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IOP update

INTO THE FUTURE WITH THE E-TEAM

THE INSTITUTIONAL Operating Plan is nearly done. By May this year, everything that was identified for action will have been seen to: a review of the university’s academic structure has been carried out; improvements to the business processes and management information systems have been put in place; change management and leadership development programmes are under way. Only the financial turnaround plan will run through to 2010.

But steady progress has been made in what had seemed the most intractable problem. At the end of 2007, the university was described as being ‘technically insolvent’ with liabilities exceeding assets by more than R500-million. ‘We’re on the road to recovery,’ the Vice-Chancellor, Professor Mahlo Mokgalong said early in 2009. ‘For a start, this university is no longer working on an overdraft.’

But who will ensure that the improvements arising out of the IOP – the systems, the disciplines, not to mention the university’s vision and mission – will be maintained?

In a word: the executive committee (the E-Team) will have the basic responsibility. It’s comprised of the Vice-Chancellor; the Deputy Vice-Chancellor – Academic, Professor Peter Franks, who also doubles at the Turfloop campus principal; the Ga-Rankuwa campus principal; the deans of the four university faculties; the chief financial officer (Raymond Olander); and the human resources executive director (Joseph Moloto).

‘This is a first-class team,’ says Mokgalong. ‘There are many new faces. There are also some old ones, most notably my own and Professor Franks’. I’m confident that this executive committee will add real value to the university, and will be able to steer it to where it wants to go: an African institution of excellence that is globally competitive and yet that is rooted in rural Africa’s immense challenges.’

The new faces are: Professor Errol Holland, Dean of Health Sciences; Professor Nhlanhla Maake, Dean of Humanities; Professor Obeng Mireku, Dean of Management and Law; and Professor Hlengani Siweya, erstwhile director of the School of Computational and Mathematical Sciences who has now been promoted to the position of Dean of Science and Agriculture. The post of Deputy Vice-Chancellor and principal of the Ga-Rankuwa campus has yet to be filled.

Now turn to pages 28 to 32 for introductory profiles on the three new faces at Turfloop. The Ga-Rankuwa pair will be profiled in Limpopo Leader 17.

1For profiles on both Olander and Moloto, see Limpopo Leader 14 (Winter 2008), page 12 and page 15 respectively.
BEGINS IN THIS ISSUE. The story is a remarkable one because it is so closely bound up with the South African political narrative that played itself out over the last few decades of the 20th century.

Begun as part of an ‘antidote’ to black frustrations as manifested in the Soweto uprisings, the Medical University of Southern Africa had an uncertain beginning. Would it become a ‘bush university’, inferior to other medical schools? Or would it be able to hold it head up in such illustrious company as the medical training offered by the universities of Cape Town, Wits, Pretoria and the Free State? That the answer to the second question is a definite ‘yes’ was not a foregone conclusion. The vicissitudes of fortune that were experienced by both medical school and attendant teaching hospital are well documented in this issue. It’s a story of triumph – and it’s a story that will continue in our Autumn 2009 issue. Contact us if you’ve got a story to tell and you’d like to be included.

There’s interesting coverage in this issue of the relevance of indigenous knowledge. The essential characteristic of the European Renaissance was a rekindling of interest in the first flowering of western learning among the ancient Greeks and Romans. The same process should be happening in Africa, but the continent’s wisdom has tended to be downgraded, first by the all-consuming ‘superiority’ of European empires, and now by the equally consuming ‘modernity’ of the global village. Key concerns in our coverage are: how to nurture indigenous knowledge and how to position it in modern educational practice.

Also of interest is a collection of articles under the umbrella title of ‘Adding value to Earth’s Bounty’, which examines the work being done at the university to promote agricultural downstreaming in Limpopo Province. Read about Turfloop’s new Agro-Food Processing Research Unit, and about a Micro Brewer Brewery that has made an appearance in the Department of Biochemistry, Microbiology and Biotechnology. Then learn about the trials that are being conducted on an Ethiopian and East African plant that could introduce a bit of genuine green into petro-chemical products like plastics, PVC and epoxy resins.

And there’s quite a lot more besides.

NEXT ISSUE
LOOK OUT FOR PART TWO OF OUR SERIES ON THE HISTORY OF MEDUNSA (NOW THE MEDICAL SCHOOL ON THE GA-RANKUWA CAMPUS OF THE UNIVERSITY OF LIMPOPO) AND THE ADJACENT DR. GEORGE MUKHARI HOSPITAL. There’ll also be more profiles of the new executive team: notably of the new Deputy VC and Ga-Rankuwa campus Principal and the new executive dean of the Faculty of Health Sciences. Apart from that, there’ll be exciting coverage of new developments on the Turfloop campus; and an examination (based on research conducted by the Southern African Regional Universities Association) of the fate and potential of post-independence African universities. Subscribe now to secure your copy.
IN THIS ISSUE

cover picture
Professor Emil Abotsi of the University of Limpopo’s Department of Biochemistry, Microbiology and Biotechnology in the Micro Brewer Brewery that has recently been installed on the Turfloop campus, courtesy of the South African Breweries (SAB). See the story on page 24.

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The new E-team: ENTHUSIASTIC MANAGER, Hlengani Siweya.
THIRTY YEARS is not very long in the history of a university. Consider the oldest one in the western world: the University of Bologna in Italy, founded in 1088. The second oldest was founded in 1150 in Paris, France. About 10 years later, Oxford University was founded to provide an alternative for English students who had been forbidden to attend university in France by England’s King Henry II.

Lack of longevity is no reason for the Ga-Rankuwa campus of the University of Limpopo not to be proud. In the short period since the first students were registered in what was then Medunsa in early 1978, it survived a desperate period in the country’s history, and it has reinvented itself during these early years of true democracy.

Though the initial intention of the apartheid planners was to produce some form of ‘barefoot black doctors’, this move was strongly resisted by progressive thinkers of the day, and Medunsa and the Dr George Mukhari Hospital have been able to compete on an equal footing with other medical training facilities.

Part One contains the following:
• Overviews of the history of the university and the hospital, gleaned from archives and from other research, including talking to people.
• Then we take a look into the past with Professor Len Karlsson who joined Medunsa in 1980 as Associate Professor in the Department of Community Health, and became Vice-Principal in 1986.

In this and the next edition we will take a look at some of the events and people who have shaped this university, as well as the Dr George Mukhari Hospital – an integral part of this medical university’s facilities. This is not intended as a comprehensive history of the institutions, but it will hopefully give us an interesting peep into the past.

SHARE YOUR STORIES
Do you have a story to tell about your association with Medunsa or the Dr George Mukhari Hospital? Why not share it with our readers. Please contact Janice at janicehunt@xsinet.co.za and we’ll see if we can fit you into Part Two.
Campus with a past
FROM TURBULENCE TO TRIUMPH

THE DR George Mukhari Hospital is (and always has been) the academic hospital for Medunsa (now the Ga-Rankuwa campus of the University of Limpopo). As such it needs to be considered a part of the medical school campus. It’s shared some tough times with the university it supports, and it’s had some tough times of its own. Today, this hospital – the country’s second largest after Chris Hani Baragwanath – is on the ascendency. But this hasn’t always been the case.

The history of the hospital dates back to September 1969, when construction work began. The casualty and outpatients departments started functioning in April 1973, and by September the first patients were admitted to the wards.

Building continued for a couple of years to reach the hospital’s current size as a 1 550-bed hospital accommodating all fields of medicine in 23 clinical departments. It has 82 full-time and 37 part-time specialists, all of whom have a dual appointment with the hospital and the university. There are also 168 registrars, 97 medical officers and 64 interns.

Although built in the Bophuthatswana homeland, the hospital has always been kept under the control of South Africa’s health services – a fact that was often argued by then President of Bophuthatswana, Lucas Mangope. Even though his ‘government’ was never given control, it didn’t stop him using the hospital himself.

‘In fact, this hospital has attracted many dignitaries over the years because of its high standard of medicine,’ says Simon Aphane, assistant director of the Radiography Department. Aphane has been on the hospital staff since March 1977, when he joined as a student radiographer. Because Medunsa had not yet been completed, training was done at the hospital until 1978. Aphane became the first graduate of radiography at Medunsa in 1979.

He recalls specifically the successful separation of the Zambian conjoined twins, Joseph and Luka Banda, by a team headed by Professor Sam Mokgokong (featured in Limpopo Leader 12) in 1998.

But that doesn’t describe the turbulence in the history – the ongoing labour unrest that led to strikes, police intervention, gunshot injuries, and great political turmoil in the 1980s and early 1990s. It also doesn’t describe the terrible days of segregation when whites who worked at the hospital were given extreme preferential treatment – rural, tolerance and transport allowances and separate dining rooms. Black staff received no allowances, and ate jam sandwiches piled in cardboard boxes at metal tables.

Then came the phasing out of segregation, the end of allowances, and an exodus of white staff from the hospital. ‘There were no plans for the transition and no one had been prepared for taking over,’ notes Aphane. ‘No information or skills were passed on. Standards dropped. Many of the systems and procedures had to be built again from scratch.’

They were rebuilt – and today the hospital can hold its own proudly against other government health institutions. Dr George Mukhari, a selfless local doctor who constantly went beyond the call of duty by providing free medical services to people in financial difficulties, would be proud of all that the hospital is achieving today – but he would be the last person to allow it to rest on its laurels!
IN 1975, a pilot committee was established to advise the education minister about founding a university to train black health professionals. Then in 1976, Act 78 of 1976 was published, establishing the Medical University of Southern Africa – Medunsa. The university’s main aim was to train black doctors, dentists, veterinarians and allied health professionals who would be able to meet the demands of the South African health system; at the time more than 90% of medical personnel were white.

Development progressed rapidly and on 7 February 1978, the first 63 medical students were enrolled and a month later, the first 89 para-medical students were enrolled. In December of that year, 20 diplomas were awarded.

Building continued steadily. By 1979 several residences had been completed, as had the main kitchen, and various other facilities. The library was being built, but was in the interim operating from the new dining room, offering a basic service to the first Anatomy and Physiology students.

The new library building was ready for occupation early in 1981, and the move, says head librarian John van Niekerk, who has been in the library since it started, was completed within two days, without interruption to lending services. Library numbers are of interest: three staff members in 1978 to 30 today; 4 000 books then to 67 000 books today; 271 library users then to over 4 000 today; and no computers then, to more than 150 today.

In 1982, Professor Francois Retief, then Rector of Medunsa, wrote an article in SA Medical Journal, Volume 26, titled ‘The Medical University of Southern Africa after 5 years’. He acknowledged that the concept of an independent health sciences university was new, and that the popular ‘but erroneous’ image of a purely black medical school was unacceptable to many. Critics believed that academic merit should be the only criterion for the admission of students to universities.

Retief explained that ‘the present situation in South Africa shows that such an approach would not have optimised opportunities for black applicants. The harsh reality was that it would have discriminated against the rapid training of black health professionals. … the black matriculant selected on academic merit must find himself at a disadvantage when compared with his white counterpart’. However, Medunsa’s experience over its first five years revealed that the academic achievements of its students were no worse – and often better – than those seen at comparable faculties.

Medunsa was admitting large numbers of students who in all probability would not have gained admission elsewhere on school-leaving merit, but who were proving to have excellent potential. ‘We at Medunsa have little doubt that we are in a unique position to build bridges towards ensuring a happier South Africa of tomorrow,’ concluded Retief.

Indeed, the academic achievements in the first five years were significant, and the first 34 medical doctors graduated on 26 November 1982. 75 diplomas were also awarded.

Many people have contributed to the colourful fabric of both Medunsa and the country as a whole. Whatever the future holds, everyone who has been associated with Medunsa over the years can look back with pride, knowing that the world is a better place because Medunsa and its hospital were here.
The first students in the Faculty of Dentistry were registered in 1981 and in the Faculty of Veterinary Science in 1982.

In January 1983, a new laboratory for microsurgery, then a relatively new field, was established by the Department of Plastic & Reconstructive Surgery at Medunsa. The idea was to help the teaching of consultants and registrars to develop the skill to operate on clinical material at Ga-Rankuwa Hospital.

At the end of 1983, the ‘One Day at Medunsa’ events were launched, to introduce industrialists and leading policy makers to the realities of life at Medunsa. After the first visit, letters of congratulation poured in. Standards were much higher than had been anticipated. The result was a dramatic increase in the number of bursaries and donations granted to the university by the private sector. ‘One Day at Medunsa’ was to become a regular event. In fact, at the 1984 event, a total of about R50 000 was donated.

In 1985 Medunsa became part of the People-to-People International Programme, a US initiative to enhance international understanding and friendship through educational, cultural and humanitarian activities involving the exchange of ideas and experiences among people of diverse cultures.

Also in 1984, Goldfields donated R225 000 to Medunsa to establish the Nutrition Rehabilitation Trust to address the problem of malnutrition among black population groups in southern Africa.

‘A joke of the day 25 years ago, however, shows that some things don’t change: a nurse turns to an irate patient and says, ‘Stop yelling at me; you’re not a doctor!’

Medicos, the multi-disciplinary Medunsa Institute for Community Services, was inaugurated and officially opened in April 1983. By then the community being serviced by Ga-Rankuwa Hospital and Medunsa was developing a resistance to the unco-ordinated and haphazard teaching and research programmes that were being delivered by the university. It was important to co-ordinate all the programmes and activities within the communities – hence the Medicos centre.
In 1985, the Institute of Ophthalmology was established at Medunsa. This facility went on to develop internationally accredited ground-breaking techniques for a range of surgeries to treat eye diseases found in under-privileged communities.

A notable individual achievement was a Fulbright Scholarship for Pauline Kuzwayo, lecturer in the Department of Human Nutrition at Medunsa, and another was the publishing of a book written in Swazi by oral hygiene student, Emma Muthunjwa, called ‘The Storm has Passed’.

By the time the university was in its eighth year, it had grown seven-fold. There were 1,226 students, of whom 991 were black. Among the postgraduates, 168 were white, 10 were Indian and two were coloured. 707 were male and 519 were female.

In the 1990s, achievements were still being notched up. Professor Ulrich Mennen, born and bred in Mpumalanga, head of Department of Hand and Microsurgery and the only professor in this field in this country, devised and developed a circumferentially placed plate – the Mennen Clamp-on Plate System – for use in small to medium long bone fractures. This system and other achievements by Professor Mennen have and are being used throughout the world.

In 1987, the first three black dentists to qualify in South Africa, graduated from Medunsa – Drs T.C. Ntsoane, M.S. Sibanyoni, and S.T. Sizani.

In 1985, the Institute of Ophthalmology was established at Medunsa. This facility went on to develop internationally accredited ground-breaking techniques for a range of surgeries to treat eye diseases found in under-privileged communities.

Another of the many firsts achieved by Medunsa was the appointment of Professor Queenie Mokhuane (wife of Leeto) as head of the Department of Clinical and Applied Psychology in 1990 – the first black woman in the country to achieve such a position. The first black female gynaecologist in the country – Dr Princess Simelela – graduated in 1990.

In 1993, Professor Kubedi Mokhobo, who started life as a farm youth, became the first black specialist in South Africa, and was appointed head of the Department of Internal Medicine.

In June 1991, Dr Nelson Mandela, then deputy president of the ANC, was guest speaker at Medunsa. He said that the university could play a key role in transforming the present South African health system into one that truly serves the medical needs of all population groups.

The first black dermatologist to qualify in South Africa was Dr Leslie Nteta, lecturer and consultant in Medunsa’s Department of Dermatology, in 1995.
Karlsson recalls a number of specific incidents where he and his students interacted with the world outside of the university confines. ‘As part of the Public Health component of their course, the students were to visit various establishments such as water and sewage works, factories, butcheries and bakeries and so on. Arranging these trips and accompanying the students was my responsibility.

‘I travelled with the students on the bus, and enjoyed their easy informality. The continuous bantering on almost any subject was at times uproariously funny. They were impressed with my fluency in Zulu and much of the conversation was carried on in that language. More seriously, I learned a lot about their culture, their dreams and visions of the future – and particularly the reality of being black in apartheid South Africa.

‘On one occasion we were to visit a large steel smelting works in Pretoria. It was immediately apparent that the person who was to meet us and organise the tour was a very conservative Afrikaner. He was totally overwhelmed by a busload of fifty young black people (all potential doctors) and immediately started shouting and ordering the students around. His choice of language was, to say the least, totally unacceptable. He had probably been expecting white students. I should have checked carefully before the visit to make sure we were welcome.

‘But it was the students’ reaction that I found most remarkable. They obeyed the man’s instructions without a murmur. Anyhow, I called the visit off and we returned to Medunsa. The following day during a lecture, I expressed my embarrassment at what had happened and how degraded they must have felt. To my surprise, the whole class laughed. When I asked for an explanation of their mirth, a student said, “Prof, don’t feel bad. We experience this sort of treatment almost every day.” I felt humbled. How little I understood.’

Another highlight of Karlsson’s days in the Department of Community Health was the opening of the Medicos Centre, and more particularly, the daycare facility for mentally handicapped children from the surrounding communities. This centre would make a dramatic difference in the lives of people who would otherwise have spent their days among the forgotten.
‘Within a short time one could see the beginnings of transformation in these children. From frightened and withdrawn children they started taking an interest in everything available to them. The staff was wonderful. From small beginnings, the centre grew and was eventually registered as a fully-fledged school with government-paid teachers.

‘One portion of the centre had been adapted to serve as sheltered employment for mentally handicapped adults. Firms nearby were approached for simple assembly work. For most of these workers this was the first time in their lives that they had been able to earn some sort of income. The smiles on their faces as they were handed their first pay envelopes was enough reward for all of us.’

As the years went by, the centre started bursting at its seams. Government was approached and responded positively – and today this facility continues to serve communities in and around Pretoria.

At one point, Karlsson was asked to call on Dr Enos Mabuza, leader of the KaNgwane ‘homeland’ and vociferously anti-apartheid. Like Karlsson, Mabuza had decided to work within the existing system for the good of the people, not because of any support for the government. But he would not support Medunsa. Karlsson attended a meeting of the KaNgwane Legislative Assembly in an effort to present the true Medunsa picture. Mabuza said, ‘Now tell us about your bush university.’ He believed Medunsa to have lower standards than other universities.

‘I chose my words carefully,’ Karlsson recalls. ‘I explained my reasons for accepting the post at Medunsa. Everybody knew my political sentiments. I reminded them of the problem that KaNgwane was having in recruiting doctors. Would it not be in their interests to see young citizens of KaNgwane return as doctors to serve their people? I ended by forwarding an invitation from the Vice-Chancellor to visit Medunsa.’

Mabuza and his cabinet did visit Medunsa and were duly impressed by what they saw. From then on the university was given encouraging support by the KaNgwane government.

Karlsson’s years in Community Health came to an end and he moved to the Department of Obstetrics and Gynaecology. It wasn’t long before he was appointed to the position of Deputy Dean of the Faculty of Medicine, and then as Dean of the faculty in 1985.

But the political instability of the southern African region had already impinged on life in the university. In the early 80s, the internal strife in Mozambique ensured a constant flow of refugees into Gazankulu. Mabuza’s homeland government was sympathetic to their plight – and Medunsa was approached to assist.

‘A reception camp was established close to the border with the Kruger Park. I witnessed how the steady stream of refuge-seekers arrived at the camp – exhausted, starving and often ill with malaria. I listened to many harrowing stories. On one occasion I saw a young woman carrying a new-born baby in her arms. She told me that walking alone her labour pains had started. Under a tree in the Kruger National Park she had delivered herself and after a few hours’ rest continued her journey.’

A small clinic was erected in the camp and various Medunsa departments – community health, medicine, paediatrics, obstetrics and gynaecology, and dentistry – sent staff to the clinic on a regular basis.

The turbulent 1980s continued and black/white relations continued to be strained in many quarters throughout the country. While some whites were accepted as exceptions to the rule, there were others who definitely were not. Karlsson recalls a difficult encounter that he had when three white medical graduates applied to attend third year at Medunsa.

‘I was naturally concerned. However, there were seven vacancies in the third year. I called the students in for an interview. Two of the young men made a good impression, but the third was aggressive. I explained the difficulties on campus with the undergraduates. Life for them, especially being Afrikaners, could be difficult. I advised them to withdraw their applications. The difficult young man threatened legal action. We, as a university had no legal grounds for refusing them admission. So we admitted them.

‘For three weeks everything seemed to be going fine. I had not heard anything from the student body. Just as I was about to draw a prolonged sigh of relief, there was a request for a meeting with the Students’ Representative Council. Their message was to the point. Exclude the white students from the univer-
I explained that on legal grounds I could not do so but would see if I could get them to withdraw on a voluntary basis. I was given two weeks to finalise the matter. The meeting with the three students was acrimonious. Under no circumstances would they withdraw on a voluntary basis, but if I could obtain admission to another institution they would accept. ‘There followed a period of feverish telephone calls. Eventually, I found two faculties that could accept one each – but no one wanted the difficult student. I called him in to explain the situation. He was outraged and blamed me for not trying hard enough. However, he was determined to stay on, irrespective of the consequences.

‘The next morning there was not a student in class except the white student. A full-scale class boycott had been implemented. The boycott dragged on for days. About a week into the boycott the student came rushing into my office saying that his life was threatened. He demanded a bodyguard. On questioning he could not confirm a single incident of being threatened. What he did not tell me, but which

I subsequently found out was that wherever he walked on the campus he would be followed silently by a small group of students.

‘At the beginning of the third week, in spite of his sheer obstinacy, he must have realised that he could never win this unequal war. He simply did not turn up for lectures. The class boycott was over and the university could return to a semblance of normality. This difficult chapter could be closed with all his documents stamped “absconded”. Thankfully, we never heard from him again.’

Karlsson was appointed to the new post of Vice Principal of Medunsa in 1986. He describes the move ‘upstairs’ to the fifth floor as, ‘logistically, not difficult – just a short lift ride. However, adapting to a completely new work environment took a little longer. It was so quiet. Everyone almost always seemed to talk in whispers. This was not the constant hustle and bustle of the Dean’s office’. He served in that capacity for five years before returning to his first love – obstetrics and gynaecology.
THE UNIVERSITY of Limpopo is soon to establish a groundbreaking new hub to assist its four faculties to fulfil the essential aim of the institution, which is to find solutions for African challenges by stimulating interdisciplinary innovation.

The Rural Development and Innovation Hub, which according to Vice-Chancellor Professor Mahlo Mokgalong will be launched during 2009, will work closely with all schools and departments in Health Sciences, Humanities, Management & Law, and the Sciences and Agriculture, thus stimulating a multidisciplinary approach to teaching, research and community engagement in the field of rural development. The intention is to avoid the traditional academic ‘silos approach’ when attempting to impact on a field that is in reality rich in inter-related realities and intervention possibilities.

An executive director at professorial level will head the Rural Development and Innovation Hub (RDIH); and the incumbent will have a track record of innovation, community engagement, project conceptualisation and implementation, as well as facilitation and community skills. Two other professor-level posts – to be filled by individuals selected for their innovativeness and their willingness to explore interdisciplinary solutions – will be created to co-ordinate the hub’s research and project agenda.

A groundbreaking feature of the hub is that it will influence all research and researchers relating to Rural Development, regardless of which faculty or school has actually instituted the research activity. As stated in the concept document: ‘The general idea of the RDIH is to ensure broad-based approaches to rural development challenges by harnessing the various perspectives, disciplines, technologies, skills and theories that the university can offer through smart partnerships and teamwork.’ Therefore, all teaching, research and community engagement that is oriented to rural challenges will be informed, facilitated, stimulated, and sometimes directly project managed by the RDIH, even though ‘innovated and implemented by teams from individual faculties’.

The most important primary functions of the RDIH will include:

- The forging of new directions in teaching, research and community engagement by the university.
- The identification and exploration of rural development and related challenges requiring resolution.
- The promotion of innovative thinking within the university, in particular in relation to the relevance of academic research, the application of research findings, the transformation of research into commercial ventures, and actively seeking research-related additional income for the university.
- The development and nurturing of linkages and partnerships with government agencies, other higher education institutions, professional associations, NGOs and other non-profit organisation, and the private business sector.
- The monitoring of current and emerging international, regional, national and provincial needs and development trends, policies and innovations.
- The facilitation of creative brainstorming and conferencing networks and events that link people outside the university to those working within the institution.
- The dissemination of development information – trends, theories, internal research and achievements – to as wide an audience as possible.

An active and effective RDIH will take the university a long way towards its overarching goal: to be a world-class African university that is focused on the needs of African rural communities while at the same time striving for excellence in a globally competitive environment.
WE’VE DEALT with aspects of IKS (indigenous knowledge systems) before – but specifically with regard to agriculture. Local Limpopo communities have for centuries been using herbs, shrubs, aloes, dung and ash in various forms and combinations as treatment for livestock diseases, pesticides, and even certain forms of preservative.

But there’s a lot more to IKS than this. Here’s a preliminary list for readers to consider and digest:

- Indigenous pharmacology
- Indigenous medical practice
- Indigenous metallurgy
- Indigenous food technology
- Indigenous cosmetics
- Indigenous environmental management

And let’s not forget the more abstract skills that help to regulate the way we live. What about indigenous political and social organisation, indigenous governance, indigenous religion and philosophy, indigenous ethics and morality, as well as indigenous African cosmology?

Is all this worth preserving? Of course it is. In fact, it’s worth examining in serious detail. Remember the European Renaissance, which gradually dragged a backward people away from their own medieval darkness? A key factor in that historic phenomenon was a rekindling of interest in the first flowering of western learning among the ancient Greeks and Romans. The same process should be happening in Africa, but the continent’s wisdom has tended to be downgraded, first by the all-consuming ‘superiority’ of European empires, and now by the equally consuming ‘modernity’ of the global village.

Someone who would certainly have sympathy with this analysis is Professor Lesiba Teffo. He’s the Dean of the Faculty of Human Sciences at the University of Limpopo. He’s also on the Science and Technology ministerial committee that advises the national minister on indigenous knowledge. And the national minister is taking IKS seriously. Funding has been made available for the creation of five IKS chairs at the country’s universities, only one of which has been filled so far. Teffo has his heart set on grabbing one for Limpopo.

‘It would be an important addition to our Rural Development and Innovation Hub,’ he says. ‘The hub is being established to give practical voice to the university’s avowed aim of “addressing the needs of African rural communities through innovative ideas”.

Teffo admits freely that he is a champion of IKS and its incorporation into university teaching and research. ‘This is my passion,’ he says, ‘I do it because I believe it can change the African mindset. It will help us to find our identity as Africans. Do you know that there are now two indigenous research laboratories – one in Cape Town, the other in Durban – that have been established by the Medical Research Council. Do you realise the importance of ex-President Mandela’s decision to build a home for himself at Qunu, the place in the Transkei where he had grown up. These examples teach us that we should be proud to be African. Western ways are not the only ways. The big metropolitan areas are not the inevitable places to live.’

Nor has Teffo been slow to capitalise on the government’s supportive attitude towards IKS. Thanks to funding from the national Department of Science and Technology, the University of Limpopo has established one of the first Centres of Excellence for Indigenous Knowledge Studies. In addition – and this is the biggest achievement so far – the university could be offering from 2010 a new professional four-year degree called the Bachelor of Indigenous Knowledge Systems. Teffo says that ‘since the University of Limpopo has a fully-fledged medical school, we aim to use this degree to create a niche for ourselves by focusing on the health and social sciences for the development, promotion, preservation and protection of indigenous African healing systems.’

Teffo was born in Mokopane in Limpopo Province. He attended the Mokopane College of Education and became a teacher. But more learning beckoned, and he came to Turfloop where he completed three degrees in philosophy and two in law. He went to Europe where he completed his Licentiate in philosophy at a university in Belgium. On his return to Limpopo he was made a professor and then head of the Philosophy Department in 1995. He has published close to 40 scientific articles and book chapters,
as well as editing four books. And he’s also an admitted Advocate of the High Court of South Africa.

But it’s the field of IKS and the full acknowledgement of and pride in things African that lie closest to his heart. They are his roots.

In December last year, Teffo travelled to Yaounde, capital of the central African country Cameroon, where he delivered a paper to the Conference of Deans of Faculties of Social Sciences and Humanities. His paper was entitled ‘Towards Indigenising South Africa’s Higher Education Curriculum’, excerpts of which are published on page 16.

In the conclusion to his paper, Teffo asserts that a fuller integration of IKS into university curricula would restore the primacy of African epistemologies without denigrating the knowledge systems of any other cultures. ‘The apathy and alienation that students experience would be mitigated by curricula that develop organically within their existential milieus. Africa has come to a point where African philosophy is an integral part of the curriculum. So it will be with indigenous knowledge systems. Africans should be the agents for the changes that will draw them fully into the global world and the universal order of things.’

\[2\text{See article ‘Building on Indigenous Knowledge’ in Limpopo Leader 13, Autumn 2008}\]
\[3\text{See article on page 13 for a full description of the university’s Rural Development and Innovation Hub.}\]
\[4\text{Details of this new degree are provided on page 17.}\]
PROFESSOR Lesiba Teffo asserted that it has always been an integral part of struggle ideology to transform societies through education. The Pan Africanist leaders in the early 1900s called for the eradication of the colonial education system. From all the clarion calls (for independence) a common trend could be detected: ‘people’s education for people’s power’. But good education (according to the nationalist leaders) should do more than pass on norms, values and knowledge.

The young are the reservoirs as well as the transmitters of culture. As the African continent seeks to regenerate itself, politicians, intellectuals and Africanist thinkers should take stock of what preceded their current initiatives, and most importantly what made the colonial education systems, even those of high quality, fail.

The introduction of the western system of education in colonial Africa was underpinned by two primary purposes:

- Vocational education aimed at serving the capitalist appetite for skilled labour.
- Academic education that produced graduates who did not challenge the political status quo.

Religious influences (eg: Christian conversion) created a social class that served as a buffer zone between the missionaries and the indigenous people and helped to perpetuate the process of political domination and deculturisation. There was at the time an uncritical assimilation of the (imported) doctrines and political ideologies which were not consonant with the indigenous cultures in which they were implanted.

The problem, to paraphrase Teffo’s thesis, is that an education system that ignores the cultural realities of the recipients is doomed to producing poor results. That the education on offer to Africans in the colonial era was neither particularly effective nor widely applied is a case in point. Most colonial education systems operated on the assumption that African cultural realities were inferior. Hence the power of culture in the education process was deliberately excised, not least in an attempt to emasculate and render docile African thought.

In a case study at the Cape Technikon, it was observed that while block enrolment had increased by 18 percent between 2001 and 2002, graduates increased by only one percent. Those who have studied these very low rates have reached the conclusion that black students are alienated by the system of learning. The contents of curricula seldom speak to the culturally defined individual or to the existential experience.

This conclusion is in fact a confirmation of the long-held view that an education system is the repository and transmitter of a society’s myths, culture, history and aspirations. Therefore, what is needed is ‘a pragmatic renaissance that inspires the rediscovery and restoration of the African identity while simultaneously adapting in appropriate ways and becoming an active and respected player in the world system’.

In other words, said Teffo, university curricula need to change: they need to move towards indigenisation. In fact, steps have already been taken to rectify an unsatisfactory situation. An IKS policy was drafted and adopted by the national Cabinet in 2004. The overarching objectives of this policy are: affirmation, recognition, protection, promotion and development.

Let me show how these objectives translate into practical policy drivers. To begin with there is a deliberate affirmation of African cultural values in the face of globalisation. A clear imperative is given regarding the need to promote a positive African identity. Then there is the need to devise practical measures to develop the services provided by indigenous knowledge practitioners, and to strengthen their contribution to the economy.

Finally, we need to use IKS in conjunction with other knowledge systems (for example, modern biotechnology) to increase the rate of innovation. The University of Limpopo has a branch of South Africa’s national Centre for Indigenous Knowledge Studies where work is going...
on to integrate African IKS into mainstream curricula, and to accelerate the development and empowerment of local and indigenous African communities.

This is the essential background, Teffo told delegates at the conference in Yaounde, out of which the new four-year Bachelor of Indigenous Knowledge Systems has grown.


**WHY NOT STUDY FOR A BIKS?**

That’s a Bachelor of Indigenous Knowledge Systems degree. It’s a full professional degree and it could be available from 2010 in the Faculty of Human Sciences on the Turffloop campus of the University of Limpopo.

Here are some of the modules that have been prepared so far. Students will start off with courses in English proficiency and computer literacy. In addition, during the first year, they’ll be introduced to indigenous knowledge systems, indigenous ecology, health systems and laws, as well as African languages and literatures.

The second year will be devoted to indigenous land and water management systems, food processing, psychology and indigenous approaches to conflict management. Then they’ll move on to indigenous theories of art and literature, politics and governance, educational theories and practices, and African religions.

Third year activities will take many of these subjects to a deeper level while adding African ethno-mathematics and African philosophy to the mix. The final year will be devoted to an internship and the preparation of a mini dissertation.
IT SEEMED faintly bizarre (writes Limpopo Leader’s David Robbins). I had come to interview Professor Phuti Ngoepe, the University of Limpopo’s expert in computer-based materials modelling, a man who is at home on some of the biggest computers in the world, and here he was in his cluttered Turfloop office – having trouble with his laptop. I had come to talk to him about the two awards he had won in 2008. He had wanted to print out a document that would provide me with the details. But the document had severely corrupted and would not print.

Ngoepe saw the funny side, but for a while he would not give up. He called for assistance from his own computer centre. Meanwhile, I examined some of the spines arrayed in his extensive shelves of books. The 20cm-thick Physical Properties of Polymers Handbook caught my eye. The Computational Modelling of Polymers seemed equally to fit with Ngoepe’s various specialties, as did Metal Clusters, a book called Manual of Mineralogy, and others entitled Light Alloys and Chemical Thermodynamics.

Then I spied a slender volume with the somewhat surprising – and unmatching – title of The End of Poverty. But I had no time to conjecture. Ngoepe had given up on his laptop, saying that he would have to tell me about the awards instead.

So he described an award he had received for making a real contribution to ‘Transformation of the Science Cohort’. The president of the National Research Foundation had presented it to him for the work he had done in raising the status of black scientists. Then there was the big one: the Order of Mapungubwe (Silver)6, a national award presented by the South African President himself. This award had recognised the ‘excellent contributions’ Ngoepe had made in his particular field of research.

I remarked that he must have received many awards during his career.

‘Not so many,’ he said. ‘Actually, they always come as a surprise. My main interest is in doing the work, not planning for awards. So they always come as a surprise. And of course it’s gratifying that the work is recognised.

So in this way, we moved on to the subject closest to Ngoepe’s heart: using computers to see how far the car will go.

Here’s the background. Ngoepe’s Materials Modelling Centre has for several years been involved in the energy storage side of things, working to establish which alloys (of lithium, for example) will provide the best storage properties. This research has major implications for the manufacture of more and more efficient batteries, a speciality which in turn has led to Ngoepe’s close involvement in the South African electric vehicle project.

But what is exciting Ngoepe is the potential of computer modelling techniques as the computers get bigger and bigger. For years, much of Ngoepe’s research was conducted outside of South Africa, on some of the world’s largest. More recently, the Centre for High Performance Computing (supported by the national Department of Science and Technology through the CSIR) has provided a local alternative. Much of Ngoepe’s energy-storage calculations have been undertaken on the giant ‘14 teraflops’ and IBM ‘blue gene’ machines housed in the Cape Town centre.

‘The power of these machines is astonishing,’ he says. ‘They do mathematically what a mass spectrometer does physically. The picture becomes more and more detailed. We are already able to factor in all the characteristics of the electric vehicle and determine, according to the properties of the battery alloy, exactly how far the car will go before recharging becomes necessary.’

The future of a great deal of science would depend on our ability to use the full potential of our rapidly growing computers, Ngoepe said. In 1980, the Cray-1 was among the most powerful we had. A mere 25 years later, an ordinary laptop was 20 times faster, a hundred times more powerful, and 5 000 times cheaper. ‘Now imagine,’ Ngoepe added, ‘the potential of the ‘30 teraflops’ computer already on order by the Centre for High Performance Computing. The more powerful the computers become, the finer and more detailed and predictable the prototypes we can build.’
By now Ngoepe’s enthusiasm had been roused. He had spoken before about the need for African scientists to keep pace with these developments. The establishment of the Centre for High Performance Computing had been an essential step. The work of his Materials Modelling Centre had become internationally cutting-edge. The centre collaborated with world-class scientists in Britain and America. The centre was publishing its findings in the weighty *Journal of the American Chemical Society*. Ngoepe himself was on a committee of scientists that was talking to major South African mining companies which were realising that their commercial future would be dependent on extensive blue-sky research on minerals and processes today.

‘Often in the past,’ Ngoepe explained, ‘the commercial imperative had led to a sacrifice in basic scientific knowledge. Now the major operators are realising their vulnerability. They’re becoming involved in the perpetuation of fundamental scientific knowledge; and they’re going to be prepared to pay for it. This will set up a whole value chain of knowledge and profitability, for example by laying the foundations for minimising the use of water and energy in the way minerals are extracted.’

Towards the end of the interview, I directed Ngoepe’s attention to *The End of Poverty*, which seemed to be the odd title out in his scientific array. He laughed.

‘Not really,’ he said. ‘It’s a book by Jeffrey Sachs who argues that the way towards ending underdevelopment and poverty in the world is to build capacity – scientific capacity – in the developing world, and to treat developing world scientists as equals. But we need to earn that treatment. We need to behave as equals. That’s why it has become so important for us here in South Africa to lead the world in the use of computers to see just exactly how far our electric car can go.’

It should come as no surprise to any of us that Professor Ngoepe keeps getting all those prizes.

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6A letter describing this achievement was published on page 32 of Limpopo Leader 15.
7A term used to denote theoretical research without direct regard to any future application of its result.
THE CONCEPT of food processing – to preserve and store it – is as old as agriculture itself. In modern times, such processing is essential for commercial viability when the fresh markets have been saturated. And there’s an array of complex techniques and machinery to make processing happen. Economists call this activity ‘down-streaming’ or adding value to raw agricultural (or naturally growing) products.

One of the characteristics of African independence in the early 1960s was that little down-streaming, whether of minerals or timber or crops, was attempted close to the source of the raw material. African economies depended on the export of their raw materials, usually to the ex-colonial powers, where value was added and profits made in the First World factories. This left Africa all too vulnerable to fluctuations in commodity prices that were set according to First World demand rather than African production costs.

Thankfully, those days are long gone. Africa generally is now intent on adding value at source. Limpopo is no exception. The province’s Growth and Development Strategy, first adopted in October 2004⁸, listed agriculture as one of the three main struts upon which Limpopo’s economy depended (the other two being mining and tourism), and high on the agricultural
EARTH’S BOUNTY

agenda was ‘food production enhanced by downstream food processing opportunities’.

It hasn’t taken the University of Limpopo long to come to the party. In the pages that follow, read about the Agro-Food Processing Research Unit on the Turffloop campus that is actively assisting in the development of the expertise needed for agricultural down-streaming (another commonly used word for this process of adding value is ‘beneficiation’). The School of Agricultural and Environmental Sciences is administering the unit. Tucked away in another corner of the same campus – in the Department of Biochemistry, Microbiology and Biotechnology, in fact – is a Micro Brewery. Yes, of course, the students brew beer there, but they’re also looking at other products, alcoholic and non-alcoholic, that could profitably be made from local raw materials. Finally, revisit the School of Agricultural and Environmental Sciences to see what’s happening to a plant species from Ethiopia that could soon be a major source of bio oils – in place of expensive and polluting petro-chemicals – for the plastics industry. And grown in bulk right here in Limpopo.

No doubt about it: the university is doing important work in the drive to add African value to the produce of our bounteous African earth.

*See Limpopo Leader 4 (Winter 2005) page 8*
Adding value to earth’s bounty

TURNING BASIC CROPS INTO COMMERCIAL PRODUCT

IT SHOULD not come as too much of a surprise that the incumbent of the Land Bank Chair in Agriculture should have been so prominent in the establishment of an agro-food processing research unit on the University of Limpopo’s Turffloop campus. Professor Phatu Mashela is careful to attribute the achievement to the School of Agricultural and Environmental Sciences as a whole. But it’s easy enough to see that he has played a key role.

Although he gained his first degrees in Agronomy and Horticulture from Fort Hare, and his postgraduate degrees from the University of Florida in Gainesville, he’s been working and teaching at the University of Limpopo since the early 1990s. So he’s tied to the fortunes of his school, the faculty, the university as a whole. He’s proud of what’s been achieved.

‘The whole agro-food research initiative began in October 2006,’ Mashela explains. ‘That was when we – the school – approached the Department of Science and Technology for funding. Our idea was to do practical research in adding value to agricultural product, particularly to indigenous products in Limpopo that have never been processed or packaged before. I’m not only talking about indigenous food, but also indigenous medicines and even bio-pesticides. It really is a brand new field, and it’s entirely appropriate that our school should become involved in maximising the commercial profitability of traditional African food and agricultural practices.’

(This is where the Land Bank comes in. Obviously, the bank would be interested in precisely the same thing. That’s at least partly why they sponsored Mashela’s professorial chair.)

The Department of Science and Technology responded favourably to the funding request – but with certain provisos. Most importantly, the department was keen to see a supporting recommendation from the Limpopo provincial government, and to be reassured that the proposed facility would have a dual use: academic and practical. In other words, the teaching and research function should be coupled with an advice service to small businesses wishing to enter the agro-food processing field.

The university had no hesitation in agreeing. Throughout 2007, the preparatory work was done, the partnerships established, a suitable on-campus site found and renovated, and the necessary plant began to be installed. The province gave a once-off grant of R2.8-million; while the national Department of Science and Technology, through its parastatal implementing agent Tshumisano, will provide a further R14.5-million over three years. Most of this amount – R12.8-million, in fact – was used on equipment, while the balance of R4.5-million was earmarked for running costs over the first three years of the research unit’s operational life.

The facility – Turffloop’s Agro-food Processing Research Unit – was officially launched by the Minister of Science and Technology in July 2008. Mashela stresses once again that its establishment had been ‘a joint effort’, with Vice-Chancellor Professor Mahlo Mokgalong dealing directly with the national minister and the provincial agricultural department.

‘This is a major acquisition for the School of Agriculture and Environmental Sciences – in fact, for the entire Faculty of Science and Agriculture,’ Mashela says. ‘We had a lot of research data collected into the sustainability and production of various indigenous products in the province. Now we were able to put this into practice through the testing of actual production processes.’

In the research unit, experiments are already going on in various fields:

• The first is in the freeze drying of various indigenous products
• The second is in fruit-juice processing and packaging into containers
• The third is in tea manufacture – bush tea and a range of special health beverages – where the whole process from picking, through fermenting and drying to packaging, is under scrutiny
• Fourthly, there is phyto-chemical analytical work so that the important ingredients – proteins, fat content and a general nutrient analysis – can be confirmed and printed as required by law on the commercial packaging of individual products.
Manager Lutendo Mathivha administers the research unit, while Thabiso Masemola, a former Turfloop chemistry graduate now tackling his Masters, is employed as the unit’s fulltime chemical analyst.

An important part of the unit’s work is the registration of interns from other institutions. There are currently eight such interns – from the universities of Limpopo, Venda, the Free State, as well as the Vaal and Tswane universities of technology – doing a 12-month internship. In addition there are five postgraduate research assistants all doing Masters degrees in various aspects of agro-food processing.

‘We’re the first university in the country to get this kind of research facility,’ Mashela points out. ‘So naturally it will be in demand. But we haven’t forgotten our commitment to actual business ventures and people wanting to start up food-related businesses.’

One Limpopo farmer has received the benefit of the research unit as he establishes a plant to produce papaya/kiwifruit juice from his own crops, with a major food store chain a potential customer. Other clients are looking at various dried products from bananas. And Mashela talks of a ‘bilateral agreement between South Africa and Malawi to jointly research the potential of turning indigenous bio-pesticides into stable commercial products’.

He rubs his hands in enthusiasm. ‘It’s like a dream come true. It’s certainly enabling our school to practice what the university’s motto preaches about finding solutions for Africa. ‘We’re using our science to make commercially viable products; and in so doing, we keeping the national and provincial departments happy, as well as our other important partner, the Land Bank.’
Adding value to earth’s bounty

MALTING, MILLING, MASHING AND MATURATION

IT WAS hardly ten o’clock in the morning when Professor Emil Abotsi cracked open a beer and poured two glasses. He handed one to the Limpopo Leader interviewer. First sips were taken. Approving murmurs ensued ...

But it was all in the cause of scientific enquiry.

Abotsi is a professor in the University of Limpopo’s Department of Biochemistry, Microbiology and Biotechnology, and he had been telling Limpopo Leader about the Micro Brewer Brewery that had recently been installed on the Turfloop campus, courtesy of South African Breweries (SAB).

Negotiations began as long ago as September 2006. Six months later the installation of the plant in the Life Sciences Building was completed, paid for (to the tune of R50 000) by SAB Miller, the big commercial brewery in Polokwane. SAB Miller also agreed to supply all raw materials like barley and hops and those chemicals needed to operate the plant.

‘The idea,’ explained Abotsi, ‘was for the microbrewer to serve as a teaching aid for students taking microbiology, biochemistry and biotechnology at undergraduate and postgraduate levels. The microbrewer would expose them to a bioprocess and make them aware of the interdisciplinary nature of the process. Of course, it would familiarise students with the specific processes involved in the brewing of beer. That makes sense from the point of view of SAB who would obviously be looking to recruit their local technology needs from our graduates. In fact, the company has set up similar projects at other universities in places where their breweries exist: for example at the universities of Pretoria, the Free State, and KwaZulu-Natal.

‘But from our point of view,’ Abotsi added, ‘an important advantage is that we can use the microbrewer as a prototype bioreactor for research in brewing and other biotechnological processes.’

In particular, the presence of the microbrewer at Turfloop will enable training and research in the following areas:

- Plant design and scale-up
- Process control and monitoring
- Sterility and quality control
- Biochemistry of brewing
- Fermentation microbiology
- Waste management.

Abotsi showed the plaque at the door of the laboratory in which the microbrewer had been installed. It stated that the facility had been opened on 13 March 2007 by Clifford Raphiri, the manufacturing and technical director of SAB in Polokwane. Inside, the microbrewer presented a conglomeration of stainless steel vessels of various sizes and types, flexible connecting pipes, and an electrical control panel with buttons and switches and lights. Abotsi explained the elements in a typical beer brewing process.

- To begin with, there was the malting. This is the term for the controlled germination of the basic beer-making ingredient, barley, when it is soaked in water for 48 hours to produce the necessary enzymes to modify the barley grains so that adequate extracts of sugars, proteins and amino acids can be obtained.
- Then kilning occurs, when the partially germinated barley (barley malt) is dried.
- Milling follows. A special grinding mill crushes the barley malt to an appropriate size.
- Various chemical additives and water are mixed in with the barley malt and the mashing stage begins in the mashing vessel. Measurements vary in this stage according to the brand of beer being brewed. Time and temperature are also precisely controlled, and the process converts the starches in the barley malt into fermentable sugars. It is at this stage that natural enzymes convert proteins into appropriate nutrients (amino acids) for later yeast growth. Careful monitoring is essential to ensure that the mashing process is successful.
- The next stage is called lauterung. In a special lauter tank, the barley malt husks are strained off, leaving a rich fermentable liquid called wort. The husks (also called spent grain) aren’t wasted: they can successfully be used in the manufacture of animal feeds.
- Wort boiling takes place in a special wort kettle where hops is added in precise quantities to
control the distinctive taste and aroma attached to each type of beer.

- The hopped wort then undergoes a **clarification and cooling** process which brings it to the exact temperature required for fermentation.
- Fresh yeast is added to ferment the sugars into alcohol and carbon dioxide. This **fermentation** process is carefully controlled to ensure right flavour and other beer characteristics (such as head forming and aeration). Excess yeast is drawn from the bottom of the fermentation tank: this by-product can be used to produce foodstuffs like Marmite.

- For the **maturation** stage, the beer is transferred into a sub-zero maturation vessel where secondary fermentation continues slowly until the true character of the specific beer type is realised.
- The beer then undergoes **filtration** to ensure a sparkling, bright appearance and perfect clarity. It is then carbonated, pasteurised and bottled.

The final stage is of course the drinking. That is why Abotsi had opened a bottle and poured two glasses. The beer was perfect. ‘We’ve done seven brews since the plant was installed,’ he remarked, ‘and we’ve achieved acceptable standards each time. We’ve made lager, ale and various types of dark beer. We’ve trained more than 150 of our students in beer brewing. We’ve had honours students and interns from other universities taking advantage of our facilities here. One of our students was employed by SAB for six months for intensive brewing training. And employment interviews with SAB Miller in Polokwane were organised for all our final-year honours students.’

Abotsi examined the tiny bubbles that had formed on the inside of his glass. He lifted it to the light to admire the colour and clarity of the liquid inside.

He spoke about the research potential of the microbrewer plant. His department was already exploring the possibility of making improvements in the traditional African brewing process, using available raw materials. They would evaluate the effect of substitution levels of non-traditional beer making grains like sorghum and millet. They would use the microbrewer to produce other brands of alcoholic and non-alcoholic brands from local raw materials; and they would isolate yeast and other micro-flora from indigenous local brews and explore their ability to be used in the production of beverages under controlled conditions.

But of course they would also continue to produce beer – because in this way they could assist in finding solutions to problems encountered by SAB during its mass-production processes. This was part of the SAB deal. Abotsi explained all this as – with some relish – he drained his glass of what *Limpopo Leader* had already dubbed the ‘Turfloop special brew’. 
IT'S INDIGENOUS to East Africa and the continent's Horn. The photograph shows an untidy bush with long leaves standing not much taller than a metre high on arid ground. In fact, it's a nondescript plant, looking for all the world like a weed. And now it's being planted in Limpopo Province.

What on earth for?

The answer is as exciting as it's surprising. The seeds of the Vernonia plant (Vernonia galamensis) are laden with oil which is a potential source of natural epoxy fatty acids. In fact, this could be an alternative source of raw material to the noxious petro-chemical products currently used in the manufacture of plastics, PVC, adhesives, insecticides, paint and epoxy resins. In short, this could be the start of the greening of South Africa's plastics industry.

That's why preliminary trials of the Vernonia accessions are being conducted under the auspices of the School of Agricultural and Environmental Sciences on the Turffloop campus of Limpopo University. The man in charge of this important research is Associate Professor Hussein Shimelis. He works in the Department of Plant Production. On his desk he has glass jars containing samples of the dark grey-green Vernonia seeds. There's also a copy of one of his scientific papers: ‘Performance of Vernonia as an Alternative Industrial Oil Crop in Limpopo Province of South Africa’, published in the authoritative American journal Crop Science.

‘There has been limited research done on Vernonia in the United States,’ Shimelis points out. ‘It's usefulness has been established. But the difficulty is that the plant can't be grown in the temperate regions. It's very much an African plant; it thrives in arid conditions. That's why, after I had come to the University of Limpopo in 2004, I began the research, introducing the plant into the university's experimental farm by using seeds from Ethiopia.’

All at once, the connection becomes apparent. Shimelis is also from Ethiopia. His presence here is a significant gain for the university – and for agriculture in the province.

‘My parents were Ethiopian farmers,’ he explains. ‘It’s where my interest in plants and agriculture first began. I did my basic plant sciences degree at Alemaya University of Agriculture in east-central Ethiopia.’

But a basic degree wasn't enough for Shimelis. His ambition took him all the way to the Netherlands, where he did a Masters in plant breeding at Wageningen University, a leading European institution for the study of the life sciences. By 2000, Shimelis had begun work on his doctorate in plant breeding and crop improvement – and he elected to do it at the University of the Free State in Bloemfontein.

After being awarded his PhD, and after working for a short time for the Agricultural Research Council as a senior researcher in Bethlehem (in the eastern Free State), Shimelis joined the University of Limpopo where he teaches undergraduate and postgraduate courses in plant breeding and biometrics, and proceeds with his Vernonia research.

‘The questions I wanted to answer,’ Shimelis explains, ‘were pretty basic. Will it grow here in Limpopo? Can I produce good seeds? Will the oil off-take be enough? I started with dry land area low rainfall tests – and the results were remarkably successful.’

The trials took place over two years (2005 and 2006) and involved 36 different accessions. Significant differences were observed in days-to-flowering, plant height, number of productive primary and secondary heads, seed weight per 1 000 seeds, and seed oil yield. Of the 36 different trials undertaken, five were identified as ‘potentially useful’.

‘We have achieved yields of 900 litres of oil per hectare, and this will be substantially increased by improving the growing conditions by adding fertiliser and water as aids to growth and yield.’ In spite of these early successes, Shimelis has by no means finished his research. So far, he has been working with a small grant from an agricultural agency in Rome that specialises in plant genetics. ‘Now I want to do some breeding,’ he says. ‘We have high seed-yield accessions that don’t have high

ETHIOPIAN POTENTIAL FLOWERS IN LIMPOPO
oil yields, and other accessions that produce fewer seeds that are much higher in oil content. Clearly, by careful crossing of selected material, we have an excellent chance of ending up with high yields of seeds that in turn are high in oil content.’

Shimelis also wants to do trials on other sites in different physical environments that might be more conducive to the production of Vernonia. An area in the Mpumalanga Lowveld around Tzaneen is in his sights. To this end he is writing a proposal to the National Research Foundation which, if successful, will enable him to enlarge the Vernonia trials. So far, two postgraduate students have gained Masters degrees while working on the project. An NRF grant would bring more research possibilities to the School of Agriculture and Environmental Sciences.

The potential for commercial agriculture in Limpopo and other northern South African regions cannot be over-estimated. Vernonia oil could also impact significantly on the positioning of future plastics manufacturing plants. Vernonia oil will accelerate the move away from petro-chemicals which are expensive and cause considerable amounts of pollution. As an example, Shimelis refers to the toxic gases that are released when modern plastic-based paints are used. When Vernonia oil is used as an ingredient, the toxins are no longer volatile.

Limpopo’s imports from Ethiopia – both the plant and the man – are of great value to the province. Vernonia seems certain to become an important commercial crop. Shimelis will help to make it that. He lives with his Ethiopian wife and their two children on the Turfloop campus. In his professional capacity, this son of Ethiopian farmers has an important contribution to make.

THE BAD NEWS AND THE GOOD
Since Limpopo Leader’s interview with him in November last year, Professor Shimelis has left Turfloop to take up a position at the African Centre for Crop Improvement based on the Pietermaritzburg campus of the University of KwaZulu-Natal. He’ll be supervising doctoral students from several African countries. There is some good news for Limpopo though. ‘My research on Vernonia will be ongoing,’ Shimelis explains, ‘and I also have masters students under my supervision at the University of Limpopo who are partaking in the Vernonia research. Those arrangements will continue.’
THE UNIVERSITY’S new Executive Dean of the Faculty of Humanities, Professor Nhlanhla Maake, is a wise and cultured man.

He talks about the importance of a ‘balance between the intellectual enterprise that a university should stimulate and the practical manifestation of this enterprise’. In this way, he provides a snapshot of the symbiotic relationship between research and teaching, and research and outreach. But he goes further than that.

In talking about the human potential inside his faculty, he says: ‘We need to find a way of stratifying the various roles that exist, and of fitting individuals into them according to their individual strengths. Those academics with a passion for teaching, or for research, or for outreach, need to be given appropriate opportunities. We need in the faculty to find a balance between the figurative (the research) and the literal (the teaching and the outreach).’

Maake was born in 1956 into a time characterised by the hardening of apartheid ideology and practice. He had been born in Eastwood, a small Pretoria suburb that soon became known as an undesirable ‘black spot’. It was wiped off the map through forced removals when Maake was eight years old. His family was relocated to Thokoza, a township located at least 60 km away to the south. Because there were no high schools in Thokoza at the time, Maake travelled to Soweto for his secondary education. He matriculated in 1974, then stayed on as a junior teacher until the end of that most fateful of years, 1976. After a spell of acting in the theatre, where he worked with such personalities as Cornelius Mabazo, David Phetowe and Zakes Mofokeng, Maake found his way to the University of the North (now Limpopo).

The political storms of his formative years did not abate. He was detained no fewer than three times during his three-year stay. But he also found the time to complete his BA degree with three majors: Sotho, English and Education. This took him to Wits University where he worked as a tutor in the Department of African Languages while at the same time completing his Honours in Comparative Literature. In 1983, he was invited to take up a scholarship in Denmark to study translation under the tutorship of renowned philologist Professor Ludwig Albertsen of Aarhus University, and a year later a British Council scholar-ship took him to Strathclyde University in Scotland. Here he completed his first Master of Letters degree. He tackled a second in England, spending two years on an intensive study of Victorian times: the great English writers like Dickens, Thackeray, the Bronte sisters; as well as the philosophy, architecture and religion of the time; and the great socio-political movements like the industrial revolution, the rise of trade unionism and Marxism, and the creation of the biggest empire the world had ever seen. He graduated at the end of 1987.

But he would return to Britain a few years later, after a stint at Yale in the USA, to take up a teaching post at London University’s School of Oriental and African Studies. During this period he also started on his doctorate (through Unisa), which was finally awarded in 1995. The following year he came home. He held the positions of Professor of African Languages at Wits, Professor of Drama at the University of Pretoria, and Principal of the Sebokeng campus of Vista during its incorporation into North West University.

Now, at 52, Maake has returned to his alma mater. He bears the quiet authority and astuteness born of fierce personal experience wedded to a wide and humane education.

‘I had a choice of what to do next,’ he admits, ‘but I had little hesitation in choosing Limpopo. There are real prospects for change here, for improvements, for genuine African achievement. I’m excited by being in a position to play a role. I certainly believe I have an important role to play.’

With regard to his plans for the Faculty of Humanities, Maake says immediately that he will be guided, first, by the university’s vision and mission, and, second, by the detail of the Institutional Operating Plan. ‘Of course I have a vision for the faculty; but first and foremost I have to align it with reality. My most important starting point will deal with the basics. That means a faculty staff committed to the delivery of excellence, committed to professionalism, punctuality and efficiency. It can only be on that basis that my ideas of stratification can be built. From that foundation I’ll be looking to guide the faculty into research and community partnerships that are genuinely meaningful. And, oh yes, I’m very keen on generating creative writing opportunities for students. I confess that will be a pet project of mine.’
Meet the new members of the E-Team

Professor Obeng Mireku —
THE EARLY professors tended to move from institution to institution and country to country. They were rather similar to wandering minstrels. They were intellectual adventurers. They made knowledge an international commodity. My life has tended to reflect those early tendencies.’

The voice belongs to Professor Obeng Mireku, Turfloop’s new Executive Dean of Management and Law. He’s a compact, charming man, and he smiles often as he provides a synopsis of his remarkable career.

‘I was born in Ghana,’ he begins, ‘in a small village not far from the city of Kumasi. I went to an excellent Roman Catholic primary school, and later to an equally excellent Presbyterian teacher training college. But I’m actually Methodist by persuasion. So you can see that from an early age I was exposed to a broad view of things.’

But Mireku’s adventures really began when he became a law student at the national university in Legon. He soon became a member of the Students’ Representative Council and, as he says with one of his smiles, ‘did many revolutionary things’. To begin with, the SRC mounted sustained protests against the repressive military regime of Colonel Ignatius Acheampong and his notorious National Redemption Council. Then in 1976, the SRC persuaded the authorities to receive a large number of black South African students after the Soweto riots.

‘We certainly empathised with them,’ Mireku recalled. ‘We understood what repression was. And the South Africans urged us to continue with our protests. We did. The result was that by the time I was trying to do a postgraduate degree, I was so hounded and hunted by the military, that I was obliged to go into exile. I went to Liberia, little knowing that Liberia was as repressive as Ghana at that time. I nevertheless was able to teach in a Liberian college.’

The South Africans who had appeared at Legon also spoke tellingly about the acute scarcity of human capital among black South Africans under apartheid. They urged Mireku to go to South Africa. This theme was repeated when he went to Nigeria, where for several years he lectured law in the College of Professional Studies at Onitsha. And it was from Nigeria, in 1985, that he accepted the challenge and came to the ‘independent’ Transkei.

While South Africa moved inexorably, and often violently, towards freedom, Mireku worked as a high school teacher in Transkei schools. At the same time he completed a Master of Laws through Wits University. Armed with this qualification, he took up a lecturing post at Fort Hare. In that capacity he succeeded in obtaining a scholarship to study in Germany. He went to the University of Hannover in 1997; he studied constitutional and human rights law; he received his Doctor of Laws cum laude in 1999. He was 49 years old.

The South African leg of his itinerant intellectual journey continued. He became a senior lecturer in law at Fort Hare and then departmental head in that university’s Department of Constitutional and Public International Law. He then moved to the University of Venda as a professor, at the same time serving as part-time lecturer in the Master of Laws programme that had been established at the University of the North (now Limpopo). At Venda, he was charged with the responsibility of setting up the Ismail Mahomed Centre for Human and People’s Rights (Ismail Mahomed was South Africa’s first black Chief Justice) and finally became Venda’s Dean of the School of Law.

Now he’s taken on his next challenge at Turfloop. Behind him lies this long road: Ghana, Liberia, Nigeria, South Africa, Germany and again South Africa. Behind him, as well, lies Catholicism and Protestantism and school teaching and law. In law, he has studied both the British precedent-based common law and the statute-based civil law as enunciated in the Roman-Dutch model. He has lived with repression and human rights abuses; he has specialised in constitutional and human rights law; and he has witnessed the emergence of South Africa’s Constitutional Court that is based on the German model. The lines of his experience and learning diverge and intersect. There is an intellectual restlessness beneath the charm.

‘Intellectual adventurers is what we need,’ he repeats with a smile. ‘It is incumbent on us here to engineer a new society. It is therefore incumbent on all academic leaders to make that a goal. The best way of doing this is to provide the type of education that directs students towards free enquiry. Because it is only through free enquiry that we can build a society that values equality, human dignity, freedom, and responsible citizenship.’
Meet the new members of the E-Team

Professor Hlengani Siweya — ENTHUSIASTIC MANAGER

‘What is my personal role in all this?’ he asks – and answers immediately. ‘I believe it to be to champion the faculty staff. I need the hands and feet of my people to get the job done. Therefore my ability to motivate a large group of talented people is of paramount importance. Strategies not sold to the people who must carry them out won’t work – hence the need for the faculty I head to understand what it is I am doing!’

Siweya has already held several ‘faculty indabas’. What has emerged are several serious ‘faculty challenges’ that the staff alone will need to solve.

Identified by the new dean as one of the most pressing is the matter of recruitment. ‘Not enough students are entering the various schools and departments in the faculty,’ he explains. ‘One of the problems here is that many of our students leave enrolment perilously late. This is because they have first tried to get into other universities. When they fail, they come to us at the last moment.

‘Our entrance criteria are not high; even so, many students struggle with the first-year syllabuses. So we offer an extended BSc programme, which spends the first year plugging the holes in students’ knowledge of mathematics, physics, chemistry and biology, as well as improving their English language and computer skills. But we need more students to begin with.’

Siweya has already devised a plan to help the situation. He plans to take the faculty’s maths and science expertise into Limpopo high schools. In this way, the competence of local school leavers will be improved. But as important, relationships will be built up between the faculty and the most talented potential students – a direct recruiting device that is almost certain to improve the current situation.

‘It’s our double-edged sword. It will definitely help local schools and schoolteachers. But it will also help the faculty in the following years when learners from these schools enter higher education.’

But ultimately, Siweya says, his role is to create the space for, and bolster the self-belief of, his faculty staff. His obvious determination and enthusiasm will go a long way to achieving the success he desires.

PROFESSOR HLENGANI SIWEYA is not strictly speaking new. He’s been around the Turfloop campus for years and years, first as an undergraduate student, then doing postgraduate degrees while teaching, and ultimately as the Director of the School of Computational and Mathematical Sciences. Limpopo Leader 15 (Spring 2008) revealed that he was in the middle of his two-year term as President of the South African Mathematics Society. Now he’s been promoted to the position of Executive Dean of Science and Agriculture at the University of Limpopo.

‘I confess that I have always aspired to management positions,’ Siweya says. ‘To make a contribution to this institution as a whole is important to me. This is very much my university. Its history is a part of me. To help to lead it to pre-eminence in Africa, and internationally, this is what I want to do.’

His starting point is his Faculty of Science and Agriculture. It’s a large faculty that spans both campuses, yet it provides a fundamental component of so much that is taught in other faculties as well. Siweya is well aware of the pivotal impact that his faculty must make as the university aspires to its own mission and vision, and to making the Institutional Operating Plan a success.
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