



Lupane State University

Building Communities through Knowledge

Lupane State University Research Agenda

Research and Extension Services Office (RESO)

Abbreviations

LSU	Lupane State University
RESO	Research and Extension Services Office
SDG	Sustainable Development Goals
NGO	Non-governmental organisation
AI	Artificial Intelligence
IoT	Internet of Things

Preamble

Higher education institutions exist to respond to the needs and demands of a highly changing physical and social environment. Research plays a critical role in the development of any society. The search for technical and scientific knowledge that bridge the gap between theory and practice, current and emerging technologies and local and global competencies force tertiary education institutions to explore all avenues of responding to this quest. The University has to respond to the imperatives of answering scientific questions and public concerns, demands of quality education dominated by information and communication technology and the requirements of globalisation in the economic, political, technological and social spheres. LSU has to have a research agenda that sets direction for research engagements of the students and faculty members. The research agenda should address institutional and accreditation needs as well as the national research priority areas.

1.0 Introduction

LSU has fully embraced the Education 5.0 Doctrine by the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development. Innovation and industrialisation dominated the academic provision space as the Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development continued to emphasise the need for heritage-based education and encouraged universities to take a leading role in the production of goods and services for the nation. Quality Assurance within the University continued to be enhanced across all teaching and non-teaching departments in a bid to guarantee our learners a quality learning experience and environment.

1.1 Vision

LSU's mission is "To apply research-based knowledge to develop communities through teaching and learning, community engagement, innovation and industrialisation." The university strives to be a one stop shop for knowledge based solutions faced by community groups and the private sector nationally and internationally, with a vision of being an international premier university in research based knowledge, teaching and learning.

The Research Agenda was informed by the Research Council of Zimbabwe's National Research Agenda, National Development Strategy 1, Ministry of Higher and Tertiary Education, Innovation, Science and Technology Development's Education 5.0, Agenda 2063 among other key policy frameworks. All faculties embraced the thrust towards innovation, industrialisation and heritage-based education in their respective areas of specialisation.

1.2 LSU's Mandate Areas

The University's mandate areas are: semi-arid agriculture, hospitality and tourism, language development and performing arts, wildlife management, agricultural engineering,

biotechnology, building technology, energy resources, wood technology, forestry and rural community development.

2.0 Research Agenda

2.1 Overview

LSU research is diverse and has significant impact on the region country and the world. This research agenda consists of statements of values, principles and research thrusts that provide the foundation for LSU's research initiatives.

2.2 The Challenge

The LSU research activities have been growing steadily over the past years, as a result of the initiative and quality of the University's staff and students. Continued expansion of research at LSU depends on the ability to create and support core capabilities and commit resources to hire and retain the best staff. The University therefore, endeavours to foster a climate that rewards creative, high-impact research. The University's research must improve fundamental understanding, create solutions to local, national and global challenges and address emerging opportunities while aligning with funding sources.

2.3 Our Values

The University's research community is composed of a vibrant group of faculty staff and students that share values that establish the culture and foundation upon which the LSU agenda is built. The University values collaboration, accountability, diversity, innovativeness, integrity, professionalism, social and environmental responsibility and transparency. These values will serve the University well through the years and the research agenda should reinforce them.

3.0 LSU research should emphasise on:

- 3.1 Relevance: Creation of solutions to the pressing needs of local and global communities in order to ensure a healthy and sustainable world.
- 3.2 Integration: Multi-disciplinary research addresses needs with transformative approaches, both basic and applied in the short and long-term.
- 3.3 Collaboration: Collaboration locally, nationally and internationally with communities, industries, academia and the public and private sector.
- 3.4 Leadership: Lead the research community, educate and mentor the next generation of leaders.
- 3.5 Accessibility: Openly share and exchange ideas, approaches, data and results while protecting intellectual property.

4.0 LSU's Principles

At the core of the research agenda are the principles that guide our research investment decisions. These principles complement and align with our values and the goals outlined in the strategic plan. The four principles serve as the compass for LSU's future research investment:

4.1 LSU will support innovative and flexible organisational structures to enable a diverse portfolio of both individual and collaborative research.

LSU's research will

- 4.1.1 Include a spectrum of fundamental and applied research that enhances knowledge creation, well-being of people, environment and economy in the country, region and the world;
- 4.1.2 Integrate undergraduate and graduate education to develop emerging leaders and sustain a work force that meets the current and anticipated employment needs; and
- 4.1.3 Create and sustain partnerships with communities, Government institutions, NGOs and private businesses through outreach and engagement to solve critical social and environmental problems and support economic vitality.

4.2 LSU's research initiatives will be highly competitive for private and public funding. To do this, LSU will

- 4.2.1 Promote and invest in multi-disciplinary and transformational research.
- 4.2.2 Actively engage with public and private sponsors to help influence future funding trends and opportunities.
- 4.2.3 Seek collaborative opportunities from all sectors including academic, industrial, governmental and non-governmental organisations.
- 4.2.4 Work to minimise barriers to collaborative research, both internally and with external partners.

4.3 LSU will enhance the professional growth opportunities and workplace climate for all members of the University research community. LSU will:

- 4.3.1 Recognise research contributions and achievements.
- 4.3.2 Foster leadership development of students, faculty and staff at all levels.
- 4.3.3 Enhance opportunities for research support for faculty and students by promoting transdisciplinary research and creative activities.
- 4.3.4 Work to enhance communication across disciplines, thereby enhancing not only the research enterprise but also the campus climate and acceptance of diverse perspectives.

5.0 Role of RESO Directorate

The role of RESO is to envision, plan, define and implement successful research strategies and infrastructure for Lupane State University. These roles include: cultivating and fostering relationships with key internal and external stakeholders; provision of research leadership, direction and vision; overseeing the development and delivery of research related policies and research training of staff, trainers and faculty; assisting in formulation and development of research proposals and projects for funding; initiation of research projects, build teamwork for collaborative multidisciplinary research and host research conferences; organise/seek funding for research workshops and represent Lupane State University at international/regional research fora external and internal groups for research.

6.0 LSU's Research Thrusts

6.1 Agricultural Sciences Research Thrusts

The Education 5.0 for Zimbabwe's development in higher and tertiary education is an agricultural driven programme. This is achieved through creating a state-of-the-art University farming operations based on growing indigenous crops, value addition of crops to unlock value out of the crops currently grown and rearing of livestock commercially. University farms shall strive on becoming sources of agro-processing and agribusiness through Agro-industrial parks.

There shall be crop-based and product-based research institutes such as:

6.1.1 Rapoko Research Institute,

6.1.2 Sorghum Research Institute,

6.1.3 Finger millet Research Institute.

6.1.4 Product based research institutes e.g. Indigenous fruit juice, Marula and Mopane worms.

6.2 Government of Zimbabwe Priority Programmes 2019-2030: Innovation, Science and Technology Development (ISTD) Government Priority Programmes.

6.2.1 Biotechnology and Genomic Technology

6.2.2 Value of Indigenous trees and grasses for food processing

6.2.3 Agriculture Research and Development programme

6.2.4 Water resources and management

6.3 Sub-programmes

6.3.1 Biotechnology and advanced livestock breeding technologies

6.3.2 Biotechnology for potato production

6.3.3 Biotechnology (Biofuels, biosafety, biodiversity)

6.3.4 Ecology (interaction of flora and fauna)

6.4 Commerce Research Thrusts

- 6.4.1 Business ethics, corporate governance, economic growth, innovation and industrialisation.
- 6.4.2 Strategic leadership and management
- 6.4.3 Entrepreneurship and New Business Development
- 6.4.4 Big Data Analytics, Artificial Intelligence (AI) and the Internet of Things (IOTs)
- 6.4.5 Financial Engineering, Fiscal and Monetary Policy Formulation and analysis
- 6.4.6 Human Capital Development

6.5 Engineering and Applied Sciences Research Thrusts

- 6.5.1 Alternative energy sources (wind, solar and biofuels)
- 6.5.2 Production engineering
- 6.5.3 Information Technology Engineering
- 6.5.4 Materials and Structural Engineering
- 6.5.5 Mechatronic and Instrumentation Engineering
- 6.5.6 Agricultural Engineering
- 6.5.7 Nanotechnology

6.6 Humanities and Social Sciences Research Thrusts

6.6.1 Strengthening Zimbabwe's Social and Economic Fabric

- 6.6.1.1 Peace building
- 6.6.1.2 Gender mainstreaming and gender based violence
- 6.6.1.3 Substance abuse and mental health
- 6.6.1.4 Women and men's health and disability
- 6.6.1.5 Linguistic diversity and multilingualism

6.6.2. Strengthening National Policy making processes

- 6.6.2.1 Public policy and governance
- 6.6.2.2 Monitoring and evaluation
- 6.6.2.3 Inclusive education; social justice; curriculum and innovation

6.6.3 Understanding our region and the world

- 6.6.3.1 Smart cities, the forth industrial revolution; urban infrastructure financing and management
- 6.6.3.2 Regions and economic competitiveness
- 6.6.3.3 Natural resources; the environment; sustainable livelihoods and development
- 6.6.3.4 Indigenous knowledge systems
- 6.6.3.5 Climate change and resilience mainstreaming

6.6.4 Intellectual property rights in Zimbabwe

7.0 Conclusion

Departments of the University should use the research agenda to inform and focus their work. The implementation of this Research Agenda should contribute towards the realisation of the Parent Ministry's vision and national aspirations that are hinged on effective research that leads to production of goods and services, production of graduates who are competitive in the global economy, supporting a continuous search for new knowledge and solutions and maintaining a rigorous focus on academic excellence. In moving forward with this Research Agenda, invoking the values and principles identified above and addressing the critical research thrusts, we will ensure that our mission is met. The research thrusts are quite broad and this is intended to promote multi-disciplinarity in addressing research problems and also build research capacity in the identified areas. The University's resources both internally generated and those sourced from funding agencies and development partners will be directed towards these priority areas of focus. However, researchers are free to source funding to address their research interests that are outside of the university priority areas.