ZCAS UNIVERSITY

DIRECTORATE OF RESEARCH, CONSULTANCY, AND INNOVATION

ANNUAL RESEARCH REPORT

2023

FORWARD

I am very proud of our many achievements and successes in the area of research, and I am delighted to share those with you in this year's (2023) annual research report. Besides teaching and learning, our role as an anchor institution means we have a crucial part to play in county's long-term economic growth and prosperity in accordance with the 8th National Development Plan under strategy No 10: *"Promoting Applied Research and Development"*. We have firmly cemented our reputation as an ambitious university with influence, one that can rise to any challenge, working with partners at pace to drive forward and deliver change that address key national government agendas. As you may be aware, the Higher Education Authority (HEA) established by Act No 4 of 2013 has classified ZCAS University as Tier-1 higher education institution in the country. To get into Tier 1, the University had to meet the rigorous standards that ensure that universities and other institutions of higher education deliver high quality services in each of the 3 HEI performance pillars namely, teaching, research, and community service. Lastly, I look forward to another exciting and promising 2023 where I envisage more basic and applied research activities.

PROF. DOUGLAS KUNDA PhD
VICE CHANCELLOR - ZCAS UNIVERSITY

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ACRONYMS

AI   Artificial Intelligence
CEEC   Citizens Economic Empowerment Commission
DVC - RCI   Deputy Vice Chancellor – Research, Consultancy & Innovation
HEA   Higher Education Authority
ICICT   International Conference in Information and Communication Technologies
ICTAZ   Information and Communications Technology Association of Zambia
IF   Impact Factor
IP   Intellectual Property
PI   Principal Investigator
SEC   Securities and Exchange Commission
ZAMREN   Zambia Research and Education Network
ZAPUC   Zambia Association of Public Universities
ZIM   Zambia Institute of Marketing
ZIPAR   Zambia Institute for Policy Analysis and Research

1.0 OVERVIEW

1.1 Introduction

The purpose of universities, among others is to strengthen the effect of scientific research to contribute to knowledge creation and scholarship to achieve national development (Zambia: Ministry of Higher Education, 2013). Thus, at ZCAS University involvement in scholarly activities which lead to the creation and dissemination of knowledge is a core function and our priority. This research report has outlined the research and consultancy activities of ZCAS University that were conducted between 1st January 2023 and 31st December 2023. The purpose of the report is to highlight the developments and achievements that took place during the year and to map out areas of future improvement.

1.2 Rationale

Recognising the significant results and impact that research and consultancy can bring to the institution and the country, ZCAS University has prioritised research and consultancy as underscored in the 2022-2026 strategic plan. The strategic plan also provides indices through which research progress and outcomes should be measured. Key measures include number of publications in reputable journal articles with a minimum Impact Factor (IF) of >0.5, number of staff trained in grant/paper writing, number of MoUs signed and percentage of staff involved in publishing. This report covers the implementation of research, Innovation and consultancy activities in 2023 and the author makes some recommendations as a denouement.

1.3 Highlights of the 2023 Report

Below are some of the key research and consultancy achievements of 2023:
1. Establishment of the Directorate of Research, Consultancy, and Innovation and recruitment of Deputy Vice Chancellor - RCI in accordance with the requirements of the Higher Education Authority.
2. Successful training of all academic staff in grant proposal writing during a workshop held between 13th and 15th June 2023
3. Successfully held a Journal article writing retreat for 14 academic staff on 23rd December 2023
4. 33 Journal publications made by ZCAS University academic staff in peer reviewed high impact of >0.5 thereby increasing staff morale.
5. 16 conference papers presented at various conferences and (1) book chapter was written.
6. At least five (5) MoUs were signed with local organisation.
7. Three (3) internal grants awarded to School of Business, School of Social Sciences; and School of Computing, Technology and Applied Sciences to enhance research activities.
8. Four (4) consultancies awarded to the University by:
   a) Citizens Economic Empowerment Commission CEEC valued at ZMW151,000
   b) Lawrence Sukutwa valued at ZMWxx 000.

c) Oxfam Zambia valued at 10,620 Euros (equivalent of ZMW232,578 at the time)
d) Indo Zambia valued at ZMW104 000

9. The Table below presents a summary of the key activities implemented by the University's Research, Consultancy, and Innovation Unit during the year 2023

Table No 1 : *Key Activities Implemented*

Description	2023 Q2	2023 Q2	2023 Q3	2023 Q4	Total
Internal Research Grants	0	3	0	0	**3**
Consultancies	3	0	0	0	**3**
Community Engagements/ CSR	0	3	4	0	**7**
New Partnerships/MoUs	0	0	4	3	**7**
Peer Refereed Journal Publications	6	10	8	7	**31**
Books/Book Chapters	1	0	0	0	**1**
Conference Proceedings / Workshops	3	2	1	1	**7**
Total Number of Activities	**13**	**18**	**17**	**11**	**59**

2.0 RESEARCH, CONSULTANCY, AND INNOVATION DIRECTORATE

In March 2022, University Management formally established a research unit within the University and appointed Dr Sidney Kawimbe as Director for Research, Consultancy & Innovation.

During 2023, the research unit underwent phenomenal transformation. It was upgraded to the Directorate for Research, Consultancy, and Innovation Directorate, requiring it to be headed by a Deputy Vice Chancellor in accordance with provisions of the Higher Education (Amendment) Act No. 23 of 2021. Professor Edwin Bbenkele, engaged as Deputy Vice Chancellor – Research, Consultancy, and Innovation, was consequently appointed as substantive office bearer of the directorate in July 2023.

3.0 DEVELOPMENT OF THE RESEARCH AND CONSULTANCY FRAMEWORK

There has been acceleration in the development and implementation of policies, programmes and activities since the unit was upgraded to Directorate for Research, Consultancy, and Innovation. The focus in 2023 was to have a robust framework which will strengthen the management and quality assurance research and consultancy.

3.1 Research and Innovation Policy

The Research and Innovation Policy, approved on 10th December 2021, was successfully implemented in the period under review. Research activities were galvanized activities across the University in line with the policy and strategic targets for 2023. This policy continued to provide an overarching framework for enabling the University to achieve its research ambitions.

3.2 Ethics Policy and Procedures

Significant progress was made in the effort to promote the adoption and application of research ethics within the University in 2023. A policy was developed and underwent rigorous scrutiny by the Research Ethics Committee before it was subject to further stakeholder reviews. Having been adopted by the Research Ethics Committee, the draft ethics policy and its procedures will be presented to the Senate for approval in March 2024.

The policy contains principles and guidelines of ethical behaviour designed to guide all researchers affiliated with ZCAS University to carry out research activities in an ethical manner by adhering to the norms of research which are acceptable to both the University and the wider community of researchers.

3.3 Consultancy Policy

This Policy coordinates the management of consultancy and service work involving staff of the University to ensure the equitable accrual of benefits to the institution, schools, and consultants, and in a manner that protects their interests and reflects professional standards. By the end of 2023, the draft policy had been developed, reviewed by stakeholders, and was awaiting the University Council's approval.

3.4 Intellectual Property (IP) Policy

This Policy aims to provide a framework for the identification, ownership, usage, protection, and commercialization of IP created by all classifications of students and employees. The Policy defines the rights and responsibilities of the parties involved in IP, and procedures to be followed in resolving IP matters. As a result of implementation of this policy, the following decisions were made in 2023:

1. The Intellectual Property Management headed by DVC-RCI was created effective 2023 Q3.

2. The IP Management Committee started working towards the development of the University's IP Strategy in 2023 Q4.
3. IP Management Committee identified various ZCAS University assets that must be protected through patent and copyright in 2023 Q4.
4. Intellectual Property Management scheduled the review of the IP Policy in 2024 . to align it to PACRA in view of certain regulatory changes affecting patents and copyright management.

4.0 RESEARCH, CONSULTANCY, AND INNOVATION PROJECTS

Details of the notable research and consultancy projects that were implemented in 2023 are summarized in the Table below:

Table No 2: Research and consultancy projects

Client	Project Title	Value	Progress	PI/Leader
CEEC	The Impact of the Citizens Economic Empowerment Preferential Procurement Regulation, 2011	ZMW151,000	Project completed and presentation of the findings expected in 2024 Q1.	Dr Sidney Kawimbe
Oxfarm	Public expenditure tracking of Constituency Development Fund (CDF) in Rufunsa, Chawama, Kabwata, Kantanshi, Kankoyo, Mufulira Central, Bweengwa, Moomba, Monze Central and Mpika Central constituencies.	10,620 Euros	Project completed in Q4, and presentation of final draft in 2024 Q1	Dr Chiyaba Njovu
Indo Zambia Bank Limited	To conduct selection and recruitment of graduate and management trainees for the Bank.	ZMW104, 000	Consultancy successfully completed and concluded	Prof. Bbenkele

4.1 Citizens Economic Empowerment Commission (CEEC) Project

A consultancy project with a contract value of ZMW301,000 was awarded to the University by CEEC. In this consultancy, the University was to establish the extent to which empowered companies participated in state tenders and ultimately win the tenders for the needed profitability and growth for the companies and contribution to GDP.

Prof Edwin Bbenkele was the Principal Investigator of the project and by the end of the year, the project was completed pending the presentation of findings to stakeholders in the first quarter of 2024 Q1.

4.2 Oxfam Consultancy Project

This consultancy project with a contract value of Euros 10,620 or the equivalent of ZMW232,578 at the time was competitively awarded to ZCAS University by Oxfam. ZCAS University was required to conduct a survey on public expenditure tracking of constituency development fund (CDF) in Rufunsa, Chawama, Kabwata, Kantanshi, Kankoyo, Mufulira Central, Bweengwa, Moomba, Monze Central and Mpika Central constituencies. The findings were expected to support the work of Oxfam and its partners on the "beyond the numbers project".

The project was lead Dr Chiyaba Njovu, and it was completed by end of 2023, pending concluding activities such as presentation of the findings and acceptance by stakeholders - which were due in the first quarter of 2024.

4.3 Indo Zambia

Indo Zambia Bank Limited awarded the University a consultancy to conduct selection and recruitment of graduate and management trainees for the Bank. The consultancy had a sum value ZMW104, 000 and was successfully completed and concluded to the satisfaction of both parties.

4.4 Raymond Ackerman Academy

The University through the Directorate signed an agreement to recruit a cohort of youth entrepreneurs from Zambia for training with the Johannesburg Business School, Centre for Entrepreneurship which will be implemented in 2024.

4.5 ZCAS – Jesuit Centre for Theological Reflection Research (JCTR) Project

Academic staff of ZCAS University participated in research project conducted under the title: *"Youth Unemployment in Zambia: The Case of Lusaka Province"*. The aim of the research was to analyse youth unemployment in Lusaka province of Zambia, focusing on its determinants at micro level as well as its consequences. The research was initiated in 2021 between ZCAS and JCTR was completed in 2023 and findings consequently disseminated in the same year. A follow-up study and an Employment Conference were scheduled to be held in 2024.

5.0 COMMUNITY ENGAGEMENT/CORPORATE SOCIAL RESPONSIBILITY

Seven (7) various community engagements and corporate social responsibility activities/initiatives were undertaken by the University's in 2023 in accordance with strategic plan and corporate social responsibility policy.

The community engagement activities included the following:

i   10 School of Computing, Technology and Applied Sciences staff attended a workshop on selection of innovators under ZICTA for the sixth innovators programme for 2023 cohort as part of public service (2-3 March 2023).

i. 10 School of Computing, Technology and Applied Sciences staff attended meetings as part of the committee on the Digital Government Africa Summit (DGA23) held from 4 to 6th of October 2023 at University of Zambia, which was graced by His Excellence the President of the Republic of Zambia Mr Hakainde Hichilema.

iii. 10 School of Computing, Technology and Applied Sciences staff attended meetings for Local Organising Committee for PAN-Africa International Conference on Information and Communication Technologies (ICT) was held in September 2023 as part of public service.

iv. The University, under the School of Law established, a Legal Clinic within the university campus premises where members of the public can access legal advice of cases of non-criminal nature for free. By the end of the year at least 15 people had sought legal advice and help at the clinic.

The corporate social responsibility activities included:

i   Donation of various reading books worth K50,000 to Musokoleni Community School on 6th July 2023. This initiative was done in commemoration of International Literacy Day with the view to encourage the improvement of literacy

i. and appreciate the role of inculcating literacy during the formative years of children in school.
Donation of various books K52,000 to Kampekete Primary School in Chongwe district of Lusaka province on 18th June 2023.

6.0 CAPACITY BUILDING

6.1 Training and Workshops

Capacity building in Research Proposal
A one-day workshop was held on 26th May 2023 during which 100% of the University's academic staff were successfully trained on how to write research proposals for funded research and consultancy projects.

Publication Retreat

Another capacity-building workshop was held from 14th to 16thNovember 2023 with the view to sharpen staff's publication skills and increase research outputs for 2023 in line with the annual targets. Training was successfully conducted, and all 15 participating members of teaching staff appropriately trained. 11 journal articles were consequently mooted and 10 published in international peer reviewed journals with Impact Factor of >0.5 by the end of the year.

6.2 Appointment of Principal Investigators

As the number of research activities increased in 2023, the number of teaching staff who were appointed as Principal Investigators (PIs) also increased. Assignment of teaching staff as PIs or project leaders is an important aspect in motivating the staff to engage in research and enhance their skills. Thus, 6 staff were engaged as PIs in 2023.

Details of staff who were appointed as PIs or project leaders for the various the projects as well as the projects which they led are shown in the Table below:

Table No 3 : Principal Investigators

PI	Client	Project Title
Prof Edwin Bbenkele	Citizen Economic Empowerment Commission (CEEC)	The Impact of the Citizens Economic Empowerment Preferential Procurement Regulation, 2011
Dr Chiyaba Njovu	Oxfam International	Public expenditure tracking of Constituency Development Fund (CDF) in Rufunsa, Chawama, Kabwata, Kantanshi, Kankoyo, Mufulira Central, Bweengwa, Moomba, Monze Central and Mpika Central constituencies.
Mr. David Musona	JCTR	Youth Unemployment in Zambia: The Case of Lusaka Province.
Dr Burton Mweemba	ZCAS University	An Assessment of the Impact of FinTech's on Financial Inclusion in Zambia: A Case of Lusaka Province
Dr Aaron Zimba	ZCAS University	An Investigation of Socio-economic factors influencing teacher enrolment in education undergraduate and postgraduate programmes in Zambia
Ms. Marien Matafwali	ZCAS University	Emergent Social Engineering Cyber Attacks: A Machine-Learning Approach to Combating Mobile Money Scams

7.0 RESEARCH COLLABORATIONS AND MoUs

7.1 Collaborations

A collaborative research project between ZCAS and the Jesuit Centre for Theological Reflection Research (JCTR), titled "Youth Unemployment in Zambia: The Case of Lusaka Province", was completed in 2023 and the findings disseminated accordingly. The aim of the research was to analyze youth unemployment in Lusaka province of Zambia, focusing on its determinants at micro level as well as its consequences. A follow-up study and an Employment Conference is scheduled for 2024 following the successful completion of the first project.

7.2 Memorandum of Understanding (MoUs)

At least seven (7) MoUs relating to research and consultancy were signed during the period under review. The details of these agreements are presented in the Table below:

Table No 4 : *Signed MoUs*

Partner	Signed date	Purpose of agreement
Opportuneur LLP / Ondisrupt	1st September 2023	Offer entrepreneurship training and support to ZCAS University undergraduate and postgraduate students at a reduced fee. Enable students to graduate from the with both academic certificate and a business with global networks to succeed as Entrepreneurs.
Haddassah Digital Innovation and Edutainment Media	2nd September 2023	Provide training services and sharing of activities and programs in the education, business and business management and customer relation through events workshops, web-seminars and podcast for Women and Youth Entrepreneurs.
Jesuit Centre for Theological Reflection (JCTR)	7th September 2023	Collaborate in several areas including providing mutual assistance in the fields of research, training, advisory and consultancy services, and staff capacity development. Engage in joint short-term and long-term research activities in areas of common interest that align with their objectives and missions.
Mrs Zindaba Hanzala (as ZCAS University Brand Ambassador)	7th September 2023	The Brand Ambassador to perform certain services in connection with the University, including demonstration of consistent support and promotion of the University's products on various social media platforms: Twitter, Facebook, Instagram, and TikTok.
Securities and Exchange Commission (SEC)	26th September 2023.	To tailor-make the programmes that entrench financial inclusion.
Kafue Gorge Regional Training Centre	21st November, 2023	Joint short programs, Research grant applications and Organizing conferences including Student Internships
Dziwa Science and Technology Trust (DSaT)	23rd October, 2023	Linking ZCSMBA with the Ministries of Science and Technology and Ministry of Small and Medium Enterprises and Development

8.0 PUBLICATIONS

8.1 Journal Article Publication

A total of 31 journal articles were published during the year 2023 in line with the thematic areas adopted by the University thereby contributing to knowledge creation as per University mandate.

Below details of the publications made by the University staff during the quarter under review:

i. **Kawimbe, S** (2023). Framework of Entrepreneurship Theories in Augmenting Performance of Small and Medium Enterprises (SMEs) in Zambia. *International Journal of Latest Engineering and Management Research,* 8 (2), 47-52 https://doi.org/10.56581/8.2.47-52

ii. **Mweshi, G & Mweemba, B** (2023). Economic Benefits for the Integration of Supply Chain Networks on the Global Market. *International Journal of Advanced Engineering*, 5 (3), 55-69. https://doi.org/10.35629/5252-05035569

iii. **Kawimbe, S** (2023). Information and Communication Technologies (ICTs) as a Source of Education in Selected Higher Institutions of Education in Zambia. *International Journal of Advanced Multidisciplinary Research and Studies*, 3 (2), 398-400. https://doi.org.10.47191/ijcrr/

iv. **Kawimbe, S** (2023). Black Tax and its Impact on Entrepreneurship Growth in Zambia: A Conceptual Perspective. I*nternational Journal of Advanced Multidisciplinary Research*, 9 (12) 317-321 https://doi.org/ 10.22192/2022.09.12.025

v. **Kalunga, P., Neene, V., Jere, B., Phiri, M & Chembe, C.** (2023). Challenges of Crowdfunding (Village Banking) in Zambia: Solutions and Opportunities. Zambia *Information Communication Technology Journal*, 7 (1), 38-46. https://doi.org/10.33260/zictjournal.v7i1

vi. Sinyangwe, C., **Kunda, D.**, & Abwino, W. P. (2023). Detecting Hate Speech and Offensive Language using Machine Learning in Published Online Content. *Zambia ICT Journal*, 7(1), 79–84. https://doi.org/10.33260/zictjournal.v7i1.143

vii. Mwape, S. C., & **Kunda, D**. (2023). Using data mining techniques to predict university student's ability to graduate on schedule. *International Journal of Innovation in Education*, 8(1), 40. https://doi.org/10.1504/IJIIE.2023.128470

viii. Mkandawire, Y., & **Zimba, A**. (2023). A Supervised Machine Learning Ransomware Host-Based Detection Framework. *Zambia ICT Journal*, 7(1), 52–56. https://doi.org/10.33260/zictjournal.v7i1.132

ix. Kabaso, W., & **Zimba, A.** (2023). An Arduino-Based Smart Digital Flushable Toilet for Efficient Water Management and Enhanced Hygiene. *Zambia ICT Journal*, 7(1), 16–22. https://doi.org/10.33260/zictjournal.v7i1.136

x Lishomwa, K., & **Zimba, A.** (2023). A Privacy-Preserving Scheme for Medical Diagnosis Records Based on Encrypted Image Steganography. *Zambia ICT Journal*, 7(1), 23–28. https://doi.org/10.33260/zictjournal.v7i1.151

xi **Kayombo, K. M., Bbune, C. M.** & Mwape, C. (2023). Credit Management and Profitability of Banks in Zambia. *Research Journal of Finance and Accounting*. 14(10), 36-44. Credit Management and Profitability of Banks in Zambia Kayombo Research Journal of Finance and Accounting (iiste.org)

xii Chisongo, E. M. and **Kayombo, K. M.** (2023). Determinants of Profitability of Commercial Banks in Zambia. *Research Journal of Finance and Accounting*. 14(12), 10-20.DOI:10.7176/RJFA/14-12-02. https://iiste.org/Journals/index.php/RJFA/article/view/61132/63099.

xiii Phiri, M., Mulenga, M., **Zimba, A.,** & Eke, C. I. (2023). Deep learning techniques for solar tracking systems: A systematic literature review, research challenges, and open research directions. Solar Energy, 262, 111803. https://doi.org/10.1016/j.solener.2023.111803

xiv **Muhyila, M., Lengwe, E., Bbenkele, E** (2023). Evaluating the Impact of the Internet on Sales Growth of Aquaculture MSMEs in Lusaka. *International Journal of Innovative Science and Research Technology*. 8 (6), 3397- 4402. https://www.scribd.com/document/660313586/Evaluating-the-Impact-of-the-Internet-on-Sales-Growth-of-Aquaculture-MSMEs-in-Lusaka

xv Mwanza, J., **Zimba, A.**, & Sinyinda, M. (2023). A Facial Authentication-based Deepfake Detection Machine Learning Model. Proceedings of International Conference for ICT (ICICT) - Zambia, 5(1), 134–140. Retrieved from https://ictjournal.icict.org.zm/index.php/icict/article/view/291

xvi **Muhyila, M., Lengwe, E., Bbenkele, E** (2023). Zambia's Strategic Roadmap for Thriving Aquaculture Micro, Small and Medium Enterprises. *RA Journal of Applied Research*. 15 (9), 27-31. https://doi.org/10.47191/rajar/v9i7.01

xvii **Chisongo, E. M. and Kayombo, K. M**. (2023). Determinants of Profitability of Commercial Banks in Zambia. *research journal of finance and accounting.* 14 (12), 10-20. DOI: 10.7176/rjfa/14-12-02. https://iiste.org/journals/index.php/rjfa/article/view/61132/63099

xviii Musonda, M., **Zimba, A.**, & Sinyinda, M. (2023). Machine Learning-Based Crypto Ransomware Detection Model on Windows Platforms. Proceedings of International Conference for ICT (ICICT) - Zambia, 5(1), 141–147. Retrieved from https://ictjournal.icict.org.zm/index.php/icict/article/view/292

xix **Chembe, C.**, Nasilele, N. B., & Msendo, R. (2023). The Fuss about Artificial Intelligence in Education Sector: Should we Worry? Zambia ICT Journal, 7(2), 30–35. https://doi.org/10.33260/zictjournal.v7i2.269

xx. **Muyhila, M., Bbenkele, B., Lengwe, E** (2023) Zambia's Strategic Roadmap for Thriving Aquaculture Micro, Small and Medium Enterprises. *Ra Journal of Applied Sciences*. 9 (7) 361-367. DOI:1.0.471.91/rajar/r917.0 https://zenodo.org/record/8123521#.ZSQKOHZBw84

xxi. Nasilele, N. B., Msendo, R., & **Chembe, C**. (2023). The Role of Teaching Methodology in Higher Learning Institutions in Zambia. Zambia Association of Public Universities and Colleges (ZAPUC) Conference, 3(1), 135–140. Retrieved from https://ictjournal.icict.org.zm/index.php/zapuc/article/view/227

xxii.   Msendo, R., Nasilele, N., Nyimbile, P., & **Chembe, C**. (2023). Unveiling the Hidden Side: Exploring the Potential for Academic Dishonesty Among Lecturers during Examination Marking. Zambia Association of Public Universities and Colleges (ZAPUC) Conference, 3(1), 140–146. Retrieved from https://ictjournal.icict.org.zm/index.php/zapuc/article/view/229

xxiii.   Halubanjza, B., Phiri, J., Nyirenda, M & **Kunda, D** (2023) Low Cost IoT-Based Automated Locust Monitoring System, Kazungula, Zambia. DOI: 10.1007/978-3-031-35317-8_59 https://link.springer.com/chapter/10.1007/978-3-031-35317-8_59

Kayombo, K (2023). Working Capital Management and Profitability of Banks in

xxiv.   Zambia. *Research Journal of Finance and Accounting*. 14(16), 56-62. DOI: 10.7176/RJFA/14-16
https://iiste.org/Journals/index.php/RJFA/article/view/61461/63446

xxv.   Mtambo, H., **Kawimbe, S.**, Kombe, C & Mwange, A (2023) Understanding the Impact of Electricity Load Shedding on Small and Medium Enterprises: Exploring Theoretical Underpinnings. *European Journal of Business and Management*. ISSN (Paper)2222- 1905 ISSN (Online)2222-2839.

xxvi.   **Kawimbe, S & Chilinda Muya** (2023). Emerging Role of Universities in Collective Impact Initiatives for Business and Community Benefit: The Tripple Helix Model. *International Journal of Research and Innovation*. Vol No 12, (9), DOI: 10.47772/IJRISS.2023.71025

xxvii.   https://www.researchgate.net/publication/374801021_Emerging_Role_of_Universities_inCollective_Impact_Initiatives_for_Business_and_Community_Benefit_the_Tripple_Helix_Model
Mtambo, H., Meki, C., **Mwange, A & Kawimbe, S** (2023). Understanding the Impact of Electricity Load Shedding on Small and Medium Enterprises: Exploring Theoretical Underpinnings. *European Journal of Business and Management*. Vol No 15 (15). DOI:10.7176/EJBM/15-15-08

xxviii.   https://iiste.org/Journals/index.php/EJBM/article/view/61618/63610
Mtambo, H., Meki, C., **Mwange, A & Kawimbe, S** (2023). Impact of Electricity Load Shedding on Operations of Small-Scale Enterprises in Selected Developing Countries: A Review of Literature. *Journal of Economics and Sustainable Development*. Vol.14, No. (13). DOI: 10.7176/JESD/14-13-06

xxix.   https://iiste.org/Journals/index.php/JEDS/article/view/61619
Mtambo, H., Meki, C., **Mwange, A & Kawimbe, S** (2023). Understanding the Impact of Electricity Load Shedding on Small and Medium Enterprises: Exploring Theoretical Underpinnings. *European Journal of Business and Management*. Vol No 15 (15). DOI:10.7176/EJBM/15-15-08
https://iiste.org/Journals/index.php/EJBM/article/view/61618/63610

xxxi. **Kayombo, K** & Himbondo, M (2023). Challenges Affecting Effective Application of Strategic Management Techniques in the Process of Implementing Organisational Change in Zambia Correctional Service. *Ra Journal of Applied Research*. Vol. 09, No (11).3DOI.ORG/10.47191/RAJAR/V9I11.01 http://www.rajournals.in/index.php/rajar/article/view/1250 1799-1805

8.2 Conference Papers

There were seven (7) papers that were presented by members of the academic staff at local and international conferences during 2023. The details of the papers presented below

Table No 5 : *Conference attendance*

Presenter	Client
Professor Douglas Kunda	Presented a paper on Artificial Intelligence (AI) at a conference in Lilongwe Malawi
Professor Douglas Kunda	Presented a paper titled "Locust Infestations and Mobile Phones: Exploring the Potential of Digital Tools to Enhance Early Warning Systems and Response Mechanisms" a ZAPUC conference.
Associate Professor Christopher Chembe	Presented a paper titled "Unveiling the Hidden Side: Exploring the Potential for Academic Dishonest Among Lecturers During Examination Marking" at ZAPUC conference and
Associate Professor Christopher Chembe	Presented paper titled "The Role of Teaching Methodology in Higher Institutions in Zambia" at ZAPUC conference in Livingstone.
Dr Sidney Kawimbe and Muya, C.	Presented a paper titled "Emerging Role of Universities in Collective Impact Initiatives for and Community Benefit: The Tripple Helix Model" at ZAPUC conference in Livingstone.
Kalunga, Prudence	Presented a paper titled "Evaluation of Multimedia and Gaming in Education: Opportunities and Solutions for the Education Sector in Zambia" at ZAPUC conference.
Mukosa, F., Mweemba, B., & Kayombo, K	Presented a paper titled "The impact of Social Media Marketing on Branding of Higher Education nstitutions (HEIs) in Zambia-A perspective of the changing role of Marketing" at ZAPUC conference.

8.3 Book/Book Chapters

One (1) book chapter was published in the year under review involving a University staff as per the following details:

Halubanza, B., Phiri, J., Nyirenda, M., Nkunika, P. O. Y., & **Kunda, D.** (2023). Low Cost IoT-Based Automated Locust Monitoring System, Kazungula, Zambia. In R. Silhavy & P. Silhavy (Eds.), *Networks and Systems in Cybernetics* (Vol. 723, pp. 654–666). Springer International Publishing. https://doi.org/10.1007/978-3-031-35317-8_59

9.0 RESEARCH BUDGET AND GRANTS

The budgetary allocation towards research in 2023 was K200,000. Since the allocation was inadequate, it was exhausted by before the end of year due to the increased volume of research activities.

Based on the increment in research activities, the budget for 2024 as approved in the fourth quarter of 2023 was doubled. The University also introduced a research innovation fund with seed capital of K400,000.

10.0 INTERNAL RESEARCH GRANTS

The following internal research grants were applied for and approved:

Table No 6: Research

School	PI/Leader	Project Title	Value	Progress	Grand Utilisation
Business	Dr Burton Mweemba	An Assessment of the Impact of FinTechs on Financial Inclusion in Zambia: A Case of Lusaka Province.	ZMW50,000	Completed and draft report submitted to DVC-RCI	100%
Social Sciences	Ms. Marien Matafwali	An Investigation of Socio-economic factors influencing teacher enrolment in education undergraduate and postgraduate programmes in Zambia	ZMW50,000	At data analysis stage	90%
Computing, Technology & Applied Sciences	Dr Aaron Zimba	Emergent Social Engineering Cyber Attacks: A Machine-Learning Approach to Combating Mobile Money Scams	ZMW50,000	At data analysis stage	70%

Three research projects were approved and funded in 2023 to further stimulate research in the schools. These projects were by the end of the year nearing completion in all the schools.

10.1 School of Business

The grant project titled *"An Assessment of the Impact of FinTech's on Financial Inclusion in Zambia: A Case of Lusaka Province and Surrounding Areas"* was awarded to the School of Business and amount of ZMW50,000.00 was approved and disbursed for implementation. Presentation of results is expected in the first quarter of 2024.

10.2 School of Social Sciences

A grant project titled *"An Investigation of Socio-economic factors influencing teacher enrolment in education undergraduate and postgraduate programs in Zambia"* was awarded to the School of Social Sciences and amount of ZMW50,000.00 was approved and disbursed for implementation. Presentation of results is expected in the first quarter of 2024.

10.3 School of Computing, Technology and Applied Sciences

A grant project titled *"Emergent Social Engineering Cyber Attacks: A Machine-Learning Approach to Combating Mobile Money Scams"* was awarded to the School of Computing Technology and Applied Sciences and amount of ZMW50,000.00 was approved and disbursed for implementation. Presentation of results is expected in the first quarter of 2024.

11.0 CONCLUSION

2023 was a progressive year for the University in research and consultancy considering that groundbreaking accomplishments with respect to securing externally funded research/consultancy projects and management were achieved. Prominence of research and consultancy in the University was demonstrated by elevation of the unit to a directorate headed by a Deputy Vice Chancellor, appointment of relevant research committees and development of the sufficient policies. Additionally, staff in all the schools were trained and grants awarded through the respective schools to undertake projects.

Based on these developments and activities, we are confident that the momentum set will be maintained and yield better outcomes in the coming years.

12.0 FOCUS AREAS FUTURE AREAS OF ATTENTION 2024

Considering that the stage for publications has been firmly made, in 2023 the Research, Consultation and Innovation Directorate will seek to consolidate progress while further breaking new ground in innovation and consultancy by focusing on the following areas:

1. Enhancing investment in consultancy capacity through:
   a) Capacity building in grant proposal writing skills.
   b) Joint partnerships and bidding for consultancy.
   c) Enhance capacity in Book publication and book chapter writing.

2. Creating innovation through:
   a) Actualising the MOUs signed in 2023.
   b) Networking and interfacing with industry by developing programmes that are fit for purpose as required by industry.
   c) Incentivising of staff with outstanding performance in research and consultancy.
   d) Collaboration with partner Universities and colleges locally and abroad

3. Implementation of ethical clearance for research projects and theses.

4. At least 4 academic staff to participate in consultancy projects by end of year.

5. At least three book chapters published by faculty staff.

6. At least two books written by faculty staff.

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