THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY (NM-AIST)

OFFICE OF THE DEAN
SCHOOL OF LIFE SCIENCES AND BIO-ENGINEERING (LiSBE)

Our Ref: BA. 320/452/02 **Date:** 3rd March, 2025

TO: The Public

REF: ANNOUNCEMENT OF VIVA VOCE EXAMINATION OF A PHD SCHOLAR IN BIODIVERSITY AND ECOSYSTEM MANAGEMENT, MR. ELKANA HEZRON (REG. NO.: P027/T20)

Please, refer to the heading above,

The **School of Life Sciences and Bio-Engineering** of the **Nelson Mandela African Institution of Science and Technology (NM-AIST),** wishes to announce the VIVA-VOCE Examination of **MR. ELKANA HEZRON**, a PhD Scholar enrolled in the programme of PhD in Biodiversity and Ecosystem Management

Mode of Study: Coursework and Dissertation

The **VIVA VOCE** examination is scheduled on:

Tuesday, 18th MARCH, 2025 from 9:00 am to 12:00 am

Research Title: "CHARACTERIZATION OF *ALALILI* SYSTEMS IN RANGELANDS OF NORTHERN TANZANIA"

Abstract

The rangelands and their associated *Alalili* systems in northern Tanzania face diverse threats from climate and land-use change, tenure security, and unsustainable practices that negatively impact biodiversity, livelihoods, and ecosystems. This study aimed to gather information on the structure and distribution of *Alalili* systems in different land uses of northern Tanzania's rangeland. It further gathered data on fodder

species composition, density, and diversity as well as compliance of *Alalili* systems with management principles and guidelines and their potential benefits to local communities.

The study employed the mixed purposive and stratified random sampling technique to explore and assess the validity of the effects of different land uses on *Alalili* structures and types and fodder species composition, densities, and diversities. Q-GIS, ANOVA, sampled T-test, and Chi-square were used to assess the distribution and structure of *Alalili* and test the significant differences in the species composition, density, diversity, and compliance of practices, respectively. Household interviews using closed and open-ended questionnaires, meetings, and discussions with key informants were used to collect data related to local people's perceptions of the importance of *Alalili* systems. Data analysis deployed Q-GIS, Microsoft Excel 11, N-Vivo 14, and R version 4.2.3

The results indicated the existence of both communal and private *Alalili* systems, with varying sizes. Communal *Alalili* systems were larger than the private *Alalili* systems. It depicted that most of the historical fodder plants observed in the rangelands of northern Tanzania commonly appeared in the *Alalili* systems. The historical fodder plants' composition of the northern Tanzania rangelands was higher than that of the *Alalili* systems. Low fodder species diversity in the private *Alalili* systems may increase the risk of species homogeneity in contrast to the communal *Alalili* systems that were high. More than 50% of the surveyed *Alalili* systems are not complying with management principles and guidelines thus increasing their risk of being degraded. The *Maasai* community regards *Alalili* practices as the system that maintains their livestock wealth, socio-cultural prestige, and moral identity.

Therefore, this study emphasizes formulating sustainable practices and suitable policies that will contribute to effective rangeland management through ILK and TEK.

Yours Sincerely,

Prof. Ernest Mbega
Dean