

DEPARTMENT OF BIOLOGICAL SCIENCES

UNIVERSITY OF NAMIBIA

ANNUAL REPORT 2012

Introduction

Mission & Vision

The mission for the Department of Biological Sciences is to train and produce high quality biological scientists, both at undergraduate and postgraduate levels who will play crucial roles in the national development, especially in areas of education, health, agriculture, environment, natural resources and industries. Recognizing that learning is a lifelong endeavor, the Department of Biological Sciences admits both young and mature students. Our Vision is to become a department of high international repute and centre for excellence in training biological scientists in the region, at both undergraduate and postgraduate levels. Specifically the department aims to:

- provide excellent, high quality education to contribute to the production of graduates that will be competent in the jobs they will perform.
- actively engage students in learning and provide sufficient support for students
- engage actively in quality research and produce quality publications
- serve the UNAM community as well as the Namibian Nation

Activities

During the academic year 2012, activities undertaken in the Department of Biological Sciences included teaching of undergraduate and postgraduate students. A curriculum review of the undergraduate program was undertaken and presented to APC as well as senate and was approved. The main changes affected were a reduction of the number of credits, the major-minor system was abolished and the three degree programmes were reduced to two programmes to avoid repetition of teaching matter. The number of students in the various degree programmes was taken into consideration during the

review as well as the needs of stakeholders which were obtained during a very successful stakeholder workshop during March 2012. The revised and approved curriculum will be implemented in January 2013, while the old curriculum will gradually be phased out on a year-to-year basis.

An Advisory board has been established for the Department and consists of 8 members from outside UNAM who represent the Central Veterinary Laboratory, City of Windhoek – Scientific Services, Directorate of Research Science and Technology in the Ministry of Education, Namibia Botanical Research Institute, GENMED, Gobabeb Research and Education Center, NAMDEB and the Ministry of Environment and Tourism. Members have been active in research and the production of publications.

Staff matters

Staff members who left the Department during the year include:

- Mr. V.M. Haakuria who moved to the School of Pharmacy
- Mr. M. Hedimbi who moved to the School of Medicine
- Dr. N. Shiponeni who moved to the Multi-disciplinary Research Centre (MRC)
- Mr. A. Faul who resigned

All the vacancies could be filled soon and the following people joined the department:

- Mr. S. Eiseb appointed as lecturer on the 15th November 2012
- Ms. F. Kangombe appointed as lecturer on the 1st October 2012
- Dr. E. Kwembeya appointed as Senior lecturer on the 1st September 2012
- Mr. J. Uzabikahiro a senior technologist in the department was appointed as lecturer to replace Mr. Hedimbi
- Ms. R. Shifa joined the department as Tutor

The vacancy for lecturer (position of Mr. Faul) was advertised and shortlisting of candidates took place as well as interviews. The successful candidate will join the department in April 2013. The vacant position for technologist that came about as a result of Mr. Uzabikahiro's appointment as lecturer was also advertised and shortlisting was done. This position will be filled in the beginning of 2013.

The vacancy for the Professor position was advertised in the field of Microbiology, but no suitable candidate was found. Therefore headhunting will be done in 2013 in order to fill the position.

Ms. M. Morkel was on her second year of staff development to do her MSc on a full time basis and is expected to finish at the end of 2012 to join the department again in the beginning of 2013. Two part-time technicians were appointed on a part-time basis as her replacement and they were paid from money which was equivalent to 50% of her salary. They were Ms. J. Hoveka (MSc student in the Department) and Ms. J. Sheehama (unemployed graduate of the Department). In addition to the 3 part-time technicians, there were 6 full-time technical staff (3 males and 3 females) employed in the Department during 2012. There was 16 full time lecturing staff (11 males and 5 females) in the Department during most of 2012. Prof. Mapaure continued his duties as UNAM's Research Coordinator. Dr. Chimwamurombe was appointed as deputy director of the School of Post-graduate Studies and Ms. P. Muandingi was appointed as Manager of ZERI in addition to their responsibilities in the Department.

Staff names, positions and gender

Full-time academic staff:

	NAME	POSITION	GENDER	Left or joined department
1	Dr. E. Julies	Lecturer & Head of Department	Female	
2	Dr E. Kwembeya	Senior Lecturer	Male	Joined 1 September
3	Dr J.K.E. Mfune	Senior Lecturer	Male	
4	Prof. I. Mapaure	Associate Professor	Male	
5	Dr P.M.	Senior Lecturer	Male	

	Chimwamurombe			
6	Dr. R. Bock	Lecturer	Male	
7	Dr N. Shiponeni	Lecturer	Female	Left 1 April
8	Mr B. Kaonjua	Lecturer	Male	
9	Mr K.C. Chinsembu	Senior Lecturer	Male	
10	Mr A.K. Faul	Lecturer	Male	Left 31 December
11	Mr V.M. Haakuria	Lecturer	Male	Left 1 August
12	Ms W.C. Mukaru	Lecturer	Female	
13	Mr. H. Eiman	Lecturer	Male	
14	Mr. M. Hedimbi	Lecturer	Male	Left 1 July
15	Ms. C. Deelie	Assistant-Lecturer	Female	
16	Mr. A. du Plessis	Assistant-Lecturer	Male	
17	Ms R. Shifa	Tutor	Female	Joined 1 October
18	Mr. S. Eiseb	Lecturer	Male	Joined 15 November
19	Ms. N.P. Muandingi	Lecturer	Female	
20	Ms. F. Kangombe	Lecturer	Female	Joined 1 October
21	Mr. J.D. Uzabakahiro	Lecturer	Male	1 October

Technical staff:

	NAME	POSITION	GENDER	STATUS
1	Mr J-D. Uzabakiriho	Technologist	Male	Appointed as lecturer on 1 October
2	Mrs M. Morkel	Technologist	Female	Study leave
3	Mr A.	Technologist	Male	

	Hijarunguru			
4	Ms. M. Johnson	Technologist	Female	
5	Mr A. Mbangu	Technologist	Male	
6	Mrs R. Shimwooshili	Assistant Laboratory Technician	Female	
7	Ms. J. Hoveka	Technologist	Female	Part-time
8	Ms. J. Sheehama	Technologist	Female	Part-time

Detailed staff statistics

- i. Total number of full-time staff at the end of 2012 = 21
- ii. Ratio of female to male staff = 8:13
- iii. Number of Namibians = 15; Number of Non-Namibians = 6; % Namibians = 71.4%
- iv. Number of Resignations: 4
- v. Number of new Appointments = 4
- vi. Number of Promotions = 1
- vii. Number on study leave = 1

Research and Consultancies

Prof. Mapaure

- Assessing the effect of herding on livestock performance in semi-arid communal rangelands in South Africa and Namibia. Period: 2012-2014. Funded by Ministry of Education, Namibia Participating Researchers are Mrs W.C. Nesongano (Department Biological Sciences-UNAM), Dr F.P. Graz (MRC-UNAM); with South African collaborators from ARC and UWC (RSA).
- Understanding the dynamics of arid savanna ecosystems experiencing various disturbance regimes in highland biomes of central Namibia: Implications for local management for economics and conservation objectives. Period: 2011-2013. Funded by UNAM Research & Publications. Participating researchers Mrs W.C. Nesongano (Department Biological Sciences-UNAM), Dr. N. Shiponeni (MRC-UNAM), Ms M.

Johnson (Department Biological Sciences-UNAM).

- Population dynamics of *Moringa ovalifolia*: Population structure, recruitment and reproductive vigor in different habitats Period 2011-2013. Funded by UNAM Research & Publications Office. Participating researchers are Dr. N. Shiponeni (MRC-UNAM), Ms M. Johnson (Department Biological Sciences-UNAM), Dr E.G. Kwembeya (Department Biological Sciences-UNAM).
- Rainfall and herbivory: characterizing the transmission route for anthrax in grazing wildlife, Etosha National Park. 2011-2014. Funded by National Science Foundation (NSF) USA. Participating researchers Dr W. Turner, Prof. Nils Chr. Stenseth
- 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. Period: 2011-2014. Funded by Ministry of Education, Namibia, and UNAM Research & Publications Office. Participating researchers Dr B.S. Mapani (Department of Geology –UNAM), Dr. Jodie Ann Miller (University of Stellenbosch), Dr. Marta Mileusnic, Dr P.M. Chimwamurombe (Department of Biological Sciences- UNAM), Mr I.K. Kaholongongo (Department of Biological Sciences- UNAM)

Dr. Shiponeni

- Population dynamics of an endemic tree species, *Moringa ovalifolia* Dinter & Berger. Period: from March 2011. Funded by UNAM Research & Publications. Participating researchers in the department is Prof. I. Mapaure
- Estimation of biomass production in the rangelands of the Caprivi Region. 2010-2011. Funded by UNAM Research & Publications.
- Mined Substrate Rehabilitation Solutions. Period: 2011-2013. AngloGold Ashanti – Navachab Mine. Field trip was conducted to work out research approach, logistics with the mine, and to refine research questions.
- Vegetation changes in ‘Lake’ Liambezi floodplains –application of Remotely sensed data. Period: 2011. DAAD funded. 2 Month-stay in Germany to carry out data analysis

- Assessments and monitoring ecological changes in ‘Lake’ Liambezi floodplains. SASSCAL -RSSC-call for proposals (Southern African Science Service Centre for Climate Change and Adaptive Land Use - a Regional Science Service Centre in Southern Africa). Pre-proposal accepted and revised proposal submitted for funding consideration.

Dr. Chimwamurombe

- Access to and use of research results: increasing community awareness and utilization of indigenous grains to improve nutrition security and livelihoods in Botswana and Namibia. Funded by SIDA. Period: 2010-2013.
- Analysis of starch synthesis in Marama bean to identify industrial uses for it Funded by the Ministry of Education, Namibia and National Research Foundation (NRF), South Africa in collaboration with Dr Llyod James, Stellenbosch. Period 2012-2013. Funding by MOE and NRF.
- Domestication of Marama bean: Agronomy and molecular genetic characterization for its improvement. Period: 2010-2013. Funding by Kirkhouse Trust.
- Cultivation of *Tylosema esculentum* (Marama bean) Trials. Funded by Ministry of Agriculture Water and Forestry through the Indigenous Plant Task Team in collaboration with farmer Mr Obed Kamburona. Period: 2012-2013. Funding by MAWF
- Development of Marama bean cultivars with desirable agronomic traits using Mutation Breeding (DOMBATUMB). Funded by UNAM RPO in collaboration with Dr Martha Kandawa-Schulz and Prof Isaac Mapaire (all from UNAM). 2010-2013.
- “Analysis of microbial nutrient cycling, GHG production, BNF and plant growth promotion for sustainable land use management” under the project The Future Okavango (TFO) .Funded by the Ministry of Education , Germany in collaboration with Prof Dr Barbara Reinhold-Hurek, University of Bremen, Germany.Period: 2012-2015.
- Estimation of Climate change and adaptation strategies using water, soil and honey as sampling media in the Omusati, Ohangwena, Kavango and Caprivi areas. Funded by

UNAM RPO in collaboration with Benjamin Mapani, Isaac Mapaure, and Isak Kaholongongo. Period: 2011-2012.

Mr. Chinsembu

- HIV-1 biological activity and toxicity prospecting of ethnobotanicals of Namibia. Funded by South Africa NRF-Namibia Research Collaboration. Period: 2012-2014. Collaboration with Dr. Phiyani Leabea (CSIR, South Africa) , Dr. Renate Hans (Department of Chemistry-UNAM); Mr. M. Hedimbi (School of Medicine-UNAM)

Dr. Julies

- Presence of endocrine disrupting chemicals in surface water of Namibia. Joint funding from Ministry of Education and NRF, South Africa. In collaboration with Prof. Pool (University of Western Cape), Prof. Van Wyk (University of Stellenbosch), Mr. A. du Plessis (UNAM)
- Formation of a Regional Centre of Expertise (RCE) in Environmental Education/Education for Sustainable Development. Funding partly through UNESCO and SADC REEP. Leading in the establishment of RCE are Dr. E. Julies (UNAM), Mr. C. Lawrence (Municipality of Swakopmund), Mr. P. Shimalumba (NIED) and Dr. A. Wienecke (HRDC).

Dr. Mfunne

- Emerging viruses in western and southern Africa: Molecular identification and characterization of rodent- and shrew-borne Hantaviruses and assessment of their public health potential. Period: from 2009. Funded through German Government under German-Africa Cooperation Projects in Infectology. In collaboration with Prof. D. Kruger, Dr L. Koivogui, Dr S. Matthee, Prof. W. Preiseir and Dr J. Meulen
- Impact of Tourism on Natural Resources in Etosha National Park and Human Wildlife Conflict along the Boundaries of the Park. Period: from 2009. Funded through MET (NDP3 funding) in collaboration with Ms M. Angula, Dr M. Hipondoka, Prof. I. Mapaure, Dr Graaz, and Ms Selma Lendelvo

- Eco-physiological responses of ungulates towards heat and drought in Namibian desert. In collaboration with Leibniz Institute for Zoo and Wildlife Research, Berlin, Germany: Dr C. Voigt and David Lehmann. Period: 2010-2013.
- 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 Omaheke Region.
- Parasites of rodents in South Africa and Namibia with a focus on emerging infectious diseases. Collaborative research funded under the joint research grant under the Researchers. Period: May 2012- Present. Collaborators Dr J.K. Mfuno (UNAM) and Dr Sonja Mathee (Stellenbosch University). South African – Namibia Research Partnership Programme Bilateral Agreement.

Mr. Hedimbi

- HIV-1 biological activity and toxicity prospecting of ethnobotanicals of Namibia. Funded by South Africa NRF-Namibia Research Collaboration. Period: 2012-2014. Collaboration with Dr. Phiyani Leabea (CSIR, South Africa) , Dr. Renate Hans (Department of Chemistry-UNAM); Dr. K. Chinsebu (Department of Biological Sciences-UNAM)

Ms. W.C. Mukaru

- Understanding the dynamics of arid savanna ecosystems experiencing various disturbance regimes in highland biomes of central Namibia: Implications for local management for economic and conservation objectives. Period: 2011-2012. Funded by UNAM Research and Publication Committee (URPC).
- Assessing the effect of herding on livestock performance in semi-arid communal rangelands in South Africa and Namibia. Period: 2012-2013. Funded by National Research Foundation (NRF): Joint research grant under the South African – Namibia research partnership programme bilateral agreement.

Mr. A. du Plessis

- Presence of endocrine disrupting chemicals in surface water of Namibia. Joint funding from Ministry of Education and NRF, South Africa. In collaboration with Dr. E. Julies (Department of Biological Sciences-UNAM), Prof. Pool (University of Western Cape), Prof. Van Wyk (University of Stellenbosch)

Mr. B. Kaonjua

- Comparing embryonic development between indigenous and genetically engineered chickens. Period: from 2011. Namibia Chicken Breeding Society.
- Molecular analysis of drug resistance genes. Period: From 2010. Funded by EU –F7 for Poverty Related Diseases.

Papers published, submitted or presented at workshops/conferences

Refereed journal articles

- **Chinsembu, K.C.** (2012). Teeth are bones: Signature genes and molecules that underwrite odontogenesis. *Journal of Medical Genetics and Genomics* 4(2): 13-24.
- **Chinsembu, K.C.** (2012). Construction of a genomic DNA library and identification of iron starvation induced clones and restriction DNA fragments in *Salmonella*. *Biotechnology Research Bulletin* 1(1): 021-028.
- **Chinsembu, K.C.** (2012). A trends analysis of medical male circumcision for HIV prevention in Eastern and Southern Africa. *Journal of Research in Public Health* 1(2): 020-029.
- **Chinsembu, K.C.** (2012). Indigenous Knowledge Systems as a platform for biological innovations in Africa. *Journal of Inventions and Discoveries in Biology* 1(1): 012-025.
- **Chinsembu, K.C.** (2012). Medicine and the epidemiologic transition to Public Health. *Journal of Research in Public Health* 1(2): 030-036.
- **Chinsembu, K.C. & Hedimbi, M.** (2012). Ethnomedicinal study of plants used to manage HIV/AIDS-related disease conditions in the Ohangwena region, Namibia. *International Journal of Medicinal Plant Research* 1(1): 004-011.
- **Chinsembu, K.C. & Kasanda, C.D.** (2012). The evolution of science and technology policy dialogue in post-colonial Africa. *Educational Research* 3(4): 351-356.

- Ekandjo L and **Chimwamurombe PM**. 2012. The traditional medicinal uses and natural hosts of the Genus *Ganoderma* in the north-eastern parts of Namibia. *Journal of Pure and Applied Microbiology* Vol. 6(3), p. 1139-1146.
- Ekandjo L and **Chimwamurombe PM**. 2012. Genetic diversity of *Ganoderma* species in the north eastern parts of Namibia using Random Amplified Microsatellites (RAMS). *Journal of Pure and Applied Microbiology*. Vol. 6(3), p. 1097-1104.
- **Faul A., Julies E.M.,** and Pool E. 2012. Estrogen, testosterone, cytotoxin and cholinesterase inhibitor removal during reclamation of sewage to drinking water. Water South Africa In Press.
- Garas SL, **Uzabakiriho JD** and **Chimwamurombe PM**. 2012. Isolation and identification of fungal species associated with gall formation on *Acacia mellifera* in the western Windhoek. *Journal of Pure and Applied Microbiology* Volume 6 No. 2 Page No. 713-716.
- Hamata, O.P. & **Chinsebu, K.C.** (2012). Use of selective media and colony Polymerase Chain Reaction to isolate *Shigella* from water catchments in Namibia. *Journal of Research in Microbes* 1(1): 044-050.
- **Hedimbi M,** Hamunyela MH, Hans RH, & **Chinsebu KC** (2012). Analysis of antimicrobial properties of *Acrotome inflata* and *DSesamum alatum*. *Journal of Research in Antimicrobials* 1(1): 043-048.
- **Julies E. M.,** Brüchert V., and Fuchs B.M. 2012. Vertical shifts in the microbial community structure of organic-rich Namibian shelf sediments. *Afr. J. Microbiology Research* 6(17), 3887-3897
- **Julies, E.M.,** Le Loup, J., and Kohls, K. 2012. Microbial response to laminarin addition during anaerobic degradation of organic carbon in Namibian shelf sediment. *Research Journal of Biology*. 2(4): 126-137.
- **Kadhila-Muandingi PN** and **Chimwamurombe PM**. 2012. Uses of *Ganoderma* and other Mushrooms as Medicine in Oshana and Ohangwena regions of Northern Namibia. *Journal of Research in Agriculture* 1(2): 146-151

- Kamwi, R. M., **Mfuno, J.K.**, Jonazi, J, and Kaaya, G.K. (2012) seasonal variation in the prevalence of malaria and vector species in northern Namibia. *Journal of Entomology and Nematology*, 4(5) :42-48.
- Kido LR, **Uzabakiriho JD** and **Chimwamurombe PM**. 2012. Isolation and identification of pathogenic fungi associated with *Aloe zebrina* flower malformation. *Journal of Pure and Applied Microbiology* 6(1) Page No. 125-129.
- **Mapaure, I.** (2012). Determinants of vegetation composition and diversity of a moist forest-savanna boundary in south-eastern Zimbabwe. *International Journal of Biodiversity and Conservation* 4(14):584-591.
- Martha NNN Shikongo-Nambabi, **Percy M. Chimwamurombe** and Stephanus N. Venter. 2012. Identification of Putative *Vibrio* Species Isolated from Processed Marine Fish using Thiosulphate-Citrate-Bile-Sucrose (TCBS) Agar. *British Biotechnology Journal* 2(4): 229-246.
- Martin P, Uzabakiriho JD, and **Chimwamurombe PM**. 2012. Molecular identification of leaf endophytic fungi affecting marama bean leaves in Otjiwarongo area of Namibia. *Journal of Pure and Applied Microbiology* Volume 6 No. 2 Page No. 665-670.
- Mogomotsi, T.K. and **Chinsembu, K.C.** (2012). Occurrence of *Listeria monocytogenes* in Ready-To-Eat foodstuffs in Windhoek, Namibia. *Journal of Research in Microbes* 1(2): 065-070.
- Mukakalisa, C, **Mapaure, I.** & Kandawa-Schulz, M. (in press). Genetic diversity in landraces of Bambara groundnut (*Vigna subterranea* L.) found in Namibia using RAPD markers. Accepted for publication in *Acta Horticulturae*
- Mukakalisa, C, **Mapaure, I.** & Kandawa-Schulz, M. (in press). Effect of sowing seasons on growth and development of Bambara groundnut (*Vigna subterranea* L.) Accepted for publication in *Acta Horticulturae*
- **Mukaru, W.C.** and **Mapaure, I.** (2012). Impacts of large herbivores on plant species diversity and range condition around water points in Waterberg Plateau Park, central Namibia. *Journal of Research in Conservation Biology* 1(1): 41-48.

- Nasheya, S. and **Chinsebu, K.C.** (2012). Genetic diversity of Ovambo chickens in the Oshikoto region of northern Namibia. *Journal of Research in Biology* (Accepted).
- Nepolo E, Barandongo Z and **Chimwamurombe PM.** 2012. Seed and tuber protein patterns of marama bean [*Tylosema esculentum* (Burchell) Schreiber] via Sodium Dodecyl Sulfate Polyacrylamide gel electrophoresis. *Journal of Research in Molecular Biology* (2012) 1: 001-006.
- Nepolo, E. & **Mapaure, I.** (2012). Short-term influence of fire on herbaceous composition, diversity and grass biomass production in semi-arid savanna woodland in Windhoek, Namibia. *International Journal of Ecosystem* 2(6):154-160.
- Renatus P. Shilangale, Elisabetta Di Giannatale, **Percy M. Chimwamurombe** & Godwin P. Kaaya. 2012. Prevalence and antimicrobial resistance pattern of *Salmonella* in animal feed produced in Namibia. *Veterinaria Italiana* 48 (2), 125-132.
- Takundwa M, E. Nepolo, Khola Mogotsi, M.A. Kandawa-Schulz, A.C. Cullis, K., Kunert, J.J. Jackson-Malete, L. Chiwona-Karlton and **P.M. Chimwamurombe** 2012. Development and use of microsatellite markers in Marama bean. *African Crop Science Journal* Vol. 20, No. 2, pp. 95 – 105.
- Takundwa MM, **Chimwamurombe PM** and Cullis CA. 2012. A Chromosome Count in Marama bean (*Tylosema esculentum*) by Feulgen Staining using Garden Pea (*Pisum sativum* L.) as a standard *Research Journal of Biology*. Vol. 02 (06): 177-181.
- Takundwa, M., **Chimwamurombe, P.M.**, Kunert, K. & Cullis, C.A. 2012. Developing DNA barcoding (*matK*) primers for Marama bean [*Tylosema esculentum* (Burchell) Schreiber]. *African Journal of Biotechnology* Vol. 11(97):16305-16312.
- Wendy C. Turner, Peace Imologhome, Zepee Havarua, Godwin P. Kaaya, **John K.E. Mfunne**, Irvin D.T. Mpofu, Wayne M. Getz (In Press). Soil ingestion, nutrition and the seasonality of anthrax in herbivores of Etosha National Park. Paper submitted to *ECOSPHERE* and has been accepted for publication but under revision at end of 2012.

Published books or chapters in books

- Mileusnić, M., Ružičić, S., Mapani, B.S., Kamona, A.F., **Mapaure, I.**, &

Chimwamurombe, P.M. (2012). Trace elements dispersion from a tailings impoundment (dam) and speciation study in surrounding agricultural soils: A Case study from Kombat Mine area, Otavi Mountainland, Namibia. Proceedings of the Annual workshop IGCP/SIDA No. 594: *Environmental and health impacts of mining in Africa*. In: Mapani, B. and Křibek, B. (eds). Prag: Czech Geological Survey, 2012. Pp.37-40 (ISBN: 978-80-7075-781-9).

Published conference proceedings and Conference papers delivered

- **Chinsembu, K.C.** (2012). Writing an effective book chapter. Paper presented at the IKS book writers' workshop. UNAM Library, 24th October 2012.
- **Chinsembu, K.C.** (2012). Bioprospecting for anti-HIV activity in ethnobotanicals of Namibia. Paper presented at the IKS workshop, UNAM library, 8-9 October 2012.
- Ekandjo L and **PM Chimwamurombe**. 2012. Genetic diversity of *Ganoderma* species in North East parts of Namibia. 3rd African Conference on Edible and medicinal Mushrooms, 24-28 June, 2012; Windhoek Namibia. Conference Abstract Book, 2012, page 42.
- Haita A; **PM. Chimwamurombe** and **NP. Kadhila-Muandingi**. 2012. The use of riverbed sunflower stalks as substrates for king oyster mushroom (*Pleurotus eryngii*) cultivation. 3rd African Conference on Edible and medicinal Mushrooms, 24-28 June, 2012; Windhoek Namibia. Conference Abstract Book, 2012, page 19.
- **Julies E.M.** (2012). Organic carbon transformation in anoxic organic-rich shelf sediments. Paper presented at an International Workshop on Innovative approaches for balancing human land use and nature conservation on a transnational scale (under the auspices of DAAD-funded Quality Network biodiversity in sub-Saharan Africa). Karatina University College, Kenya, 22-25 October 2012.
- **Mapaure, I.** (2012). Developing a research agenda for a campus/centre/faculty at the University of Namibia. Paper presented at a Workshop to develop a Research agenda, Hifikepunye Pohamba Campus, Ongwediva, 26th July, 2012.
- **Mapaure, I.**, Graz, F.P. and Ihula, R. (2012). Water points, large herbivores and biodiversity conservation in protected areas: Case study of Etosha National Park,

Namibia. Paper presented at the UNAM Research Day Ogongo Campus, 18th September, 2012.

- **Mapaure, I.** (2012). The role of the Research & Publications Office in promoting and enhancing research at the University of Namibia. Paper presented at a Staff Capacity-building Workshops, Katima Mulilo Campus, 21-22 May 2012 and Oshakati Campus, 23-25 July, 2012.
- **Mapaure, I.** (2012). Publishing results from theses and dissertations in refereed journals. Paper presented at a Workshop on Building and Enhancing new Postgraduate Students Research Capacity. Arebbusch Travel Lodge, Windhoek (Organised by School of Postgraduate Studies, UNAM), Windhoek, 23 March, 2012.
- **Mapaure, I.** (2012). Towards excellence in research at the University of Namibia. Paper presented at Rundu Campus (Sarasungu Hotel, Rundu, 19-20th January, 2012), Hifikepunye Pohamba Campus (23-24 January, 2012) and Sam Nujoma Marine & Coastal Resources Research Centre, Henties Bay, 9th March 2012.
- **Morkel, M.A.** and **Mapaure, I.** (2012). Diversity, structure and dynamics of *Acacia erioloba* woodlands in the Windhoek area: Insights for the management of urban habitats. Paper presented at an International Workshop on Innovative approaches for balancing human land use and nature conservation on a transnational scale (under the auspices of DAAD-funded Quality Network biodiversity in sub-Saharan Africa). Karatina University College, Kenya, 22-25 October 2012.
- **Mapaure, I.** & Mwandemele, O.D. (2012). The need to conduct research that addresses Namibia's socio-economic development goals: The role of Higher Education Institutions in Namibia. Paper presented at the Southern African Comparative History of Education Society (SACHES) International Conference, Rundu Campus, University of Namibia, 12-13 July, 2012.
- **Muandingi NP** and **PM Chimwamurombe.** 2012. Types of mushrooms used for medicinal purposes in Oshana and Ohangwena Regions of northern Namibia. 3rd African Conference on Edible and medicinal Mushrooms, 24-28 June, 2012; Windhoek Namibia. Conference Abstract Book, 2012, page 45.
- Shikongo LT, **PM Chimwamurombe**, HR. Lotfy El Sayed, and M. Kandawa-Schulz. 2012. Analysis of the classes of mycochemical components of the indigenous

Namibian Ganoderma mushrooms. 3rd African Conference on Edible and medicinal Mushrooms, 24-28 June, 2012; Windhoek Namibia. Conference Abstract Book, 2012, page 40.

- Uietele ISE; **Percy M. Chimwamurombe** and **N.P. Kadhila-Muandingi**. 2012. Optimization of *Ganoderma lucidum* productivity under culture. 3rd African Conference on Edible and medicinal Mushrooms, 24-28 June, 2012; Windhoek Namibia. Conference Abstract Book, 2012, page 18.

Undergraduate teaching, student statistics and pass rates

YEAR	MODULE	TOTAL NUMBER OF STUDENTS ENROLLED	PASS RATE (%) FROM NUMBER ENROLLED
I	BLG3411 Introduction to Biology	681	51.76
	BLG3512 Diversity of Life	739	40.32
	<i>Mean pass rate 1st Year</i>		46.04
II	BLG3611 Animal Form & Function	204	60.29
	EBL3631 Introduction to Ecology	14	100
	MBL3631 Cell Molecular Biology & Genetics	103	91.26
	BLG3612 Plant Form & Function	182	77.47
	EBL3632 Ecological Field Techniques	18	88.89
	MBL3632 Introduction to Microbiology	83	92.77
	MBL3652 Human Biology	200	52
	<i>Mean pass rate 2nd Year</i>		80.4
III	EBL3731 Population Ecology	11	100

	EBL3700 Field Ecology I	15	100
	EBL3711 Fresh water & Marine Ecology	12	100
	MBL3711 Microbiology	74	97.3
	MBL3731 Recombinant DNA Technology	102	71.57
	MBL3751 Plant Physiology	95	93.68
	MBE3771 Cell Molecular Biology, Microbiology and Genetics for Educators	102	67.65
	EBL3732 Conservation Biology & Biodiversity	11	100
	EBL3712 Ecosystem Ecology	15	100
	EBE3772 Environmental Biology for Educators	117	72.65
	MBL3752 Comparative Animal Physiology	77	93.51
	BLG3702 Research Methodology	57	98.25
	MBL3712 Biotechnology	62	62.9
	MBL3732 Genetics	70	95.71
	<i>Mean pass rate 3rd Year</i>		89.5
IV	EBL3800 Field Ecology II	11	100
	BLG3810 Research Project	36	94.44
	EBL3811 Environmental Management	11	100
	EBL3831 Biosystematics	11	100
	EBL3851 Biogeography	8	87.5
	MBL3811 Immunology	24	83.33
	MBL3831 Applied Molecular Biology	39	61.54
	MIC3811 Mycology	25	100
	MOL3811 Bioinformatics	5	100
	MIC3802 Parasitology	40	95
	EBL3802 Disturbance and Restoration Ecology	11	100

	EBL3832 Management of Natural Resources	14	100
	EBL3812 Behavioural Ecology	11	100
	MIC3822 Medical Microbiology	30	93.33
	MIC3812 Environmental and Industrial Microbiology	35	91.43
	MIC3832 Virology	35	91.43
	MOL3812 Applied Genetics	5	100
	MOL3832 Plant Growth and Development	62	87.1
	MOL3852 Animal Growth and Development	3	100
	<i>Mean pass rate 4th Year</i>		94
	<i>OVERALL MEAN FOR DEPARTMENT</i>		77.5

Postgraduate Supervision

PhD Students

- **Catherine Amoo:** A study of the apparent immunity to malaria of the San people in the Oshikoto Region of Namibia. [Dr. Bock: Co-supervisor]
- **Devota Kavishe:** An ecological study of selected *Porphyra capensis* populations from the Namibian coast. [Prof. Mapaure: Main supervisor]
- **Renatus Peter Shilangale:** Prevalence, Serotype And Antimicrobial Resistance Pattern Of *Salmonella* Spp. in Namibia's Abattoirs. [Dr. Chimwamurombe: Main-supervisor].
- **Emmanuel Nepolo:** Molecular characterization of *Tylosema esculentum* starch biosynthesis and related aspects. [Dr. Chimwamurombe: Main-supervisor].
- **Mutsa Takundwa:** Breeding for reduction of reproductive life cycle in *Tylosema esculentum*. [Dr. Chimwamurombe: Main-supervisor]. Proposal accepted.
- **Charline Kamburona:** Phylogenetic characterization of devil's claw (*Harpagophytum procumbens* and *Harpagophytum zeyheri*) in Namibia. [Dr. Chimwamurombe: Co-supervisor].

- **Jean-Damascene Uzabakiriho:** Analysis of microbial community structures and their nifh gene expression in *Tylosema esculentum* (marama bean) endophytic diazotroph bacteria. [Dr. Chimwamurombe: Main-supervisor].
- **Hedimbi M.** Evaluation of selected Namibian plants for anti-HIV properties. [Dr. K. Chinsebu: Main Supervisor]
- **Mrs Selma Lendelvo:** Assessment of factors that influence the establishment of selected ungulates translocated into communal conservancies: the case of the Nyae nyae and Uukwaluudhi conservancies, Namibia. [Dr. Mfuno: Main supervisor]

MSc Students

- **Tabitha Ndumba:** Impact of mine pollution on composition, diversity and structure of plant and ground dwelling invertebrates' communities around Otjihase mine. [Prof. Mapaure: Main supervisor]
- **Mandene Morkel:** Diversity, structure and dynamics of *Acacia erioloba* woodlands in the Windhoek area: insights for the management of urban habitats. [Prof. Mapaure: Main supervisor]
- **Carolyn T:** Biodiversity in metropolis – plant diversity, management and social integration issues of community based urban agriculture projects: case studies in the city of Windhoek, Namibia and Berlin, Germany. [Dr. Mfuno: Main supervisor]
- **Julia Hoveka:** Molecular identification and characterization of rodent- and shrew-borne hantaviruses and other viruses and the prevalence of ecto- and endo-parasites on small mammals in selected areas in Namibia. [Dr. Mfuno: Main supervisor and Dr. Chimwamurombe: co-supervisor]
- **Claudine Cloete:** How soil type affects the distribution of infectious sites and the incidence of elephant (*Loxodonta africana*) mortalities due to anthrax in Etosha national park. [Dr. Mfuno: Main supervisor]
- **Alfeus V. Shekunyenge:** Understanding of natural soil properties and potential of mining waste materials as a habitat for plants, during rehabilitation at Sendelingsdrif mine. [Dr. Mfuno: Main supervisor]
- **Lineekela Nauyoma:** Habitat requirements, population structure and dynamics of *Juttadinteria albata* and assessment of its performance in post mining substrates at

Namdeb's Sendelingsdrif diamond mine. [Dr. Mfuno: Main supervisor and Dr. E. Kwembeya: Co-supervisor]

- **Josefina N. Nelongo:** Evaluation of the usefulness of the quantiferon TB gold in-tube test in the diagnosis of tuberculosis disease and as a tool for evaluating the response to tuberculosis chemotherapy in Namibian patients. [Dr. Bock: Co-supervisor]
- **Lempie Ekandjo:** Genetic diversity of Ganoderma lucidum in North Eastern Namibia. [Dr. Chimwamurombe: Main supervisor].
- **Margret Mkandawire:** The effect of bush encroachment on the species composition, diversity and abundance of ground-dwelling invertebrates in Omaheke region, Namibia. [Dr. J. Mfuno: Main supervisor] Research Proposal drafted and submitted to Postgraduate Committee.
- **Oscar Mulonda:** Estimation of biomass production in the rangelands of the Caprivi Region. [Dr. N. Shiponeni: Main supervisor] Thesis passed
- **Rauna Hamukwaya:** Investigations on type of humoral immunity against anthrax in predators and scavengers in Namibia. [Dr. Chimwamurombe: Main supervisor].
- **Sylvia Nafuka:** Bioassay Guided Fractionation of Medicinal Plants in Namibia for potential Anti-plasmodial Compounds. [Dr. Bock: co-supervisor] Proposal stage
- **Kaatri Nambadi:** Assessment of body condition of African elephants (*Loxodonta Africana*) in Etosha National park, Namibia: How it relates to strongyle parasite counts and nutrition value. [Dr. E. Julies: Main supervisor and Prof. Mapaure: Co-supervisor]
- **Adrian du Plessis:** Effect of mining on heavy metal concentrations and potential endocrine disruption in fish and crabs in Omatoko and Von Bach dams. [Dr. E. Julies: Main supervisor]

COMMUNITY SERVICE

Prof. I. Mapaure

UNAM Service

- Active member of the PVC Academic Forum.
- Active member of Academic Planning Committee.
- Active member of the Research & Publications Committee.

- Active member of the UNAM Senate.
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Member of a UNAM Audit Task Force mandated to audit Centres and Units at the university.
- A member of the Committee of Admission & Examinations for the MSc Biodiversity Management & Research.
- Research Coordinator for the University of Namibia.
- Member of the UNAM Book Store Task Group.
- Member of the Teaching & Learning Improvement Unit Advisory Committee.
- Chairperson of the UNAM Task Force on Research Ethics.
- Member of the UNAM Institutional review Board (IRB).
- Board Member of the Multidisciplinary Research Centre (MRC).
- Active member of the UNAM Press Committee
- Active member of the Advisory Committee of the Scholarly Communication in Africa Programme (SCAP).
- Active member the Editorial Board of the Journal for Studies in Humanities & Social Studies (UNAM).
- Active member of the UNAM Senate

External Service

- Representing the University on the Southern African Research & Innovation Management Association (SARIMA).
- Representing the University on the Southern African Nordic Centre (SANORD) Conference and Council Meeting.
- Represented the University on the Southern African Regional Universities Association (SARUA) Programme for Climate Change Capacity Development across the SADC Higher Education Sector.
- Representing the University on the Technical Advisory Committee of the RESSESA of the Organisation for Social Science Research in Eastern and Southern Africa (OSSREA).

- January 2011: External examiner for Doctor of Philosophy Thesis (Mr Lota Lesoli), Faculty of Agriculture, University of Fort Hare, South Africa.
- March 2011: External examiner for Doctor of Philosophy Thesis (Mr Cuthbert Katsvanga), Department of Environmental Science, Bindura University of Science Education, Zimbabwe.
- External examiner for the Department of Nature Conservation, Polytechnic of Namibia
- External examiner for the Department of Environmental Science, Bindura University of Science Education, Zimbabwe.
- Member of a number of Professional bodies including the Degradation Network, AFRIFIRENET (African Fire Research Network), Southern African Mopane Research Association (SAMRA), Biodiversity Foundation for Africa (BFA), Association for the Taxonomic Study of the Flora of Tropical Africa (AETFAT), Grassland Society of Southern Africa, Namibia Environment & Wildlife Society (NEWS) and the Botanical Society of Namibia (BOTSOC); Society for Conservation Biology; International Association of Wildland Fire; Environmental Research Web; Southern African Research & Innovation Management Association (SARIMA); Leadership for Environment and Development (LEAD); Ecological Society of America.
- Regular review articles submitted for publication in *Environmental Conservation* journal, *Dinteria*, *African Journal of Range & Forage Science*, *Africa Journal of Ecology*, *African Journal of Plant Science*, RAEIN Africa, IUCN, SARDC (Harare). Also reviewed few book chapters and Research Proposals submitted to various organizations (e.g. International Foundation for Science, Sweden).
- I represent the University on the Southern African Universities Association (SARUA).

Dr. Chimwamurombe

UNAM Service

- Deputy Director: School of Postgraduate Studies
- Active member of Faculty of Science Board.

- Active member of Biological Sciences Board.

External Service

- Member of the Interim Bioprospecting Council of Namibia.
- Kirkhouse Trust Marama Bean Project coordinator.
- External examiner for PhD thesis at North West University
- Executive secretary: African Society for Edible and Medicinal Mushrooms.
- Reviewer for African Journal of Agricultural Research
- Executive secretary: African Society for Edible and Medicinal Mushrooms.
- Treasurer of the Agricultural Scientific Society of Namibia

Dr. Mfunne

UNAM Service

- Coordinator, MSc Biodiversity Management and Research Program, joint UNAM and Humboldt University Postgraduate training Programme.
- Member of the MSc Biodiversity management and Research Admissions and Examinations Committee
- Coordinator, Faculty of Science Mentorship Programme March, 2012 to Present
- Drafted the Faculty of Science MENTORSHIP PROGRAMME MARCH 2012. Sanctioned by Faculty of Science.
- Reviewed the UNAM Core Values (UCV) draft revised module and contributed to the revised module Contemporary Social Issues upon request by Dean of Science.
- Developed module content and structure for the theme Environment and Sustainability in the UNAM Contemporary Social Issues module
- Chairperson: At session I of the UNAM Post graduate Studies student supervision under the workshop theme: Empowering UNAM capacity for excellence in postgraduate studies student supervision held from 15-16 October 2012, College of Medicine Auditorium
- Team leader, Impact of Tourism on Natural Resources in Etosha National Park and Human Wildlife Conflict along the Boundaries of the Park research project. This is an NDP3 Implementation Project as assigned to MRC at UNAM in the NDP3.

- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Faculty of Science Representative on the Faculty of Economics and Management Science Board. Since 2007 to present.
- Acted as HOD, upon request by Head of Biological Sciences

External Service

- Executive Committee Member of the Windhoek Adventist Clinic Committee. Instrumental in the establishment of the now running Windhoek Adventist health Clinic, the first and only SDA health Clinic in Namibia
- Vice Chairperson, Namibia Wildlife and Environment Society (NEWS).
- Reviewer appointed by the Country Pilot Partnership Program. Reviewed research proposals for Young Professional Research
- Member, INSAKA CONSORTIUM (University of Montana, USA, UNAM (MRC), University of Kwazulu Natal, RSA, University of Copperbelt, Zambia and Monash University).
- Member of the organizing Committee of the INSAKA 2012 Symposium that was held at Arrebush Travel lodge from 5-7 June, 2012.
- Facilitator of Day 1 of the INSAKA 2012 Symposium that was held at Arrebush Travel lodge from 5-7 June, 2012.
- Member, Human Wildlife Conflict (HWC) Grant Review Committee (GRC) MCA Namibia
- Team leader, Impact of Tourism on Natural Resources in Etosha National Park and Human Wildlife Conflict along the Boundaries of the Park research project. This is an NDP3 Implementation Project as assigned to MRC at UNAM in the NDP3.
- Vice Chairperson, Namibia Wildlife and Environment Society (NEWS).
- Member, Human Wildlife Conflict (HWC) Grant Review Committee (GRC) MCA Namibia
- External Examiner, MSc Land Resource Management, Polytechnic of Namibia, July 2012

Mr. Kaonjua

UNAM Service

- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board
- Represented the Faculty of Science at the Faculty of Agriculture Board Meetings.

External Service

- Organised a workshop with local scientific equipment suppliers and users about the maintenance of equipment through the Network of Users of Scientific Equipment in Southern Africa (NUSESA).
- Held a one day seminar to brief local scientists about funding for poverty related diseases (PRD) through the European Union Framework Programme – 7 (EU-FP7) in my capacity as the Local Contact Point (LPC).
- Seminar presentation about the mode of inhibition of HIV drugs at the National Institute of Pathology (NIP).

Dr. Chinsembu

UNAM service

- Chairperson, UNAM/NEPAD steering committee on validation of traditional medicines for HIV/AIDS treatment
- Active member of task force appointed by UNAM Management. Speech writing: requested by the UNAM Acting Vice-Chancellor to write the UNAM Chairperson of Council's statement for the 2010 Annual Report; and part of the graduation ceremony speeches.
- Active member of Faculty committee Military Sciences
- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.

External service

- Honorary Associate Professor of Health Sciences, University of Lusaka, School of Health Sciences, Zambia. Note that this is an honorary position and does not attract monetary benefits. Appointed on 5th April, 2012.

Dr. Julies

UNAM Service

- Head of Department: Biological Sciences
- Active member of UNAM RPC committee
- Active member of Faculty of Science Board.
- Chairperson of Biological Sciences Board
- Active member of Senate
- Chairperson of the Faculty RPC committee
- Awareness of waste problems at UNAM in collaboration with the Ministry of Environment and Tourism, UNAM Natural Resources and Environmental Society (UNNRESS) and the SRC.
- Act as rapporteur for Workshop of Post-graduate School - Post graduate supervision at UNAM, 5-16 October 2012, Arebusch Hotel, Windhoek.
- Participated in URPC workshop: Formulation of Ethics policy for UNAM, 30 May - 1 June 2012, Fürstenhof Hotel, Windhoek
- Internal Examiner of 2 MSc theses – December 2012

External Service

- Executive member (treasurer) of the Namibian Environmental Education Network
- Secretariat of the Regional Center of Expertise: Khomas-Erongo Region
- External Examiner of MSc thesis UWC – July 2012
- Participated in workshop: Namibian National Biodiversity Strategy and Action Plan (NBSAP), 25-26 July 2012, Hilton Hotel, Windhoek
- Participated in workshop: Regional Centre of Expertise – African RCEs in preparation for Global meeting, 5-7 September 2012, Grahamstown
- Participated in workshop: Draft Programme South Africa-Namibia Researchers Workshop and Joint Committee meeting, 11-14 September 2012, Cape Town.
- Review articles for the African Journal of Microbiology Research and the International Journal of Molecular Sciences and the African Journal of Environmental Science and Technology

Ms. Mukaru

UNAM Service

- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board.
- Member of the MSc. Biodiversity Management and Research Examination Committee.
- Active member of task force appointed by UNAM Management (Served on the UNAM research day task force)
- Active member of the Faculty of Science award and career fair committee
- Active member of Faculty committee (Member of the Renewable Energy & Environment Committee of the Faculty of Science)
- Contribution to student cultural or sport activities (Served as a judge at Miss first year UNAM Khomasdal campus)

Mr. A. du Plessis

Internal Service

- Active member of Faculty of Science Board.
- Active member of Biological Sciences Board

External Service

- Presentation at the Water Conference 12 September 2012, Windhoek
- Compile RCE in ESD (Khommas-Erongo) News letter
- Active member of the RCE in ESD (Khommas-Erongo)

Conclusions

We experienced an increase in student numbers in most of our modules, which is a result of our increase in student numbers in first year on an annual basis. Furthermore, the number of post-graduate students also increased in the Department. Despite the challenges of resources and equipment, physical space, a very high workload on staff members and ever increasing numbers of students, the Department continued to deliver a high quality service to both our students and the community at large as well as improved on research and publications output. There was an increase in the number of publications produced by the department during 2012. The overall pass

rate for the department increased with 2%. The department plans to expand and strengthen programmes offered. The lack to provide further training to our increasing number of graduates in the field of microbiology will be addressed by the development of a MSc in Microbiology programme during 2013. We further plan to make the current MSc Biodiversity Management and Research programme more autonomic allowing the department eventually to run the programme independently with mostly UNAM academics involved in the teaching. Greater student support and initiatives to improve the quality of teaching in the department will be undertaken.