TABLE OF CONTENTS

MISSION AND VISION STATEMENTS .................................................................................................................. 1
MISSION ................................................................................................................................................................. 1
VISION ................................................................................................................................................................. 1
MESSAGE FROM THE VICE-CHANCELLOR ............................................................................................................. 1
MESSAGE FROM THE PRO VICE-CHANCELLOR: ACADEMIC AFFAIRS & RESEARCH ......................................... 2
MESSAGE FROM THE RESEARCH AND PUBLICATIONS OFFICE .............................................................................. 2

1. ACTIVITIES OF FACULTIES ................................................................................................................................. 5
  1.1 FACULTY OF AGRICULTURE AND NATURAL RESOURCES ........................................................................... 5
  1.2 FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES ........................................................................... 12
  1.3 FACULTY OF EDUCATION .............................................................................................................................. 15
  1.4 FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY ............................................................... 24
  1.5 FACULTY OF SCIENCE .................................................................................................................................. 28
  1.6 SCHOOL OF NURSING AND PUBLIC HEALTH ............................................................................................... 51

2. ACTIVITIES OF ACADEMIC CENTRES AND CAMPUSES .................................................................................. 55
  2.1 HIFIKEPUNYE POHAMBA CAMPUS .................................................................................................................. 55
  2.2 KATIMA MULILO CAMPUS ............................................................................................................................... 58
  2.3 KHOMASDAL CAMPUS ...................................................................................................................................... 63
  2.4. OGONGO CAMPUS ........................................................................................................................................ 67
  2.5 OSHAKATI CAMPUS ........................................................................................................................................ 74
  2.6 RUNDU CAMPUS ............................................................................................................................................. 76
  2.7 SAM NUIJOMA CAMPUS ................................................................................................................................. 79
  2.8 CENTRE FOR EXTERNAL STUDIES .................................................................................................................... 84
  2.9 LANGUAGE CENTRE ....................................................................................................................................... 87
  2.10 LIBRARY .......................................................................................................................................................... 89
  2.11 MULTIDISCIPLINARY RESEARCH CENTRE (MRC) ......................................................................................... 92
  2.12 ZERO EMISSION RESEARCH INITIATIVE (ZERI) ......................................................................................... 99
MISSION AND VISION STATEMENTS

MISSION
To provide quality higher education through teaching, research and advisory services to our customers with the view to produce productive and competitive human resources capable of driving public and private institutions towards a knowledge-based economy, economic growth and improved quality of life.

VISION
To be a beacon of excellence and innovation in teaching, research and extension services.

MESSAGE FROM THE VICE-CHANCELLOR

Prof. Lazarus Hangula
Vice- Chancellor
True to its Vision of becoming a beacon of excellence in research and innovation, the University of Namibia (UNAM) has continued to demonstrate excellent performance in research productivity. Our researchers have already exceeded the targets for research productivity set out in our current Strategic Plan. This has been possible because of significant investment into research activities that has been steadily growing. The University has continued to put supportive mechanisms in place to facilitate research and innovation activities. The research budget, though inadequate, has steadily increased while the relevant research-related policies and guidelines have been put in place.

The annual UNAM Research & Innovation Day event was celebrated on 26th September at all campuses country-wide. The Theme for the year was Transformation through adaptation to global change. This Theme was inspired and motivated by the African Union’s Theme of 2014 as the Year of Agriculture, which states “Transforming Africa’s Agriculture: harnessing opportunities for inclusive growth and sustainable development”. Our theme emphasized the fact that UNAM continuously undergoes transformational processes in order to remain relevant and highly competitive with respect to the quality of our academic Programmes, Research and Development activities as well as service delivery to the wider community.
As we enter the final year (2015) of the implementation of our current Strategic Plan, we will take stock of all our systems and practices so that the University captures the key strategic research issues from the national the global development agendas. We will make sure that these are incorporated into the new Strategic Plan to be implemented from 2016 onwards. Emphasis will be placed on innovation and Development.

Our sincere gratitude goes to all our stakeholders who have stood with us in our research, innovation and development endeavours. I would like to especially thank our Government of the Republic of Namibia for the immense support they have rendered to UNAM. I thank all our stakeholders, students, sponsors, our staff members who have made us proud. Let me also take this opportunity to thank the Private Sector, Civic society, the National Commission on Research, Science & Technology (NCRST), National Council for Higher Education (NCHE), our line Ministry, Embassies and High Commissions of various countries to Namibia, national and international funders who have enabled our research and innovation to significantly grow over the years.

MESSAGE FROM THE PRO VICE-CHANCELLOR: ACADEMIC AFFAIRS & RESEARCH

Prof. O.D. Mwandemele
PVC: Academic Affairs & Research

In this 21st century when most higher education institutions strive to be centres of excellence, specifically in terms ranking, the University of Namibia is no exception. Over the past three years, a lot of diverse research activities had been conducted in the various UNAM Faculties and Centres across the country and I want to commend such great initiatives from our researchers.

During the year under review, UNAM produced 460 scholarly publications, about two-thirds of which were refereed journal articles. The number of successful grant applications to external sources of funding continued to increase. Research and Publications Office facilitated applications for funding from the National Commission on Research Science and Technology (NCRST). Consequently, funding was obtained for 17 research projects under the Namibia/South Africa Collaborative Research Programme and a further 15 were funded under the NCRST’s First National Call. These projects are worth over N$8 million over a two-year period. This is a commendable achievement indeed.

Once more, I would still like to urge all academic staff members to continue to engage in collaborative research locally and internationally so as to increase our research output and to promote internationalization, globalization and networking relationships with other institutions.
of higher learning. We need to strengthen the dissemination of our research outputs and make it more visible and applicable to our stakeholders. Our society still continues to experience challenges such as poverty, unemployment, looming energy crisis, HIV and AIDS, malaria and other diseases, gender-based violence, food insecurity, environmental degradation, climate change, desertification, and many others. These challenges need innovative responses. Therefore, research, training, innovation and technology transfer are key aspects that can help in solving the above-mentioned challenges.

Finally, I want to thank all our academic staff members, international funders and collaborators that have helped us to grow from strength to strength and have made us proud through various support systems in terms of research activities done in the year 2014.

MESSAGE FROM THE RESEARCH AND PUBLICATIONS OFFICE

Prof. Isaac Mapaure
Research Coordinator
The Research and Publications Office (RPO) under the leadership of Professor Isaac Mapaure, deputized by Dr. Hileni Kapenda, fulfilled its role to further UNAM’s vision of becoming a beacon of excellence in research and innovation. Through engagement with relevant stakeholders, the office operates as a pivot between academics and the external research environment, and assists to align research interest and expertise with institutional priorities, as well as national and international imperatives.

During the year under review, the scope of activities included expanding access to external funding opportunities and research grants, developing and administering a suite of internal grants through a competitive proposal-driven process and coordinating externally-funded research projects. The RPO also coordinated and managed several research projects funded by the National Commission for Science Research and Technology (NCRST). The increase in research and innovation activities continues to be challenging for the RPO, because of the shortage of human resources.

In 2014 the RPO expanded its professional development training programme to the new Southern Campus. The training focused on writing research proposals for funding and writing papers for publication. The training also included sensitizing the Campus staff about the operations of the RPO, as well as the functions of the Research and Publications Committee (RPC).
As in previous years, the RPO spearheaded the celebrations of the UNAM Research and Innovation Day, 2014. The event was successfully held at the Neudamm Campus and it showcased various academic presentations, poster presentations, as well as several innovative outputs in the form of locally produced products. What made this year’s event special was the interest demonstrated by students. Several UNAM students presented papers at the event while some participated in a debate session with students from the Polytechnic of Namibia.

The Research and Publications Office will continue to carry out its mandate to provide research support to researchers and thus fulfil the institutional mission to be a beacon of excellence in teaching, research, innovation and service to the wider community.
1. ACTIVITIES OF FACULTIES

1.1 FACULTY OF AGRICULTURE AND NATURAL RESOURCES

DEAN’S STATEMENT

The Faculty of Agriculture and Natural Resources is unique in that it houses several Departments which are spread across Namibia. They are distributed throughout the UNAM satellite campuses as follows: Department of Agricultural Economics and Extension (Neudamm Campus), Department of Animal Science (Neudamm Campus), Department of Crop Science (Ogongo Campus), Department of Fisheries and Aquatic Sciences (Sam Nujoma Campus), Department of Food Science and Technology (Neudamm Campus), Department of Integrated Environmental Science (Ogongo Campus), Department of Wildlife Management and Ecotourism (Katima Mulilo Campus), Department of Veterinary Medicine (Neudamm and Katima Mulilo Campuses).

On average each member of the academic staff is responsible for teaching about 4 courses during the academic year. Although the Staff: Student Ratio (SSR) is low, the teaching load in terms of teaching time is the same, irrespective of the number of students. This is compounded by the overload of staff, particularly when one considers the aspect of cross-campus teaching and consequently repeat lectures. Furthermore, due to the limited number of academic staff and the wide spread of our students on so many campuses that are far apart, we make use of block teaching. However, this (block teaching) has been and still is a concern in this faculty, and it is the wish of everyone that it be minimised. This can only be realised when the Faculty employs a reasonable number of staff.

The Faculty of Agriculture and Natural Resources comprises four farms, two operational (Ogongo and Neudamm) and two non-operational (Dooringboom and Otjinakwe) farms. Taking into consideration that the Faculty offers courses associated with hands-on activities, the Ogongo and Neudamm farms serve as experimental farms, where theoretical knowledge is demonstrated to students through practical examples. The same farms serve to produce agricultural products, as field attachments, to conduct educational short course training and to demonstrate farm activities to communal farmers during the community outreach programs. Generally the state of the farms is fairly good. However, bush encroachment on the Neudamm farm is a big problem, and unless funds are made available annually to address this problem the carrying capacity of the farm will deteriorate in the years to come. Let us be proactive on this matter.

ACADEMIC ACTIVITIES

We continue to offer courses as stated above. However, it is noteworthy that our BSc (Honours) Agricultural Economics programme was successfully registered with NQA in August 2014. In February 2014, the 6-year full-fledged BVM programme was also launched with an initial intake of 30 students. Another success is the approval of the restructured BVM curriculum by both the Namibian Veterinary Council and Senate. However, there is an acute shortage of academic staff, and efforts are being made to recruit more staff. As part of our capacity building and staff development, at least 12 of our academic staff received scholarships to pursue their academic
journeys at Master and PhD levels. For example, the Humboldt University, RUFORUM and the National Commission on Research, Science and Technology availed funds in this regard.

RESEARCH AND PUBLICATIONS

While the teaching load is relatively heavy, our teaching staff members have started to show a strong drive towards engagement in research. Our emphasis on research is, however, not yet equitably distributed across all Departments or all of our academic staff. Nevertheless, there is positive progress. This is demonstrated by the efforts that led to the securing of funds during 2014 for the projects that include the following:

- **Rehabilitation of sand mining pits in north central Namibia**, funded by NCRST.
- **The impact of Green Scheme Farming Models on agricultural productivity, household food security and technology adoption in Namibia.**
- **The microbiology of Eendjeke additives and their effect on fermented pearl millet flour research project**, funded by the National Commission on Research, Science and Technology (NCRST). Namib Mills is also involved in this project.
- The University of Humboldt awarded scholarships at PhD level for three FANR staff members.
- The RUFORUM has awarded a research grant which is utilised for research and capacity building of two students at MSc level.
- The faculty was awarded a research grant by the International Centre for Genetic Engineering and Biotechnology (ICGEB) based in Trieste, Italy, registering the DFST as the first institution to receive this award in Namibia.

It is worth highlighting that most of these funded projects include the support of a postgraduate student who will ultimately have capacity at MSc and PhD levels. At times, final year (Honours) students are also part of these activities. Our Faculty does not work in isolation, partnerships and collaborations with UNAM Faculties and Centres, with national and international organisations and institutions are part of our strength. Following is the list of our Faculty research outputs and publications yielded in 2014:

*Peer Review Journal Articles*


**Technical Reports**

Hangula, M., & Maharero, T. (2014). The scope of procurement and the need and/or relevance of procurement finance in Namibia, in collaboration with MRC.


Conference/ Workshops Presentations


COMMUNITY SERVICE AND OUTREACH

Our faculty is probably the strongest in terms of community service. We interact with both large- and small-scale farmers, with those farming with livestock and crops, with school learners, with SMEs in agroprocessing, and with wildlife conservancies, to mention but a few. This applies to all our campuses and surrounding areas. The following examples will suffice, due to the limited number of pages for this report:

- Under the Securefish Project, UNAM, in conjunction with Wageningen University (IMARES), produced a HACCP manual for extruded fish products and produced a DVD to be used for training SMEs on the production of cereal/ fish-based snack products, using a single screw extruder.
- A workshop was held where communities were trained on solar assisted fish drying at Lake Lyambezi in Katima Mulilo, using a solar dome drier whose design was adapted from the Kenya Marine Fisheries Research Institute.
- A workshop was held for the mentoring of livestock farmers in the Omusati region; this was hailed a great success by the Meat Board of Namibia.
- Lecturer-farmer ongoing interaction on the Rice-Mahangu Research Project
- The Department of Wildlife Management and Ecotourism at Katima Mulilo held a stakeholders workshop in November 2014.
- The UNAM Wildlife Research Farm at Kasheshe, Zambezi Region, was established on the communal land of the Kasheshe Community, about 20 km (in straight line) westwards of the Katima Mulilo Campus. The Research Farm is characterised by its good availability for both browsing and grazing species. There are about 150-250 plant species and more than 100-150 bird species. It however needs to be developed.
- Over 10 school visits/educational tours to Ogongo Campus/Farm, Neudamm and Zambezi
- Seminars conducted by the Rice-Mahangu Research Project
- Rice harvesting demonstrations: Ogongo Campus, Omundindi village, Ombathi
- Follow-up workshop on rice/pearl millet mixed cropping
- Hand Tiller Operation Workshops: Ogongo, Afoti Village
- Rice seedlings were distributed to farmers in the Omusati, Ohangwena and Oshikoto Regions, including the Kavango-East Region and the Oneyuva Community Project.
1.2. FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

DEAN'S STATEMENT

Research not only plays an important role in the development of knowledge but also informs us on how to enhance our lecturing and supports continuous professional development. It is therefore imperative that the Faculty develops a long-term research agenda that will address issues facing the Namibian society, including business and industry. It is worth noting that the research and knowledge generating role of a University is inert to the extent to which the University, in delivering on its mandate of teaching and learning to its immediate and wider environment, is able to enhance its visibility, relevance and continuing service. Realizing these, the three cardinal principles invoked to guide research and publications in the Faculty of Economic and Management Sciences (FEMS) are:

i. We strive to ensure that the FEMS-supported research serves the priorities of the country, the Southern African region and the much wider international environment. An overarching new priority for the FEMS will be to position itself as a key and recognizable Knowledge Bank in Africa.

ii. We lay emphasis on the need for practical solutions which ensure that research outputs are relevant to the immediate environment of the University.

iii. We ensure that issues which arise from real world constraints and opportunities in the immediate and wider environment are examined critically, such that Namibia and Southern Africa in particular can look up to us for knowledge and research output, enabling them to harness these opportunities and address the challenges.

Promoting research in the FEMS, which has predominantly been a teaching faculty with some consultancy work done over the years, together with involvement in social upliftment programs, is a mammoth task and will need full support from UNAM top management, including the appointment of senior academic staff, research funding and time off from teaching assignments so that start-up researchers can be motivated to engage in relevant research activities. In order to instil research acumen among FEMS staff, to motivate them to conduct research and disseminate research results, various interventions such as organising research methodology workshops, conferences etc. are planned. It is also envisaged to launch a Faculty journal in collaboration with other universities in the region and beyond.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

The overall idea is to generate knowledge through research and provide leadership on development and economic/business/governance and related management issues in Namibia, Africa and the wider community. Many challenges face Namibia in the struggle to overcome underdevelopment and become a prosperous industrialised knowledge-based society. To overcome underdevelopment, Namibia must not only address past historical development imbalances, but also look towards the creation and fostering of a new society, which is competitive globally, and towards political challenges of a rapidly evolving society in a
globalised world. In order to carry out research which is relevant to national development FEMS has identified the following research themes:

- Entrepreneurship, employment creation and poverty alleviation
- People empowerment
- Corporate governance and ethics
- Financial management and financial sector management
- Policy transmission
- Bilateral and multilateral trade issues and foreign direct investment
- Local governance and decentralisation
- Financial reporting and accountability
- Small and Medium Enterprises capacity building
- Productivity and global competitiveness
- Promotion of good governance and service delivery

Chapters in Books


Conference papers/Proceedings


**IMPORTANT EVENTS**

FEMS organised the 6th International Conference on Business and Finance (6th ICBF) in collaboration with the University of Delhi and the University of Mauritius from 14th – 16th October at Arebbusch Travel Lodge, Windhoek. It was well attended by academicians, practitioners, policy makers, researchers and students with the aim to brainstorm on contemporary issues in management, economics, public administration, accounting and finance, and other business related topics.
1.3 FACULTY OF EDUCATION
DEAN’S STATEMENT

As part of its research mandate, and together with UNESCO, the Faculty of Education (FoE) launched the 2014 EFA Global Monitoring Report as well as the Action Research agenda for capacity development for quality in pre- and lower primary teacher education in Namibia on the UNAM Main Campus. This Action Research project is funded by the Chinese government and is aimed at building the research and institutional capacity of lecturers in pre- and lower primary education and of teachers and education officials in the Ministry of Education. This event was attended by the Minister of Education, the Chinese Ambassador, the Director General of UNESCO (Paris), an EU-delegation, UN agencies in Namibia, academics, teachers, teachers’ unions as well as high school learners. It was certainly a highlight of our Faculty’s research calendar. The photographs below verify this important research event.

In February 2014, the FoE, in collaboration with UNESCO, conducted a very hands-on Action Research Workshop for pre-primary and lower primary lecturers, primary school teachers and Ministry of Education officials who are involved in pre- and lower primary education. The development of a toolkit for conducting Action Research was started at this workshop.

The FoE also welcomed Dr. Jan Weiss, a Fulbright Scholar from the Pacific Lutheran University in the USA, for the 2014 academic year. She was stationed at the Khomasdal Campus to work with lecturers in the Pre-Primary and Lower Primary Department to build their teaching and research capacity.

I am glad to note that in the research reports of the Faculty of Education satellite campuses that were submitted to RPO separately, in addition to the 2014 publication record captured in this report, the Faculty staff engaged in high quality research and published several peer reviewed articles in reputable education journals. Although we are making good progress in developing research capacity in the Faculty, the heavy teaching loads that many members of staff carry and the lack of research funds continue to hamper research efforts. In my view, the University of Namibia as an institution of higher learning should find ways of generating and mobilising more research funds. In the case of the Faculty of Education a lot of research needs to be done in Namibia to inform educational policy, theory and practice.
RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

In 2012 the Faculty of Education developed its strategic research agenda. It was decided then that the agenda would span a period of five years, starting in 2013. This meant that the research agenda would cover the period 2013 – 2017. The intention of the Faculty was to use its Research Agenda when mobilizing research funds from internal and external sources. With a few amendments that have resulted from recent research activities, the Faculty of Education is still implementing the research agenda until it ends in 2017.

Research needs both funding and time off from teaching activities. As was the case in 2012, it is still our belief and hope that in the next few years funding and time off will be accorded to staff to carry out research that will inform their practice in various areas of specialisation. The research conducted by members of the Faculty continues to address various themes in education. These include teacher education, instruction (learning and teaching), teacher/class assessment strategies, child development, inclusive education, gender mainstreaming in education, Integrated Early Childhood Development and Education (IECDE), ICTs in education, school management, administration, community development and lifelong learning, language education, mathematics, science, sport education, early learning, literacy and numeracy. To concretise the Faculty research agenda we provide below our research objectives and specific areas of research emphasis, Department by Department.

Objectives

The main objectives of research conducted in the Faculty of Education are to:

- Carry out research that informs educational theory, policy and practice, teacher pre- and in-service training, curriculum development, educational innovation and alternative learning approaches;
- Carry out research that impacts community education, development and empowerment;
- Carry out joint educational research with colleagues within and outside the SADC region;
- Carry out research that promotes collaboration and partnership amongst various stakeholders in education in Namibia;
- Disseminate research information, skills and knowledge through publications.

Specific areas of research foci by Department

**Department of Curriculum, Instruction and Assessment Studies**

- Instruction
- Teaching and learning
- ICT in education
- Teacher/learner assessment strategies

**Department of Education Foundations and Management**

- Educational Management and Leadership
- Teacher Education
- Teaching Practice
- Education Reform

**Department of Educational Psychology and Inclusive Education**
- Inclusive Education
- Life skills
- Guidance and counselling
- Integrated Early Childhood Development and Education (IECDE)
- Literacy and learning
- Child development and learning
- Gender issues in education
- School violence
- Educational psychology and psychometric assessment

**Department of Mathematics, Science and Sport Education**
- Teaching and learning in Mathematics and Science Education
- ICT in Mathematics and Science Education
- Cognition
- Assessment
- Teacher education
- Gender and science education
- Sport education
- Nutrition/Home Ecology

**Pre- and Lower Primary Education**
- School case studies on the teaching of numeracy and literacy in Namibian classrooms
- Development of indigenous languages for tertiary teaching and learning purposes

**Department of Education in Languages, Humanities and Commerce**
- Entrepreneurship instructional practices at secondary schools
- Medium of instruction studies
- Language and education
- Language teaching in schools

To exemplify how research is conducted thematically, members of staff in the Faculty have organised themselves into inter-departmental research teams as follows:

**Research 1:** UNESCO/Chinese Funds-in-Trust research on improving the capacity of teacher educators to train students and teachers in teaching literacy and numeracy in pre- and lower primary schools.
Research Team: Dr. C. Villet (team leader), several members of staff of the Faculty of Education from Main Campus, Khomasdal, HP, Rundu and Katima Mulilo Campuses.

**Research 2:** Gender Parity in Education
Research Team: Prof. R. F. Zimba (team leader), Prof. C. D. Kasanda, Dr. C. Haihambo and Dr. H. Kapenda
Research 3: Assessment - UNAM students’ perceptions of assessment
Research Team: Prof. C. D. Kasanda (team leader), Dr. H. K. Mitonga, Prof. R. F. Zimba and Dr. K. Veii

Research 4: Tracer Study of UNAM Education Students
Research Team: Prof. C. D. Kasanda (team leader), Dr. C. Villet, Ms. P. February

Research 5: Sustainable Development, specifically Sustainable Development in Education
Research Team: Dr. A. Kanyimba (team leader), Dr. M. Hamunyela and Prof. C. D. Kasanda

Research 6: IKS in science teaching
Research Team: Dr. H. Kapenda (team leader) and Prof. C. D. Kasanda

Research 7:
Research Team: Dr. C. K. Haihambo (team leader), Mr. J. U. Hengari, Ms. P. J. February, and Assoc. Prof. M. Mostert
(1) Issues related to sexual orientation at the Main Campus of the University of Namibia, Action Research
(2) Learning Difficulties - Patterns and Programmes in Kenya, Namibia and Zambia: An Outcome of the Edulink Programme
(3) Inclusion and Democracy Programmes in Teacher Education in Botswana, Namibia, South Africa and Sweden
(4) Needs, Challenges and Best Practices of Life Skills Teachers in Namibia

Research 8: Autism Namibia Research/ Survey
Research Team: Assoc. Prof. A. Möwes and Assoc. Prof. L. M. Mostert

Research 9: A tracer study of the challenges and needs experienced by teachers with visual impairment in the Northern Education Regions of Namibia
Research team: Mrs. L. Mbodo (team leader), Ms. E. I. Tobias, and Ms. I. Patoko

Note: It should be noted that other research teams for the Faculty of Education operate at the Southern, Khomasdal, HP, Rundu, and Katima Mulilo Campuses. Directors of these campuses have reported their 2014 research outputs to the Research and Publications Office separately.

PUBLICATIONS

Journal articles


Case Study for the University of Namibia. *International Journal of Arts and Social Sciences, 1* (3).


**Books and Monographs**


**Chapters in books**


**Conference Papers/Proceedings**


Important Faculty of Education research events, achievements and highlights

1. In 2014, the Faculty of Education was involved in a number of research activities, most notably the Action Research with funding support from the Chinese government. Forty-five lecturers visited twenty-eight schools in all fourteen regions for two weeks to investigate the teaching and learning practices in literacy and numeracy development in the lower grades. A national report on this research was compiled with support from UNESCO and our visiting Fulbright scholar.

2. Dr. Ailie Cleghorn (Concordia University in Montreal, Canada) and Dr. Larry Prochner (University of Alberta in Canada) visited the Faculty with regard to their research in Namibia, entitled *Culture and Practice in Early Childhood Teacher Education in Namibia and Canada*. A small funding resource for lecturers at UNAM studying in this area was also procured by Dr. Cleghorn.

3. The publication and launch of the final research report by Faculty staff members on *The reading behaviour and preferences of Namibian Children*, URPC 2011/37 by Kirchner, E., Alexander, S. and Tötemeyer, A-J. was another research event to be highlighted in this Faculty of Education report.

CONCLUSION

Together with the Faculty of Education satellite campuses’ research reports that are submitted to RPO separately, this report captures our degree of research and publication productivity for 2014. From this record we can conclude that the Faculty of Education did reasonably well under challenging circumstances. Our aim is to build on this record and enhance our research and publication profile. As indicated earlier, this hope will be hollow if the heavy teaching loads remain as high as they are for several members of staff in the Faculty and if research funding remains scanty. On our part, we shall continue where possible to mobilise additional research funding from local and international donor communities.
1.4 FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY

DEAN'S REPORT

The Faculty of Engineering and Information Technology is still experiencing a shortage of academic staff in its various academic programmes. This has resulted in high teaching loads for those academics on the ground. Despite this state of affairs, some research is still undertaken by some staff members to address industrial problems or developmental issues. Last year the Faculty introduced postgraduate programmes for the first time, and in 2015 a few more postgraduate programmes will be tabled in Senate. It is envisaged that, with postgraduate students on campus, the research output of the Faculty will increase considerably in the near future. While we congratulate those who have published papers and presented at various conferences and workshops, we continue to urge all staff members to be active in research activities and publish their findings accordingly.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

The faculty is engaged in value-adding interdisciplinary research investigations which are community-based and focused on solving basic local engineering as well as critical environmental problems and to develop cost effective solutions for energy supplies to rural schools and communities in Namibia. There are current and future projects being investigated for implementation namely:

- Ongwediva Waste Management System/Bio-gas Production Plant for Community Schools
- Sustainable Power and Energy System (SPES)
- BENGUELA Community – UNAM Wind-Power Project in Luderitz
- Modelling, Analysis and Design of Communication Links and Networks
- Electromagnetic Compatibility of Telecommunication Networks
- Electromagnetic Pollution and Safety

LIST OF PUBLICATIONS

Refereed Journal Papers


**Refereed Conference Papers**


Days of the Indian Ocean, RADIO 2014 International Conference, Mauritius, 7-10 April, 2014


SIGNIFICANT EVENTS

The Faculty of Engineering and IT took part in the celebration of the UNAM Research and Innovation Day at HP Campus that was jointly organized by UNAM HP Campus, UNAM Oshakati Campus and JED’s Campus.

CONCLUSION

Considering the work load of the lecturers, the research output could be significantly increased, especially with the introduction of new post graduate programs in the near future.
1.5 FACULTY OF SCIENCE

DEAN’S REPORT

The Faculty of Science is one of the active Faculties in research and development. We are active in all areas of science, as indicated in the list of publications. The Faculty has developed a strategy for improving its research output by incentivising its staff, encouraging them to publish more. Our research output is built around some of the strategic research topics in various Departments. In this regard, the Faculty research is founded on the following themes: IKS, microbiology, climate change, water, ecology, biodiversity and conservation, parasitology, food security, biotechnology, ICT-applications, software-development, astrophysics, nuclear physics, lasers and optics, renewable energies, statistics and health aspects, demography, topology, financial mathematics, technology etc. Research funding in the Faculty is still one of the major concerns and this has contributed to a lower research output than it would normally be.

RESEARCH STRATEGIC DIRECTIONS AND FOCUS AREAS

The Faculty of Science aims to promote and actively engage in both applied and theoretical research that is relevant to the needs of the Namibian population and is aligned with the goals of Vision 2030 and the National Development Plans (NDPs) as well as the National Programme on Research, Science, Technology and Innovation (NPRSTI). The research strategy of the Faculty addresses its mission to become a centre of excellence in research and innovation, to engage actively in quality research and to produce quality publications.

The research strategy of the Faculty of Science is seen as dynamic, facilitating development and accommodating a diversity of capacities and skills within the Faculty. The strategy involves the following actions to promote quality research and innovation:

- Increase the number of post-graduate students involved in research to ensure increased involvement of the various Departments and PhD holders in research. This also ensures increased publication output by members of staff who are at present heavily engaged in teaching undergraduate courses and have little time for research. Furthermore, it will build capacity for UNAM and Namibia.
- Encourage team research, i.e. research groups that involve several Departments and Faculties to ensure that research is multi-disciplinary. In the modern world multi-disciplinary research is the key to solving complex societal and scientific problems.
- Encourage senior members of staff to team up with junior staff members to write research proposals and conduct research in order to transfer research skills.
- Promote Faculty based seminars and conferences to provide a platform for the presentation of research, conducted in the Faculty.
- The Faculty publishes a Journal, supported by the NCRST, which serves as a good platform to share research findings.
- Promote Faculty based training for staff members to assist them in developing their writing skills for proposals and scientific publications.
- Promote collaboration with other universities to widen the field of experience in research; this adds value to our multidisciplinary quest in scientific investigation.
Focus areas in the Faculty of Science include:

**Life Sciences**

**Drug development**

Most of this research is done within the Department of Biological Sciences and the Department of Chemistry and Biochemistry in collaboration with the School of Pharmacy. It involves using natural plant and mushroom extracts and testing their potential for drug development against diseases such as malaria, cancer, diabetes, hypertension and tuberculosis.

Current research entails the chemical characterisation of natural products, with particular emphasis on the identification of novel chemical entities of medicinal value. A project involving the Chemistry and Biochemistry Department in collaboration with the Stellenbosch University is aimed at capacity development in Nuclear Magnetic Resonance (NMR) spectroscopy for molecular structure determination of plant extracts. Research efforts are also focused on the synthesis of natural products and the use of natural products as templates in the design and synthesis of an exploratory library of compounds to be tested for activity in various disease models.

Another collaborative project between the Department of Chemistry and Stellenbosch University is geared towards identification of toxic compounds from plants responsible for livestock poisoning in Southern Africa. The ultimate aim is to provide an understanding of the mechanisms of action by which poisoning takes place, so as to find better ways of treating affected animals and reduce stock losses. Other projects focus on the use of natural plant and mushroom extracts and testing their potential for drug development against diseases such as HIV, malaria, cancer, diabetes, hypertension and tuberculosis. The latest addition to this type of research is the isolation of actinomycetes from Namibian soils for drug development. This theme of research also encompasses computer-based studies, exploring quantitative structure-property relationships of compounds with medicinal values.

**Traditional Knowledge Systems**

This includes access to and use of research results, increasing community awareness and utilisation of indigenous grains to improve nutrition security and livelihoods in Botswana and Namibia. It also involves the evaluation of medicinal plants used by traditional healers for potential use as complementary medicine for treatment of malaria, cancer and tuberculosis. Currently a book is in publication, produced by the Faculty, summarising some traditional practices and knowledge systems that provide essential information regarding its potential for the treatment of these diseases.

**Medical Microbiology/Disease**

Research in the Faculty deals with a better understanding of various diseases and trying to come up with improved solutions for the prevention, treatment and management of these diseases.
Much of this research is conducted as collaborations between the Department of Biological Sciences, the Department of Chemistry and Biochemistry, the Multi-disciplinary Research Centre (MRC) and the Ministry of Health. Projects involve:

- HIV-1 biological activity and toxicity prospecting of ethnobotanicals of Namibia
- Malaria prevalence study in the Oshikango region
- The impact of nutritional status on clinical outcomes of malaria, following ACT treatment in children under the age of 5
- The molecular surveillance for drug resistant *Plasmodium falciparum* malaria in Namibia
- Epidemiology, Diagnostics, Pathogenesis and Vector Biology

**Climate Change**

A project, in which colleagues from the Department of Biological Sciences and the Department of Geology are involved, is the combined use of groundwater, honey bees and soil in the assessment of climate change and adaptation strategies among communities of the Omusati, Ohangwena, Okavango and Caprivi Regions of Namibia. This project is also adding value to the determination of whether or not the bee colonies in the northern regions are in danger of disappearing or not. The influence of bees on crop pollination and tree pollination is a major aspect of the project. Changes in climate affect these bio-indicators of climate variability.

**Water**

Water is a scarce resource in arid Namibia and therefore water is one of the research focus areas in the Faculty of Science. It is multi-disciplinary in nature and involves Biology, Chemistry and Geology. It comprises the following aspects:

(a) Evaluation of the water quality in the drinking water of Namibia, including the occurrence of emergent pollutants such as endocrine-disrupting chemicals in water sources of Namibia, algal toxicity in eutrophic aquatic systems, bacteriological quality of water sources (mostly open and ground water) in the vicinity of informal settlements in the City of Windhoek as well as in hand-dug wells in the north of Namibia. Groundwater quality research currently focuses on regional nitrate and fluoride problems.

(b) Management of water quantity by addressing problems of high evaporation from surface water, ground water flow monitoring, obtaining water from alternative sources such as fog and rain harvesting, wastewater reclamation and water banking. It also involves the following on-going projects: determination of groundwater recharge and safe groundwater abstraction rates as well as modelling of the Naukluft groundwater aquifers.

Research is conducted by a collaboration team between the Department of Biological Sciences, the Department of Chemistry and Biochemistry and the Department of Geology.

**Ecology, Biodiversity and Conservation**

This is a broad area of research and involves the following projects:
• Assessment of the effect of herding on livestock performance in semi-arid communal rangelands in South Africa and Namibia.

• Population dynamics of an endemic tree species *Moringa ovalifolia* Dinter & Berger: Population structure, recruitment and reproductive vigour in different habitats

• Flora of Namibia Project: This is a collaborative research project with the national Herbarium of Namibia and is focused on the production of a comprehensive and descriptive English Flora of Namibian Plants. It involves collating and analysing data, existing and new, on the indigenous and naturalised plants of the country in order to promote knowledge and sustainable utilisation of this resource.

• Population dynamics of an endemic tree species, *Moringa ovalifolia*: Funded through the University of Namibia Research and Publication Office, in this collaborative research between UNAM, the Etosha Ecological Institute and the National Botanic Research Institute we address questions around population structure, population dynamics, genetic diversity and reproductive ecology of populations occupying different habitats in the country.

• Assessment of the effects of variation in vegetation structure due to bush encroachment on the species composition and diversity of small mammals and ground dwelling invertebrates at selected sites in the Omaheke Region.

• Seasonal changes in dietary preferences of the oryx and springbok in Damaraland. This study will be undertaken in collaboration with conservancies e.g. the Torra Conservancy.

• Human wildlife conflict along the boundaries of the park

• Carbon turnover and nutrient cycling in shelf sediments off the Namibian coast

• Dynamics of intertidal zone communities on the coast of Namibia

• Limnology of lentic freshwater systems in Namibia

• Landscape processes and biodiversity change along the Kwando River in Caprivi, Namibia

• Profiling, monitoring and conserving the rich microbial diversity along the Namibian coast

• The impact of different management practices on the range condition of Savannah ecosystems

**Disturbance and Restoration Ecology**

Since many mines are closing down due to the non-renewable resources being exploited and reaching their limits there is a need to rehabilitate and/or restore the natural habitats at such sites. Projects involve the understanding of the dynamics of arid savannah ecosystems that are experiencing various disturbance regimes in highland biomes of central Namibia and understanding the implications for local management, economics and conservation objectives. A project that was successfully completed and was a collaboration between the Department of Biological Sciences, NAMDEB and Gobabeb is the restoration of the Sendelingsdrift mining site.

**Host-plant and host-animal interactions (Parasitology)**

Current projects carried out in the Department of Biological Sciences in collaboration with the Ministry of Environment and Tourism, the University of Bremen (Germany), partner universities in Africa and the EU (EU-funded project) amongst others include:

• Plant-microorganism interaction with a focus on Plant Growth Promotion by Rhizospheric
Endophytic microorganisms associated with plants occurring in the Namibian deserts
Rainfall and herbivory: characterising the transmission route for anthrax in grazing wildlife, Etosha National Park
Parasites of rodents in South Africa and Namibia with a focus on emerging infectious diseases
Emerging viruses in West and Southern Africa: Molecular identification and characterisation of rodent- and shrew-borne hantaviruses and assessment of their public health potential
Monitoring the effects of anthropogenic and environmental change on parasite diversity and communities and infectious disease on small mammal communities along a climate gradient in Southern Africa
Stop Rat Project (EU funded)

Food Security

Research in this focus area includes plant breeding research where, for example, Marama bean cultivars with desirable agronomic traits are developed, using mutation breeding. It also involves the domestication of the Marama bean: Agronomy and molecular genetic characterisation for its improvement. Other research in this focus area includes the analysis of starch synthesis in the Marama bean to identify its industrial uses, cultivation of Tyloosema esculentum (Marama bean) trials, the analysis of microbial nutrient cycling, GHG production, BNF and plant growth promotion for sustainable land use management under the project The Future Okavango (TFO).

Biotechnology

Industrial Application: New Materials (Nanotechnology), Biotechnology, Polymer Science research and Petroleum Chemistry.

Computer Sciences

In the School of Computing there are research groups that focus on:

- Rural Wireless Networking, utilising the Long Term Evolution and Cloud Computing Technologies
- Cloud Computing, looking at billing and security aspects of applications in the Cloud environment
- “Namibianizing the Internet”, looking at innovative ways to expose the Namibian cultural norms and practices to the world; this research group is looking at various aspects, including indigenous knowledge systems and social networks that are applicable to the Namibian environment
- Design of ICT applications for the Intersection of Traditional and Indigenous Knowledge and Technology Design focus on research projects, Connecting Eenhana: Socio-technical issues in establishing a community Wi-Fi network, and an ethnographic account of taxi practices in Namibia to inform the design of ICT applications
- The School of Computing also houses the Centre of Excellence in Telecommunication that runs and implements research activities and publishes research results
• Establishment of the Software Development Center (SDC), focusing on development of projects in the areas of E-health and E-Governance.

**Astrophysics**

In the Astrophysics Research Unit of the Department of Physics there is continuing research in high-energy astrophysics, as part of the highly successful international collaboration in operating the H.E.S.S. telescopes, located in Namibia.

Concerning the successor observatory of H.E.S.S., the Cherenkov Telescope Array, the Department of Physics, alongside with the then Ministry of Education and the National Commission on Research, Science and Technology, is spearheading the efforts of attracting the Southern observatory of CTA to Namibia. This national effort is endorsed and supported by Cabinet, i.e. by the highest political powers.

The similar applies to the Square Kilometre Array (SKA), in which the Department of Physics is involved as well. Besides these astronomical mega-projects, with more than 1000 scientists from over 30 countries involved and with capital investments of billions of N$, also a small optical observatory, the Cuno Hoffmeister Memorial Observatory, is set up south of Windhoek. This initiative is in collaboration with the International Occultation Timing Association - European Section (IOTA-ES) and is supported by the International Astronomical Union Office of Astronomy for Development (IAU-OAD). Members of the Department are also holding active and oversight positions in the Southern African Regional Office of Astronomy for Development (SAROAD).

**Nuclear physics**

The Radiation Physics Group continued to do research on the distribution and concentrations of natural radio-isotopes in several locations in Namibia, using equipment provided by the International Atomic Energy Agency (IAEA) in a joint project with the Atomic Energy and Radiation Protection Authority of Namibia. This group successfully acquired some nuclear equipment from external sources and through Namibia CPF and is setting up a nuclear science teaching and research laboratory.

**Lasers and optics**

Continuing research is taking place on vegetation fluorescence and optics as well as optic properties of surface water sources and development of methods to improve the measurement of absorption in water.

**Renewable Energies**

Research in the field of solar cells, their efficiencies and possible applications in Namibia is conducted.
Statistics addressing social aspects


- Women and Food Insecurity in Urban Areas in Namibia - a case study in the informal settlements of Windhoek
- Explaining marriage patterns and trends in Namibia – a research undertaken towards the fulfilment of a PhD degree
- Model fitting to home language in Windhoek Primary Schools.

Statistics and Health Sector/aspects

- An evaluation of the effect of maternal smoking on the health of infants in Namibia
- Small area estimation of health status/conditions and interventions. The main focus currently is on malaria, but it is easily expandable to other public health problems. With collaborators in Kenya, the Kenya Medical Research Institute and the University of Oxford, we are using cross-sectional Demographic and Health Survey (DHS) data, obtained in various African countries to estimate
  i) health interventions coverage (long lasting nets)
  ii) health status and conditions (malaria prevalence)
  iii) health promotion and disease prevention issues (prompt use of appropriate care).

Demography

Statistical methods in demography - this project is essentially using advanced regression methods to analyse and explain demographic processes. Census and DHS data are being used.

Pure Mathematics

The Department of Mathematics has been carrying out research in Categorical Topology. In this research structured frames, called nearness frames, are utilised. The work involves applying category theory to topology.

Financial Mathematics

Semi martingales are applied to finance. The focus is on the modelling of exchange rates, optimal harvest and defaultable securities. This work has played a part in strengthening the modelling of risk management in the banking industry. Stochastic dynamic models for banking items were developed, enabling one to analyse the interplay between the bank exposures and its regulatory capital to mitigate these.
**Dynamical Systems**

This involves the study of the dynamics of biological groups. The dynamics of biological groups is represented by a system of nonlinear Partial Differential Equations. The study focuses on the well-posedness and regularity properties of the solutions to such systems of equations.

**Perturbation Theory**

This research in perturbation theory has wide applications in chemical reactors, lubrication, bending problems of thin plates and shells, DC motor analysis, quantum and fluid mechanics, elasticity, and other similar areas. It is clear that these applications are quite relevant to the development programs of Namibia, especially in the industrial sector.

**Differential Equations and Numerical Methods**

This work involves modelling of the spread of diseases, using first and second order differential equations and numerical analysis techniques.

**Earth Sciences**

Most of the research in this focus area is conducted in the Department of Geology, but collaboration occurs with other international universities. The following research projects are ongoing currently:

- The Matchless Project: Geological Evolution and Metallogeny of the Matchless Belt, Namibia (Collaboration with Meeting Points Mining, Sweden and Uppsala University, Sweden)
- Sedimentology and hydrocarbon resources: Karoo basin evolution and associated coal and gas resources
- Seismic Stratigraphy and Petroleum System Analysis of the Orange Basin
- Neoproterozoic Petroleum Systems in Namibia (Collaboration with Royal Holloway, London)
- The Mining and Environment project under the auspices of the International Union of Geological Sciences (IUGS) and UNESCO/SIDA, Project Number 594. The Department is being represented by Prof. B.S. Mapani and Prof. A.F. Kamona. Cooperating partners in this project are the Geological Survey of the Czech Republic, the University of Johannesburg, the University of Botswana, the University of Zambia, the University of Zimbabwe, Charles University, Prague, the University of Natural Sciences, Prague, the University of Lubumbashi, Medical Faculty, and the Central African Museum in Brussels, Belgium.

**Geochronology of Southern Namibia**

- This is a new project, being a collaboration between the University of Namibia, Geology Department, and the Gothenburg University in Sweden. The project aims to establish the exact age of the rocks in the Rehoboth Inlier and Sinclair Suites in the Helmeringhausen
and Sinclair areas. The ages of these formations will give us as a direct result the most fertile units with respect to mineral deposits.

LIST OF PUBLICATIONS

Refereed journal articles


10. Abramowski, A. et al. [H.E.S.S. Collaboration, inc. Davids, I.D. and Steenkamp, R.] (2014). Discovery of the VHE gamma-ray source HESS J1832-093 in the vicinity of


22. Havarua, Z., Turner, W., & Mfune, J. K. E. (2014). Seasonal variation the foraging behaviour of Zebra may alter contact with the anthrax bacterium (Bacillus anthracis) in


33. Mahajan, A., Hans, R., Chibale, K., & Kumar, V. (2014). *Synthesis and Medicinal Chemistry of Selected Antitubercular Natural Products and Natural Product Derivatives*. RSC Advances, 4, 15180-15215


Chapters in books


**Conference Papers/Proceedings**


2. Alfeus, V., Louw, S., Hakwenye, H., & Thomas, T. (2014). *Comparison of solid phase extraction (SPE) and solid phase microextraction (SPME) for the analysis of pesticides in drinking water using gas chromatography (GC)*. Oral presented at the 2nd Faculty of Science Annual Science Research Conference, 30-31 October, 2014, University of Namibia, Windhoek, Namibia


21. Havarua, Z., Turner, W. C., & Mfune, J.K.E. (2014). *Seasonal variation in foraging behaviour of plains zebra (Equus quagga) may alter contact with the anthrax bacterium (Bacillus anthracis)*. Paper presented at the 2nd Annual Science Research Conference, 30-31 October, 2014, UNAM library, Main Campus, Windhoek


26. Karumendu, I., Kalili, M. K., & Louw, S. (2014). *A comparison between the sample enrichment probe (SEP) and solid-phase micro extraction (SPME) for Gas chromatography-mass spectrometry analysis of hormones in water*. Poster presented at the 2nd Faculty of Science Annual Science Research Conference, 30-31 October, 2013, University of Namibia, Windhoek, Namibia

28. Kazembe, L. N., & Kamndaya, M. S. (2014). Hierarchical modelling of pneumonia when the response is subject to misclassification error. Presentation made at the 1st Sub-Saharan Conference on Spatial and Spatial Temporal Epidemiology, a hierarchical model was proposed to adjust for mis-classification of disease outcomes under self-reported health status, with examples from Malawi. School of Public Health, Wits University, RSA, 17-21 November, 2014


34. Lendelvo, S., Kazembe, L. and Mfune, J.K.E. (2014). Link the utilization of translocated species to the benefits and perceptions of conservancy members. Paper presented at the 4th Insaka Symposium, 14-16 April 2014, organised by Montana University in Cape Town, RSA


39. Mapauke, I. (2014). *Fostering a research culture and promoting research excellence at the University of Namibia (UNAM)*. Research Strategic Planning Workshop, Department of Human Sciences, Faculty of Humanities & Social Sciences UNAM, 27-28 May, 2014, Safari Hotel, Windhoek


43. Mfune, J.K.E., & Angula, M. (2014). *Climate Education in Namibia at Tertiary Education*. Paper presented at the Conference on Challenges and Opportunities on Climate Change for Law, Policy and Development, organised by the Konrad-Adenauer-Stiftung, Rule of Law for Sub-Saharan Africa Programme (Nairobi) in Cooperation with the Development and Rule of Law Programme (DROP) of the University of Stellenbosch (South Africa), held at Kalahari Sands Hotel, Windhoek, 9-10 September, 2014


presented at the 2nd Faculty of Science Annual Science Research Conference, 30-31 October, 2013, University of Namibia, Windhoek, Namibia


49. Moses, R., Kwembeya, E.G., Kolberg, H., & Kritzinger, Q. (2014). Seed physiological aspects of selected species of the Kavango woodland, Namibia


Annual Science Research Conference. 30-31 October, 2014.  UNAM Library, Main Campus, Windhoek


IMPORTANT EVENTS, HIGHLIGHTS AND ACHIEVEMENTS

Annual Science Research Conference

The Faculty of Science held its second Annual Science Research Conference during 30 and 31 October 2014 at the UNAM Library, Main Campus. Several members of the academic staff as well as undergraduate and post graduate students presented their research. The Conference was opened by Prof. Maass (Director of Academic Affairs) and the keynote address was provided by Dr. Kuiri F Tjipangandjara, General Manager of Engineering and Scientific Services at NAMWATER.

First Two-Dimensional High Performance Liquid Chromatography (2D-HPLC) Workshop

The first Two-Dimensional High Performance Liquid Chromatography (2D-HPLC) Workshop ever held in Namibia was hosted on UNAM’s Main Campus from 1 to 3 July, 2014. The workshop was held as part of the activities of bilateral research collaboration between Namibia and South Africa and was funded by a grant from the Namibian National Commission on Research, Science and Technology (NCRST) and the National Research Foundation (NRF) of South Africa. The grant was awarded to Dr. Stefan Louw and co-workers in the Department of Chemistry and Biochemistry at UNAM and their co-workers Prof. André de Villiers and his colleagues at the Stellenbosch University for their work on the identification of toxins in plants, responsible for livestock losses in southern Africa.

The workshop focussed on the theory and application of 2D-HPLC to the high resolution separation of the constituents of the plant extracts. The workshop was opened by a welcoming address of Ms. Alushe Nditya, a representative of the NCRST, followed by the plenary lecture by Prof. Klaus Koch (Stellenbosch University), titled Nuclear Magnetic Resonance (NMR) Spectroscopy: What would Molecular Structure Determination be without it? The workshop was attended by members of staff from the Department of Chemistry and Biochemistry, the Department of Biological Sciences and the School of Pharmacy. The delegates from the University of Stellenbosch comprised post-graduate students and a researcher.
Faculty of Science stakeholder retreat

The Faculty of Science had its first stakeholder retreat at the Protea Hotel Furstenhof on June 13, 2014. Prof. Osmund Mwandemele officially opened the retreat.

The goal of the retreat was to foster scientific and social interactions with various stakeholders in the following key priority areas of innovation: Biotechnology (Natural Products & Genetically Modified Organisms (GMOs)), Renewable Energy (Solar Energy), Solutions to Water Problems, Mining Technology and Supply Chain (value addition), Technology Development, Space Science and Food Security. The retreat addressed the need for financial support in the proposed research activities and stressed the importance of seeking collaboration with stakeholders to address the needs of the country.

Conference on Topology, Algebra, Analysis, Geometry and related areas (TAAG2014)

The Department of Mathematics organised and hosted the Conference on Topology, Algebra, Analysis, Geometry and Related Areas (TAAG2014) in Windhoek, in September 2014. The Conference on Topology, Algebra, Category Theory, and Geometry is a rotating conference,
involving the University of Botswana (UB), the University of Namibia (UNAM), the University of South Africa (UNISA) and North West University, Mafikeng, South Africa.

The objective of this conference was to provide mathematics researchers in Southern Africa with an opportunity to share their research outputs in the various disciplines mentioned above. The areas covered by the conference included General/Algebraic Topology, Differential Geometry, Category Theory and a special session on Mathematical Biology and Mathematics of Finance. At this conference Mr Haihambo from the Mathematics Department presented a paper entitled, *Endpoints in $T_0$ quasi-metric spaces*. Mr Gnitchogna attended the 2014 International Conference on Computations Methods - Pure Mathematics and Applied Mathematics in Santorini, Greece, from 17 to 21 July, 2014, and presented a paper entitled, *Comparison between Homotopy Perturbation Sumudu Transform Method and Homotopy Decomposition Method*.

**Best Researcher award**

Assoc. Prof. Lawrence Kazembe was awarded the Best Researcher Award in the Faculty of Science. He is also the Chief Editor of International Science & Technology Journal of Namibia, a journal hosted in the Faculty of Science at the University of Namibia.

**CONCLUSIONS**

The Faculty of Science has been highly productive in research activities and output during 2015. The Faculty managed to publish a total of 52 articles in peer-reviewed journals, produced 3 book chapters and presented 64 papers at national and international conferences. The funding for most of these conferences was sourced from outside UNAM.

Challenges faced by academic members of the faculty are the high teaching loads, limited laboratory space to conduct research, since all the laboratories are currently used for teaching, limited equipment, and no budget for research activities, except the limited amount of funding from the Research and Publication Office. We are continuously striving to conduct quality research within these limitations.
DEAN’S STATEMENT

This report for the School of Nursing and the School of Public Health covers our research activities and publications during the 2014 academic year. The two schools held their first ever Research Data Dissemination Conference in October 2014. At this conference several quality papers were presented on contemporary issues in Nursing and Public Health such as trends in motor vehicle accidents in Namibia, the care of children with heart diseases, care for the elderly and those with disabilities, HIV/AIDS, malaria, tuberculosis, maternal and child morbidity and mortality and mental health, among others. It is our hope that these papers will be published in reputable journals after their revision and after having incorporated colleagues’ suggestions during the workshop. Our research output has steadily picked up since 2013. Eleven staff members produced journal publications, while one staff member presented a paper at an international conference.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

Nursing research focuses on the generation of knowledge of health promotion with the aim to maintain and improve health, alleviate suffering and create conditions for a “peaceful death”. During 2014 our School has identified a focal person to spearhead the School’s research agenda. Her/his main task is to steer the School towards improving our research output in general and supporting the respective Departments to address contemporary issues, we are facing, such as:

- Professional conduct of nurses
- Best practices to accelerate the achievement of the Millennium Development Goals related to health
- Effective teaching and learning approaches (The School is in the process of adopting and adapting a Problem-Based Learning (PBL) approach. We have an exchange teaching programme with the University of Linkoping (Sweden), where lecturers and students are participating in PBL approach studies.)
- Contemporary infectious diseases.

Objectives

1. Conduct action research to support nurses to change negative attitudes towards clients/patients
2. Conduct research on best practices for the accelerated achievement of the Millennium Development Goals 4, 5, & 6
3. Conduct research in areas related to teaching and learning approaches
4. Conduct research in areas related to contemporary infectious diseases
5. Carry out joint research with colleagues within and outside the SADC region
6. Disseminate research information through publications.
Specific areas of emphasis by the schools

- **Professional conduct**
  - Professional ethics
  - Participatory Action and Reflection approaches

- **Millennium Development Goals**
  - Best practices to reduce maternal and peri/neonatal deaths
  - Best practices to reduce HIV prevalence

- **Teaching and learning approaches**
  - Problem-based learning

- **Contemporary infectious diseases**
  - STIs
  - Malaria
  - Tuberculosis

**LIST OF PUBLICATIONS**

Our research output is rather low, but shows the lecturers’ commitment. Only a few staff members produced publications, while some presented either a paper or a poster at conferences. These are as follows:

**Journal Articles**


**Conference papers**


**IMPORTANT EVENTS**

The Schools of Nursing and Public Health held their first ever Research Data Dissemination Conference on 12 November, 2014, where a number of papers were presented by postgraduate students and staff members of the two Schools.

It is also worth mentioning that one of our staff members (Dr K. Amakali) was accorded a meritorious award for 2014.

Some staff members served on the editorial boards of International Journals/Education Institutions:
• Dr P. Angula reviewed two modules for East, Central and Southern African College of Nurses (ECSACON) CPD Library, namely: *Measuring the Global Burden of Cardiovascular Disease* (reviewed in August 2014) and *Prevention of Mother to Child Transmission Toolkit* (reviewed August 2014).


CONCLUSION

Our research activities are gradually picking up. However, the two Schools need to engage more in departmental research to empower and equip junior colleagues with the confidence to publish their findings. Furthermore, there are a number of Masters and PhD students graduating every year from our two Schools. These students would need encouragement to produce papers for publication, based on their research work.
2. ACTIVITIES OF ACADEMIC CENTRES AND CAMPUSES

2.1 HIFIKEPUNYE POHAMBA CAMPUS

DIRECTOR’S REPORT

The Hifikepunye Pohamba Campus of the University of Namibia recognises the value of applied research to education and development related issues in Namibia and beyond. Despite lack of educational research experience, particularly at a new Campus like ours, we have managed to publish and present papers in various journals and at various conferences. This is, in our opinion, our humble contribution.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREA

In its Management Strategic Plan for 2012 ending 2016, HP Campus puts emphasis on motivating staff and students to engage in research activities for effective knowledge creation and application. As a result, the Campus set its strategic objective of increasing and broadening research output to directly respond to its current low level. The following are themes as they appear in the Research Agenda:

Theme 1: Promoting the Enhancement and Improvement of the Teaching and Learning of Mathematics and Science for Sustainable Development in Namibia

The world economy has been fluctuating, yet rapid advances in science and technology create opportunities for Namibia, as recognized with the introduction of Vision 2030. This document spells out the country’s development programs and strategies and how to achieve its national objectives and goals to become an industrialised, competitive and high-performing economy by 2030, offering a high living standard to its citizens. In response to the goals and objectives of Vision 2030, the HP Campus is committed to addressing the various issues and challenges pertaining to the teaching and learning of Mathematics and Science.

Theme 2: Putting Theory into Practice for the Enhancement of Quality Teacher Education in Namibia

Under this theme we seek to investigate the relationship between theory and practice. Theory informs the practices that ought to take place. The evident relation between theory and practice can be detected in how learning content is exposed to learners in the first project, how a school’s management team contributes to school performance, how an advisory teacher service unit assists teachers in schools to improve their teaching, and to which degree graduates feel equipped, according to national professional standards, with competencies that are expected of any professional teacher. In all projects the focus is thus more on how the practices of individual educators are informed by theoretical frameworks and on determining any deviations from theoretical models.
Theme 3: Providing Quality Education through Improved Instruction and Assessment for Sustainable Development

Projects under this theme investigate the challenges that education stakeholders in Namibia face when implementing curricula, and it seeks to inform policymakers and curriculum developers to address those challenges.

Theme 4: Enhancing and Promoting the Teaching and Learning of Arts, Languages and Social Sciences at all Levels of Education

Under this theme the focus is on issues pertaining to the teaching and learning of arts, languages and social sciences.

Theme 5: Enhancing Teaching and Learning in the Pre– and Lower Primary Phase

The Pre-Lower Primary Phase forms the foundation of later learning. As such it is important to conduct ongoing research on the different aspects of the Pre-Lower Phase such as curriculum development and implementation and practical aspects in the schools and community, in order to enhance teaching and learning during this phase of education.

Theme 6: Providing Psycho-Social Support to Ensure Effective Inclusive Education

Under this theme one aims to address the challenges related to discriminatory practices and attitudes that hinder the creation of welcoming environments, welcoming communities and inclusive societies, and to achieve education for all. It also focuses on ascertaining the most effective means of embracing people with diverse needs.

LIST OF PUBLICATIONS

Journal Articles


5. Taukeni, S. (2014). *In search of stakeholders in the provision of basic needs to vulnerable orphaned learners.* NERA Journal, 12(1), 76-90


**Chapters in Books**


**Conference Papers or Proceedings**


**Other Publications**

Makaka, B. (2014). *Unit 3: Number systems: A Unit in the Mathematics Education 1 CES module.* University of Namibia, Windhoek

Miranda, H. (2014). *Number bases. A Unit in CES Mathematics Education 1A module.* University of Namibia, Windhoek

**CONCLUSION**

It is our hope that we will be able to maintain the current momentum in matters related to research. With the implementation of our Research Agenda we will remain focused on its themes in order to create knowledge and suggest practical solutions to educational problems. Overall, this will contribute to the general research output at the University.
DIRECTOR’S REPORT

The UNAM Katima Mulilo Campus’ management continues to significantly improve its effort to make research and dissemination of research outputs a household name on the Campus. Our sustained call on senior Faculty members to consider co-authorship and collaborative research with junior Faculty members has strengthened the research outlook among academics. This becomes evident when considering the quality of strategic projects of the Campus’ Five-Year Research Agenda which will be launched at any time from now.

In the face of the encouraging response to our research efforts it gives me great pleasure to state here that the Katima Mulilo Campus met 100% of its research output targets for the year under review. Our 2014 research output record stood at 27 articles, of which 11 journal articles and one conference paper were co-authored. This is very encouraging with respect to our sustained effort to enthrone multidisciplinary research. In fact, our researchers are looking forward to achieve the same record in the 2015 research year. The Katima Mulilo Campus management continues to encourage its researchers and is periodically updating them on available funds in the campus research budget for their utilisation. So far this has been effective, as the researchers seem to carry out their research projects without any constraint.

Considering the research impetus of the Katima Mulilo Campus in the last two years and with more academics joining us in both the Faculty of Education and the Faculty of Agriculture and Natural Resources, we may run into the challenge of assisting all our researchers out of our small research budget. Bearing this in mind, our researchers have been tasked to explore external collaborations and research grants as a way of supplementing our lean research budget. It is our hope that this direction will yield positive results and further expand our research outreach.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

The Katima Mulilo Campus continues to encourage and support the publication of research findings in peer reviewed journals as well as the attendance at conferences/seminars, where academics can present their research work, interact with professional colleagues and update their subject knowledge. Internally, as Katima Mulilo Campus commences the supervision of its own final year undergraduate research projects in the 2014 session, the Campus Research and Publications Committee organised a workshop to train inexperienced supervisors on the foundations of undergraduate project supervision. This is the first of its kind on our Campus and we hope to sustain its function, as it equips supervisors to better handle issues related to undergraduate project supervision.

To further streamline our research focus, the Campus has now developed a Five-Year Research Agenda, covering the years 2014 to 2018, which is already at the printing press. This Five-Year Research Agenda is focussed on three broad themes, bearing in mind the available research expertise of the campus to effectively implement the various research projects and seek
collaborations for them. These three themes are strategic and focus on teaching, research and community engagement of the Campus and are:

i. Education and Quality Delivery
ii. Agriculture and Environment
iii. Wildlife and Ecotourism.

PUBLICATIONS

During the 2014 research year, the Katima Mulilo Campus recorded a total of 27 publications, comprising 19 articles in peer reviewed journals, one book chapter, one monograph and six conference paper presentations.

Journal Articles


Monograph

Chapters in Books

Conference Articles


SIGNIFICANT EVENTS, ACHIEVEMENTS AND MILESTONES
During the year under review Katima Mulilo Campus successfully held the 2014 UNAM Research and Innovation Day with Vice Chancellor Prof. L. Hangula in attendance. The Vice Chancellor expressed his satisfaction with the research paper presentations and with the exhibitions characterising the day, and he stated that Katima Mulilo Campus had a good start. Also the field work of the Oral History Research Project, initiated in the last quarter of 2012 as
collaboration between the Katima Mulilo Campus and the University of Eastern Finland, has progressed well. The research report and the dissemination of its findings are expected during the period 2015-2016. Our two senior students, co-opted into this project as research assistants, are progressing satisfactorily. This effort forms part of our Campus’ new research strategy, giving students research exposure at an early stage. We are confident that, if the present tempo is sustained, there will be greater success stories to tell in our 2015 Research Report.

CONCLUSION

The Katima Mulilo Campus gave itself a pass mark for meeting 100% of its research target set for the year 2014. The idea of the campus-based training workshop on the supervision of undergraduate research projects, facilitated by the Campus’ Research and Publications Committee, provided our academics with the proper tools to ensure that both implementation and envisaged outputs are achieved. Finally, with the launching of the Katima Mulilo Campus Five-Year Research Agenda in sight, we are committed to the sustenance of present gains in research-related activities, provided the Campus is accorded the necessary financial support to implement its research agenda.
2.3 KHOMASDAL CAMPUS

DIRECTOR’S STATEMENT

The main mandate of the Khomasdal Campus is to train teachers in Primary Education and therefore this is also the main focus of research. While we had only two PhD holders on Campus in 2014, four staff members were enrolled for PhD and ten for Masters studies. Because of its proximity Khomasdal Campus cooperated closely with the lecturers and management of the Faculty of Education on Main Campus at various levels and staff members were thus involved in projects across campuses.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

The research focus areas of the Khomasdal Campus are diverse due to the various Departments involved. The staff’s research focus areas are composed of, though not limited to, the following:

- Innovative pedagogical approaches in primary teacher education
- ICT and media integration in teaching and learning
- Literacy and numeracy in elementary education
- Language acquisition and mother tongue instruction in early education
- Sign language linguistics and deaf culture
- Music and arts education
- HIV and AIDS integration in primary education
- Teacher motivation and beliefs

LIST OF PUBLICATIONS

Journal Articles

The following academic papers and publications were produced by members of the Campus, also in collaboration with other Faculty members:


Möller, J., & Villet, C.B. (2014). Factors influencing the Low Intake into Pre- and Lower Primary Teacher Education in Namibia. NERA journal 12(1)


Chapters in Books

Conference Papers/Proceedings


**Works of Art**


**ACHIEVEMENTS DURING 2014**

A highlight of 2014 was the publication and launch of the final research report on *The reading behavior and preferences of Namibian children*, URPC 2011/37 by Kirchner, E., Alexander, S. and Tötemeyer, A-J. This research was conducted in collaboration with the Namibian Children’s Book Forum and the University of South Africa. The report was presented to and discussed with both the Minister of Education and the Vice-Chancellor of UNAM at two separate occasions.

Various staff members were involved in an ongoing major research project of the Faculty of Education, titled *Capacity Development for quality in Pre- and Lower Primary Teacher Education in Namibia*, in collaboration with UNESCO and the Ministry of Education and funded through the UNESCO-China Funds-in-Trust.

The campus was also involved in the following research projects and consultancies:

- Class Assessment Practices in the Primary Phases – LP (Literacy and Numeracy) and UP (English and Mathematics) (Ms. C. Alexander, CIAS)
- Gender Based Violence and Educational Campaigns (for MRC; Mr. E. Louis together with C.K. Haihambo and Z. Kazapua - Report published in 2014)
- Creating online materials for IMTE, using Moodle as a Learning Management system (for CPD Unit; Ms C. Alexander and Ms E. Haipinge).
CONCLUSION

Research and publication at this Campus remain a challenge due to the fact that most of the staff members are busy with post-graduate studies. However, the management strives to encourage interested staff to improve their research skills by cooperating with experienced members within the Faculty of Education.

Photos
2.4. OGONGO CAMPUS

Photo 1: A crowd comprising farmers, teachers and pupils, touring rice cultivation research plots at Ogongo
DIRECTOR’S STATEMENT

This report documents research activities and outputs from the Ogongo Campus of the Faculty of Agriculture and Natural Resources for the year 2014. It highlights momentous research related activities, events, accomplishments and milestones at Ogongo Campus during the past twelve months. In so doing, the report charts the strategic research direction of the FANR in general and of Ogongo Campus in particular, as epitomised by the focal areas on which most of the main scientific studies were undertaken at the Campus during the year under review. As a consequence of the strategic realignment of the satellite UNAM campuses in the ambit of the FANR, Ogongo Campus has become the focal area of Agronomic (Crop Science) and Agricultural Economics and Integrated Environmental Science, and this has had a major influence on the strategic research direction and focus area of the Campus. Nonetheless the Campus maintains a vibrant section of the Animal Science Department which is mainly housed at Neudamm Campus.

DEPUTY DEAN’S REPORT

Our aim at Ogongo Campus is to uphold the three mandates of UNAM: teaching, research and community engagement. Whereas we have been strong on community engagement, we endeavour to improve on research as this will also enhance the quality of our teaching and community engagement. Some of the identified areas of improvement include the starting of postgraduate programmes for those Departments without them and enhancing the existing programmes. To this end, teaching staff have been urged to form research teams, develop a culture of preparing research proposals and endeavour to include training at postgraduate level in their proposals.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

The research agenda of the Faculty of Agriculture and Natural Resources (FANR) is broad, reflecting the diversity of disciplines and specialisations, represented by various Departments as part of the Faculty. The strategic position of the Ogongo Campus focuses on crop production, integrated natural resource management and agricultural economics. This is informed by the geographic locality of the Ogongo Campus within the most populous part of the country, where crop production forms the mainstay of local livelihoods, as well as the relative competitive advantage the area has in terms of climate and weather over central and southern Namibia. To this end the strategic research direction and focus areas at Ogongo are geared towards adaptive cropping systems within the flood prone semi-arid north central Namibian rangelands, taking advantage of the erratic climatic conditions, characterized by both flood and drought conditions. Prioritisation of thematic research areas by both the FANR and the Ogongo Campus is aligned with the National Programme on Research, Science, Technology and Innovation (NPRSTI).

The focal areas of research at Ogongo encompass the breeding, multiplication and introduction of hardy varieties of traditional and new crops as well as livestock into the annually flooded and drought prone semi-arid north-central area of Namibia, which hosts the largest percentage of the national population; analyses of agro-economic factors and feasibility of value addition
initiatives through local processing of indigenous and introduced horticultural crops and non-timber forest products; establishing the effects of environmental contamination and degradation, tourism and industrialisation as well as environmental policies on human health; agricultural productivity; inland freshwater fisheries; surface and groundwater, and sustainable energy. The role of indigenous knowledge in preventing, adapting and mitigating environmental change (climate change, desertification and deforestation) also form prioritised focal research areas. It is envisaged that results from research will ultimately contribute to sustainable and climatically resilient livelihoods, ecologically sound and resistant natural environments as well as the economic development of the Namibian people.

Ogongo focuses on researching ‘mixed cropping or intercropping’ of drought adapted traditional crops with the flood adapted rice cultivars, in order to increase the preparedness of crop production systems for any extreme eventuality (drought or flood) and thus buffer local farmers against complete crop failures during alternating extreme climatic conditions.

Pre-trial production of Lucerne is also being researched at Ogongo Campus with the aim of scaling it up to full production of irrigated pastures to supplement the dry season fodder supply for the animal production sector. Ogongo further focuses on drought resistant foxtail millet for possible introduction into the Namibian agronomic production system. Additionally, Ogongo is assuming ownership of the trial of fruit orchards, introduced by the Ministry of Agriculture, Water and Forestry (MAWF), as trials and research will focus on the provision of the scientifically based appraisal of the performance of fruit trees and thus the possibility of their production in northern Namibia, concomitant with methods of fruit processing for value addition. The cultivation and breeding of indigenous and non-invasive exotic tree and shrub species to be incorporated into the Namibian farming systems is an agroforestry focus research area of Ogongo. Furthermore Ogongo has for long been engaged in the production of Brown Swiss dairy cattle and their cross-breeding with indigenous Nguni breeds as a means of ensuring improved milk production for local farmers. The hardy Brown Swiss has been selected for its adaptability to the local rangeland conditions.

PUBLICATIONS

Journal Articles


Conference Papers/Proceedings


Photo 2: Participants viewing poster presentations at the International Symposium: Agricultural Use of Seasonal Wetlands in Southern Africa

SIGNIFICANT EVENTS, ACHIEVEMENTS AND MILESTONES

Other than the annual hosting of the Rice Information Field Day, Ogongo Campus, on behalf of UNAM, organised and successfully hosted the second international symposium under the auspices of the Rice-Mahangu Project in Windhoek at the University of Namibia’s School of Medicine around the theme of Agricultural Use of Seasonal Wetlands in Southern Africa during
the year under review. Scientists from Japan, Namibia, Botswana and Zambia, specialising in diverse disciplines of crop science, agroforestry, hydro-meteorology, social science, physical geography and agro-economics, presented papers and posters on their respective innovative research activities. These were related to the introduction of a mixed cropping system, incorporating rice cultivation into the traditional agronomic production systems of southern Africa, with the aim of aiding diversification of the food production sector, while increasing or enhancing its resilience to extreme climatic events. The Symposium facilitated dialogue and discussions about current conditions, challenges and strategies for the agricultural use of seasonally inundated wetlands of southern Africa. It also provided a platform for the shared exploration of options for collaborative future research on the agricultural use of seasonal wetlands on the subcontinent.

Photo 3: High level Namibian and Japanese delegations on the podium of the International Symposium

UNAM Ogongo successfully organised the annual Rice Information Day during which the rationale, techniques and research aspects of introducing rice cultivation to the seasonal wetlands of the Cuvelai drainage basin were shared with an audience of farmers, school teachers, pupils, Regional Governors, traditional leaders, researchers and agricultural extensions workers. The aim of this Information Day is partly community engagement as a means of popularising the cultivation of rice in the traditional cropping system, and partly a platform for mutual information sharing and interactions.

Photo 4: Ogongo Cultural Group entertaining the audience during the 2014 Rice Information Day

Ogongo Campus successfully hosted the UNAM Research and Innovation Day Celebration on 26 October 2014, to which the Campus invited Prof Erika Maass as special guest. The opening and welcoming remarks were made by Mrs Hangula, and the Deputy Dean, Dr Njunge, delivered
the keynote address on behalf of the Vice Chancellor. The special guest, Prof Erika Maass, gave a talk on the *Importance, Role and Value of Research and Innovation in an Academic Institution*. This was then followed by a presentation by Mr Cecil Togarepi on the *Analysis of the Determinants of Sustainability of Cattle Marketing Systems in the Zambezi Region*. Prof Levi Akundabweni gave a talk and demonstration on the *Foxtail Introduction Trial in Namibia*. The highlight of the day was a presentation by Prof Erika Maass on *The Ingenious Genus (Hydonora) – Advances in our Understanding of these Remarkable Plants* which captivated the imagination of the audience. These presentations were then followed by presentations of students whereby Ms Nelago Iiyambo presented a talk on *Mapping of Major Ephemeral Rivers in Omusati Region* and Ms Alice Poniso talked about the *Implications of Wildlife on Rural Livelihoods of People in Judea Lyamboloma Constituency of northeast Zambezi Region*. After a general discussion Mrs Hangula made the closing remarks.

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**Photo 5:** Prof. Maass making her presentation on Research and Information Day at Ogongo, 2014

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**Photo 6:** A packed hall during the 2014 UNAM Research and Innovation Day celebrations at Ogongo

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**CONCLUSION**

There is a worrying trend or year-by-year slowdown in the number of research outputs and a lack of endeavour to build on the momentum of the preceding years. The research outputs in the form of peer reviewed journals and conference papers captured here emanated, bar a few, from work by graduate students, who are attached to foreign institution and supervised or co-supervised by Ogongo based academics. As such none of the publications listed here, other than a conference paper, is based on work carried out at Ogongo Campus. As highlighted in the previous Campus Research Report an absence of postgraduate programmes within any of the Departments based at Ogongo presents a major bottleneck for the conduct of research and increased research output
from Ogongo Campus. There is therefore room for serious improvement in locally based research activities in order to improve publication outputs from a wider spectrum of Ogongo academics.

*Photo 7: Master of Ceremonies, projector operator and speakers at Ogongo Research and Innovation Day 2014*

*Photo 8: Part of the audience at Ogongo Research and Innovation Day celebrations 2014*
2.5 OSHAKATI CAMPUS

DIRECTOR’S STATEMENT

The Oshakati Campus has been involved in various research and publication activities during 2014. The fact that students are again taught by experienced researchers is a big achievement and truly makes us an institution of higher education. We also acknowledge the need to put a lot of effort into research. Several publications were made and research activities conducted with the aim of building research capacity on Campus.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

Several academic staff undertook research and some have published articles during the year under review. Below are listed the research activities and publications that staff and representatives of the Oshakati Campus have undertaken. Our research strategy and focus was directed at an increased research output of 10 refereed publications and another 10 papers in research publications.

PUBLICATIONS

Journal Articles


Conference papers and proceedings


A study in progress

De Villiers, E., Poppas, I. H. and Lumbu, J. (2014). *PMTCT CPD - Compliance to Continuous Professional Development (CPD) by nurses delivering pre-natal prevention of Mother to Child Transmission (PMTCT) of HIV services in Namibia.* An approved national survey of the Ministry of Health and Social Services in Namibia and coordinated by the African Health Professions Regulatory Collaborative (ARC)/PEPFAR-CDC, with support of the United States President’s Emergency Fund for AIDS (PEPFAR)

Ongoing research projects

Anghuwo, A. A. and Nghixulifwa, M.: Collaboration with MRC to conduct countrywide Survey *Infant and Young Child Feeding and Care Practices Assessment*, Ministry of Health and Social Services and UNICEF (ongoing)

David, S., Mulenga, E. and Shigwedha, T. *Factors influencing maternal and neonatal deaths in northern Namibia* (data collection stage)

Iita, H., Mulenga, E. and Udjombala, H. (2014). *Assessment of adherence to HAART among patients at Oshakati ART clinic in Namibia.* Research project of the Nursing Science Department. Oshakati staff in collaboration with MOHSS Pharmacist, Oshakati and medical doctor in charge of TB/ART clinic, Doctor: Oshakati. Project approved and supported by URPC and CAPRISA

Ndinosshoho, J. (2014). *Adoption and application of Web 2.0 tools in public university libraries in Southern Africa* (ongoing)

CONCLUSION

In conclusion most staff members were involved in academic research as part of their staff development task for Masters and Doctoral studies or professional development. Some lecturers with a PhD in the Nursing Department have supervised Masters Students’ activities and Fourth Year Students’ projects for a Bachelor Degree course on different topics.
2.6 RUNDU CAMPUS

DIRECTOR’S STATEMENT

In response to one of the University of Namibia (UNAM)’s strategic objectives (increased research output) and one of the University’s core functions, namely research, the Rundu Campus has developed a Five-Year Research Agenda (2014-2018). Using the guidelines of this document the Campus has initiated several research projects, some of which were implemented during the year under review.

The research training initiatives organised during the year under review have yielded tangible results. With a dynamic Campus Research Committee in place, a number of research activities were conducted, including the hosting of an Annual Education Conference (EDUCON, 2014) that saw a number of UNAM academics, including from Rundu Campus, and international speakers present research papers.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

Within the context of the Campus Mandate and Vision, namely to become a centre of excellence in the provision of quality higher education in pre-primary, lower and upper primary education and commerce related areas, the generation of relevant knowledge and skills through research underpins the Campus’ research strategy, aiming to inform teaching and learning and address national development challenges. Our broad research focus areas include:

1. Enhancing the quality of Curriculum Instructions and Assessment in Education;
2. Enhancing the teaching and learning science at lower primary phases;
3. Developing literacy and numeracy strategies at primary phases;
4. Providing leadership skills and knowledge in the education system;
5. Improving pedagogical skills through School-Based Studies (SBS); and
6. Enhancing relationship and collaboration between the Campus and industry in entrepreneurship and commerce related areas.

PUBLICATIONS

Journal Articles


Books/Monographs

Chapter in Books


Conference Papers/Proceedings


the Kavango Education Region of Namibia. A paper presented at the UNAM Annual Education Conference (EDUCON, 2014). Rundu Campus, 10-12 September, 2014


ACHIEVEMENTS AND MILESTONES

Looking at the progress in research at the Rundu Campus in comparison to past trends, the Campus has achieved a lot in a short time. It is significant to mention of our academic staff members’ enthusiasm when carrying out research that is relevant to addressing current challenges in the Namibian society and beyond.
2.7 SAM NUJOMA CAMPUS

DIRECTOR’S STATEMENT

The Sam Nujoma Campus (SNC) of the University is located in the coastal town of Henties Bay. The Campus houses the Sam Nujoma Marine and Coastal Resources Research Centre (SANUMARC) and the Department of Fisheries and Aquatic Sciences (DFAS). In 2014, the management of the Campus was led by Prof. Edosa Omoregie as Director, with Dr. Hilkka Ndjaula as Deputy Director of SANUMARC and Mr. Lineekela Kandjengo as Head of DFAS. All research activities of the Campus focus on Marine Sciences, Fisheries, Coastal Agriculture, Renewable Energy and Mushroom R&D.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

SANUMARC focuses on research and development activities in the area of marine and coastal resources, while DFAS is solely responsible for teaching and training leading to the award of undergraduate and postgraduate degrees in Fisheries and Aquatic Sciences. Staff members of SANUMARC and DFAS complement each other in achieving specific research and academic goals. SANUMARC’s vision is to become a Centre of Excellence with respect to research, science and technology in the field of marine and coastal resources.

The Research and Development (R&D) activities of the Campus cover marine science, coastal and arid land ecosystems, climate change, and bio-prospecting for novel natural products from the Benguela marine biota as well as from desert and semi-desert systems. The ultimate goal is to develop the unique bio-resources of these ecosystems for human sustainable development and to promote the application of science and technology for making selected sites in Africa’s deserts bloom with useful biota, using the Zero Emissions Research Initiative (ZERI) principles and related approaches.

The following specific research activities were carried out at the Campus in 2014:

- Investigation on the accumulation of heavy metals along the Namibian coast
- Induced spawning of the Pacific Oyster under laboratory conditions
- Gill and gastrointestinal parasites of the Silver Kob, *Argyrosomus inodorus*, from Namibia coastal waters
- Length-weight relationship and Gonado-Somatic Index (GSI) of Silver Kob, *Argyromus inodorus*, along Central Namibia coastal waters
- Stomach content analysis of the Silver Kob, *Argyrosomus inodorus*, from Namibia coastal waters
- Microalgae cells consumption by spats of *Crassostrea gigas* and the effect of different microalgae species on growth of spats
- Growth and nutrient requirements for Namibia's indigenous vegetables in coastal environments, using varying ratios of seawater, fresh water in hydroponic production of spinach
- Growth requirements for exotic vegetables in Namibia's coastal environment, using four organic nutrients: cow manure, chicken manure, goat manure and peat compost
• Domestication requirements of *Salicornia pachystachia* in Namibia's coastal environment as potentials for animal fodders

• Utilisation of locally available organic materials as media for the cultivation of oyster mushroom mycelia, using millet, sorghum, maize and cassava flours

• Treatment of Corn Stover substrate for oyster mushroom cultivation using heat, dishwashing liquid and washing powder

• Potential of goat manure as an organic hydroponic nutrient alternative for tomato production

• Design of effective bio-digester for use at household level

• Assessment of inorganic pollution along the Namibian coastal waters, using bio-indicators

• Analysis of marine biotoxins in the Namibian marine environment

**Postgraduate Research Activities in 2014**

Dijerenge, J. K.: Analysis of marine biotoxins, paralytic shellfish poisoning (PSP) and diarrheic shellfish poisoning toxins (DSP) in mussels (*Mytilus galloprovincialis*) along the Namibian Central Coast

Iitembu, J.A.: Trophic ecology of shallow-water hake (*Merluccius capensis*), deep-water hake (*Merluccius paradoxus*), kingklip (*Genypterus capensis*) and cape monk (*Lophius vomerinus*) through their isotopic and fatty acid composition

Kavishe, D.: An autecological study of selected *Porphyra capensis* populations from the Namibian coast


Uatjavi, U.: Age and growth of the Namibian Cape Horse Mackerel (*Trachurus capensis*) in relation to the environmental variables: Implications for stock assessment

**PUBLICATIONS**

*Journal Articles*


**Chapters in Books**


**Conference/Workshop Papers**


Ndjaula, H. O. N. (2014). *Establishing a baseline for evaluating changes in body condition and population dynamics of sardine (Sardinops sagax) in the southern Benguela ecosystem*. 7-10 October, 2014, Johan Jhort Symposium, Bergen, Norway

**SIGNIFICANT EVENTS, ACHIEVEMENTS AND MILESTONES**

During the year under review, the Campus, together with the Laboratoire Interuniversitaire des Systèmes Atmosphériques (LISA) in Créteil (France) and the Northwest University (NWU) in Potchefstroom (South Africa), established the Henties Bay Aerosol Observatory (HBAO) within the framework of the Bilateral Research Project *Atmospheric Research in Southern Africa and the Indian Ocean*. Present measurements include the aerosol mass concentration and the aerosol black carbon concentration, the ozone mixing ratio and the basic meteorological parameters.

With the existing collaboration between the University of Namibia, the Scientific Committee on Oceanic Research (SCOR) and the Science Partnerships for the Assessment of Complex Earth System Processes (SPACES), the Campus entered a research partnership with renowned institutions to develop a Regional Graduate Network in Oceanography (RGNO) programmes. Institutions involved in this partnership are the Namibian National Marine Information and Research Centre (NatMIRC), the Agouron Institute, University of Minnesota, ETH Zurich and Swiss i-Research & Training. The first edition of the Graduate Network was held in March 2014, with participants from several European and African countries. All participants, students as well as instructors, carried out practical work on an environmental observation cruise on the *RV Mirabilis*, together with scientists from Namibia’s National Marine Information and Research Center (NatMIRC). The RGNO research activities focused on microbial and geochemical oceanography in the Northern Benguela upwelling ecosystems in the following areas:

1. Ocean Upwelling Systems
2. Oxygen Minimum Zones
3. Biogeochemical Cycles
4. Microbiomes in Upwelling Ecosystems
5. Regulation of Primary Productivity

Open Day activities with school learners

Open Day activity with journalists
Examination of Silver Kob (Argyromus inodorus) gonads for GSI determination

Oyster mushroom fruiting on local substrate
2.8 CENTRE FOR EXTERNAL STUDIES

DIRECTOR’S STATEMENT

The Centre for External Studies (CES) at the University of Namibia is an academic centre, established with the aim to increase access to higher education through Open and Distance Learning mode.

As an Open and Distance Learning (ODL) Centre we are committed to quality education that could contribute to the optimal development of individuals and simultaneously to the socio-economic growth of the Namibian people. Through the research unit within CES, our aim is to ensure best practices in the areas of learning materials development and production as well as student support. We also aim to apply technologies that meet the individual needs of students, contributing towards the realisation of the objectives of our country’s Vision 2030.

Although CES mainly conducts research in the area of Open and Distance Education, it also has research links with the various Faculties of the University of Namibia. The vast majority of staff has expertise in diverse areas of education, nursing, psychology, HIV and AIDS, communication and science, amongst others. Hence CES has established research links with UNESCO, the Ministry of Health and Social Services, the Working Group of Indigenous Minorities in Southern Africa (WIMSA) and many more governmental and non-governmental organisations. Staff members belong to various research bodies such as the Distance Education Association of Southern Africa (DEASA), the Namibian Educational Research Association (NERA), the Namibia Open Learning Network (NOLNET) and the Southern African Society for Education (SASE). CES participates in collaborative activities with other national and international Open and Distance Learning (ODL) institutions through NOLNET and other organisations within the Southern African Development Community (SADC) region - through its participation in DEASA, NERA, SASE, the Namibia Educational Research Association Executive Committee, the Southern African Association of Research in Mathematics, Science and Technology Education, the Distance Learning Task Force (I-TECH) and the Commonwealth Institution of Open Learning.

An Open and Distance Learning conference was hosted by SASE in Swakopmund, Namibia, and many University staff members, mainly of CES, and students attended the conference. Numerous research papers on ODL issues and challenges were presented by local and international researchers.

CES is sharing various platforms and participates in collective activities with national and international ODL institutions. The Centre for External Studies was active with research activities during the year under review and is motivating its staff to take their research activities very seriously.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

Apart from striving to produce quality research and publications, CES staff members also conduct research activities as one of their major responsibilities as University academics.
The Centre derives its research mandate from the UNAM strategic objective which reads: *Increase and broaden research output in ODL*. However, the Centre had a low research outcome due to the challenges of publication as a process. Research in the following areas and with the following objectives was conducted in 2014.

1. Improve quality service to Open and Distance Learning (ODL) students through research;
2. Collect empirical evidence to strengthen policy and practice in Open and Distance Learning (ODL);
3. Establish inter-research activities with other Faculties within the University and ODL institutions in the region and beyond; and to
4. Develop research activities with the purpose to grow as academics.

**PUBLICATIONS**

**Journal articles**


**Books and Monographs**

None

**Chapters in Books**

Hamunyela, M. and Nekongo-Nielsen, H.: *Education provision for older adults in Namibia*, a chapter in a new book (December 2014) on *International Perspectives on Older Adults Education: Research, Policies and Practice*, edited by Brian Eindsen and Marvin Formosa, Springer Publisher, Sydney, Australia

**Conference Papers / Proceedings**


2.9 LANGUAGE CENTRE

DIRECTOR’S STATEMENT

The mandate of the Language Centre is to serve as the Centre for Language Learning, Teaching and Research. Our key focus is the upgrading of competence in the use of English, offering a variety of foreign and Namibian languages and providing translation and consultancy services through tailor-made courses to the wider public and business community in Windhoek, Oshakati, Ongwediva, Rundu and Katima Mulilo.

As a national centre of language excellence, the Language Centre endeavours to serve students, staff of the university and the broader community. If communication is the life blood of human relationships and knowledge in every field of human thinking, reasoning and interaction..., as said by Littlewood, then the Language Centre can only be relevant, if it engages in research that seeks to explore best practices in language teaching and learning.

RESEARCH STRATEGIC DIRECTION AND FOCUS

1. Socio-linguistics  
2. Applied linguistics  
3. Second language acquisition  
4. Teaching of English to speakers of other languages  
5. African languages  
6. African literature  
7. Intensive English  
8. Foreign languages  
9. Teaching the 4 skills  
10. Adult literacy

PUBLICATIONS

Journal articles


Conference proceedings publication


Collaborative research


UNIVERSITY LIBRARIAN’S STATEMENT

In line with the University’s strategic objective of increasing and broadening research output, the Library Management continues to make concerted efforts, geared towards inspiring librarians to engage in scholarly debate through research and publication. This is carried out with due recognition that research is a key driver in providing improved, innovative and customer service oriented information services that are informed by scientific evidence (evidence based librarianship). Unlike in previous years, due to heavy workloads the Library could not organise professional development workshops and seminars, aimed at improving research skills amongst library staff members during the 2014 academic year. I am, however, pleased to present in the subsequent pages the Library research strategic direction and focus areas, the list of publications, and the significant events that occurred during the year under review.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREAS

The Library aligns its priorities with those of the University, as specifically outlined in the 2011-2015 UNAM Strategic Plan. The Overall Library Strategic Objective for 2011-2015 is Improved Quality of Library Services. In addition to the above, the general mandate of the UNAM Library is to support the UNAM curricula through the provision of quality, relevant and up-to-date information and knowledge resources and services. The aim is to support teaching and learning, research and study through the innovative use of information and communication technologies and thus to empower the nation and enhance educational outcomes. The Library also strives to make effective use of library expertise in knowledge management to deliver current, relevant and appropriate information resources to researchers. In a bid to boost research in identified deficient areas the Library paid subscription fees to the following electronic research resources: Electrical and Electronics Engineers Digital Library (IEEE), Business Monitor International, Juta Law Online (provides access to Namibian and South African law reports and statutes), Oxford Journals Law Collection, and the Comprehensive Mathematics Abstract Database MathScinet.

The facilities, services and resources of the Library are aligned to the University’s strategic direction and hence are geared towards supporting the academic and research goals of the University. In order to achieve this strategic objective the Library shall pursue the following Strategic Directions:

- Position the Library at the Core of Teaching and Learning, Research and Study;
- Enable the Discovery, Curation and Use of Rich Research Collections;
- Leverage Information and Communication Technologies to Engage with Changing Modes of Teaching, Learning and Research;
- Create and Maintain Functional, Attractive Spaces that Meet Users’ Evolving Educational and Research Needs;
- Build, Extend and Sustain Relationships with Key Stakeholders; and
- Prepare the Library to Succeed in an Environment of Continuous Change.
As an academic key support service of the University the Library carries out research or engages consultants to facilitate research in the following library-related focus areas:

- User Needs and Customer Satisfaction Surveys;
- Digital Libraries and Scholarly Communication(s);
- Information Literacy Instruction and Pedagogical Knowledge;
- Records Management and Archives Services;
- Human Resources Development Strategy of the UNAM Library;
- Research into Library Statistics;
- Library Renovation and Extension;
- Benchmarking Library Service Standards for Performance Measurements; and
- Collection Assessment (Evaluation) Studies.

During the 2014 academic year the Library participated in research activities that focused on 5 research themes from those outlined above. They are:

- Human Resources Development of Library Staff;
- User Needs and Customer Satisfaction Surveys;
- Oral History;
- Colonial Archives of Namibia; and
- Colonial History of Southern Africa.

The research results of four publications were communicated to the public in the form of peer-reviewed articles, featured in leading Qualitative Research, Library and Information Studies, and Records Management journals. While the findings of one research paper were presented and discussed at a North-South-South Library and Information Studies Network Dissemination international workshop, the other presentation was sent for publication (May 2015) in a preceding report, compiled by the University of Oulu, Finland, and will also be followed by a publication in the form of a journal article.

RESEARCH AND PUBLICATIONS

Journal Articles (Peer-reviewed)


Conference Papers & Proceedings Report(s)


SIGNIFICANT ACHIEVEMENTS - LIBQUAL+ 2014 SURVEY

During the year under review, a key milestone was the 2nd LibQUAL+ Survey of all 12 branch libraries. LibQUAL+ is an international customer survey research instrument that academic and research libraries use to solicit, track, understand and act upon users’ opinions of service quality. The instrument was developed and is administered by the Association of Research Libraries (ARL), USA-based, on the quality standards and benchmarks of SERVQUAL. LibQUAL+’s gap theoretical foundations, originated from Services Marketing. Quantitative results from the 2014 survey showed great improvement in terms of customer service and availability of knowledgeable librarians who can answer user queries satisfactorily. The above areas were highlighted as shortcomings by the majority of undergraduate students and academic staff during the 2012 survey.

Library Management, in consultation with the HR Directorate, organised customer care and emotional intelligence training workshops for librarians during 2013 and 2014 in order to address staff attitudes towards customers. The results of the 2014 LibQUAL+ survey suggest that front line library staff relations with users and customer service seem to have improved significantly, and this augurs well for the future.

CONCLUSION

In fulfilment of the University’s strategic objective of increasing research, publications output and postgraduate student programmes the Library will continue to provide seamless access to research resources and prioritise research and publication as a key function of professional librarians. In doing so, our librarians will improve their understanding of research processes that can be translated into better internal processes and eventually into improved services for the University community. Library research activities continue to influence NDP4 and Vision 2030 goals pertaining to the development of the library and information services sector in the country. Unlike the previous year, heavy workloads during 2014 did not allow many library staff members to engage in field research, as they focused more on operational activities in order to meet customer satisfaction. Library Management will, however, strive to afford its staff members opportunities to hone their research skills in the future with a view to improve engagement with postgraduate students and library support for academic researchers.
2.11 MULTIDISCIPLINARY RESEARCH CENTRE (MRC)

DIRECTOR’S STATEMENT

The Multidisciplinary Research Centre (MRC) of the University of Namibia (UNAM) works arm in arm with partners and stakeholders, promoting and conducting research in various areas of national interest. The Centre has been commissioned with a number of research projects in an effort to address issues of national priority. The Multidisciplinary Research Centre is headed by Dr Nelago Indongo as Director, deputised by Dr Davis Mumbengegwi, Dr Alfons Mosimane and Mr Gert van Rooy as Heads of Departments. The Centre has a team of vibrant and energetic researchers who work around the clock on a number of research topics that are inter- and multidisciplinary in nature and contribute to the attainment of national development goals. The findings and work we have undertaken lead to policy formulation and programme interventions in the public and private sectors, and this gives us energy to do more in our endeavours. As we carry out our duties, we cannot thank enough our research partners from various Departments within the University of Namibia, research collaborators within the country and beyond, our funders, students and the leadership of the University of Namibia for walking with us and holding our hands all the time.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREA

The MRC’s mandate is to conduct applied research, directed at addressing social and scientific challenges in national development priority areas; to coordinate multidisciplinary, collaborative research, forming partnerships locally and internationally; to promote research and its outputs as well as raising awareness of its importance as a tool for developmental solutions, value addition and product development; and to carry out teaching and advisory services for the public.

The year 2014 was an active year for the MRC, during which we made increased efforts to reach out to new research partners and disseminate our research findings to the broader community. Researchers at MRC have been actively involved in research activities of a diverse nature. They were aligned to positively contribute to the achievements of the UNAM strategic objectives, whereby the main research-related strategic objectives were the increase and broadening of research output.

MRC as a research centre of the University of Namibia continues to strengthen research collaboration with UNAM Faculties and stakeholders from public and private sectors as well as with partners within the region and beyond. MRC recognises the expertise within Faculties and taps into it by including relevant Faculties in research teams that are constituted for all research programmes. The current National Developmental Plan (NDP4, 2013-2017) addresses issues pertaining to economic development and the sectors and enablers on which a vibrant economy can be sustainably based. The MRC strengthened its research efforts in such priority areas and is currently implementing research programmes as outlined in the 5-year research agenda.

MRC’s research strategy is to provide relevant and accurate research information in various areas, ranging from health and education to biodiversity, climate change, socio-ecological
systems, gender, IKS etc. for policy decision making and programme interventions. A lot of resources are committed to undertake research projects and to make our work worth the efforts. Therefore, we call upon law makers, decision makers, programme implementers and the entire nation to acquaint themselves with our work so that we use this knowledge to move the nation forward. Knowledge is the fuel we need to realise the Vision 2030 goals.

Some of the research programmes executed in 2014 are listed below. A number of these were implemented in collaboration with Faculties and in partnership with stakeholders within Namibia and beyond.

1. Socio-ecological System
2. Community Adaptation to Change in Climate
3. Land Reform and Resettlement
4. Gender Based Violence
5. Disaster and Risk Management
6. Population Dynamics and Reproductive Health
7. Malaria Operational Research in the Ohangwena and Zambezi Regions
8. Drug Discovery and Development
9. Wind Power Demonstration in Lüderitz
10. Indigenous Knowledge Systems Technology (IKST) Food and Beverages
11. Farms to Forks

The MRC team has been proactive in developing research proposals for funding, and the following research projects secured funding from various sources:

- Water Management and Governance in Namibian Rural Communities, in collaboration with HSRC and with funding support from NCRST and NRF
- Ethnobotanical knowledge of medicinal plants, used to treat mental disorders by traditional healers in the Kavango Region, Namibia, in collaboration with the University of the Western Cape (NRF funded project)
- Indigenous Knowledge in Reproductive Practices and Health Care: an intergenerational comparative Study of Namibian and South African Women, in collaboration with the University of Johannesburg
- Development and Optimisation of High Throughput Screens Targeting Plasmodium Falciparum Malaria in opening Avenues for new Drug Development in Namibia, as funded through the Research and Publications Office at UNAM
- Malaria Transmission Study in Northern Namibia (in collaboration with UCSF and with funding support from the Bill and Melinda Gates Foundation)
- Targeted Malaria Parasite Elimination in the Zambezi Region (in collaboration with UCSF and with funding support from the Novartis Foundation for Sustainable Development)
- Microflora Identification and Characterisation of Oshikundu (with funding support from NCRST)
- Pilot of National Indigenous Knowledge Management System in the Kunene Region (with funding support from NCRST)
- Development of a Toothbrush Sanitizer (with funding support from NCRST)
• Nature-based Tourism (with funding support from NSF-USA).
• Olufuko Festival: Practices and Prospects for Development (with funding support from Outapi Town Council)
• Maternal Health Study (with funding support from IntraHealth)
• Infants and Young Children Feeding Practices in Namibia (with funding support from UNICEF, WHO and MoHSS)
• Stakeholders Perception of the Namibian Airports Company (with funding support from Namibian Airports Company)
• Qualitative Study on Vocational Education and Training in Namibia (with funding support from MCA-N)
• Human Wildlife Conflict (with funding support from WWF)
• Development of a policy database for the National Planning Commission (with funding support from UNDP).

Other research programmes were funded through the research operational budget.

Furthermore, with respect to capacity building, three MRC researchers took part in staff development, working towards their doctoral degrees. The MRC had five (5) postgraduate research fellows working towards a Master’s degree and one towards a PhD. Two completed their studies and are due to graduate with an MSc by research in 2015. Five postgraduate research fellows secured scholarships, four for their MSc studies from the DAAD, SABINA, fellowships from UCSF and the Carl Schlettwein Foundation. One student received a PhD scholarship from the DAAD.
RESEARCH AND PUBLICATIONS

The MRC implements its research programs through strong research collaboration with the Faculty of Science, the Faculty of Humanities and other partners. Apart from publishing scholarly work/articles, MRC has maintained a newsletter which is published biannually. This is a platform where researchers inform the public and researchers worldwide on the research work conducted and promoted at MRC.

Journal articles


**Books & monographs**


**Chapters in books**


**List of technical reports**

Indongo, N., Hangula, M., & Maharero, T. (2014). *The Scope of Procurement and Need or Relevance of Procurement Finance for SMEs in Namibia, 2014*


Likuwa, K., & Lendelvo, S. (2014). *Employment Creation by Land Reform Programmes in Commercial Land, Namibia*. Ministry of Lands and Resettlement (MLR) & Multidisciplinary Research Centre (MRC), MRC, University of Namibia, Windhoek, Namibia

Likuwa, K.M. (2014). *Voices of youth on customary land rights and registration in the Hardap, Ohangwena, Kavango East and Zambezi Regions of Namibia*

Mogotsi I. (2014). *Needs Assessment on Teaching San Language in Schools*. Multidisciplinary Research Centre (MRC), MRC, University of Namibia, Windhoek, Namibia

Mogotsi I. (2014). *Needs Assessment on Teaching Setswana Language in Schools*. Multidisciplinary Research Centre (MRC), MRC, University of Namibia, Windhoek, Namibia


Van Rooy, G. (2014). University Students and HIV and AIDS in Southern Africa: Health Survey to Assess Knowledge, Attitudes, Behaviours and Practices in Botswana, Mauritius, Namibia, Swaziland and Democratic Republic of Congo. Results of a Study undertaken at the University of Namibia. Multidisciplinary Research Centre (MRC), University of Namibia, Windhoek, Namibia

Van Rooy, G. (2014). Results of Stakeholder’s Perception Survey for Namibia Airports Company. Multidisciplinary Research Centre (MRC), University of Namibia, Windhoek, Namibia

IMPORTANT EVENTS/ACHIEVEMENTS AND HIGHLIGHTS

The year 2014 saw the MRC team disseminating research outputs and popularising its work through Regional Council Offices in the Omusati, Oshana, Oshikoto, Omaheke, Karas, Kavango and Zambezi Regions. MRC successfully hosted the 3-day SADC Disaster Risk Management Conference with over 90 delegates, hailing from as far as the USA and Europe. The Centre also hosted the first Namibia Malaria Elimination Symposium with UCSF Global Health Group. The MRC moved closer to the sustainability of its research programmes with increased extramural research funding, whilst also contributing to evidence for policy making. Other achievements include successful workshops and seminars with research partners, especially through the NCRST-NRF research partnership.
2.12 ZERO EMISSION RESEARCH INITIATIVE (ZERI)

DIRECTOR’S STATEMENT

The Zero Emission Research Initiative (ZERI) Project was started in 1999 at the University of Namibia. ZERI is a vision, a concept and a philosophy. It aims to catalyse the application of Science and Technology towards food security, the creation of employment opportunities and the generation of income, especially for rural women and the youth in Namibia’s rural and peri-urban communities, by promoting Mushroom Farming and Mushroom Consumption. The focus is on the enhancement of people’s health and socio-economic welfare and the production of sustainable development and environmental regeneration in rural and peri-urban communities. Mushroom activities are supported through the University of Namibia Campuses which are: ZERI Project Management Unit (PMU) at Main Campus in Windhoek, the Sam Nujoma Marine and Coastal Resources Research Centre (SANUMARC) at Sam Nuyoma Campus in Henties Bay and Ogongo Campus in the north of the country. The Main Campus supports projects in the Khomas, Omaheke, Kavango and Hardap Regions. SANUMARC supports projects in the Erongo, Otjozondjupa, Karas and Kunene Regions, while Ogongo Campus supports projects in the Ohangwena, Omusati, Oshana and Oshikoto Regions.

In 2009 the University of Namibia was selected by the African Union as the Mushroom Node for the Southern African Region. It was recognised as a Centre of Excellence for mushroom research in Mushroom Science, Technology and Innovation (MSTI) and was given the role of coordinating activities at regional level through ZERI.

Six Southern African countries were participating in the Node initiatives, namely Angola, Malawi, Mozambique, Namibia, Swaziland and Zambia. UNAM continued to carry out this function during the year under review, despite the ending of funding from the African Union through the Southern African Network for Biosciences (SANBio).

During 2013 the SANBio Business Plan 2013-18 was developed and validated by SANBio stakeholders on 15 November 2014 in Pretoria. This was followed by extensive stakeholder consultations with member states, the NEPAD Agency, development partners, SADC and the private sector. The SANBio Business Plan 2013-18 was officially endorsed by the joint Meeting of Ministers of Science and Technology and Education and Training in Maputo, in June 2014.
The University of Namibia is still to host the SANBio Mushroom Node for the Southern African Region due to its outstanding research and development on mushrooms. Planned activities are expected to start before the end of 2015.

RESEARCH STRATEGIC DIRECTION AND FOCUS AREA

Within the University the Project focuses on mushroom research and the farming and development of mushroom products. The main activities of the Project are to carry out research on indigenous mushrooms in the country, documenting indigenous knowledge on their edibility and medicinal value and uses. Nutritional analyses for the most edible and medicinally valuable mushrooms will be carried out in order to educate the communities on their benefits and to enable extensive promotion of mushroom consumption and cultivation. The aim is also to train communities on mushroom cultivation and product development, using raw materials which are ordinarily deemed wastes from industries such as those from agriculture and food processing. ZERI’s overall aim is to ensure that women and youth from rural and peri-urban origins learn and practice the scientific technologies and skills of mushroom cultivation and its post-harvest in order to become self-reliant.

The following researches were carried out at ZERI during the year under review. Full reports are available and can be provided upon request:

- The comparison of mycochemical composition of wild and cultivated Namibian Ganoderma mushrooms
- Molecular identification of some Namibian indigenous mushrooms
- Identification of mycochemicals found in selected indigenous Namibian mushrooms.

PUBLICATIONS

Journal articles


Conference Papers/Proceedings


**CONCLUSION**

ZERI continues with research on indigenous mushrooms with the quest to domesticate and develop nutritional products from them. The Project will also keep up with training, distribution and selling of spawn (mushroom seeds) to the communities and interested individuals.

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