious Studies

\* **L-rated researchers** are persons (normally younger than 55 years) who were previously established as researchers or who previously demonstrated potential through their own research products, and who are considered capable of fully establishing or re-establishing themselves as researchers within a five-year period after evaluation. Candidates who are eligible in this category include black researchers, female researchers, those employed in a higher education institution that lacked a research environment, and those who were previously established as researchers and have returned to a research environment.

\*\* **Y-rated researchers** are normally younger than 35 years of age and have held the doctorate or equivalent qualification for less than five years at the time of application. These researchers are recognised as having the potential to establish themselves as researchers within a five-year period after evaluation, based on their performance and productivity as researchers during their Doctoral studies and/or early post-doctoral careers.  
(source: <http://evaluation.nrf.ac.za/Content/Evaluation/Apply.htm#Definition>)





*Prof Heidi Hudson is the first UFS Thuthuka grant holder to receive a researcher rating (C1) from the National Research Foundation.*

In addition, Prof Heidi Hudson received the highest rating in the category of established researcher (C1) in 2007. While all reviewers concurred that she is an established researcher with a sustained record of productivity in the field of Political Sciences and Public Policy, some indicated that she already enjoys considerable international recognition for her high quality outputs. With this

rating Prof Hudson became the first UFS Thuthuka grant holder to be rated by the NRF.

It is clear that the future research reputation of the University rests upon the shoulders of its emerging researchers. Supporting an equitable and diverse research culture at the UFS not only involves the nurturance of competence and enthusiasm among this group of researchers in particular; it also requires the continued expansion and rejuvenation of a strong corps of leading researchers. With this in mind, the DRD has identified the need to facilitate and accelerate the proactive development of the next generation of research leaders and is designing a Research Leadership Programme to address this need. This new initiative will focus on researchers at all levels, paying particular attention to the identification and further development of promising black and female researchers.

## Financial Sustainability

*Enhancing the profile of the University as a research-oriented institution, in order to effectively increase income from external sources*

Resource allocation and distribution reflect the extent to which research is prioritised in an institution, as well as the feasibility of development planning and the effective implementation of research policies. The University has shown its commitment to research by increasing central research funding dramatically to R26 million in 2007 (including the Cluster allocation).



There has been a similarly significant increase in funding for research at the UFS from external sources. The DRD makes every effort to keep abreast of external funding opportunities and is in constant contact with primary national funding agencies (such as the NRF, Water Research Commission and the Medical Research Council) as well as various international funding sources. The University's NRF funding allocation, for example, has increased by more than 105% since 2004 (see Figure 2).

A number of factors and directed initiatives have contributed to this increase in external research funding. The Strategic Academic Cluster initiative, for example, has contributed greatly through its association with the NRF Institutional Research Development Programme Research Niche Area (RNA). The eight UFS RNAs entail 24 NRF-

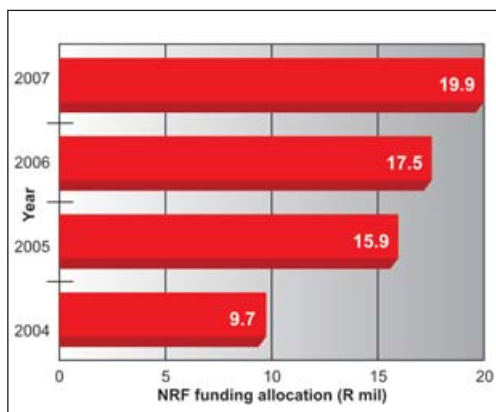


Figure 2: NRF Funding Allocation to the University of the Free State (2004-2007).

funded research projects, representing a combined total commitment of almost R30 million to the UFS over the next five years (2008-2012).

Another key reason for the significant increase in NRF allocation to the University is linked to the NRF Focus Area Programmes. In 2005 and 2006 – in an attempt to increase the number of researchers supported within these Focus Area Programmes – an initiative was introduced whereby seed funding was provided from the Strategic Research Fund to support UFS applicants who had not been successful, but who had received a favourable assessment. This funding is granted to encourage applicants to revise proposals and to re-apply.

In 2005 the UFS was one of only nine applications funded by the Research Infrastructure Support Programme of the NRF and received almost R2 million designated for research infrastructure and equipment. In 2006 the UFS received a further R1.5 million, and for 2007, R2.5 million was allocated to three of the University's researchers.

Finally, the very successful increase in Thuthuka grant holders (noted earlier) resulted in almost R1.8 million in additional research funding since 2004.

The DRD continues to investigate opportunities to increase the financial sustainability of research at the UFS. Some very promising endeavours with respect to the commercialisation of research have been undertaken and are highlighted elsewhere in this report. Cognisant of the importance of soliciting research funding from abroad, concerted efforts are also being made through the Internationalisation Office where dedicated staff members support UFS



*Prof Frans Swanepoel (right) and Dr Aldo Stroebel are leading a multi-million rand initiative to revise agricultural education and training in Africa.*

researchers to take full advantage of such funding opportunities. Currently the University receives research support from a number of international donor agencies, including a US\$14 million grant from the Bill and Melinda Gates- and WK Kellogg Foundations in support of a 10-year African Agricultural Education research and development programme. This is one of the biggest grants in the history of the UFS. R8 million has been granted to UFS during 2007 for the initial 18-months exploratory phase

The programme – led by the UFS in partnership with the Academy for Educational Development (a USA-based non-governmental organisation) – will revise agricultural education curricula in Africa to become more responsive to the needs of smallholder African family farms. Prof Frans Swanepoel has been appointed as the part-time Initiative Director and Dr Aldo Stroebel as Initiative Researcher.

## Support Systems

*Ensuring user-friendly and effective systems that facilitate and support research at the University, and cultivating loyalty and enthusiasm for research through the recognition of progress and achievement at all levels*

The DRD has prioritised the efficiency of its research information management systems as a critical requirement to strategically enhance the profile of the UFS as a research-oriented institution. While each South African Higher Education Institution is responsible for providing the same types of reports and complying with the same government regulations, system capabilities vary greatly between institutions. Therefore, a consortium of South African universities, with representatives from the Southern African Research and Innovation Management Association (SARIMA), discussed the possibility of pooling their financial, technical and research expertise in order to leverage their resources collectively, during 2006.

The consortium issued a group tender for this South African Research Information Management System (RIMS) project to identify potential commercial solution providers with the intent of securing a group purchase price and to explore the possibility of a single common shared infrastructure. The consortium further involved the national Departments of Science and Technology (DST) and Education (DoE) and the NRF, which provided their in-principle support for the project. After careful consideration, involving both external and internal consultation, the UFS joined the consortium and the RIMS project during 2007.

Minister Mosibudi Mangena (Minister of Science and Technology) reiterated the value of the project, and confirmed government's commitment to the process, at the launch of the RIMS at the Innovation Hub in Pretoria in February 2008 when he said: "It would be hard not to exaggerate the importance of such a national system in addressing the highly disaggregated and fragmented picture of research and development investment in South Africa, particularly considering the amount of money government has invested in this project."

The South African RIMS is an integrated platform which will be shared by all higher education institutions and science councils in the country, and which is facilitated by the NRF with the support of the DST. The platform will provide a central repository for research data that will allow research intuitions and funding agencies to create and view reports as required, facilitating the entire national research management and funding process. It is envisaged that the new software suite will be operational at the UFS by late 2008. The key benefit for UFS is that it will be integrated into a national research management network, supported by the DST. Further benefits of the system for the UFS include:

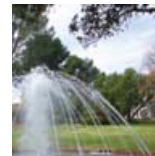
- speed and ease of access to NRF funding;
- speed and ease of access to information on research activities;
- enhanced decision-making and policy influence at institutional level and in government;
- greater 'connectivity' within the research community and amongst government, research institutions, researchers and industry;



*Ms Lise Kriel, Project Coordinator for the implementation of the national RIMS project at the Directorate Research Development, and DPhil candidate at the Centre for Research on Science and Technology at the Stellenbosch University.*

- access to international funding information; and
- accurate reporting on research outputs and human resources.

While effective research administrative systems are essential, it is not the only type of institutional support required to nurture a developing research culture. The DRD considers the recognition of outstanding achievement among the University's researchers to be



an equally important aspect of its support systems. To this end, a number of events designed to reward researchers who have excelled in their respective fields of expertise have been hosted by the DRD.

The first of these events took place on the Main Campus in November 2004 to coincide with the centenary celebrations of the UFS. This recognition function also served as the first annual UFS lecture in research excellence. The University recognised the research achievements of 97 of its leading researchers, including 21 women and 16 black researchers, in categories ranging from outstanding postgraduate

student achievement, through emerging researchers with demonstrated potential, to established researchers acknowledged for the international recognition they receive from their peers.

Another recognition function was held in February 2006, specifically to honour 24 young researchers taking part in the NRF's Thuthuka Programme. The guest speaker, Prof Jonathan Jansen, former Dean at the Faculty of Education at the University of Pretoria, offered tips to these young and promising researchers on how to become outstanding scholars. Nine professors were also congratulated with their promotion to senior research professor at this event.



Some of the guests at the first recognition function for researcher excellence held in November 2004 are, from the left: Dr Andrew Kaniki (guest speaker and Executive Director of Knowledge Management and Strategy at the National Research Foundation), Prof Leticia Moja (Dean: Faculty of Health Sciences at the UFS), and Prof Frans Swanepoel (Director: Research Development at the UFS).

## Research Outputs

*Stimulating research and increasing research outputs by using internal funds effectively*

The *Research Turnaround Strategy* (2002) accepted its major focus to be the target of increasing and rewarding subsidy-bearing research outputs through financial incentives (excluding contract research). In 2003, the new Strategic Framework for research development acknowledged the need to ensure that researchers make active and effective use of these rewards. The substantial resources invested in this regard have resulted in a steady increase in the accredited publication outputs of the University, as well as its number of Masters and Doctoral graduates (see Figure 3).



Attending the recognition function for young researchers taking part in the Thuthuka Programme of the National Research Foundation are, from the left: Prof Jonathan Jansen (guest speaker and former Dean of the Faculty of Education at the University of Pretoria), Prof Magda Fourie (former Vice-Rector: Academic Planning at the UFS), Prof Frans Swanepoel (Director: Research Development at the UFS), and Dr Olihile Sebolai (former Thuthuka grant holder and currently Manager: Capacity Building Initiatives at the UFS Directorate Research Development).

This encouraging trend in UFS research productivity is reflected in some related achievements in recent years. For example, the University was one of only five universities in the country in 2006 to exceed the benchmark for subsidy-bearing outputs set by the Minister of Education. The first survey using accredited publications to establish how well South African universities perform in the sciences, relative to each other and to international institutions, further revealed that the UFS was one of only six institutions in the country to rank in the top 1% globally in 2006. The results showed that the relative number of citations in clinical medicine and plant and animal sciences credited to the UFS, positions the University as a world-class institution in these two disciplines.<sup>3</sup>

<sup>3</sup> Source: <http://www.thetimes.co.za/TheVault/Article.aspx?id=316044>

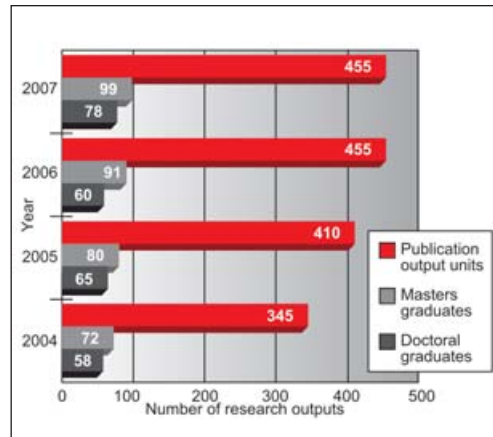
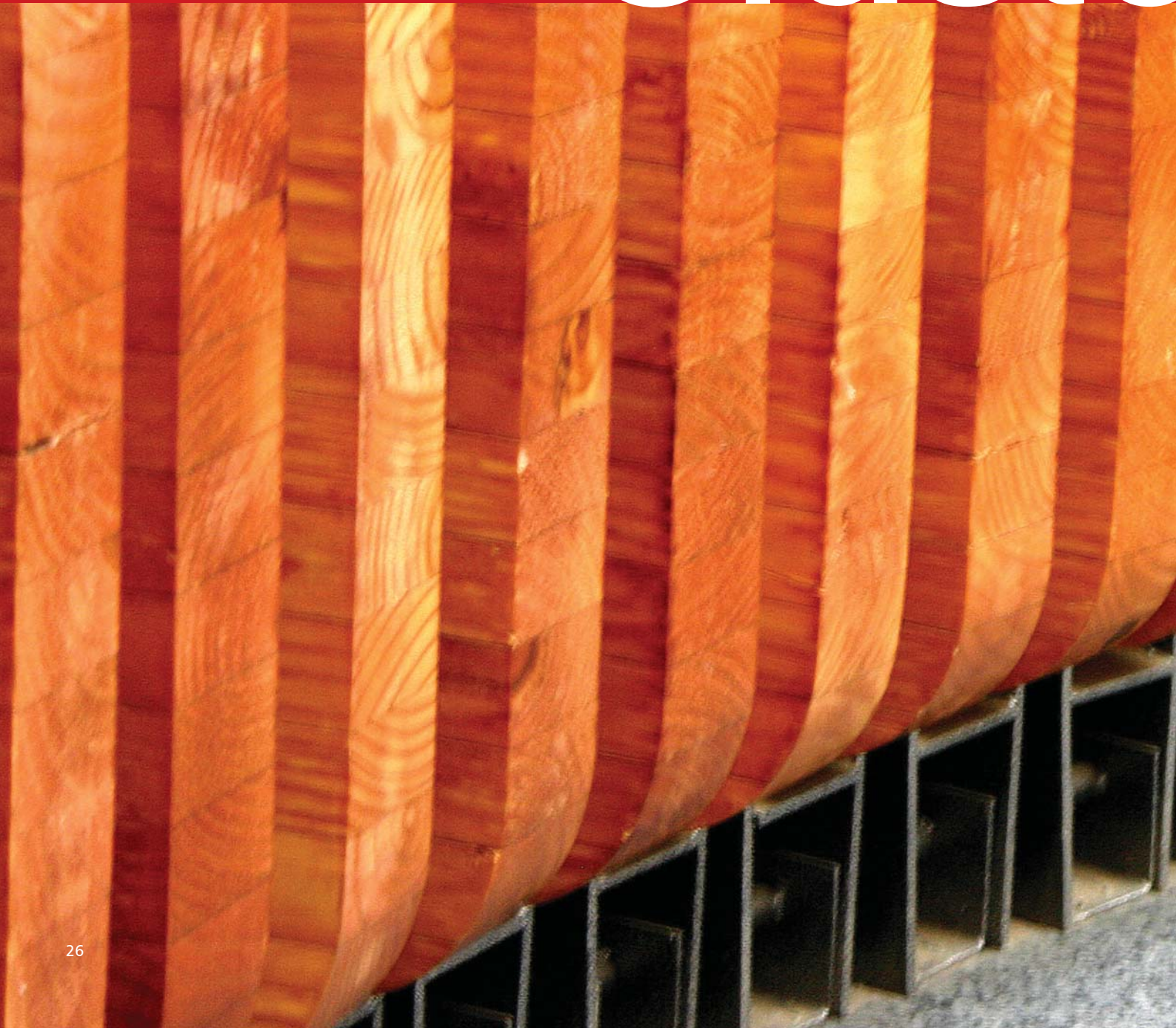


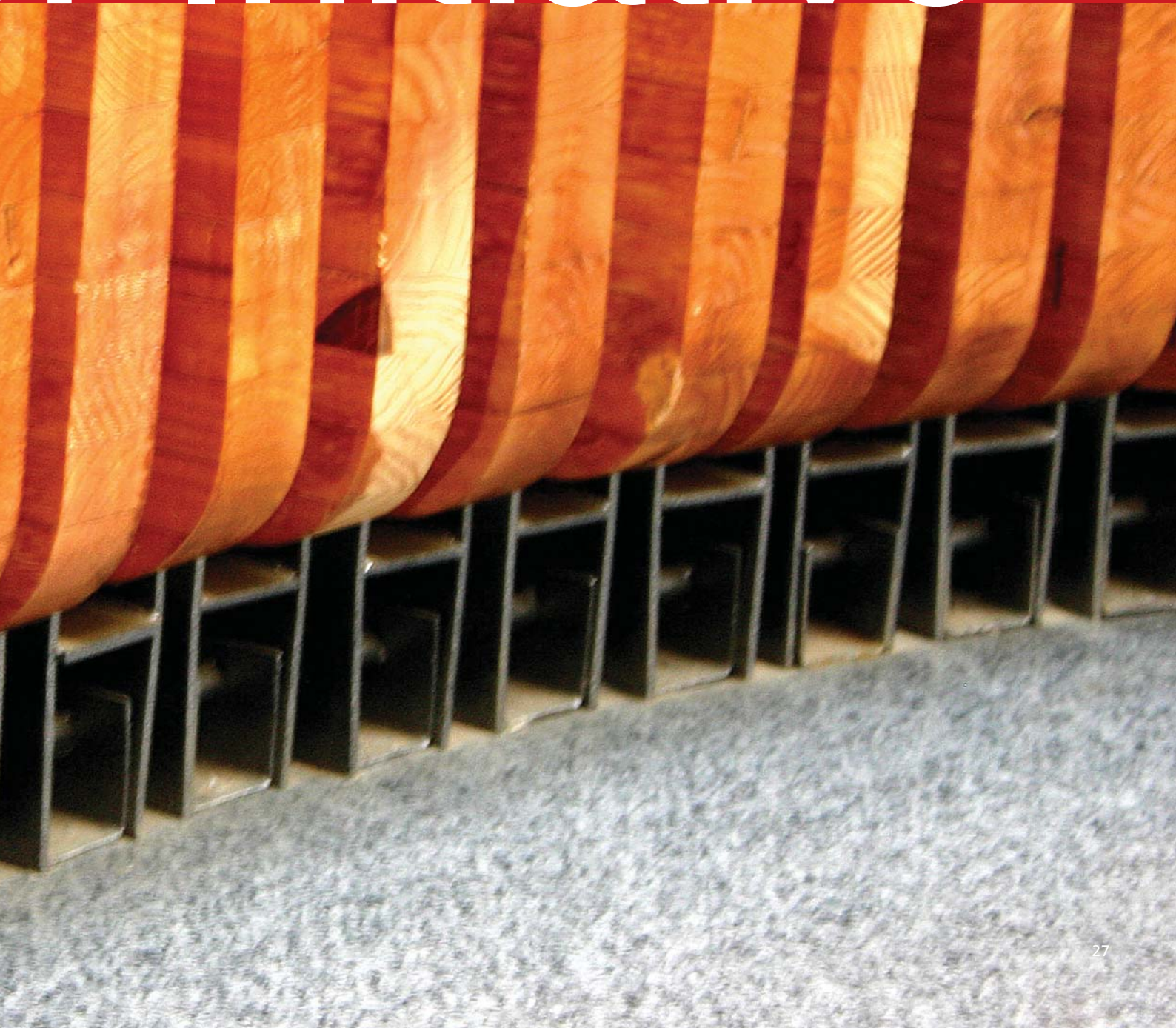
Figure 3: University of the Free State Subsidy-bearing Research Outputs (2004-2007).

# Cluster



The Strategic Academic

# er Initiative





*Ms Dineo Gaofhiwe, Coordinator for the Strategic Cluster Initiative at the Directorate Research Development.*

It has become imperative for the University of the Free State (UFS) to position itself not only as a good teaching and research University, but as an institution that truly excels in certain strategic areas of knowledge and research. This is an extremely important process which is expected to establish the University as a world leader in a selected number of strategic focus areas.

In line with international and national research trends, the UFS initiated a process of developing strategic research niche areas in 2005. Consensus was reached that the University would align its key academic and research efforts with national priorities through six Strategic Academic Clusters, each supported by a number of constituent Focus Areas.

The audit panel of the Higher Education Quality Committee (HEQC) congratulated the UFS in 2006 on the successful development of the Strategic Academic Cluster Initiative and its aim to focus and deepen its academic work through this approach. Following extensive workshops and consultation, the content and focus of six Clusters were finalised and descriptions of these were formally approved by Senate in 2007. It is envisaged that Cluster activities will not be based only on research, but will include postgraduate programmes and will filter down to undergraduate learning programmes and curricula. The six Clusters are:

- Water Management in Water-scarce Areas
- New Frontiers in Poverty Reduction and Sustainable Development
- Transformation in Highly Diverse Societies
- Technologies for Sustainable Crop Industries in Semi-arid Regions
- Materials and Nanosciences
- Advanced Biomolecular Systems

Academics from more than 30 departments and ten centres and units are participating in the implementation and development of these comprehensive academic Clusters. The major task of the Directorate Research Development (DRD) in the



# The Strategic Academic Cluster Initiative

future, with the support of research leaders, Heads of Departments and especially Faculty Deans, will be to operationalise each Cluster to function as a beehive of academic activity and innovation.

Related to the Cluster initiative, the DRD has initiated the process for the UFS to participate in the National Research Foundation's (NRF) South African Research Chairs Initiative (SARChI) by linking proposed research chairs to existing Clusters. The University has been awarded three such research chairs for 2008, with the possibility of another three for 2009. These chairs imply a significant boost to research capacity at the University.

Each Cluster is further associated with at least one recognised NRF Institutional Research Development Programme Research Niche Area (RNA). Eight RNAs, involving 24 NRF-funded research projects, were approved for the UFS in 2007 – the highest number of all universities in the country. The approved RNAs include:

- *Agricultural Risk Management for Africa, led by Prof André Jooste*
- *High throughput Identification and Characterisation of Biological and Bioactive Molecules, led by Prof Hugh Patterton*
- *Integrated Water Resource Management, led by Prof Maitland Seaman*
- *Local Development in Arid and Semi-Arid Areas of the Central Region of South Africa, led by Prof Doreen Atkinson*
- *Managing the TB-HIV/Aids Co-epidemic: Patient and Systems Dimensions, led by Prof Dingie Janse van Rensburg*



*Research Niche Area leader: Prof Doreen Atkinson, Centre for Development Support.*



*Research Niche Area leader: Prof Riaan Luyt, Department of Chemistry.*

- *Nano-Solid State Lighting, led by Prof Hendrik Swart*
- *Polymer Blends, Composites and Nanocomposites (Modified Polymers), led by Prof Riaan Luyt*
- *The Development of Sustainable Crop Value Chains for Staple and Underutilised Crops in the Semi-Arid Regions of Southern Africa, led by Prof Wijnand Swart*

A governance and management model for the Cluster initiative has recently been approved and is



currently being implemented. The first step in implementation is the appointment of a dedicated Director for each Cluster to provide academic leadership, facilitate cutting edge research and coordinate the overall Cluster activities. In the interim, each Cluster is headed by a Cluster Coordinator – a leading academic at the University who has been actively involved with the process from the outset. These Coordinators are supported by the DRD and are tasked with engaging academic staff members across disciplines in the preliminary activities of their respective Clusters.

## Cluster 1: Water Management in Water-scarce Areas

There are strong indications that water is becoming a critical resource worldwide as populations increase. As large parts of southern Africa and the developing world are water-scarce, this underlines a need for the development of this Strategic Academic Cluster at the UFS.

This Cluster carries out research and develops teaching in the management of the physical, ecological, social and economic aspects of the scarce water resource. Its members pay attention to the risks attendant on the availability of the water resource in its natural and utilisable states. Entrepreneurship is developed in the fields of routine water quality analysis, in the description of the minimum requirements for the maintenance of individual ecosystems (groundwater, rivers and other wetlands), in the optimal utilisation of water for agriculture and other socio-economic needs, in the prediction of water availability and in the assessment of the risks associated with water



*Cluster Coordinator: Prof Maitland Seaman, Centre for Environmental Management.*

scarcity in numerous fields of use. The latter risks include loss of quality and competitive usage.

### Focus Areas

#### 1. Management of aquatic ecosystems in water-scarce areas

As water supply becomes critical in water-scarce areas, it becomes imperative to safeguard the water bodies, both above and below ground. These water



bodies are sustained by their ecosystems. The development of management tools, the aim of this Focus Area, is a key aspect in the protection and use of water in water-scarce areas.

## **2. Climate change and variability in water-scarce areas**

Water-scarce areas show large variability in climatic conditions and all sectors of the country need to be prepared to expect extremes in weather over the next few decades. This Focus Area enables researchers to plan for water use and operational early warning systems which are developed for African application to benefit the peoples of Africa.

## **3. Managing water scarcity in agriculture**

One third of the developing world is facing both natural and man-made water scarcity. Arid and semi-arid climatic zones are regarded as naturally water-scarce due to the erratic, spatial and temporal distribution of rainfall. These areas are also highly sensitive to soil erosion. Rural farmers are the most vulnerable as they depend on the natural resources (veld, soil and water) to provide food, fibre and shelter for their families.

## **4. Optimal water-use for development in water-scarce areas**

The supply of water to communities established inappropriately or unavoidably or strategically (in the case of mines) has, in many cases, led to extensive damage of ecosystems in those communities. Planning for the wise use of the available water can lead to huge benefits to water-scarce areas, not only in South Africa, but also in large parts of southern Africa and the developing world.

## **Activities**

This Cluster already draws together a number of projects within its Focus Areas. Prof Maitland Seaman leads three projects, focused on (i) the use of remote sensing in the identification of significant pools in the dryland Seekoei River in the Northern Cape province of South Africa; (ii) the ecological aspects of the fish community in Knellpoort Dam, a holding reservoir in the Free State; and (iii) a participatory sustainability assessment framework for biodiversity conservation in rural areas.

A participatory sustainability assessment framework for biodiversity conservation in rural areas is being investigated under the leadership of Dr Jan Roos of the Centre for Environmental Management. Prof Johann du Preez (Department of Plant Sciences) guides a project on the phytosociology of the riparian and macrophyte vegetation of the Sand and Vet Rivers in the Free State. Dr Brent Usher's project (Institute for Groundwater Studies) involves the characterisation of bulk flow properties of South African aquifers to improve water supply, while Prof Jo van As of the Department of Zoology and Entomology and his team are investigating the conservation condition of the unprotected Okavango Delta in Botswana.

## **Cluster 2: New Frontiers in Poverty Reduction and Sustainable Development**

Developing countries face numerous challenges of low levels of human development and high levels of poverty and deprivation. It is the aim of this Cluster to seek new frontiers and perspectives on poverty

reduction and sustainable development, as a means to promote the asset base of people, their livelihoods, their empowerment, and their quality of life. This Cluster seeks to provide a research portal for trans-disciplinary, multidisciplinary and disciplinary research to address these critical issues.

The Cluster focuses predominantly on the non-metropolitan areas of South Africa, with the Free State, Northern Cape and central South African



*Cluster Coordinator: Prof Gustav Visser, Department of Geography.*

hinterland as key regions of interest. Focus areas are based on the available assets, capabilities and resources of individuals and communities, including natural, physical, financial, social and personal assets.

## **Focus Areas**

### **1. Local development in resource-poor environments**

The aim of this Focus Area is to promote local development in 'resource-poor environments', which is interpreted as areas that are lacking in economic assets, such as land, physical infrastructure, entrepreneurship, commercial finance and technical skills. This includes a strong emphasis on locality-based development in specific geographic environments, with their specific needs and problems.

### **2. Empowerment, leadership and capacity building for development**

This Focus Area is primarily human-centred, in that human skills, employee and workplace skills as well as leadership capabilities are emphasised. The research focus includes civil society, both the public and private sectors, non-government organisations, and the informal sector.

### **3. Governance and management for impact**

Due to skills shortages and a lack of management and leadership capacity, many policies, strategies and

programmes are not implemented effectively and efficiently, particularly those relating to service delivery. Institutional management is indispensable for development. This includes political management, administrative design, bureaucratic practices, and relationships of accountability within and between institutions, institutional ethics, and civil society. The objective of this Focus Area is to contribute, both in practical and theoretical terms, towards governing and managing for impact.

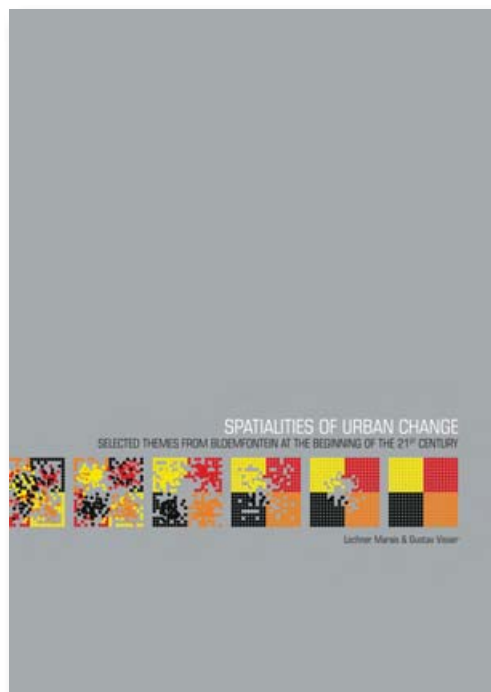
#### 4. Economic policy for development and poverty reduction

With a view to combating the severe levels of poverty, unemployment, and inequality of wealth, income and opportunities, there is a critical need to engage seriously and continuously with economic policy-making and implementation. This Focus Area is concerned with all economic policies, insofar as they address development and poverty reduction.

#### Activities

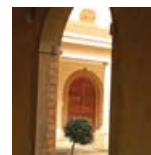
Many of the new initiatives in the Cluster developed from projects previously undertaken in isolation in different Departments and Faculties at the University. Research efforts and projects have now been consolidated to collectively speak to the search for New Frontiers in Poverty Reduction and Sustainable Development.

A unique aspect of this work is its vantage point – that of development in peripheral, resource-poor contexts moving beyond “silo-type” thinking in



*The recent publication, Spatialities of Urban Change (2008), serves as an example of what the New Frontiers in Poverty Reduction and Sustainable Development Cluster aims to achieve.*

familiar metropolitan locations. Aspects of the collective efforts of these investigations has been published as an edited collection entitled *Spatialities of Urban Change* (2008), which serves as an example of what this Cluster aims to achieve. Indeed, a new collection of essays relating to the



collective efforts of researchers in this Cluster is due for publication in 2009. Again the approaches to poverty reduction and sustainable development draw on the challenges and opportunities presented in peripheral, non-metropolitan areas.

The Cluster research also links closely with the highly successful Arid Areas Socio-Economic Research Programme headed by Prof Doreen Atkinson of the University's Centre for Development Support. Projects falling within the ambit of both this programme and the Cluster include investigations into the challenges of low-cost housing policy issues (Ms Kholisa Sigenu), mine-worker housing options in arid areas (Mr Jan Cloete), the impacts of large-scale investment in small towns located in arid areas (Ms Deidré van Rooyen), and guidelines to mine-close in these unique environments (Ms Cathy Muller).

Newly-funded Cluster projects include the impact of economic multipliers in the growth of the small business sector in the Eastern Free State (Dr Musigi Ruhiga) and second home development in the post-productivist country-side undertaken by the newly established Second Homes Research Group, led by Prof Gustav Visser with co-investigators Mr Gijsbert Hoogendoorn of the Division Physical Resources, Mr JJ Pienaar of the Department of Urban and Regional Planning, and Ms Anette Pienaar and Ms Elle Goitsemodimo (both with the Department of Anthropology).

In addition, two postdoctoral projects are funded. Ms Helene Maisonnave is exploring Computable General Equilibrium modelling to

better understand the South African labour market, while Ms Annelize Booysen is unpacking the socio-economic role of women in the South African economy and society.

### Cluster 3: Transformation in Highly Diverse Societies

Societies in transition experience challenges due to the problems brought about by the process of



Cluster Coordinator: Prof Piet Erasmus, Department of Anthropology.



transformation. Such transformation permeates every aspect of society and culture and frequently leads to diverse problems, constraints, confusion and disruption in the social and cultural life of individuals. At the same time, transforming societies pose unique opportunities for multidisciplinary research, for expanding the body of knowledge about societies in transition, and for scientists to apply their knowledge and skills to steer transformation in sound directions.

## Focus Areas

### 1. Political and institutional transformation

This area focuses on the need to understand how transformation works and how to manage the changes that it brings about.

### 2. Social justice – a yardstick for transformation

This Focus Area deals with the social conditions for the full recognition of human dignity and the realisation of human potential.

### 3. Critical transformation discourse and its ethics

Researchers in this Focus Area investigate the types of transformation discourse and their ethical or moral assumptions.

### 4. Identity dynamics

The fact that racial and ethnic identities are still strongly embedded in the new democratic

dispensation invites scholars within this Focus Area to reflect on the discursive power of these collective identities.

### 5. Indigenous knowledge systems for people's transformation and development

Any analysis or interpretation of existing or changing cultural patterns and societal institutions cannot claim validity without recognition of the role that indigenous knowledge systems play.

### 6. Language and societal transformation

This area focuses on enhancing the understanding of language as a social phenomenon of society and social categories, and the interactive qualities inherent in oral, visual and textual communication that result in societal transformation.

### 7. Health, health care and people's well-being in transforming societies

This Focus Area will generate comparative knowledge on the health of people in transforming societies; identify problems and constraints regarding the health of people in diverse societies; inform strategies and practices to solve problems and constraints; and assist policy makers, managers and practitioners to implement strategies and practices in the domain of health care transformation.

### 8. Crime in highly diverse societies

It is often suggested that the increase in crime in South Africa is related to the transition from authoritarian rule

to democracy. Crime has an enormous impact on all spheres of life and could jeopardise the transition to democracy. This Focus Area highlights and explores this phenomenon.

### Activities

Current projects within this Cluster encompass diverse disciplines within the Faculty of the Humanities. Prof Theo du Plessis of the Unit for Language Management is leading an investigation into the multiple languages of the Xhariep district of the Free State Province. Ms Herme Foster of the Department of Criminology is looking at alternatives to violence, while Prof Dap Louw of the Department of Psychology is developing a measuring instrument to determine the release of prisoners.



*Prof Anwar Osman, Senior Professor at the Centre for Africa Studies, is conducting research within the Cluster on Transformation in Highly Diverse Societies.*

Prof Anwar Osman of the Centre for Africa Studies is exploring medicinal clays, and Prof André Wessels of the Department of History is documenting the history of the South African national defence forces chaplain services from 1961 until 2004.

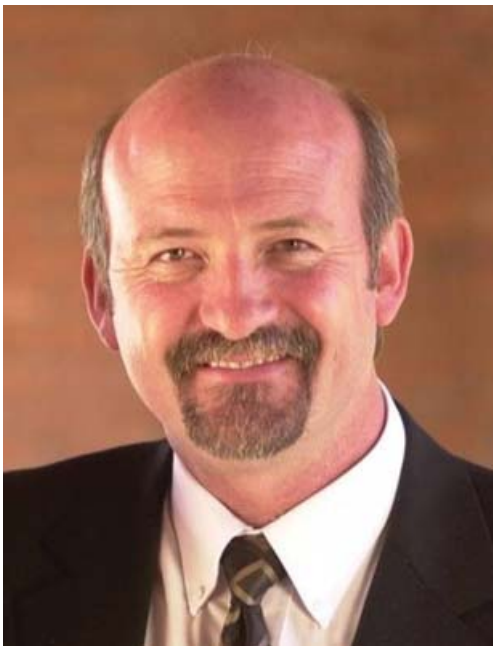
A team from the Centre for Health Systems Research and Development, led by Prof Dingie Janse van Rensburg, aim to inform intervention through research into phase II of non-uptake of counselling and testing for HIV among tuberculosis patients in the Free State.

### Cluster 4: Technologies for Sustainable Crop Industries in Semi-arid Regions

The high incidence of poverty in southern Africa is largely due to natural resource challenges. The agricultural sector, and in particular crop production, will play an integral role in solving these problems. Future agricultural research in the region must utilise technologies that are adapted to semi-arid regions while also being ecologically sound and economically viable.

This Cluster will adopt a holistic multidisciplinary approach to agro-ecosystem analysis, in order to improve yields and encourage the development of new value-added products and food supply chains for alleviating food shortages. This will be achieved by the innovative application of existing traditional or indigenous technologies and the development of new technologies.





Cluster Coordinator: Prof Wijnand Swart, Department of Plant Sciences.

## Focus Areas

### 1. Production technologies for managing crop environments

Members of this Focus Area will strive to gain a greater understanding of how plants are influenced

by biotic and abiotic constraints in their environment, and how these constraints can be managed and/or manipulated to the benefit of crops and the environment by means of suitable production technologies.

### 2. Genetic technologies for crop improvement

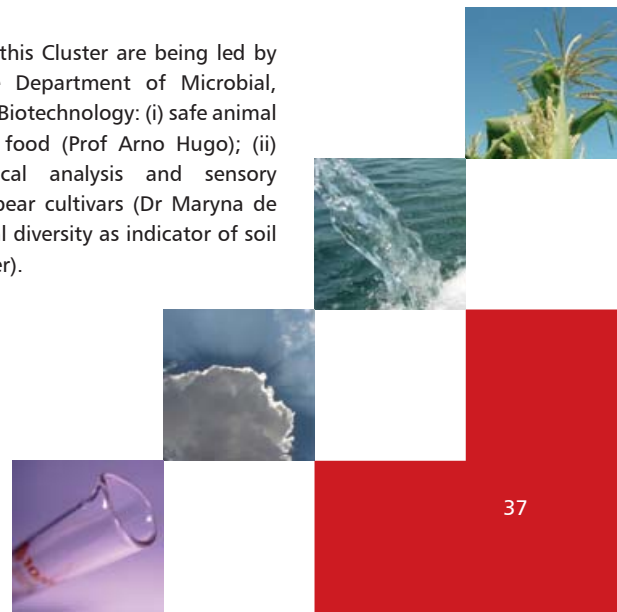
This area focuses on using various molecular and biotechnological applications to genetically improve the yield and nutritional quality of crops, and to increase tolerance to biotic and abiotic environmental stress factors.

### 3. Technologies for adding value to and improving crop product quality

Research in this Focus Area will work towards increasing food and non-food product quality and safety by developing high-quality products and establishing efficient manufacturer and retailer networks. Quality and safety control will be addressed by utilising a UFS Seal of Approval.

## Activities

Three projects within this Cluster are being led by researchers from the Department of Microbial, Biochemical and Food Biotechnology: (i) safe animal feed for safe human food (Prof Arno Hugo); (ii) physical and chemical analysis and sensory evaluation of cactus pear cultivars (Dr Maryna de Wit); and (iii) microbial diversity as indicator of soil quality (Dr Lizelle Piater).



Prof Maryke Labuschagne's team is evaluating high and low lysine and tryptophan maize genotypes under N stressed conditions, while a biochemical-molecular study of Russian wheat aphid resistance and control is being led by Prof Amie van der Westhuizen (both from the Department of Plant Sciences).

Prof Sue Walker from the Department of Soil, Crop and Climate Sciences is investigating radiation and water use efficiency of maize production under in-field rain water harvesting with mulch. Also from the Department of Soil, Crop and Climate Sciences, Prof Seef Pretorius is leading research into plant based fungicides, while Prof Leon van Rensburg's team is separating crop water use into its components of evaporation and transpiration.

## Cluster 5: Materials and Nanosciences

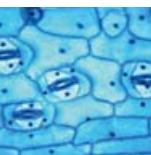
This Cluster deals with the study and use of materials on a very small scale, since one nanometre is only a millionth of a millimetre. Materials at this small scale can behave differently from when they are in bulk form, and are expected to lead to new devices which will be faster and more efficient. Moreover, the materials can be stronger and lighter, and conduct heat or electricity in a different way, and can even change colour. For example, small particles of gold can appear red, blue or gold, depending on the size.

This Cluster anticipates different impacts on society. Even though its main focus is materials and



*Cluster Coordinator: Prof André Roodt, Department of Chemistry.*

its main activities will fall within the ambit of the Natural Sciences, it will also address relevant environmental, social, ethical and judicial issues. Thus, its members will ultimately work across Departments and Faculties to develop an interdisciplinary Cluster.



## Focus Areas

### 1. Nano solid state materials

This Focus Area includes the development of luminescent nano-materials that will improve the quality of life and add to high-technology development. This promises to replace conventional light sources with impressive economic and environmental savings, and improvement of the lifetime of field emission display (FED) and plasma display (PD) television and computer screens. An objective is to enable the supply of luminescent infrastructure materials to the construction industry, which will allow manufacturing of luminescent lighting for streets, roads, road signage, buildings and mine tunnels. Hydrogen storage capabilities of some nanocrystalline materials as renewable energy sources will also be investigated.

### 2. Petrochemicals

This Focus Area includes thrusts in homogeneous and heterogeneous catalysis. Catalysis dramatically increases the rate of formation of new compounds/solvents/detergents/materials as well as selectivity of products. It necessitates clean operating systems based on economic and environmental considerations, since the process is more effective and yields pure products with higher yields and less waste. Liquid natural resources (crude oil) are rapidly being depleted, while solid (coal) and (natural) gas are becoming increasingly important to ensure future supplies. The Focus Area aims to assist and contribute toward developing chemical

processes to create a world class downstream chemical industry.

### 3. Polymers

This Focus Area will investigate new materials designed or obtained from blending different polymeric and composite materials and the mixing with a variety of fillers in the absence or presence of modifiers. It will explore the inclusion of nano-sized particles into different matrices, modifying the morphology and physical properties of the polymers and composite materials for commercial applications. Phase-change materials (like waxes) as energy-storage systems will also be studied. The increased use of thermoplastics for the manufacturing of plastic products has rendered research into fibre-reinforced thermoplastics increasingly important. Similarly, polymer blends and composites is a promising field.

## Activities

Three postdoctoral projects are currently being funded within this Cluster, namely (i) polymer blends, composites and nanocomposites (Dr VR Gorla); (ii) improving physical properties of PVA-alkyd hybrid systems by uniform dispersion of hydrotalcite nanoparticles (Dr SS Ochigbo); and (iii) metallo-porphyrine and phthalocyanine conjugates (Dr E Fourie).

The Cluster also incorporates the research projects of seven graduate students. PhD students Ms NI Barnard, Ms GSJ Venter, Mr PD Nsimama and

Mr JA Molefi are studying, respectively: (i) metallocene, alkyl and aryl carboxylate metal complexes; (ii) silver and Rhodium nanomaterials for catalysis; (iii) Nano-Phosphor applications in infrastructure; and (iv) phase change conducting materials from polyethylene, paraffin waxes and copper. MSc studies include (v) thermal, mechanical and morphological properties of polychloroprene nanocomposites (Mr SM Mohomane); (vi) copper based nanomaterials for catalysis (Mr M Muller); and (vii) sol-gel synthesis and luminescent properties of  $\text{SiO}_2\text{:ZnS:Mn}$  phosphor (Ms MM Biggs).

## Cluster 6: Advanced Biomolecular Research

This Cluster is driven to help improve the quality of life of humans and is a multidisciplinary grouping with significant research expertise in molecular life sciences, bioinformatics, proteomics, genomics, mathematical sciences and statistical mathematics.

Cluster activities are supported by several state-of-the-art core facilities, including a facility for Genomics and Proteomics where the genetic or protein complement is studied at an organismic level. The Cluster is also backed by a Bioinformatics Node, which allows the storage and analysis of extremely large experimental data sets with powerful computers. These types of analyses allow us to identify genetic pathways that are switched on in response to viral infection, discover proteins and modifications of proteins that are involved in prolonging lifespan, identify components in



*Cluster Coordinator: Prof Hugh Patterton, Department of Microbial, Biochemical and Food Biotechnology.*

indigenous plants that can be used in the treatment of human disease, and design synthetic enzymes that can be used to make drugs more efficiently and cheaply.

### Focus Areas

#### 1. High throughput biology

This area focuses on the microarray analysis of the expression of all genes in an organism, the two-

dimensional electrophoretic analysis of the entire protein complement of an organism, and the identification of proteins and analysis of protein modifications using nanoflow liquid chromatography directly coupled to a mass spectrometer.

## 2. Bioinformatics

This Focus Area is involved in bioinformatics research; providing bioinformatics support to research activities within the Cluster; the development of databases to archive and allow correlative analysis of large data sets; and the development of new algorithms and software. The Bioinformatics Node also conducts introductory and specialist workshops in bioinformatics to researchers.

## 3. Advanced cloning systems

Researchers in this area focus on the manipulation of the genetic content of microbes in a safe, contained environment to manufacture novel, modified proteins with valuable properties. The Focus Area also engages in bio-prospecting; the design of new genetic systems that facilitate the preparation of large amounts of novel proteins required in bioremediation; and in the study of protein structure that is required in the design of synthetic enzymes.

## 4. Novel drugs discovery

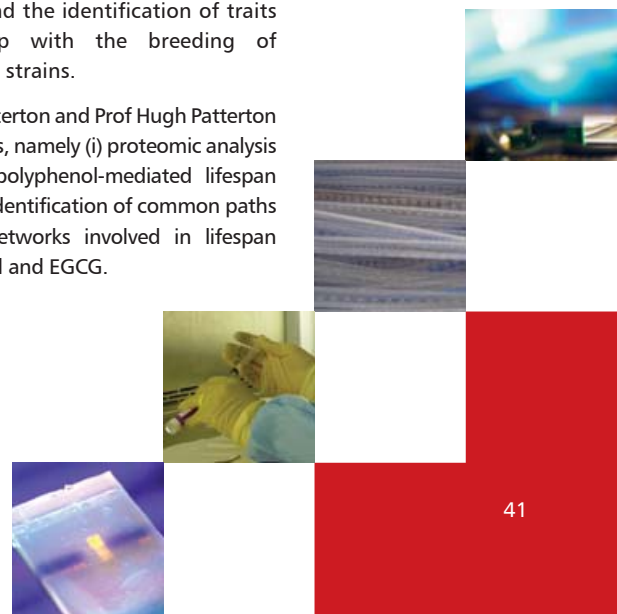
This Focus Area is involved in the systematic analysis of complex extracts from indigenous plants and large chemical libraries. The Focus Area, formed through collaboration between the Department of Chemistry and FARMOVS-PAREXEL, methodically

screen for candidate drugs that suppress the biological activity of agents involved in human diseased states, including tissue inflammation and cancer.

## Activities

Projects within this Cluster range from understanding how and why we age, to designing novel molecules that act as drugs in the treatment of major human diseases. Research groupings include biochemists, organic chemists, microbiologists, mathematicians and computer scientists to generate cutting edge advances in fundamental scientific insight as well as developing new solutions to central issues in biotechnology. Scientific questions studied in this group include an investigation of the chemistry of a cell that allows lifespan extension, the way in which the packaging of DNA in a cell regulates gene expression, the identification of changes in the level of proteins in response to growth under extreme conditions or in the presence of xenobiotic or even toxic components, the effect of pathogen interaction on the gene expression and proteomic profile of the host, and the identification of traits in wheat that help with the breeding of agriculturally superior strains.

Ms Elize Muller-Patterton and Prof Hugh Patterton are leading two projects, namely (i) proteomic analysis of sirtuin targets in polyphenol-mediated lifespan extension; and (ii) the identification of common paths in gene expression networks involved in lifespan extension by resveratrol and EGCG.



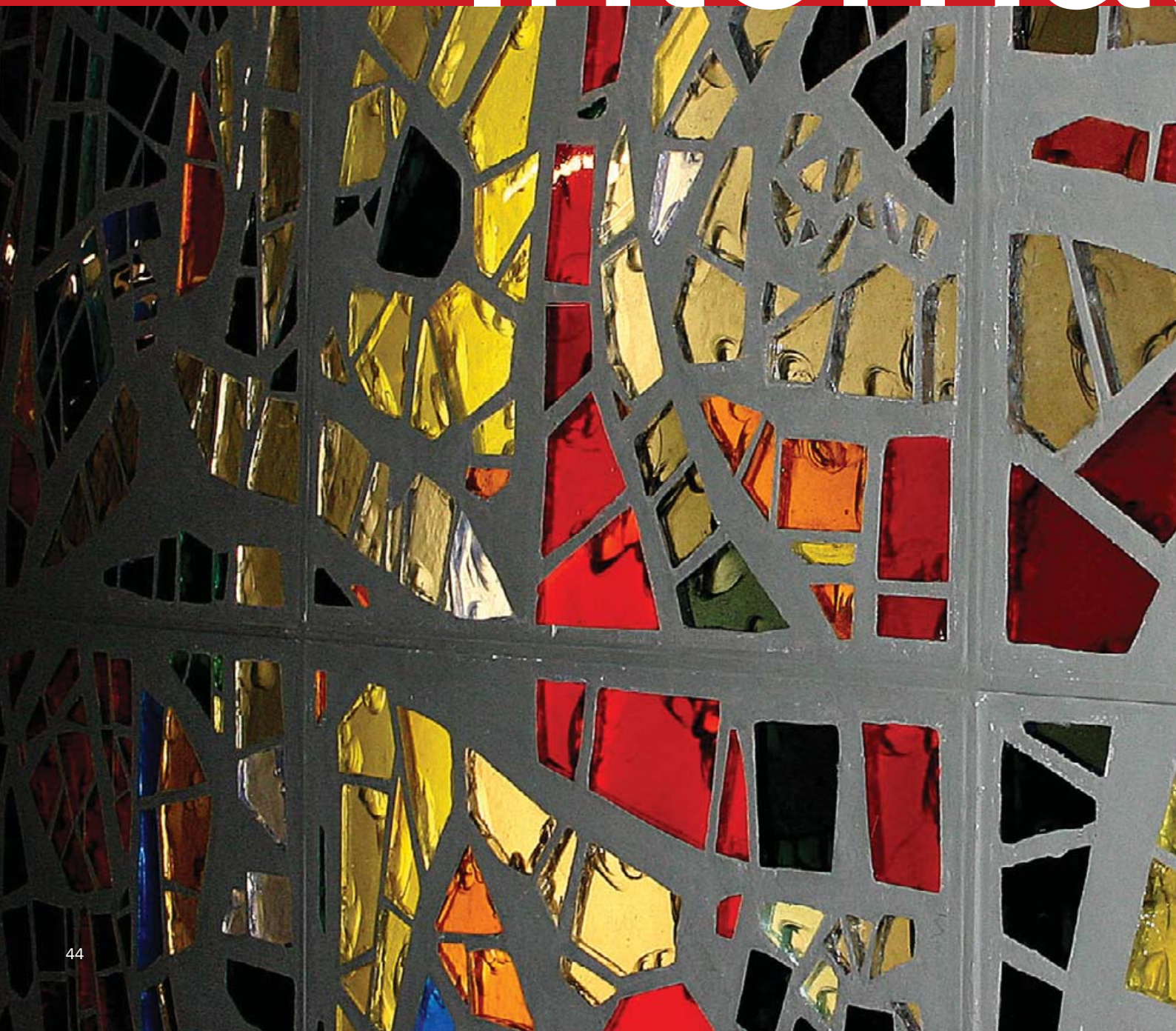
Prof Patterson is also involved with the micro-array analysis of the whole-genome expression profile in chickens in response to *Avibacterium paragalinarium* infection, together with Prof Rob Bragg. Prof Koos Albertyn's team is investigating whole genome-sequencing and annotation of *Avibacterium paragalinarium* as the basis for NAD independence, as well as the development of novel expression systems for *Yurowia lypolytica*. A project on whole genome sequencing of *Thermus thermophilus* and the identification of genes encoding novel enzymatic activities is being led by Prof Derek Litthauer.

A further four projects are underway under the leadership of Prof Patterson: (i) the identification of the molecular switch allowing chromatin binding of linker histone H1; (ii) the characterisation of post-translational modifications of core histones associated with early events in chromatin decondensation during extensive transcriptional reprogramming; (iii) the delineation of the role of core histone tails in chromatin compaction and gene repression; and (iv) a mass-spectrometric analysis of protein cross-links: application to nucleosome-nucleosome contacts in the condensed 30nm chromatin fibre.





# Internat





# ationalisation





Staff members at the UFS Internationalisation Office are, from the left, front: Ms Cecilia Sejake (Liaison Officer), and Dr Aldo Stroebel (Head of Internationalisation); back: Ms Refilwe Masiba (Office Coordinator), Mr Sookrit Hulloowan (Student Assistant), Ms Jeanne Niemann (Coordinator for International Students), Ms Louise Steyn (Professional Officer), and Mr Arthur Johnson (Coordinator for Research Funding Opportunities).

In 2003, the *Strategic Framework for the Development of Research at the University of Free State* (UFS) acknowledged research and postgraduate study as key drivers of the effective internationalisation of universities. Conversely, the Directorate Research Development (DRD) recognised

that an internationally competitive research system can only be ensured if the University is able to effectuate exposure to high-level expertise through the promotion of cooperation with international experts in critical areas. Implementation of the Research Strategy resulted not only in the

# Internationalisation

prioritisation of research internationalisation (as part of the DRD's quality assurance efforts), but also underscored the University's commitment to institutional internationalisation. This commitment is an inherent feature of the UFS mission; it forms part of its strategic priorities and is evident in many aspects of strategic planning at institutional level.

A formal process of revising the role and position of internationalisation was initiated in 2003 and culminated in the formulation and acceptance of the Internationalisation Policy in 2005 and the Internationalisation Business Plan in 2006. In January 2007, Dr Aldo Stroebel was appointed as the first Head of the new UFS Internationalisation Office.

The *Strategic Plan for Internationalisation at the University of Free State*, approved early in 2008, is informed by and cascades down from the strategic priorities of the University. The overall goal of the Strategy is to ensure a coordinated and synergistic University-wide internationalisation support function, with effective strategies that maximise opportunities for international research and professional development of academic staff, and ensure a quality experience for both students and visitors. Through this it will position and profile the University as a world-class, research-intensive institution.

This overarching goal is supported by a number of strategic objectives and associated priorities. Of these, the following will contribute to research support and development at the UFS:

- **Developing appropriate systems and processes to support internationalisation at the University:**

- *to develop, maintain and enhance systems which ensure that the University benefits fully from participation in the global internationalisation of higher education.*

- **Supporting and enhancing the international standing of the University:**

- *support of research and scholarly collaboration.*
- *to increase the number of active partnerships with relevant and appropriate institutions outside South Africa to provide the UFS community with a broader range of options for research, study abroad, scholarship and service.*
- *to develop and support exchange and mobility programmes which enable a targeted number of UFS students and staff to participate in an international learning experience.*
- *to utilise international opportunities for academic staff development in particular for professional development and building of research skills.*

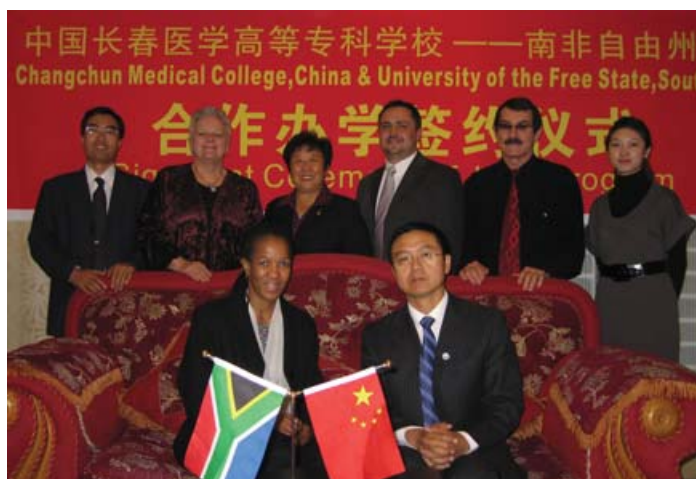
A critical responsibility of the Internationalisation Office is to increase international funding of research at the UFS. This entails the identification of international research funding opportunities, establishment of contact with funding bodies, expansion and maintenance of international research agreements, establishment of administrative aid,

and expansion of research membership. Amongst others, the UFS receives international research funding from the WK Kellogg Foundation, May and Stanley Smith Charitable Trust, Bill and Melinda Gates Foundation, and the Ford Foundation. In addition, the position of Coordinator: International Research Funding was created in the International Office and Mr Arthur Johnson was appointed to assist, in close collaboration with the DRD.

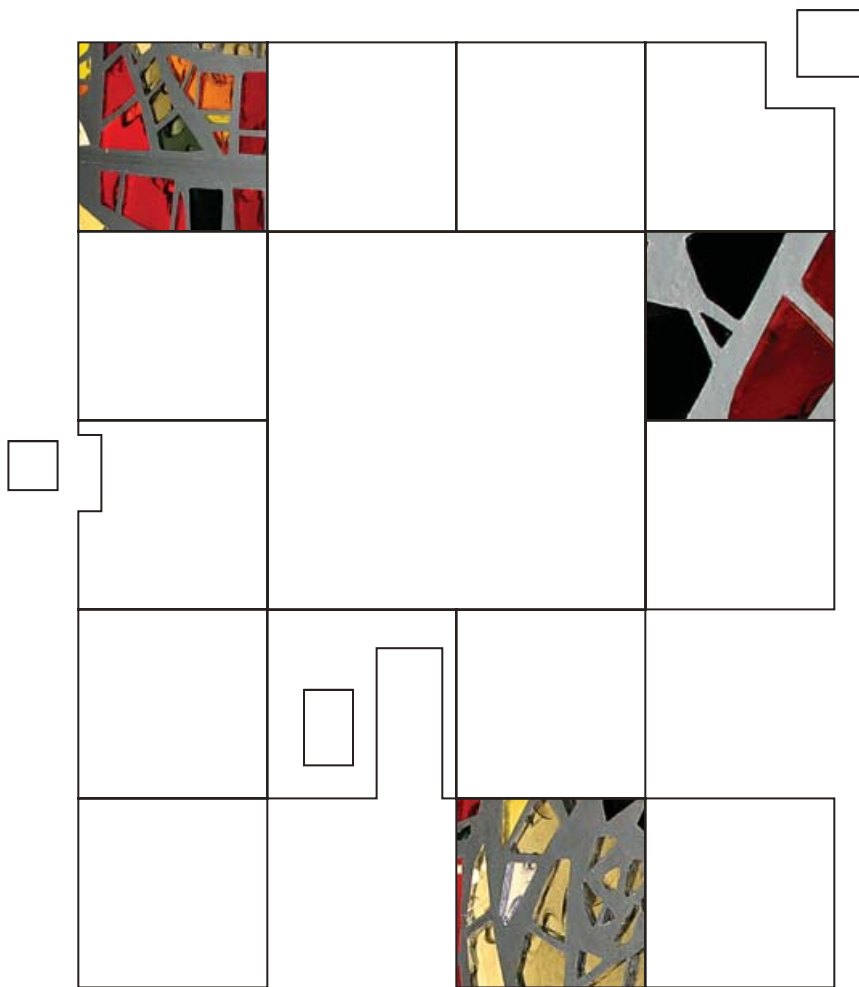
The Internationalisation Office will also play an important part in the further development of the Strategic Academic Clusters. Given that this initiative aims to establish the University as a world leader in a selected number of strategic focus areas, the Clusters will provide a vehicle for many internationalisation activities. These activities will support the Clusters

through directed and strategic marketing, and by enhancing international opportunities for research funding, research cooperation, postgraduate student and postdoctoral fellow recruitment, and appropriate curriculum development.

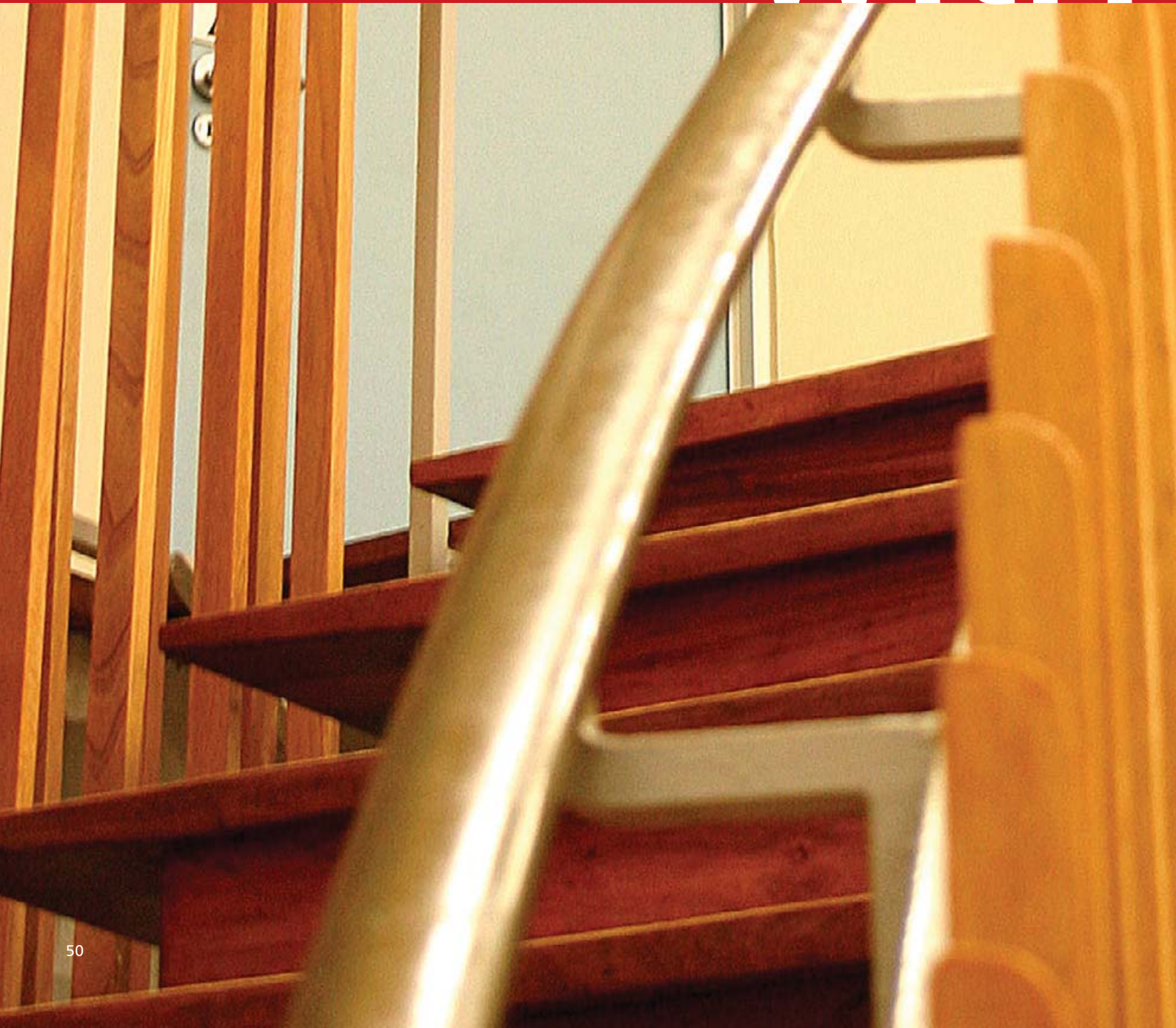
Ultimately, the UFS operates within a global context where markets for education services are highly competitive, where graduates are increasingly mobile and require skills and qualifications that are globally acceptable, and where the research environment is highly focused and well-resourced. It is therefore imperative that the institution maintains a dynamic focus on effective internationalisation in order to uphold and consolidate its position as a leading South African university, both nationally and internationally.



Successful negotiations with the Changchun Advanced Medical Institute (CAMI) in China resulted in a formalised agreement with the University of the Free State School of Nursing. Pictured here are, from the left, front: Prof Leticia Moja (Dean: Faculty of Health Sciences, UFS), Prof Zhang Xiangfu (President of CAMI); back: Dr Yuan Zhao Xin (International Communication, CAMI), Prof Anita van der Merwe (Head of the School of Nursing, UFS), Prof Dr Xin Li (Chief Secretary, CAMI), Dr Aldo Stroebel (Head of Internationalisation, UFS), Prof Francois du Toit (Professor of Sociology, CAMI), and a CAMI graduate in International Nursing.



with



Research Commercialisation  
and Cooperation

# Industry



The University of the Free State (UFS) recognises the importance not only of generating new knowledge by means of research programmes, but also of actively participating in the application and utilisation of knowledge and technology to generate new products, processes and services. The Directorate Research Development (DRD) also recognises the potential of third-stream-funding – generated through contract research, the effective management of intellectual property and the commercialisation of innovative research – to ensure greater financial sustainability in support of research at the University. Research commercialisation and increased cooperation with industry has therefore been a priority within the Strategic Framework of the DRD since 2003, and this prioritisation has led to some very promising endeavours in these areas.

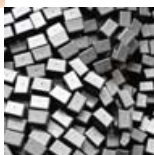
Dedicated human resources, policy directives and administrative and legal processes have been put in place in support of UFS research commercialisation activities. Prof Gerrit van Wyk, acting Director for Entrepreneurship and Special Projects, has been assisting the DRD on a part-time basis since 2005 and a candidate attorney, Ms Victoria Motloutung from Phatshoane Henney Inc. (a Bloemfontein-based law firm), has been responsible for contract administration from 2006. In the same year, the UFS *Policy for the Management of Intellectual Property* (IP) was approved for implementation and legal representatives were contracted to handle UFS patents. The University further decided to create a dedicated managerial position to spearhead research commercialisation,



*Ms Victoria Motloutung, candidate attorney from Phatshoane Henney Inc., has been responsible for contract research administration from 2006.*

innovation and entrepreneurship, and the appointment process was initiated.

The University is currently engaged with many industrial partners through the Technology and Human Resources for Industry Programme (THRIP). It has also received significant third-stream funding from some prominent South African and international companies. These include global





# Research Commercialisation and Cooperation with Industry

energy company Sasol, and BioPAD, a South African biotechnology company that brokers partnerships between researchers, entrepreneurs, business, government and other stakeholders to promote innovation and create sustainable biotechnology businesses.

Sasol has made considerable commercial and social investments in the University in recent years, benefiting the UFS Department of Chemistry and the Research Institute for Education Planning (RIEP) in particular. Sasol invested R9 million over the past three years in the Department of Chemistry, focusing specifically on process technology and research development on oxidation and homogeneous catalysis. This strategic partnership also involves the secondment of a senior Sasol researcher, Prof Ben Bezuidenhout, to the Department, effectively enhancing the Department's interaction with the chemicals industry.

The investment bolstered the research capacity of the Department in a number of ways. It now boasts with some of the most advanced chemical research apparatus in Africa, including a nuclear magnetic resonance (NMR) spectrometer and a single crystal X-ray diffractometer. With these equipment the Department is not only able to serve the petrochemical and the pharmaceutical industries more effectively, but also to train a much larger corps of postgraduate students. The NMR apparatus enabled the Department to conduct contract research for the multinational pharmaceutical company FARMOVS-PAREXEL, and to negotiate research agreements with international universities. Research development linked to Sasol's investment

also forms an integral part of the Strategic Academic Cluster on *Materials and Nanosciences*, focusing on petrochemicals. Finally, the Department registered a 100% increase in published research outputs on basic petrochemical reactions from 2005 to 2006.

Sasol also funded the establishment of a Technology Research Activity Centre (TRAC) Laboratory on the Qwaqwa Campus in 2006, in



*Prof Ben Bezuidenhout, SASOL-seconded Research Chair in Organic Chemistry.*

collaboration with the UFS RIEP. The Sasol TRAC Laboratory will provide valuable research and community engagement opportunities for academic staff members and students at the UFS.

In 2007, BioPAD awarded a R13.7 million biotechnology research contract to the UFS Department of Microbial, Biochemical and Food Biotechnology to conduct research into prehistoric micro-organisms which live under extreme conditions. This is one of the largest research contracts awarded to the UFS in recent years and includes equipment, student bursaries and postdoctoral fellowships.

The contract involves the establishment of a Platform for Metagenomics – a technique which allows researchers to extract the DNA from microbes

in their natural environment and investigate it in a laboratory. The Platform aims to tap into the unique genetic material in South African mines which will lead to the discovery of new genes and their products. These new and unique products will find application in the medical field (anti-cancer, anti-bacterial en anti-viral cures), the industrial sector (nanotechnology, commercial washing agents and the food industry) and the environmental sector (pollution management, demolition of harmful metals and other toxic waste). The Platform further aims to establish unique expertise for spin-off consultation and service companies run by the students trained in the Platform.

The project is endorsed by the Department of Science and Technology and the National Research



*Some of the guests attending the launch of the UFS/BioPAD Metagenomics Platform contract are, from the left: Dr Siyabulela Ntutela (Deputy Director for Biotechnology at the Department of Science and Technology), Dr Godfrey Netswera (Manager of Thuthuka and the Support Programme at the National Research Foundation), Prof Esta van Heerden (Platform Manager and Lecturer at the Department of Microbial, Biochemical and Food Biotechnology at the UFS), Mr Butana Mboniswa (Chief Executive Officer of BioPAD), and Mr Vuyisele Phehani (Portfolio Manager for BioPAD).*

Foundation (NRF), which contributes to the bursaries of the 17 postgraduate students currently on the programme. The project also engages a number of industrial and academic collaborators, both local and international. These include Princeton University and the University of Tennessee in the United States of America (USA); Geosynec Consultants Inc. and Oak Ridge National Laboratory (both in the USA), the Universities of the Witwatersrand, North West and Limpopo in South Africa (SA); BHP Billiton and MINTEK (SA); and South African mining companies Harmony, Gold Fields and AngloGold Ashanti.

The Platform will provide valuable opportunities for some of the Strategic Academic Clusters, specifically *Advanced Biomolecular Research* and

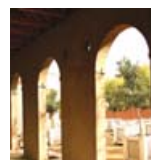
*Technologies for Sustainable Crop Industries in Semi-Arid Regions*. Gene and product discovery, as well as extending microbial impact in plant breeding are some areas where joint research between these Clusters and the Platform will be conducted.

Research at the UFS Faculty of Health Sciences also received a significant external investment in 2007. The Netcare Private Hospital Group donated R265 000 to the Department of Haematology and Cell Biology with respect to the establishment of a bone marrow transplant programme and the development of a molecular biology laboratory and anti-leukemia remedies.

In 2006, the UFS became the first tertiary institution in the country to sign a joint venture agreement with Empowerdex – South Africa's



Celebrating the donation of R265 000 from Netcare Private Hospital Group to the Department of Haematology and Cell Biology are, from the left: Prof Gert van Zyl (Head of the School of Medicine at the UFS), Prof Leticia Moja (Dean: Faculty of Health Sciences at the UFS), Prof Dion du Plessis (Director: Netcare Holdings), and Prof Philip Badenhorst (Head of the Department of Haematology and Cell Biology at the UFS).



foremost black economic empowerment (BEE) ratings agency – to train BEE practitioners across all sectors of the economy. This joint venture entails the establishment of a transformation office within the Centre for Business Dynamics at the UFS which will administer training programmes and conduct contract research on BEE.

A joint research project with the Council for Scientific and Industrial Research (CSIR), which utilised yeast cultures from the culture collection of the UFS, serves as another fine example of the successful commercialisation of research at the University. This project led to the establishment of a for-profit company, Oxyrane, which attracted international investors. In addition to the successful

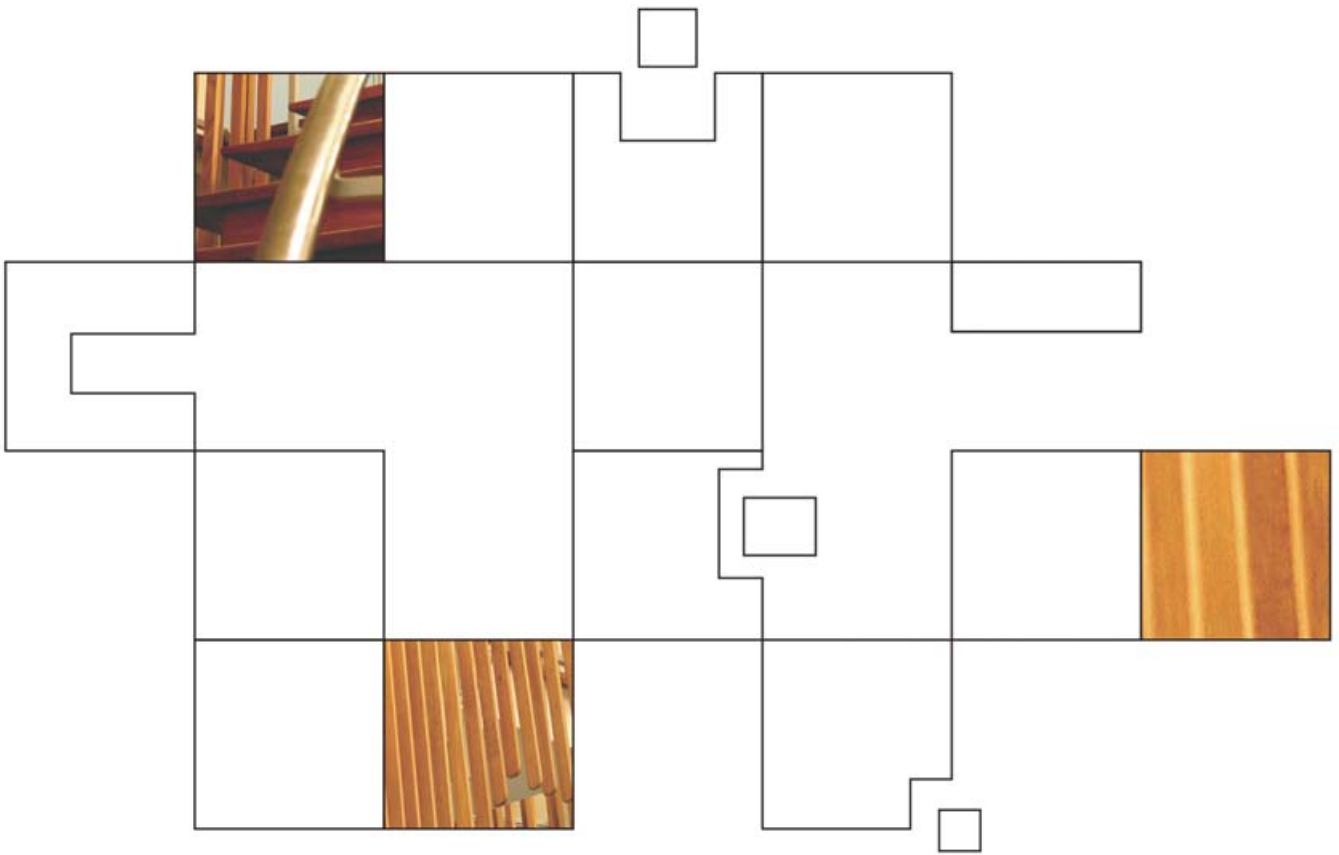
sale of the IP resulting from this collaborative research, the UFS will collect royalties on sales should products be successfully marketed.

Considered as a whole, these successes confirm that UFS research is making very good progress in exploiting external sources of income. However, it is critical that the University continues to project an image of a research-orientated University in order to effectively increase its commercial research ventures. In addition to the palpable potential of the Strategic Academic Clusters in this regard, the expansion and duplication of projects such as those discussed in this section will be a key responsibility of a new UFS Head for Research Commercialisation and Entrepreneurship.



*Prof Frederick Fourie, Rector and Vice-Chancellor of the UFS, and Mr Vuyo Jack, Executive Chairman of BEE ratings agency Empowerdex.*





# Student



Postgraduate

# Support



Postgraduate students are the researchers of the future. These burgeoning academics, engaged with Masters, Doctoral and postdoctoral work, represent the key driver of research productivity and the creation of new knowledge in South Africa. Cognisant of this reality, the University of the Free State (UFS) is committed to providing a research-rich environment and infrastructure for all of its postgraduate students, by:

- inducting students into an active research community, introducing them to alternative viewpoints and providing them with suitably skilled and knowledgeable supervisors and opportunities to interact with students and academics across a wide spectrum;
- encouraging students to undertake research within the world of work and within the community, including collaboration with external partners; and
- building student research capacity through a range of support activities.

These support activities include orientation or induction programmes, research design and methods training, research skills training, language and writing skills development, editorial support for writing, the development of research-related skills (such as project management, team work, information retrieval and database management), a mentoring system and the provision of guidance and counselling in the event of difficulties. The majority of these services are already being offered

though various Departments and units at the University. However, when postgraduate support is not managed as a whole, at an institutional level, it is often challenging for postgraduate students to identify and access activities relevant to their individual capacity development needs.

Consequently, the UFS identified the need for a formal, dedicated support structure which would coordinate all academic support services and activities aimed at postgraduate students. This support structure takes the form of an institutional Postgraduate Student Support Office, a one-stop service offered through the UFS Directorate Research Development (DRD).

The DRD's *Strategic Framework for the Development of Research at the UFS* (2003) prioritised effective and quality postgraduate training as a prominent part of its quality assurance objective. This entails not only an increase in the quantity of postgraduate students, but also in the quality of the research activities of these emerging researchers. The Higher Education Quality Committee of the South African Council on Higher Education further confirmed the urgent need for formal and coordinated postgraduate student support services at the UFS during its 2006 institutional audit. Moreover, the National Research Foundation (NRF) identified the production of "large numbers of high-quality PhDs to provide the bedrock for an innovative and entrepreneurial society"<sup>4</sup> as a key driver for all of its programmes in 2005. This strategy of

4 Source: <http://www.nrf.ac.za/publications/news@nrf/apr2005/apr05.pdf>





# Postgraduate Student Support

*PhD: A Key Driver* was recently underlined by the NRFs *SA PhD Project*, a major campaign aimed at increasing the number of South African PhDs five-fold by 2025.

With these national and institutional aims in mind, the DRD initiated the process to establish the Postgraduate Student Support Office in 2005. The University approved this initiative in 2007 and recommendations aimed at the improvement of postgraduate training at the University are currently being developed.

The primary purpose of the Postgraduate Student Support Office will be to provide coordination and support services to postgraduate students and postdoctoral fellows, as well as academic staff across the University. The Office will foster an enabling, inclusive and supportive environment for all spheres of postgraduate study – teaching, learning, research and scholarship – and will strive to engage students in the vibrant worklife of a research-oriented University. Some of its main aims will be to increase Masters and Doctoral student throughput, to increase the scholarly publication of postgraduate research, and to ensure the production of high-quality postgraduates.

The establishment of the Office as part of the DRD provides it with the necessary linkages to other research-related structures, including the Internationalisation Office and the Strategic Academic Clusters. It also ensures open access to the vital research administration functions of the Directorate. This is particularly relevant in terms of the identification of sources of funding for postgraduate



*Dr Annelize Venter, interim Coordinator of the Postgraduate Student Support Office.*

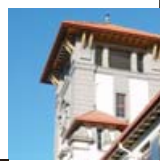
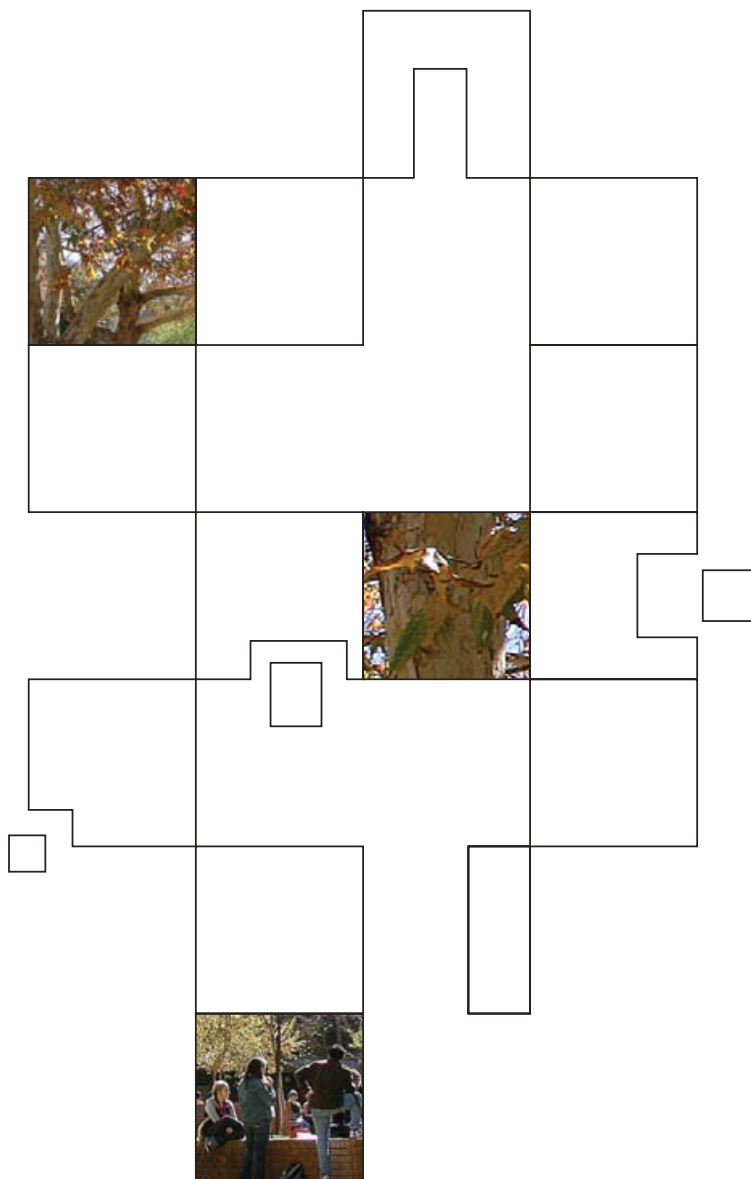
students. The Office will take a leading role in this regard by making funding information readily available, assisting students in obtaining funding, and facilitating and leading fundraising initiatives for postgraduate bursaries and scholarships. It will also provide other targeted information services, including a single database of postgraduate

students; postgraduate topics; supervisors, study leaders and promoters; and capacity development activities. This will provide a useful tool for monitoring students' learning experiences and progress, completion rates, research outputs, and even post-study experience.

Although postgraduate students will be the main clientele and target audience of the Postgraduate Student Support Office, it will also serve as a resource for academic staff members who are less experienced in research supervision and UFS supervision policies. The Office will provide a training base and information hub for these staff members in particular, but also for the larger corps of UFS postgraduate study leaders and promoters,

by developing and consolidating appropriate documentation to support their activities. Such documents include, for example, a supervisors' checklist and an institutional policy document entitled *Mutual Responsibilities of a Supervisor and Postgraduate Student* which is currently being finalised.

The anticipated goals, objectives and activities of the Postgraduate Student Support Office are currently being informed and validated by a University-wide study of the UFS postgraduate environment. It is envisaged that the role, responsibilities and structure of the Office will thus be clarified and the Office should commence full operations by the end of 2008.



# Achieve



Outstanding Research

# vements



## Honouring our Leading Researchers

In this section, we highlight the achievements of some of the many leading researchers at the University of the Free State (UFS). We pay tribute to individuals and teams who have demonstrated exceptional research leadership and have received in-house, national and international recognition, across a broad range of research and research-related achievements. Although this listing is in no way exhaustive, it does provide a snapshot of the quality and excellence exhibited by researchers at the University.

## Outstanding Contributions to the UFS Research Culture

**Dr Zerihun Alemu**, Affiliated Associate Professor at the Department of Agricultural Economics, received an award for the best article published in the South African Journal of Agricultural Economics (Agrekon), an accredited journal of the Agricultural Economics Association of South Africa, in 2006.

**Prof Constanze Bauer** of the Department of Political Science is an Audit Committee member of the Free State Department of Education (2006).

**Dr Adri Beylefeld** (Senior Lecturer at the Division of Health Sciences Education), **Mr Kali Nena** (Lecturer at the Department of Sociology) and **Prof Engela Prinsloo** (Head of the Department of Family Medicine) received the Kerneels Nel medal

and cash prize for the best article published in qualitative research in 2006.

**Dr Susan Bonnet** (Lecturer) and **Prof Jan van der Westhuizen** (Associate Professor) of the Department of Chemistry, together with staff members from FARMOVS-PAREXEL, received the 2008 National Science and Technology Forum innovation award for an outstanding contribution to science, engineering and technology from either an individual or a team over the last ten years.

**Prof Frikkie Booysen** of the Department of Economics is a member of the interim Research Sector Steering Committee of the South African National Aids Council.

**Prof Jopie Botha**, Affiliated Researcher at the Institute for Groundwater Studies, became an honorary member of the Groundwater Division of the Geological Society of South Africa in 2007. He also received the Groundwater medal recognising his scientific contribution to the field of groundwater in South Africa, especially in developing the theoretical understanding of groundwater flow in fractured rock aquifers.

**Prof Philippe Burger** of the Department of Economics was the 2005 senior top achiever in the Faculty of Economic and Management Sciences.

The **Centre for Development Support (CDS)** received a Gold Award in the category of Research and Development at the Free State Premier's Excellence Awards in 2007. The CDS team receiving the award included Prof Lucius Botes (Director of



# Outstanding Research Achievements



*The CDS team from the UFS is, from the left, front: Mr Willem Ellis, Prof Lucius Botes, Ms Dorie Olivier; middle: Dr Zacheus Matebesi, Prof Lochner Marais; back: Ms Deidré van Rooyen, Mr Molefi Lenka, Ms Anita Venter, Ms Kholisa Sigenu, and Ms Julia Kambule.*

the CDS), Mr Willem Ellis (Executive Officer of the International Institute for Development Ethics at the UFS), Ms Julia Kambule (Student Assistant), Mr Molefi Lenka (Junior Researcher), Prof Lochner Marais (Researcher), Dr Zacheus Matebesi (Research Associate), Ms Dorie Olivier (Programme Coordina-

tor), Me Deidré van Rooyen (Junior Researcher), Ms Kholisa Sigenu (Researcher), and Ms Anita Venter (Assistant Researcher).

**Prof Louise Cilliers** (Senior Professor at the Department of English and Classical Languages)



*Ms Jeanne Niemann and Mr Vernon Collett.*

and **Prof François Retief** (former UFS Rector) received the Stals prize for multi- and interdisciplinary teamwork from the South African Academy for Science and Art in 2006.



*Prof François Retief and Louise Cilliers.*

**Mr Vernon Collett**, Registrar: Academic Student Services, received the Certificate of Honour from the International Education Association of South Africa (IEASA) in support of their goals in 2007. He participated in the very first meeting which supported internationalisation at South African universities. **Ms Jeanne Niemann**, Coordinator for International Students at the Internationalisation Office, received the award for the individual who delivered the most outstanding international student support services from IEASA in 2007.



*Prof Daan de Waal.*

**Prof Daan de Waal** of the Department Statistics / Mathematical Statistics is a member of the South African Statistics Council, appointed by the Minister of Finance (2005-2007).

The **Directorate Research Development** received a National Research Foundation award in 2007 from the Institutional Research Development Programme for excellence in research office administration.



**Prof Max Finkelstein**, Senior Professor at the Department of Statistics / Mathematical Statistics, received the Sichel Medal awarded by the South African Statistical Association for the best publication in 2007.



*Prof Magda Fourie.*

**Prof Magda Fourie**, former Vice-Rector: Academic Planning, is a member of both the Council on Higher Education and the Umalusi Council, appointed by the Minister of Education in 2006.



*Prof Neil Heideman.*

**Prof Neil Heideman**, Vice-Dean of the Faculty of Natural and Agricultural Sciences, received a

Senior Fulbright Researcher Fellowship to visit the laboratory of Prof Jack Sites, a fellow herpetologist, at Brigham Young University, Utah, in the United States of America in 2007.

**Prof Johan Henning**, Dean of the Faculty of Law, became Senior Research Fellow and Director of the Centre for Company and Partnership Law in the Institute of Advanced Legal Studies at the University of London, United Kingdom, in 2006.

**Prof Charles Herbst** of the Department of Medical Physics is a member of the Council of the South African Association for Physics in Medical Biology (2005-2006).

**Dr Dipane Hlalele** from the School of Education is a member of the Maluti Further Education and Training College Council, appointed by the Member of the Executive Council for Education (2007).

**Prof Heidi Hudson** of the Department of Political Science worked on democratisation, globalisation, and South African foreign policy in the African Researchers Scholarship Programme at the Nordic Africa Institute in Uppsala, Sweden in 2006.

**Ms Kasweka Kakoma**, **Ms Ji-Yun Lee** and **Mr Lehlohonolo Mathengtheng**, all from the Department of Microbial, Biochemical and Food Biotechnology, won R50 000 in the local leg of the National Innovation Competition. Their business plan focused on the use of bacteriophages to combat specific bacterial infections in poultry.

**Mr Gerben Kamper**, Lecturer at the Department of Drama and Theatre Arts, was nominated as best player in "Caliban in die Storm" in 2007.



**Prof Hendri Kroukamp** of the Department of Public Management received the senior top achiever award in research in 2007 in the Faculty of Economic and Management Sciences. He is also the African representative on the Management Board of the International Association of Schools and Institutes of Administration (IASIA; 2006-2007), and the Chairperson of the IASIA working group on Public Administration Training and Education: Aligning Missions and Quality (2007).

**Prof Maryke Labuschagne** (Department of Plant Sciences) received two prestigious national research awards in 2008: the National Science and Technology Forum award for the development of research capacity over the past ten years (for her successful mentoring of black students and researchers) and the Cereal Science and Technology – SA award for research and development. Together with **Profs Wijnand Swart** (also of the Department

of Plant Sciences) and **Schalk Louw** (Department of Zoology and Entomology), she received the 2007 Technology and Human Resources Industry Programme (THRIP) excellence award presented by the national Department of Trade and Industry. The team received this award for the commercialisation of kenaf as fibre crop.



*Prof Kobus Laubscher.*

**Prof Kobus Laubscher**, Department of Agricultural Economics, is the Chairperson of the National Productivity Institute's (NPI) Social Plan and Productivity Advisory Council, appointed by the Minister of Labour, and the Chairperson of the NPI Board of Directors (2007).

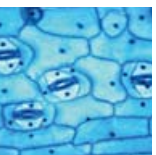
**Prof Dave Lubbe** of the Centre for Accounting received the Stals prize for Economic and Management Sciences in 2007 for his contribution to the development of Auditing as a discipline. He is the first Chartered Accountant to receive this prize.

**Prof Lochner Marais** of the Centre for Development Support was honoured as the 2005 junior top achiever in research in the Faculty of Economic and Management Sciences.

**Ms Elsa Mengsteab**, an Eritrean student at the Centre for Development Support, received an award for best student in Development Research in 2006.



*The recipients of the National Science and Technology Awards are, from the left: Prof Jan van der Westhuizen (UFS Department of Chemistry), Dr Susan Bonnet (UFS Department of Chemistry), Prof Thinus van der Merwe (FARMOVS-PAREXEL), Prof Maryke Labuschagne (UFS Department of Plant Sciences), and Prof Ken Swart (FARMOVS-PAREXEL).*



**Prof Johan Meyer**, Senior Professor at the Department of Mathematics and Applied Mathematics, received an honorary award for research in the Faculty of Natural and Agricultural Sciences in 2007.



*Prof Leticia Moja.*

**Prof Leticia Moja**, Dean of the Faculty of Health Sciences, is the Chairperson of the National Committee of Medical Deans (2006).



*Prof 'Mabokang Monnapula-Mapesela.*

**Prof 'Mabokang Monnapula-Mapesela**, Associate Professor and Researcher at the Centre for Higher Education Studies and Development, was the annual visiting professor to the Executive Doctorate in Educational Administration Programme at Seton Hall University, New Jersey in the United States of America in 2007.

**Dr Liezel Nel**, Lecturer at the Department of Computer Science and Informatics, received the annual Kallie Strydom prize awarded by the Centre of Higher Education Studies and Development for the best research in Higher Education Studies in 2006.

**Mr IB Oosthuizen**, **Prof Hennie Snyman** (both of the Department of Animal, Wildlife and Grassland Sciences) and **Prof Seef Pretorius** (Department of Soil, Crop and Climate Sciences) received the South African Society of Crop Production (SASCP) board award for the best paper published by a member of the SASCP in the *South African Journal of Plant and Soil* in 2006. Prof Snyman also received the 2005 Compton prize for the best article in the *South African Journal of Botany*.

**Prof Klopper Oosthuizen** of the Department of Agricultural Economics received a medal from the Agricultural Economics Association of South Africa (AEASA) for his contributions to the Agricultural Economics discipline in South Africa in 2007.



*Dr Elsabé Pepler.*

**Dr Elsabé Pepler**, Senior Lecturer in the Department of Communication and Information Studies, is a member of the Council of the Christian Television, Film, Arts and Media Commission of South Africa (2005).

The academic details of **Prof Andries Raath**, Senior Professor at the Department of Constitutional Law and Philosophy of Law, were published in the 22nd edition of the *Who's Who in the World in 2005*. He was also honoured for his contributions in the fields of law, philosophy and history by the International Biographical Centre in Cambridge, United Kingdom.



*Dr Olihile Sebolai.*

In 2005, **Dr Olihile Sebolai**, current Manager: Capacity Building Initiatives of the Directorate Research Development, made a ground-breaking discovery in the field of microbiology by uncovering a series of new compounds that may in future be used to lubricate man-made nanorobots in 2005. He received the UFS Senate medal and prize for best Master's student at the University; the Dean's Medal for best Master's student in the Faculty of Natural and Agricultural Sciences; the Andries Brink/Sasol prize for the best MSc dissertation in Microbiology; the JP van der Walt prize for best MSc dissertation in yeast science; the Chris Small prize for an outstanding Master's dissertation; and honorary colours from the UFS Student Representative Council.

**Prof Jan Smit**, Associate Professor at the Department of Architecture, received awards for Archi-

ecture from the Free State Institute of Architects for House Enkalweni and House Uys in 2007.

**Adv Bradley Smith**, Senior Lecturer at the Department of Private Law, received the Dean's Medal for the best Master's degree in the Faculty of Law in 2007.

**Prof Elizabeth Snyman-Van Deventer**, Department of Mercantile Law, is a member of the Geographical Naming Committee of the Free State's Department of Sport, Arts and Culture (2007).

**Mr Jaco Spies**, Lecturer at the Department of Fine Arts, received a merit prize at the Absa 1'Atelier art competition in 2007.



*Dr Aldo Stroebel.*

**Dr Aldo Stroebel** from the Internationalisation Office and Centre for Sustainable Agriculture and Rural Development is a member of the national Agricultural Research for Development Task Team (2005-2007); Vice-President of research and Director of SARIMA (2006-2007); Coordinator of the National Programme for the Creation of Small Enterprises and Jobs in the Second Economy, part of the Accelerated and Shared Growth Initiative for South Africa, driven by the Deputy President (2006); and one of only four non-European Union specialists members of the

evaluation panel for the European Union's rural development strategy (2007).

**Prof Andries Stulting** of the Department of Ophthalmology received a silver award at the 2006 Free State Premier's Excellence Award function for outstanding excellence and leadership. Prof Stulting's work also appeared in the 5th edition of the *Who's Who in Medicine and Healthcare* (2004/2005), the *Madison Who's Who of Executives and Professionals* (2005), and the 23rd edition of *Marquis Who's Who in the World* (2006). He is also an honorary member of the Tanzanian Optometric Association.



*Prof Frans Swanepoel.*

**Prof Frans Swanepoel**, Director: Research Development and Extraordinary Professor at the Centre for Sustainable Agriculture and Rural Development, received a Senior Fulbright Fellowship in 2007 and has been appointed as a visiting professor at the Cornell International Institute for Food, Agriculture and Development at Cornell University in New York, United States of America. He was appointed as Advisor by the national programme leader of the Accelerated and Shared Growth Initiative for South Africa's National Programme for the Creation of Small Enterprises and Jobs in the Second Economy in 2006 and as a member of the Higher Education Quality Committee institutional audit panel in 2007.

**Ms Corlietha Swart**, Lecturer at the Department of Afrikaans and Dutch, German and French, was a finalist of the Sanlam/Passi short stories competition in 2007 for her short story "Die laaste stasie".

**Prof Hendrik Swart** of the Department of Physics received a National Research Foundation award from the Institutional Research Development Programme for the research niche area (RNA) in the developed RNA category with the highest score.

**Dr Pieter Taljaard**, Lecturer at the Department of Agricultural Economics, received the award for the best article published in *Agrekon* in 2005.

**Prof Hennie van Coller** of the Department of Afrikaans and Dutch, German and French is the Chairperson of the South African Academy for Science and Art (2005).

**Mr Sean van der Merwe**, Lecturer at the Department of Statistics/Mathematical Statistics, received the Dean's Medal for best student in the Faculty of Natural and Agricultural Sciences in 2006, as well as the Senate Medal in the same year.



*Prof Dingie Janse van Rensburg receiving the Gold Excellence Award in Research and Development from Ms Beatrice Marshoff (Premier of the Free State).*



**Prof Dingie Janse van Rensburg**, Outstanding Professor and Head of the Centre for Health Systems Research and Development, received the Gold Excellence Award for outstanding excellence and leadership in the category Research and Development from the Premier of the Free State in 2006. He was also promoted to Outstanding Professor in 2007.



*Prof Leon van Rensburg.*

**Prof Leon van Rensburg** from the Department of Soil, Crop and Climate Sciences and his team (**AW Frezghi** and **I van der Stoep**) received a medal from the Soil Science Society of South Africa for applied (implementable) technology in 2005.



*Prof Herman van Schalkwyk.*

**Prof Herman van Schalkwyk**, Dean of the Faculty of Natural and Agricultural Sciences, is a member of the Ministerial Committee to review the South African agricultural marketing environment, appointed by the

Minister of Agriculture and Land Affairs (2006); Vice-Chairperson of the Matjhabeng Municipality's Marketing and Investment Company (2006); Acting Chairperson of the Land Bank Board of Directors, appointed by the Minister of Agriculture and Land Affairs (2007); and a member of the National Agricultural Marketing Council, also appointed by the Minister of Agriculture and Land Affairs (2007).

**Prof Gert van Zyl**, Head at the School of Medicine, received a bronze award from the Premier of the Free State in 2006, honouring his research and development contributions towards promoting the public health management system in the Province.

**Prof Hermie van Zyl** of the Faculty of Theology is the Chairperson of the Regional Council of the Bible Association (2006).

**Ms Anita Venter**, Assistant Researcher at the Centre for Development Support, received the 2007 junior top achiever award in the Faculty of Economic and Management Sciences.

**Prof Basie Verster** of the Department of Quantity Surveying and Construction Management received a medal of honour from the South African Academy of Science and Art in 2006 for his contributions in the field of quantity surveying and construction management. He was a Fellow of the Chartered Institute of Buildings in the United Kingdom (UK) in 2005 and received the Distinguished International Fellow award from the International Cost Engineering Council. Prof Verster is also national president of the Association of South African Quantity Surveyors and director of the Royal Institution of Chartered Surveyors in the UK.

**Ms Sheila Vrahimis**, Department of Geography, is a member of the Geographical Naming Committee



of the Free State's Department of Sport, Arts and Culture (2007).



*Prof Andrew Walubo.*

**Prof Andrew Walubo**, Department of Pharmacology, is a member of the United States Pharmacopeia Experts Committee on International Health and Africa's Regional Coordinator for the World Health Organisation Research and Development on Tropical Diseases programme Good Laboratory Practices training activities. In 2006, he received a prestigious fellowship from the American College of Clinical Pharmacology.

**Dr George Weideman**, Research Associate at the Department of Afrikaans and Dutch, German and French, received an honorary award in 2006 from the South African Academy of Science and Art for his radio plays. He also received the Akker award in 2006 – the annual award from Versidaba – to honour poets promoting the poetry genre throughout their career and acted as mentor for others in the genre.

**Prof Johan Willemsse**, Head of the Department of Agricultural Economics, was appointed as an independent non-executive director of Absa Group and Absa Bank with effect 2008. He belongs to the South African Agricultural Writers Association, is a regular

columnist for various agricultural periodicals, and has been a presenter and programme advisor on national television in respect of agricultural matters. He has received numerous national agricultural awards, including a certificate of appreciation in recognition of exceptional service to Meadow Feeds in 2005.

## **Excellence at National and International Research Forums**

### **Prizes and Awards Received at International Conferences**

#### **2005**

##### **Scholtz, N**

###### **Department of Geology**

*Presented the best poster at the Uranium Mining and Hydrogeology Conference*



*Prof Moses Sindane.*

##### **Sindane, AM**

###### **Department of Public Management**

*Received the Pierre de Celles award for the best paper delivered at the 2003 Conference of the*

*International Association of Schools and Institutions of Administration (received at the 2005 event)*

## 2006

**Kotze, L & Smit, AVA**

**Department of Business Management**

*Received three prizes for best papers presented at the International Academy of African Business and Development Conference*



*Ms Ekaete Samson-Akpan from the Department of Business Management at the Qwaqwa Campus of the UFS.*

**Samson-Akpan, ES**

**Department of Business Management**

*Received an award for the best paper with practical applications on Africa, as well as the award for best session presenter in the session on ecological, environmental and agricultural issues, at the International Academy of African Business and Development Conference*

**Swart, CW, Botes, PJ, Van Wyk, PWJ, Strauss, CJ, Nigam, S, Pohl, CH & Kock, JLF**

**Centre for Microscopy**

*Won second prize for best poster overall at the International Conference on Nonmammalian Eicosanoids, Bioactive Lipids and Plant Oxylipins*

## 2007

**Human, D**

**Quantity Surveying and Construction Management**

*Received the Kenneth K Humphreys Award for the most outstanding Quantity Surveying article submitted by a student or a young member of the International Cost Engineering Council (ICEC) at the Annual Meeting of the Association for the Advancement of Cost Engineering International and World Conference of the ICEC*

**Kroukamp, HJ**

**Department of Public Management**

*Received an award for his contribution to the scientific value of the event at the Joint Congress of the International Institute for Administrative Sciences and the International Association of Schools and Institutes of Administration*

## Prizes and Awards Received at National Conferences

## 2005

**Grobbelaar, J**

**Department of Otorhinolaryngology**



*Delivered the best presentation on head and neck surgery at the Annual Congress of the South African Society of Otorhinolaryngology*

**Harris, RA, Terblans, JJ & Swart, HC**

**Department of Physics**

*Presented the best MSc poster in Condensed Matter Physics and Materials Science at the Annual Conference of the South African Institute of Physics*

**Hensley, M & Le Roux, PAL**

**Department of Soil, Crop and Climate Sciences**

*Delivered the best paper for potential technology transfer at the National Conference of the Soil Science Society of Southern Africa*

**Janse van Rensburg, G & Snyman, HA**

**Animal, Wildlife and Grassland Sciences**

*Presented the winning poster at the Annual Congress of the Grassland Society of Southern Africa*

**Jordaan, AJ**

**Department of Agricultural Economics**

*Received the second prize in the category for the best MSc thesis at the Annual Conference of the Agricultural Economics Association of South Africa*

**Jordaan, H**

**Department of Agricultural Economics**

*Acknowledged as the best undergraduate student, received a prize for the best MSc thesis and received third prize for best article at the*

*Annual Conference of the Agricultural Economics Association of South Africa*



*Attending the launch of the bursary fund for Master's students in DiMTEC are, from the left: Mr Chris Swiegers (Department of Water Affairs and Forestry), Mr Lance Williams (Head of the National Disaster Management Centre), Prof Magda Fourie (former Vice-Rector: Academic Planning at the UFS) Ms Ramadolela Lindelani (MSc student), and Mr Andries Jordaan (Director of DiMTEC at the UFS).*

**Joubert, HD, Swart, HC & Terblans, JJ**

**Department of Physics**

*Presented the best PhD poster in Condensed Matter Physics and Materials Science at the Annual Conference of the South African Institute of Physics*

**Lombaard, SC**

**Unit for Language Management**

*Received the prize for the best first paper delivered at the Annual Language Congress of South Africa. This was the first time that a member of the UFS has been awarded this prize at a language congress, and also the first time*



*that the prize has been awarded for a paper dealing with sign language*

**Maphoto, PK, Lindsay, R, Newman, RT & De Villiers, D**

**Department of Physics**

*Delivered the best MSc poster in applied and industrial physics at the Annual Conference of the South African Institute of Physics*

**Meintjes, PJ & Breedt, E**

**Department of Physics**

*Delivered the best MSc talk in astrophysics at the Annual Conference of the South African Institute of Physics*

**Oosthuizen, LK**

**Department of Agricultural Economics**

*Received the Leopard Award at the Annual Conference of the Agricultural Economics Association of South Africa*

**Van Wyk, D**

**Department of Agricultural Economics**

*Received second prize in the category for the best essay by an Agricultural Economics student at the Annual Conference of the Agricultural Economics Association of South Africa*

## 2006

**Botha, JJ & Van Rensburg, LD**

**Department of Soil and Crop and Climate Science**

*Received a medal for the best oral presentation on new implementable technology at the Na-*

*tional Conference of the Soil Science Society of Southern Africa*

**Du Plessis, FCP**

**Department of Medical Physics**

*Received the prize for delivering the best paper at the Congress of the South African Association of Physics in Medicine and Biology*

**Engelbrecht, J**

**Department of Medical Physics**

*Received the prize for presenting the best poster at the Congress of the South African Association of Physics in Medicine and Biology*

**Herselman, L & Spies, JJ**

**Department of Plant Sciences**

*Delivered the best presentation by an MSc student at the Conference of the South African Genetics Society*

**Jennings, K, Le Roux, PAL, Van Huyssteen, CW, Hensley, M & Zere, TB**

**Department of Soil, Crop and Climate Sciences**

*Received the medal for the best oral paper by an author under 30 years at the Combined Conference of the Soil and Crop Science Societies*

**Mabannda, HN, Viljoen, MF, Kundhlande, G & Baiphethi, MN**

**Department of Agricultural Economics**

*Delivered the second best poster paper at the Agricultural Economics Association of South Africa Conference*



**Shaw, W**

**Department of Medical Physics**

*Received the motivational prize for being the best young scientist at the Congress of the South African Association of Physics in Medicine and Biology*

**Spies, DC, Jooste, A, Kirsten, J, Gouws, M & Vojtech, V**

**Department of Agricultural Economics**

*Received second prize for best paper presented at the Annual Conference of the Agricultural Economics Association of South Africa*

**Van Wyk, D**

**Department of Agricultural Economics**

*Received second prize for the best student essay at the Annual Conference of the Agricultural Economics Association of South Africa*

**Van Wyk, PWJ**

**Centre for Microscopy**

*Received the award for the best confocal microscopy paper presented at the Annual Conference of the Microscope Society of Southern Africa*

**2007**

**Coetzee, E, Terblans, JJ & Swart, HC**

**Department of Physics**

*Received an award for the best publication presented by an MSc student (E Coetzee) at the Annual Conference of the South African Institute of Physics*

**Dhlamini, MS, Terblans, JJ, Ntwaeaborwa, OM & Swart, HC**

**Department of Physics**

*Received the award for best poster presented by a PhD student (MS Dhlamini) at the Annual Conference of the South African Institute of Physics*

**Le Roux, PAL, Hensley, M & Lorentz, SA**

**Department of Soil, Crop and Climate Sciences**

*Received second place as co-author for best paper by a junior author at the South African Groundwater Conference*

**Meintjes, PJ**

**Department of Physics**

*Received an award for the second best paper presented by a PhD student (E Jurua) in astrophysics, as well as an award for the best MSc paper presented by an astrophysics student (B van Soelen) at the Annual Conference of the South African Institute of Physics*

**Oluwafemi, SO, Revapasadu, N & Swart, HC**

**Department of Physics**

*Received an award for the best paper presented by a PhD student (SO Oluwafemi) at the Annual Conference of the South African Institute of Physics*

**Strydom, JH & Diedericks, BJS**

**Department of Anaesthesiology**

*Received the South African Society for Anaesthesiology Registrars' Presentation prize for the best lecture format presentation by a Registrar*

**Terblans, JJ & Swart, HC**

**Department of Physics**

*Received an award for second best poster presented by an MSc student (WA Jordaan) at the Annual Conference of the South African Institute of Physics*

**Van der Watt, E**

**Department of Soil, Crop and Climate Sciences**

*Received the Board Floating Trophy for best paper presented at the Annual Congress of the South African Society of Crop Production*

## **Inaugural Lectures**

**Prof Pieter Blignaut**

**Department of Computer Science and Informatics**

*The value of eye tracking in the quest for usable interfaces*

**Prof Frikkie Booysen**

**Department of Economics**

*Butterflies and tornados: a systems approach to health systems research and development*

**Prof Robert Bragg**

**Department of Microbial, Biochemical and Food Biotechnology**

*Control of infectious avian diseases: lessons for man?*



*At the inaugural lecture of Prof Pieter Blignaut are, from the left: Prof Theo McDonald (Lecturer at the Department of Computer Science and Informatics and mentor of Prof Blignaut), Prof Teuns Verschoor (Vice-Rector: Academic Operations), Prof Blignaut, and Prof Herman van Schalkwyk (Dean: Faculty of Natural and Agricultural Sciences).*

**Judge Fritz Brand**

**Department of Private Law**

*Latest developments in liability for omissions and for pure economic loss*

**Prof Philippe Burger**

**Department of Economics**

*The ups and downs of the South African economy: rough seas or smooth sailing?*

**Prof Alain Cloot**

**Department of Mathematics and Applied Mathematics**

*Derivatives of general order: a modelling tool*



At Judge Fritz Brand's inaugural lecture are, from the left: Prof Johan van Schalkwyk (Head of the Department Private Law), the honourable appeal court Judge Fritz Brand (Professor Extraordinary in the Department of Private Law), the honourable Judge Faan Hancke (Free State High Court and Chairperson of the UFS Council), and Prof Johan Henning (Dean: Faculty of Law).



At the inaugural lecture of Prof André Dannhauser are, from the left: Prof Letticia Moja (Dean: Faculty of Health Sciences), Prof Dannhauser, and Prof Frederick Fourie (Rector and Vice-Chancellor).

**Prof André Dannhauser**

**Department of Nutrition and Dietetics**

*Smart nutrition: a challenge for health and wellness*

**Prof Pieter de Villiers**

**Department of New Testament**

*Biblical spirituality*

**Prof Johann de Wet**

**Department of Communication and Information Studies**

*Meeting on the "narrow ridge" in intercultural communication*

**Prof Corene de Wet**

**Department of Comparative Education and Education Management**

*Bullying in schools: everyone's problem*

**Prof Heidi Hudson**

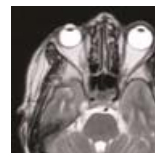
**Department of Political Sciences**

*The impact that Pan-Africanist sentiments on South Africa's foreign policy*

**Prof Laetus Lategan**

**Department of Systematic Theology**

*The truth falters on campus: the contribution of the theological ethics to the search for a professional ethic in research*





At the inaugural lecture of Prof Edward Nesamvuni are, from the left: Prof Izak Groenewald (Head of the Centre for Sustainable Agriculture and Rural Development), Prof Nesamvuni, Prof Neil Heideman (Vice-Dean: Faculty of Natural and Agricultural Sciences), and Prof Magda Fourie (former Vice-Rector: Academic Planning).



At the inaugural lecture of Prof Heidi Hudson are, from the left: Prof Frederick Fourie (Rector and Vice-Chancellor), Prof Hudson, Prof Engela Pretorius (Vice-Dean: Faculty of the Humanities) and Prof Daan Wessels (Research Associate in the Department of Political Science).

**Prof Neal McLaren**  
**Department of Plant Pathology**  
*Beyond the pathogen: revisited*

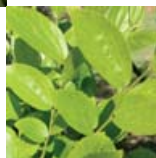
**Prof Edward Nesamvuni**  
**Centre for Sustainable Agriculture and Rural Development**  
*An agricultural service delivery model for small-holder farmers: a design for research extension and innovation*

**Prof Frikkie Naser**  
**Department of Animal and Wildlife and Grassland Sciences**  
*The quest for a superior animal*

**Prof Alice Pell**  
**Centre for Sustainable Agriculture and Rural Development**  
*Issues around education, agriculture and development*

**Prof John Shipley**  
**Department of Orthopedics**  
*The intervertebral disc: past, present and future*

**Prof Theuns van der Linde**  
**Department Zoology and Entomology**  
*The detective was an insect: a short overview of forensic entomology*





At Prof Alice Pell's inaugural lecture are, from the left, front: Prof Magda Fourie (former Vice-Rector: Academic Planning), Prof Pell; back: Prof Herman van Schalkwyk (Dean: Faculty of Natural and Agricultural Sciences), and Prof Frans Swanepoel (Director: Research Development).

**Prof Ebben van Zyl**

**Department of Industrial Psychology**

*South African leadership for the 21st century: a self-leadership approach*

**Prof Pieter Verster**

**Department of Missiology**

*Die begroting van die sending by Paulus in die lig van sy erkenning van die godheid van Christus*



At the inaugural lecture of Prof Annette Wilkinson are, from the left: Prof Gerhardt de Klerk (Dean: Faculty of the Humanities), Prof Wilkinson, and Prof Driekie Hay (Vice-Rector: Academic Planning).

**Prof Bennie Viljoen**

**Department of Microbial, Biochemical and Food Biotechnology**

*Microbial interaction in foods: emphasis on yeasts*

**Prof Annette Wilkinson**

**Centre for Higher Education Studies and Development**

*The pursuit of "scholarship" in higher education*

# Faculty





# Research





*Prof Lucius Botes (left) (Director of the Centre for Development Support and Chairperson of the Faculty Research Committee), and Prof Tienie Crous (Dean: Faculty of Economic and Management Sciences).*

**T**he past two years have been exceptionally successful for the Faculty of Economic and Management Sciences with regard to research output and research excellence. The Faculty was responsible for more than a third of the growth in research outputs of the entire University in 2006 with

an accredited publication output of almost 41 units. If one bears in mind that the Faculty's average accredited output for the period 2000 to 2005 was a mere 14 units per year, increasing to 40.89 in 2006, this is indeed a mammoth achievement. The figure for accredited publication output for 2007 is almost 47 units.

The Centre for Development Support (CDS) received a gold award in the category of Research and Development during the 2007 Free State Premier's Excellence Awards ceremony. This aspiration to excellence by academics in the Faculty is also reflected in the fact that four staff members are currently National Research Foundation (NRF)-rated researchers. They are Profs Frikkie Booysen, Hendri Kroukamp, Philippe Burger and Lochner Marais. Furthermore, Prof Dave Lubbe received the Stals Prize for Economic and Management Sciences for his contribution to the development of Auditing as a discipline. He is the first Chartered Accountant to receive this prize. Prof Philippe Burger was seconded to the Organisation for Economic Collaboration and Development in Paris, France to act as research consultant in the field of Public-Private Partnerships for a period of two months. This capped the acknowledgement of quality research embarked upon in the Faculty.

It is important for the Faculty to promote research as a critical performance area. Faculty management prizes were therefore awarded to top researchers in the Faculty. Prof Hendri Kroukamp of the Department of Public Management received the senior award and Ms Anita Venter of the CDS received the junior award.

# Economic and Management Sciences

## Message from the Dean: Prof Tienie Crous

The CDS (Profs Lucius Botes and Lochner Marais, and Dr Zacheus Matebesi) produced two reports on *Conflict in South African Cities: an Analysis of Service-Related Unrest*, funded by the European Union and National Treasury. The report elucidates the reasons for the unrest since September 2004 and is based on four case studies from Phumelela, Khutsong, Phomolong and the Nelson Mandela Bay Municipality respectively. The results of the investigation were covered by national radio and television and were also presented to the Parliamentary Portfolio Committee on local government in Cape Town.

The CDS is still involved in extensive research in the central region of South Africa. The programme, headed by Prof Doreen Atkinson, focuses increasingly on the so-called arid regions and the socio-economic development of these areas in the undeveloped hinterland of South Africa, Botswana and Namibia. In South Africa, the Karoo includes regions of four provinces, namely the Western Cape, Northern Cape, Eastern Cape and the Free State. In Botswana it is the Kalahari and in Namibia, the Namib Desert. The programme is funded by the NRF and various key studies were completed in 2007. These include:

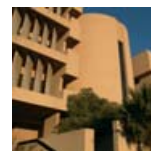
- a socio-economic review of the arid areas;
- an evaluation of the economic development strategies of the four involved South African provinces;
- a temporary evaluation of desert products and markets in these areas;
- case studies of seven Karoo towns;
- a workshop conducted in Sutherland; and

- two scientific papers on the economic history of the Karoo and the prospects for inter-provincial and international collaboration regarding desert tourism.

The CDS produced no less than 31 articles in accredited journals and presented eight selected papers at international and five at national conferences. A chapter appeared in *State of the Nation: South Africa* and the book *Going for Broke: the Fate of Farm Workers in Arid South Africa*, published by the Human Science Research Council.

Profs Buks Wessels and Philippe Burger, Mr J.P. Geldenhuys and Ms Marina Marinkov (all from the Department of Economics) published various accredited articles and chapters in books, and the majority of the academic staff members of the Department also presented 30 selected papers at national and international conferences, including events in China and the United States of America. Mr Johan Coetzee of the Department of Economics acted as chairperson at a conference on *Banking the Under-Banked* that was organised by the International Quality and Productivity Centre.

Prof Frikkie Booysen from the Department of Economics is the research leader of the *Effective Aids Treatment and Support in the Free State* (FEATS) Study at the Centre for Health Systems Research and Development. FEATS is a multi-million rand project financed by the World Bank and the Netherlands. This is the largest allocation ever by the Research Committee of the World Bank to a research unit in one country and. The specific aim of the study is to determine the benefits of anti-retroviral treatment



for parents and families of patients in the community. Prof Booysen has also been elected to the Interim Research Sector Steering Committee of the South African National Aids Council.

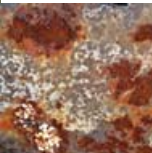
Furthermore, academics from the Department of Economics, the CDS and the School of Management presented papers at the *International Research Workshop on New Growth and Poverty Alleviation Strategies for Africa: Issues, Concepts, Policies and Comparative Analysis*. This workshop emanates from the cooperation agreement between the Faculty of Economic and Management Sciences and the Institut für Weltwirtschaft und Internationales Management at the University of Bremen in Germany. The School of Management also produced three accredited publications during 2006 and 2007.

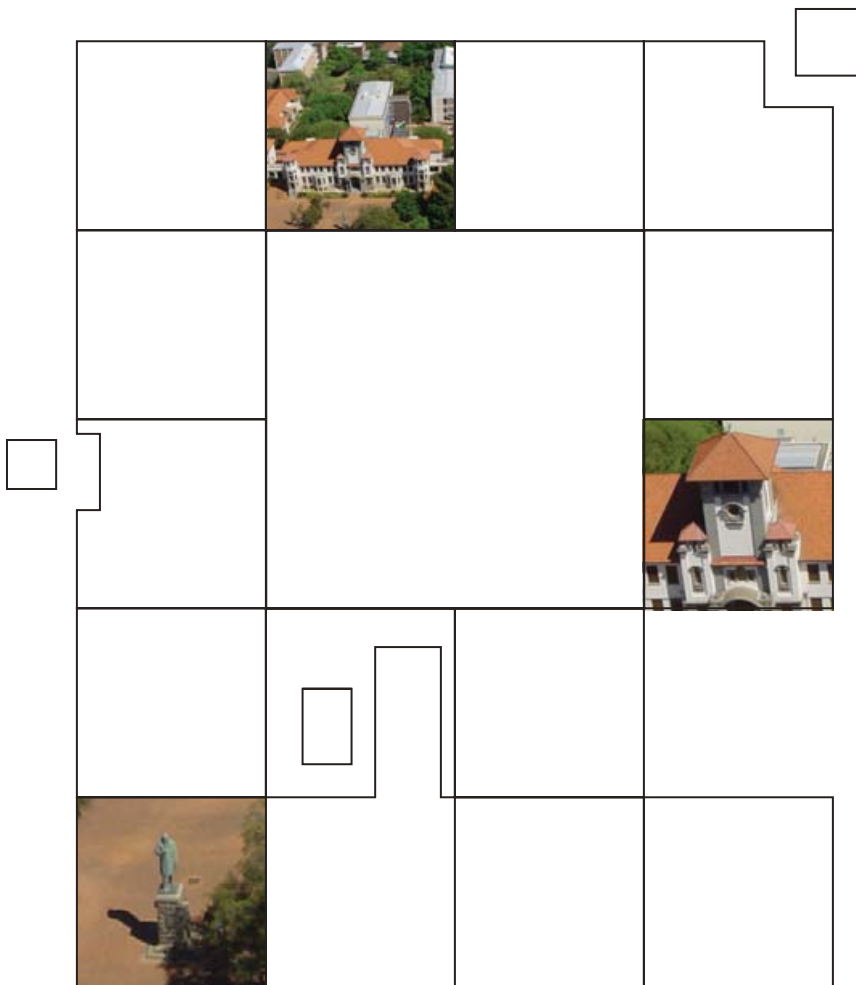
The Centre for Accounting and the Department of Industrial Psychology produced a total of ten articles. The Centre for Accounting presented 13 national and two international papers and the staff of the Department of Industrial Psychology presented ten international papers. Prof Hentie van Wyk from the Centre of Accounting was the main speaker at the 7th National Management Convention of the Mauritian Management Association and he was one of the invited main speakers during the International Financial Accounting and Tax Practice Conference at the I-Shou University in Taiwan.

The Department of Business Management reached new heights with five nationally and ten

internationally selected papers by Profs Rudolph van Buuren, Van Aardt Smit and Kobus Lazenby, as well as Mss Liezel Kotze, Ekeate Samson-Akpan, Drs Johan van Zyl and Orpha Lotz in France, Greece, Finland, Mauritius, Ghana and Namibia. Prof Smit and Ms Kotze jointly received three prizes for best papers presented. Ms Samson-Akpan also received a prize for the best applied paper at the 7th International Conference of the International African Association for Business and Development. Global competitiveness of enterprises, personal financial literacy, credit management and productivity, and challenges for micro enterprises were some research topics covered.

The Department of Public Management attended the annual conferences of the International Association of Schools and Institutes of Administration in Warsaw, Poland (2006) and Abu Dhabi, United Arab Emirates (2007) and presented 11 papers. During the Abu Dhabi conference, Prof Hendri Kroukamp was honoured with an award for his scientific contribution to the success of the conference. Added to this, staff members of the Department presented seven papers at national conferences and one in Namibia. The Department has also published 13 papers in accredited journals over the past two years. They also started a new era in multidisciplinary research when they produced three accredited articles in collaboration with the Departments of Accounting, Economics and Industrial Psychology.







*Prof Leticia Moja (Dean: Faculty of Health Sciences) and Prof Hennie Cronjé (Department of Obstetrics and Gynecology, and Chairperson of the Faculty Research Committee).*

### **School of Allied Health Professions**

Research projects in the Department of Occupational Therapy focused on the relationship between occupation and health. Active engagement exists between clinical and educational staff to address issues pertaining to Occupational Science and the integration of its core values into research

philosophies. Five research articles addressing various aspects of Occupational Science were published in accredited journals in 2007.

The Department of Physiotherapy investigated the possible implications that cultural diversity might have for health workers and how this could affect their treatment delivery and expectations of

# Health Sciences

## Message from the Dean: Prof Letticia Moja

clients. In the paper on *Culture and Communication in Health Care: a South African Perspective*, it was concluded that Sotho clients are positioned somewhere on a continuum ranging from traditional to Westernised and should be approached accordingly. Cultural competence is therefore an essential skill that needs to be taught to professionals in order to render culturally sensitive care.

The Department of Nutrition and Dietetics has successfully initiated and managed the *Assuring the Health of All in the Free State* (AHA-FS) project in the Southern Free State. This Department and the Departments of Chemical Pathology, Basic Medical Sciences, Theology and Social Work were involved in the comprehensive baseline research project, including 577 homes in Trompsburg, Springfontein and Philippolis. The project included a full medical examination, blood tests and the completion of various nutrition-related questionnaires. As a result of the findings, a large number of participants were referred to local and provincial clinics. Based on the research findings, and as part of their community service learning activities, the dietetic students began nutrition intervention projects in the various communities. The research results have also been used by various related disciplines in planning service learning modules that were to be implemented during 2008 in cooperation with the Khula-Xhariep Partnership. A few postgraduate students are also using the research information with a view to conducting further research in the communities of Trompsburg, Springfontein and Philippolis.

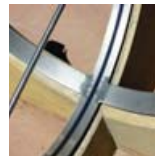
The Department of Nutrition and Dietetics was also involved with the *Effective Aids Treatment and Support in the Free State* (FEATS) Study at the Centre for Health Systems Research and Development, led by Prof Frikkie Booysen and financed by the World Bank. This study promises to benefit individuals with HIV infection and Aids.

### School of Medicine

Research in the School of Medicine takes place over a wide spectrum with different health issues being investigated by the several disciplines in a subject-specific way. This report highlights the main research themes and the part that various disciplines play.

Cancer remains a big international health concern that is currently being addressed by several disciplines. Prof Hennie Cronjé of the Department of Obstetrics and Gynaecology investigates screening methods to diagnose cancer of the cervix in an early stage in the broader community. Prof David Stones of the Department of Paediatrics and Child Health is conducting studies to determine whether the prognosis of various types of cancer in children has improved over the past 20 years. Prof Louise Louw of the Department of Otorhinolaryngology studies the fatty acid content of various types of cancer.

In the Department of Haematology and Cell Biology, molecular techniques are being employed to monitor the treatment of chronic myeloid



leukaemia and to test new anti-cancer drugs. Dr Nerina van der Merwe of the Department of Genetics studies the genetic defects responsible for hereditary cancer of the breast and ovaries. Dr Frederik du Plessis and co-workers from the Department of Medical Physics are performing pioneering research in the field of cancer radiation. Prof Vernon Louw of the Department of Clinical Haematology and Prof Louis Goedhals from the Department of Oncotherapy are actively involved in contract research in which the most recent and otherwise unaffordable cancer medication is being made accessible to local patients.

Thrombosis with all its complications is another serious health concern. Prof Muriel Meiring and co-workers from the Department of Haematology and Cell Biology concentrate on the development of new antithrombotic agents. They have also developed thrombotic models, for which there is a big international demand to test the efficacy of new antithrombotic agents.

*Assuring the Health of All in the Free State* (AHA-FS) is a research project aimed at determining how living in urban informal settlements and in rural areas influences the lifestyle of populations that predisposes them to both chronic diseases and under-nutrition. This research is jointly undertaken by the Departments of Chemical Pathology, Human Nutrition, Biostatistics and Basic Medical Sciences. A very high prevalence of lifestyle diseases such as diabetes, hypertension and infections such as HIV and tuberculosis have been encountered.

Researchers from the Department of Medical Microbiology and Virology focus mainly on investigating tuberculosis and tick-borne diseases.

### School of Nursing

The Research Initiatives Portfolio in the School of Nursing focuses on research programmes, projects and initiatives that are considered instrumental in enhancing quality nursing care, the expansion of nursing science, intellectual growth and partnership building. Within this framework, the following are considered critical:

- The enhancement of the social and scientific value of research initiatives – including the responsible use of finite resources and the avoidance of exploitation.
- The strengthening of methodological rigour in the use of accepted scientific principles and methods to produce reliable and valid results.
- The upholding of beneficence, non-maleficence and non-exploitation to minimise risks while enhancing potential benefits.
- The review of research proposals by the institutional review boards to ensure public accountability while minimising the influence of potential conflicts of interest.
- Respect of participant autonomy, confidentiality and the use of informed consent as part of ethicality.
- Collaborative partnerships to ensure social and scientific value.
- The development and involvement of nurse researchers within the School, the University





and the broader community by means of scholarly research, mentorship, partnership and continuing education programmes.

- The publication and dissemination of research outcomes in various forms, for example articles, reports, event presentations and discussions.

The School of Nursing embarked on a number of endeavours, one of which is a research project that has as its aim to improve children's access to antiretroviral therapy in the public sector in the Free State. This project is supported by a Master's and a Doctoral student and is conducted in collaboration with the Free State Department of Health. It is funded by the National Research Foundation and the University and falls within the recently established Focus Area of *Health, Health Care and People's Well-being in Transforming Societies*, within the Strategic Academic Cluster *Transformation in Highly Diverse Societies*.

A pilot study on the prevention of teenage pregnancy was completed in 2005. In 2007, the Free State Department of Education implemented the Doll Parenting project for Grade 6 learners in 80 schools in all five districts in the Free State. The targeted schools are the feeder schools of the secondary schools with the highest teenage pregnancy rates. The Department of Education will monitor the pregnancy rate of learners to determine the long-term effect of the project.

The School is also involved with a collaborative study with five South African universities and the University of London in the United Kingdom, aimed at improving evidence-informed decision-making in

the absence of definitive evidence. This strategy is promoted throughout the country in participating nursing education institutions through training of staff and enrolled postgraduate students.

The School of Nursing developed learning material for a South African Qualifications Authority accredited certificate in Emergency Care and Technology. Learning material was developed per module, after which a validation team consisting of the principals of the Further Education and Training colleges offering the course critiqued the developed material. This unique process of developing learning material ensured that all stakeholders participated in the process and that they agreed on the content and the sequence of offering learning material.

Internationalisation is an ongoing process. The School has been successfully involved with the University of Moi in Kenya, where experts in midwifery and HIV and Aids accompanied Master's students and offered lectures. Under the auspices of Sigma Theta Tau, the School enrolled 18 postgraduate students from the Democratic Republic of the Congo. Successful negotiations with the Changchun Advanced Medical Institute in China resulted in a formalised agreement involving exchange of and collaborative development of exchange (students and academic staff members), training and research programme.

Currently 24 of the 37 postgraduate students in the School of Nursing are persons of colour, of which 12 are foreigners. Ten students completed their postgraduate studies over the past two years.



*Prof Gerhardt de Klerk (Dean: Faculty of the Humanities) and Prof Louise Cilliers (Department of English and Classical Languages, and Chairperson of the Faculty Research Committee).*

**T**he Faculty of the Humanities strives to maintain a dynamic research culture. Strategic research priorities within the Faculty are the promotion of research excellence through the continuous monitoring of the quality of its outputs and the development of young, inexperienced researchers through mentorship and with the assistance of senior researchers.

It is also a priority to make funds available for research with special consideration for designated groups. With an eye on the optimisation of research, large amounts of money were allocated in 2006 and 2007 for research assistance to enable senior researchers in particular to optimally utilise their time for research.

Research deliberations are presented regularly within the Faculty to discuss issues such as the quality assurance of research. Besides the mentorship system to develop upcoming researchers, all research proposals from Master's and Doctoral students are submitted to a committee for evaluation and recommendations before these studies commence. This prevents students discovering that their topics are not viable at a later stage. The Faculty also uses its own funds to arrange development opportunities for inexperienced researchers and to expose junior academic staff members to international conferences and contacts. Team research is also promoted through the involvement of various colleagues in the Strategic Academic Cluster *Transformation in Highly Diverse Societies*.

A promising sign indicating that new researchers are improving at the University is the dramatic increase in participants in the Thutuka programme – from five in 2003 to 44 in 2007. In comparison, the number of National Research Foundation-rated academics has remained relatively constant since 2005. The latest additions from the Faculty of the Humanities are Prof Heidi Hudson of the Department of Political Science with a C1 rating; Prof Jackie Naudé from the Department of Afroasiatic Studies, Sign Language and Language Practice with a C2

# The Humanities

## Message from the Dean: Prof Gerhardt de Klerk

rating; and Dr Christo Heunis from the Centre for Health Systems Research and Development (CHSR&D) with a C3 rating. In 2006, Prof Hudson also received an award to conduct research at the Nordic Africa Institute in Uppsala, Sweden.

Five of the nine professors that were promoted to senior professors in 2006 are from this Faculty. They are Profs Louise Cilliers (Department of English

and Classical Languages), Dap Louw (Department of Psychology), Philip Nel (Department of Afroasiatic Studies, Sign Language and Language Practice), Dirk van den Berg (Department of History of Art), and Dingie Janse van Rensburg (CHSR&D).

In 2006, the Outstanding Award in Excellence from the Premier of the Free State was awarded to Prof Dingie Janse van Rensburg for leadership in



*The senior professors in the Faculty of the Humanities are, from the left, front: Profs Louise Cilliers (Department of English and Classical Languages), Dap Louw (Department of Psychology); middle: Dirk van den Berg (Department of History of Art), Dingie Janse van Rensburg (Centre for Health Systems Research and Development); and back: Philip Nel (Department of Afroasiatic Studies, Sign Language and Language Practice).*



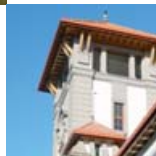
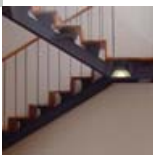
research and development. In the following year he was promoted to Outstanding Professor. The Stals prize for Interdisciplinary Research from the South African Academy for Science and Art was awarded to Profs Louise Cilliers and François Retief (former Rector) in 2006. These two researchers have in various instances shifted the boundaries of medical history with their research.

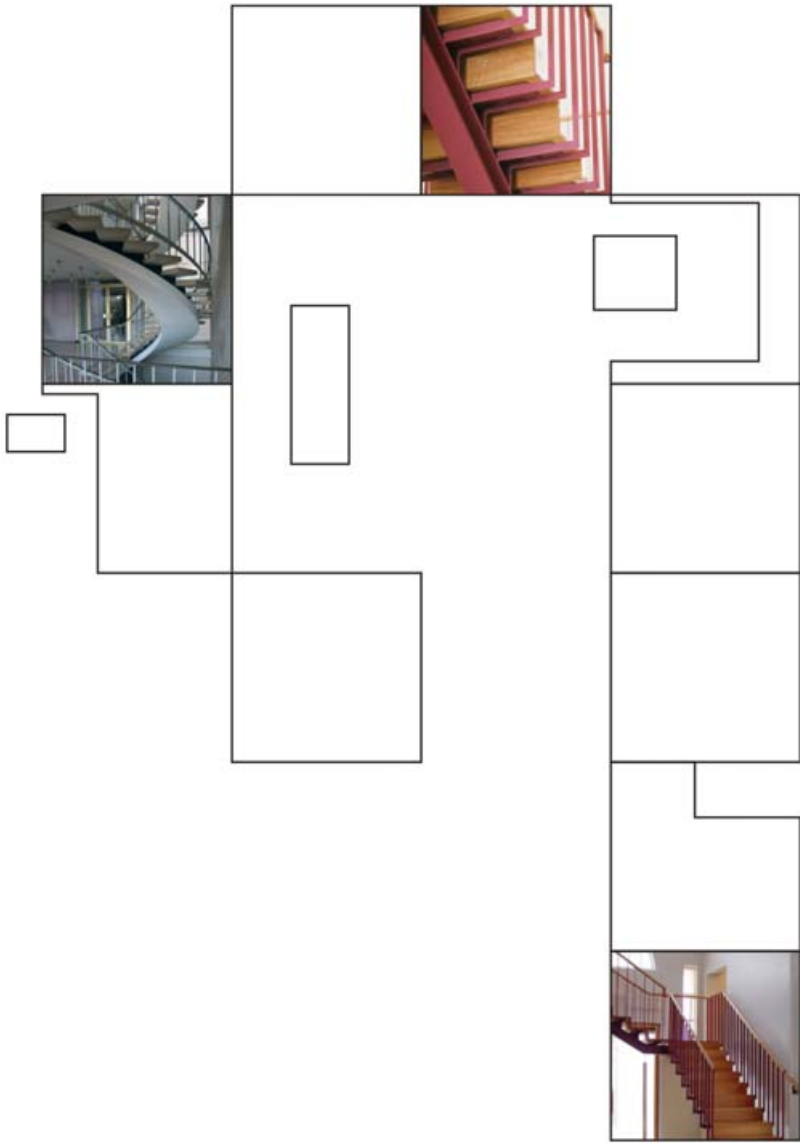
The University Council approved the establishment of a Sesotho Language Research and Development Centre in 2005, at the request of the National Department of Art and Culture. This Centre, which resides in the Faculty, aims to establish Sesotho as an academic language and to standardise and promote the language. Another University initiative residing in the Faculty is the Centre for Africa Studies. Besides the focus on Africa and Africa study in general, the emphasis falls on indigenous knowledge systems. The Unit for Khoekhoe and San studies (Department of Anthropology) presented a

symposium in 2007 where national and international academics and indigenous leaders were present. The research undertaken here draws a great deal of international interest.

The Department of History delivered the highest number of research outputs of all Departments in the Faculty for three consecutive years (2004-2006). The Department of Afroasiatic Studies, Sign Language and Language Practice delivered 38 papers in 2005 of which 15 were presented abroad.

On the initiative of the Faculty's Mentorship Programme and the Directorate Research Development, a research day was held in 2007 for young researchers. This event provided these researchers with an opportunity to present papers in a safe environment, to learn and to exchange ideas. A panel of established researchers provided feedback and advice to the participants, based on their performance.





**T**he Faculty participated in a variety of national and international academic events in recent years. In 2007, Adv Bradley Smith of the Department of Private Law attended and presented a paper at an international symposium at the Brigham Young University in Salt Lake City, Utah, United States of America. The topic of this symposium was same-sex marriages. Ties with academics from other parts of the world were forged during this visit which could come to fruition in future.

Participation from the Faculty of Law in the 14th Annual William C Vis International Commercial Arbitration Moot in Vienna, Austria in 2006 and 2007 – under the leadership of Prof Elizabeth Snyman-Van Deventer from the Department of Mercantile Law, accompanied by Prof Rita-Marie Jansen, Department of Private Law, – contributed to the enhancement of research skills and the development of knowledge in a scarce field of study by the Faculty, specifically Purchasing Contracts.



*From the Faculty of Law are, from the left: Prof Elizabeth Snyman-Van Deventer (Department of Mercantile Law), Prof Johan Henning (Dean of the Faculty and Chairperson of the Faculty Research Committee), Judge Faan Hancke (Chairperson of the UFS Council), and Prof Charles Ngwena (Department of Constitutional Law and Philosophy of Law).*

# Law

## Message from the Dean: Prof Johan Henning

This competition made it possible for members of the Faculty to compete with 177 other universities from all over the world.

The Faculty has been one of the organising institutions of the week-long Cambridge International Symposium on Economic Crime since 1988. The Symposium is presented annually at the Jesus College of the University of Cambridge in the UK and is attended by more than 1000 legalists from more than 100 jurisdictions. At the 24th and 25th symposiums, the Faculty made decisive contributions that added to the success of these events. Four LL B and LL M students and two staff members were made available to the Secretariat and both the Dean, Prof Johan Henning, and the Chairperson of the University of the Free State Council, Judge Faan Hancke, participated in the 2006 symposium as speakers and chairpersons of work sessions. Prof Henning delivered three papers at this event symposium and Judge Hancke one paper. Prof Henning also participated in the 2007 symposium where he delivered three papers. Prior to the commencement of the symposiums, Prof Henning delivered a series of lectures on International Company Law to LL M students of two leading universities in Tokyo, namely Hosei and the Waseda University. All the papers were published in specialist journals.

The Symposium on Violent Crime in South Africa, hosted on the Main Campus in 2007, established closer cooperation between the Faculty of Law, the Centre for Psychology and the Law, the Department of Psychology, and the Law Inspectorate of Correctional Institutions. Deliberations between the involved parties resulted in the opening of jails

for research, which is of particular importance for research conducted in the *Crime in Highly Diverse Societies* Focus Area of the Strategic Academic Cluster on *Transformation in Highly Diverse Societies*.

A substantial amount of research went into the Trust Law Seminars presented in 2007 at a number of venues throughout South Africa, inter alia by Adv Bradley Smith and Prof Willie van der Westhuizen, both from the Department of Private Law. The Seminars focused on the important office of trustee in South Africa and on how to avoid unintended errors, as well as on an update on recent important case law, statutory changes and practice developments.

Mr Iain Benson has been appointed as a research fellow in the Department of Constitutional Law and Philosophy of Law. He holds degrees from Queen's University, Cambridge and Windsor in the United Kingdom (UK). He has been asked to advise on many of the important cases dealing with religious and human rights in recent years in Canada, Ireland, UK and South Africa. In the brief time that Mr Benson has been involved with the Faculty he has published two articles in accredited journals regarding freedom of religion and related issues.

A result of efforts to elicit team research with academics elsewhere in the country was the publication of the collected works of the reformational philosopher, HG Stoker, on Compact Disk. Together with academics from Potchefstroom, Prof Andries Raath, Department of Constitutional Law and Philosophy of Law, assisted in making available Stoker's



published and unpublished works in electronic format.

Prof Henning also served on the Nedlac task group as representative of the Afrikaanse Handels-instituut and Business Unity South Africa. In this capacity, and as member of the Department of Commerce and Industry's specialist advice group, he delivered papers and presentations on Company Law reformation at a series of workshops and conferences, which were especially aimed at the retention of Closed Corporations as a form of enterprise, the abolition of common law doctrines dispensed from the English Law, types of companies, as well as the lifting of statutory limitations on partnerships and the import of a new form of partnership, the Limited Liability Partnership.

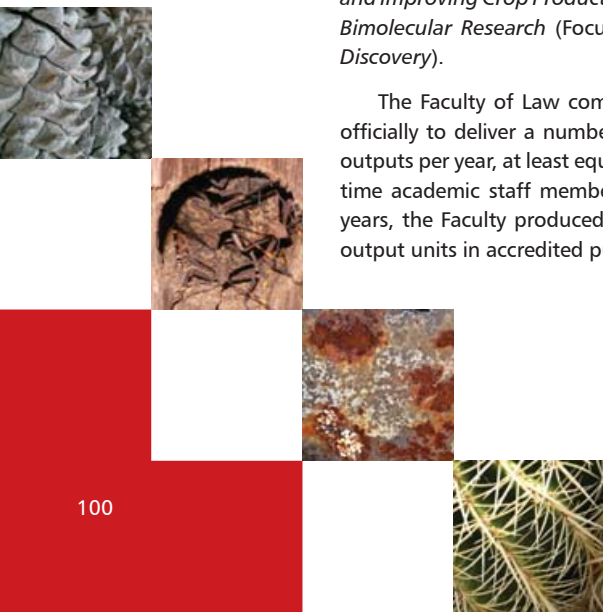
Prof Rita-Marie Jansen, Department of Private Law, is involved with research in three of the University's Strategic Academic Clusters, namely *Transformation in Highly Diverse Societies* (Focus Area on *Indigenous Knowledge Systems for People's Transformation and Development*); *Technologies for Sustainable Crop Industries in Semi-arid Regions* (Focus Area on *Technologies for Adding Value to and Improving Crop Product Quality*); and *Advanced Bimolecular Research* (Focus Area on *Novel Drugs Discovery*).

The Faculty of Law commits itself formally and officially to deliver a number of qualifying research outputs per year, at least equal to the number of full-time academic staff members. Over the past three years, the Faculty produced more than 74 research output units in accredited publication outputs.

An important breakthrough for the Faculty was an agreement reached with the Institute of Advanced Legal Studies at the University of London and the Faculty of Law at Leicester University (both in the UK) to jointly accept the editorial responsibility to proceed with the *International and Comparative Corporate Law Journal*, an international authoritative journal on Mercantile Law. Prof Henning is one of the chief editors, and a number of contributions were submitted by Faculty staff members after approval from external international subject referents.

Besides the accredited subject journal, the *Tydskrif vir Regswetenskap*, the series *Mededelings van die Sentrum vir Ondernemingsreg* also plays an important and unique role in the research setup of the Faculty. The monographies make provision for the publication of dissertations, papers and research outputs which are too long for publication in journals. The high status enjoyed by the monographies – quoted in court cases – stimulate research.

The 40th edition in the series *Mededelings van die Sentrum vir Ondernemingsreg* was handed to Prof Frederick Fourie, Rector and Vice-Chancellor of the University, by Prof Henning, editor of the series. This edition, *Perspectives on and a Selection from Felicius-Boxelius, A Treatise on the Law of Partnership*, is a unique contribution to the *Mededelings* series. It is the translation of the 1666 work of Felicius-Boxelius *Tractatus desideratissimus de communione seu societate deque lucro item ac quaestu, damno itidem ac expensis*. The publication of this work provides a unique contribution to the development of South African Partnership Law





through the unlocking of a source that was previously inaccessible.

Prof Charles Ngwena of the Department of Constitutional Law and Philosophy of Law published articles on disability in the *South African Journal on Human Rights*. He was also co-editor of the book *Health and Human Rights*, as well as a special issue of *Developing World Bio-ethics*, together with Prof Rebecca Cook of the University of Toronto in Canada. The Department is also well positioned regarding research outputs in paradigms of international law, one of them being the investigation of a Swiss model of non-intervention. The constitutional perspective of development of the South African common law in the sphere of public law was also a main theme in which the contributions of the Dutch author Ulrich Huber served as a focal point. His seminal work on public law, *De Jure Civitatis*, received particular attention.

Dr Nico Swartz of the Department of Roman Law, History of Law and Comparative Law completed his LL D (Dissertation) with the title *'n Kritiese ondersoek na societas, natuurreg en menseregte in die post-Thomistiese regsleer van Antonio Rosmini (1797-1855)*. He also completed his MA (Latin) dissertation with the title *'n Kritiese bespreking van Victor van Vita se aanbiedings in die Historia Persecutionis vanuit 'n historiese en literêre perspektief*.

The Unit for Children's Rights successfully developed a niche area on trafficking in human beings. This research area is increasingly emphasised nationally and internationally and new legislation is currently being drafted. The Unit hosted a national

conference on Trafficking in Human Beings in 2007 on the Bloemfontein campus. The event involved leading local role players in this field as speakers and was attended by stakeholders from various non-governmental organisations, the South African Police Service, the Department of Justice, the National Prosecuting Authority, the Department of Health, and the Department of Social Development, as well as interested parties from Germany, Nigeria, Ethiopia, Tanzania, Zimbabwe, Namibia and Mozambique. This conference was part of a preliminary conference to the European Union's regional conference on Trafficking in Human Beings in Southern Africa held in Mozambique, to which the unit will also contribute.

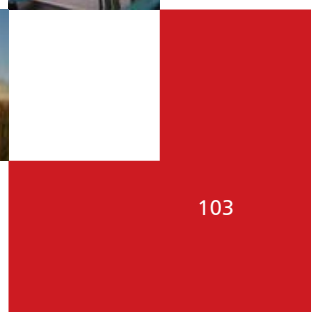
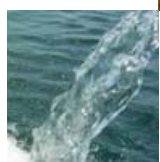
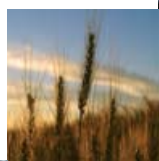
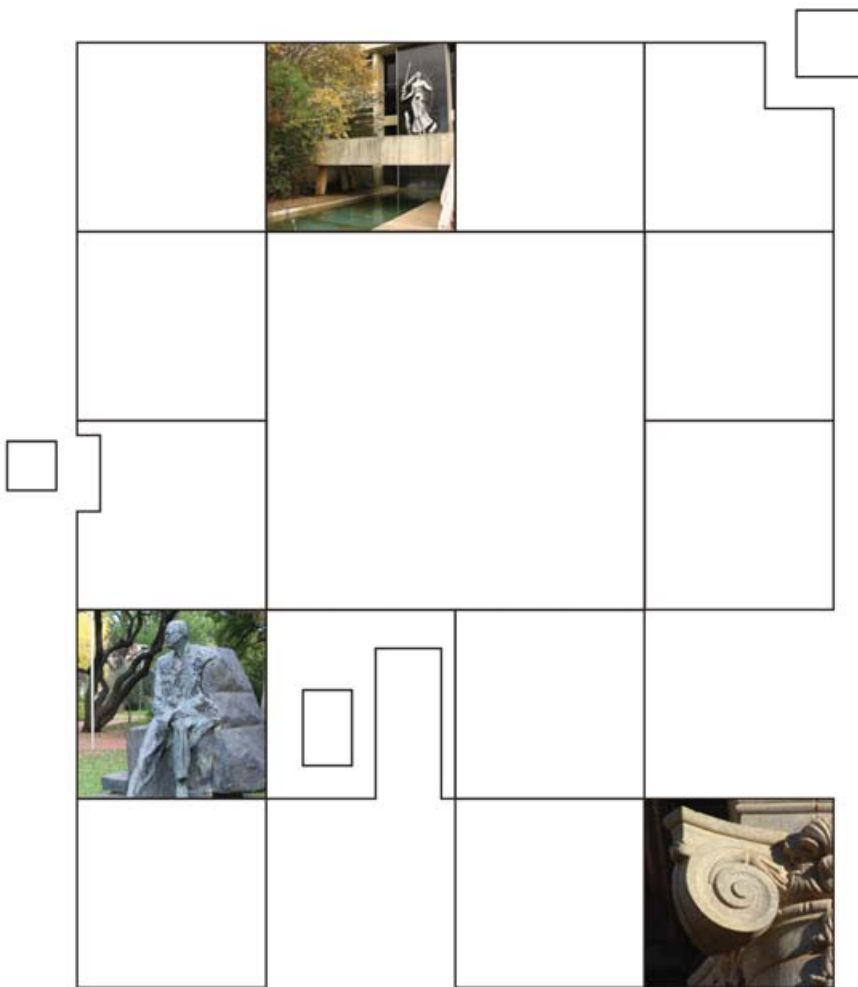
Apart from publishing on the topic, Adv Beatri Kruger and Prof Susan Kreston, a visiting Fulbright Scholar during 2006 and 2007, presented papers on trafficking in children at the 25th International Symposium on Organised Crimes in Cambridge, UK in 2007. They also delivered papers on this topic at the International Women's Association of Judges' Conference on Trafficking held in Gauteng.

The Unit also provided training to regional magistrates across the country on trafficking in human beings and on the proposed South African legislation as part of the 2007 Sexual Offences Workshops. Training of district magistrates has also taken place. Outside South Africa, training was provided to community based, academic, and governmental organisations in Botswana, Rwanda and Zimbabwe.

The Faculty did not only deliver contributions in terms of law sciences. Prof Andries Raath also delivered a special contribution to historic writing about the Anglo Boer War through the publication of his magnum opus about General Jacobus Herculaa De la Rey. This work was received acclaim from a number of historians and litterateurs. In addition, the Centre for the History of Law is

currently collaborating with Prof Dolf Britz of the Faculty of Theology on the translation of the Commentary of Calvin (from Latin) on the Book of Genesis into English.

As in previous years, 2006 and 2007 had their highlights and challenges. The Faculty continued in its commitment towards higher quality and better research by investing in equipment and infrastructure.



# Message from



*Prof Neil Heideman (left) (Vice-Dean of the Faculty of Natural and Agricultural Sciences and Chairperson of the Faculty Research Committee), and Prof Herman van Schalkwyk (Dean: Faculty of Natural and Agricultural Sciences).*

**T**he Faculty continued to roll out its equipment and laboratory strategy. This comprises of the creation of an environment that supports researchers and lecturers so that they can conduct their work to the best of their ability. Under this strategy, an agreement was reached with Shimadzu to the value of approximately R7 million, according to which they provided equipment to the Faculty at

a substantial discount. This agreement is valid for three years, and all equipment will be replaced, at no cost, by new updated replicas.

The Department of Computer Science and Informatics received a sophisticated device which registers eye fasciations of computer users. The *Eye Tracker* determines the exact point on the computer screen

# Natural and Agricultural Sciences

## the Dean: Prof Herman van Schalkwyk

that a user is looking at and will be applied to study user interaction with computer programmes. The University of the Free State (UFS) is the first tertiary institution in Africa that boasts such a device.

The biggest construction contract in the history of the UFS, to the value of R40 million, was begun. The contract comprises the external modernising, refurbishment and extension of the Chemistry Building. A number of initiatives have led to the Department of Chemistry being recognised as one of the leading departments in the country. Apparatus and equipment to the value of R20 million was purchased, including one of the most advanced nuclear magnetic resonance apparatuses in Africa, one of the most advanced single crystal x-ray diffractometre in the southern hemisphere, and a differential scanning calorimeter, one of the most advanced in the world. The Department is supported through a strategic partnership with Sasol involving substantial investments from the biggest research and development company in the country.

Under the leadership of Prof Leon van Rensburg of the Department of Soil, Crop and Climate Sciences, the University has become one of the first institutions in the world to mechanise in-field rain water harvesting. With this technique water is channelled to the plant to limit drought risks and to increase crops. This technique could be of great benefit to farmers, specifically those in semi-arid regions.

R13.7 million was awarded to the Department of Microbial, Biochemistry and Food Biotechnology for research on prehistoric organisms. This contract

was awarded by BioPAD, a South African biotechnology company that negotiates partnerships between researchers, entrepreneurs, businesses, the government and other role players, to promote innovation and develop sustainable biotechnological businesses. The contract comprises the establishment of a Platform for Metagenomics – a technique which enables researchers to extract DNA from microbes in their natural habitat and to further investigate it in their laboratories. The project is supported by the Department of Science and Technology and the National Research Foundation, which contributed towards the scholarships of the 17 postgraduate students on the programme.

A project at the Centre for Plant Health Management (CePHMa) received the Technology award for 2007 from the National Department of Trade and Industry at the Nelson Mandela Metropolitan University in Port Elizabeth. The award gives recognition to pioneer research that was conducted by the UFS on kenaf, a South African commercial fibre crop that is used, amongst other things, in the motor industry. The research was initiated six years ago in collaboration with the British company Sustainable Projects Development Group. Currently it is continued by the South African company Sustainable Fibre Solutions.

Three groups of students from the Department of Architecture participated and excelled in the national Des Baker competition. What distinguished their participation was that they were to look at the specific needs of buildings of local communities. The project was also to be a catalyst for community development. The students could execute their projects in a practical

manner by using the houses of the workers on the Paradys Experimental Farm as their basis.

A recent study<sup>5</sup> ranked the UFS fifth in the country in plant and animal sciences, in terms of the number of publications and citations in the Essential Science Indicators database of the Institute for Scientific Information (ISI). Outputs produced by colleagues in Biology contributed substantially to this. Another report also indicated that the Faculty of Natural and Agricultural Sciences publishes in top international journals, accredited by the ISI, thereby promoting the name of the UFS as a research-oriented University.

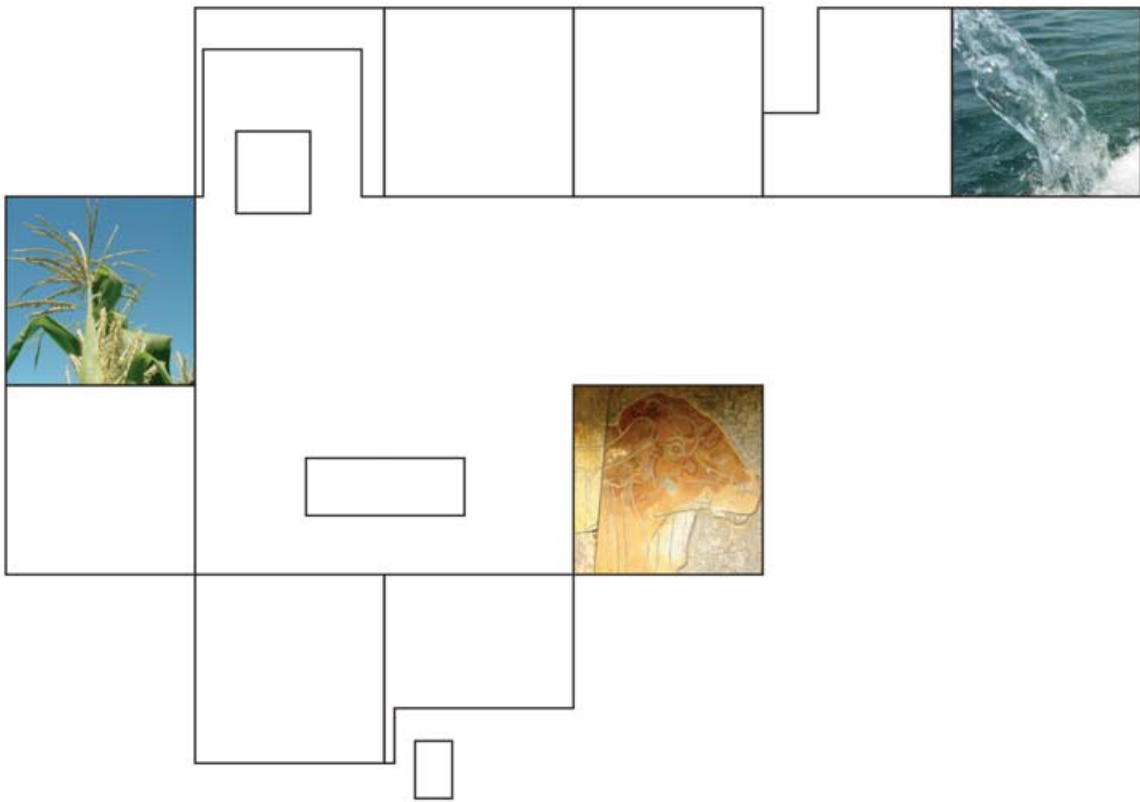
The Faculty's research outputs continue to increase. In 2006, 252 articles were published in accredited journals. The output rose to 275 in 2007 – an average increase of 1%, which may be attributed to the commitment of the Faculty's researchers.

Various staff members of the Faculty were elected to serve on national committees and councils. Prof Herman van Schalkwyk, Dean of the Faculty, was appointed by the National Minister of

Agriculture to the Land Bank Board and to the National Agricultural Marketing Council. Prof Kobus Laubscher, Department of Agricultural Economics, was appointed as chairperson of the National Productivity Institute's Social Plan and Productivity Council, and Ms Sheila Vrahimis of the Department of Geography was appointed to the Free State's Geographic Name Giving Committee.

The Vice-Dean, Prof Neil Heideman, was awarded the Fulbright Senior Researcher Fellowship to visit the laboratory of Prof Jack Sites, a fellow herpetologist at Brigham Young University, Utah in the United States of America for six months. Prof Jan van der Westhuizen and Dr Susan Bonnet of the Department of Chemistry, together with staff members from FARMOVS-PAREXEL received the National Science and Technology Forum's (NSTF) innovation award for their outstanding contribution to science, engineering and technology over the last ten years. Prof Maryke Labuschagne of the Department of Plant Sciences received the NSTF award for the development of research capacity over the past ten years. This was for her successful mentoring of black students and researchers.

5 Source: <http://www.be.up.co.za/images/documents/BEatUP-news-APouris-HighEducation.pdf>





*Prof Hermie van Zyl (left) (Dean of the Faculty of Theology) and Prof Francois Tolmie (Senior Professor in the Department of New Testament and Chairperson of the Faculty Research Committee). Prof Tolmie was appointed as Acting Dean in the Faculty of Theology, effective 1 July 2008. From 1 January 2009 he will serve for a five-year period as Dean in the Faculty of Theology.*

**R**esearch in the Faculty of Theology is very important. Not only are the high average research outputs of the Faculty's academics proof of that, but also the four National Research Foundation (NRF)-rated researchers (30% of the

researchers in the Faculty). They are Profs Fanie Snyman, Johan Janse van Rensburg, Pieter Verster and Francois Tolmie. The Faculty's research philosophy is to give freedom to individual researchers. They are allowed to choose their own research theme and to conduct research on aspects which they feel they can make the biggest contribution. This has resulted in the Faculty conducting research on many theological issues. Besides the normal research activities that have taken place, the following aspects can be highlighted:

In the Department of Systematic Theology, Prof Rian Venter is investigating the public meaning of the Christian God's faith, in other words the social implications of the Trinitarian denomination. Two articles have been published in the past two years on this topic, with the focus on space in terms of town planning and theological training respectively. Prof Laetus Lategan was appointed in the Department as Professor Extraordinary in Research and Professional Ethics. The aim was to enhance the traditional question horizon on research on Theological Ethics.

Over the past few years, Prof Piet Strauss of the Department of Church History and Polity (mainly church history and church law) has concentrated on modern reformed church law. Via the Faculty of Church Law at the Catholic University of Leuven in Belgium, he has opened doors to overseas publications and contracts. Prof Dolf Britz's research includes focus areas such as poverty, the poor, injustice and social justice in the reformation literature of the 16th century. Together with Dr Victor d'Assonville, research fellow in the





# Theology

## Message from the Dean: Prof Hermie van Zyl

Department, he is included in the International Congress on Calvin's research. In collaboration with the Instituut vir Klassieke en Reformatoriese Studies, a summer university was presented on the 16th century doctrinal scripts and their meaning for Africa as it is today. A theological conference on the same theme was organised with the Dutch Reformed Church in Africa. On both occasions theologians from Europe acted as guest lecturers. Under the leadership of Prof Britz and Dr d'Assonville, young upcoming researchers embarked on a study and research tour in August 2007 to the Universities of Cambridge and Münster. Each of them delivered a lecture at the summer university of the University of Münster on the reception of the Heidelberg Catechism in Africa.

In the Department of Missiology there is a research project on poverty alleviation in the informal housing community. The Department is also connected with the University's Strategic Academic Cluster research on poverty alleviation. The focus of the research falls on violence and reconciliation, with theology as point of departure. Prof Pieter Verster delivered two research articles on the latter. Dr Roelf Pienaar successfully completed his research on the empowerment of the office of believers in a missionary context. Dr Frans Hancke also completed his D Th and is conducting further research on this important matter.

Prof Johan Janse van Rensburg of the Department of Practical Theology published a book on preaching the Old Testament. He received a four-year scholarship from the NRF to conduct research on a theology of poverty. At the Programme in

Pastoral Theology, the Department received a number of lecturers from other universities (national and international), providing aspects such as the human soul and sexuality from a theological point of view. Prof Jan-Albert van den Berg delivered papers on pastoral therapy at two international congresses. Dr Jeanette Steyn is busy with research on emotional pain in families in Bloemfontein as part of an extended community service project. Both Prof van den Berg and Dr Steyn are involved in the Strategic Academic Cluster on *Transformation in Highly Diverse Societies*.

The local Department of Old Testament is working together with the Department of Old Testament from Stellenbosch University (SU) on the project *Prophet Research with the aim to stimulate research on prophetic literature*. A successful conference was held at the SU on this topic. The Departments of Old Testament, New Testament and Biblical and Religious Studies have established a Discussion Group on Bible Sciences, meeting once a quarter to discuss a research theme from the biblical sciences.

The local Department of New Testament in conjunction with the Department of New Testament at the University of Pretoria established the International Colloquium on the New Testament with the aim of enhancing interaction between academics focusing on the New Testament from South African and abroad. Together with the local Department of Old Testament, the Department also focused on research on biblical spirituality. Prof Pieter de Villiers was appointed as Research Associate in Biblical Spirituality and delivered his



*Acta Theologica, the journal of the Faculty of Theology at the UFS, is the first theological magazine in South Africa to be accepted for indexing in the Arts and Humanities Citation Index of the American Institute for Scientific Information.*

inaugural lecture on violence and biblical spirituality. Two successful congresses on Biblical Spirituality were held – one in Nijmegen in The Netherlands and one in Bloemfontein. A new Master's course on Biblical Spirituality was also developed. The Department presented an international congress on the rhetorical analysis of the Letter to the Galatians. This will be followed by further international congresses on Pauletic literature.

*Acta Theologica*, the accredited academic journal of the Faculty, published a number of supplements, over and above the normal issues. These include issues on the medical sciences in the antique world (receiving the Stals prize), Christian spirituality, and the rhetorical analysis of Galatians. In 2007, *Acta Theologica* became the first South Africa theological journal to be accepted for indexing in the Arts and Humanities Citation Index of the American Institute for Scientific Information (ISI). Due to the ISI's high standards, only a small number of South African academic journals have succeeded in being added to the ISI list. It was the first theological magazine in South Africa to be honoured in this way.