LASER PULSE
Long-term Assistance and Services for Research (LASER)
Partners for University-Led Solutions Engine (PULSE)

Assessment of Research Context, Research Capacity and Capacity Gaps in Higher Education Institutions in Fragile and Conflict Affected States. A Case Study of Somalia and South Sudan

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ABOUT LASER PULSE

USAID's Innovation, Technology, and Research (ITR), through the Higher Education Solutions Network, awarded the Long-Term Assistance and Services for Research (LASER) – Partner University-Led Solutions Engine (PULSE) initiative to the Purdue University-led consortium. Other consortium partners are Catholic Relief Services (CRS), Indiana University, Makerere University, and the University of Notre Dame. LASER's objective is to enhance discovery and application in policy and practice of university-sourced, evidence-based solutions to development challenges, with a focus on four key intermediate results, namely, increased Higher Education Institution (HEI) delivery of collaborative and effective development-focused research, increased HEI synthesis, exchange, and translation of research results into useable development products and practices, increased dissemination and use of translated research solutions and policy, and enhanced systems and structures for gender considerations in the HEI network that enable women and minorities to lead and benefit from research.

LASER PULSE supports embedded research translation (ERT) through a global network of 3,000+ researchers and NGO representatives in 74 countries, who partner to support discovery and uptake of field-sourced, evidence-based solutions to development challenges spanning all USAID technical sectors and global geographic regions. LASER PULSE defines ERT as an iterative co-design process among academics, practitioners, and other stakeholders in which research is intentionally applied to a

development challenge. This approach has four core pillars of partnership, process, product, and dissemination.

LASER PULSE's strategy of ERT ensures that applied development research is co-designed with development practitioners, and results in solutions that are useful and usable. LASER does this through awards mechanisms by involving development practitioners to collaborate with researchers on sector gap identification, carrying out and testing research, and developing translated research products for immediate use.

EXECUTIVE SUMMARY

Introduction

Research ecosystems of universities in conflict affected countries are constrained by a number of factors arising from political instability, civil wars and insecurity. This report presents a synthesis of findings from assessments of research capabilities of Higher Education Institutions (HEIs) in Somalia and South Sudan, (both Sub-Saharan African countries affected by conflict), conducted in 2021. HEIs in conflict affected countries suffer structural conditions that constrain the production of good quality research. Such structural barriers include universities having very few or no staff with research qualifications (e.g. PhDs), infrastructural deficits such as the limited or no access to the internet, reading materials, laboratories and libraries, lack of research funding opportunities as well as inadequate skills to transform research findings into actionable products to inform practice by end-users and policymakers. As a result, research outputs like policy briefs and other publications from conflict affected country universities are relatively few and of low quality.

Despite these shortfalls, HEIs in conflict affected developing economies are strategically placed to generate evidence-based solutions critical for decision making and socio-economic transformation given their proximity to communities, understanding of the local context and development issues, and partnership with Government and nongovernment entities. Therefore, there is a need to build the capabilities of HEIs in order to improve research outputs and outcomes. This calls for the assessment of key capacity strengths and gaps within HEI research ecosystems.

Objectives

The overall objective of the capacity assessments was to identify and document existing opportunities and barriers that constrain HEI researchers in conflict affected countries from engaging in research and research translation. The assessments answered the following question;

1. What system and infrastructure exist to support research in the HEIs? What systems exist to support research translation in the HEIs?
2. Characterize the research relationship between the government and the HEI? Private sector and HEI. Are HEIs seen as legitimate sources of evidence upon which to base government policies? Or innovation products for the private sector?
3. What are the sustainability mechanisms for research and research translation in the HEIs?
4. What are the existing incentives for junior faculty? Are there any conditions that discourage junior faculty from the research enterprise?
5. Are there any special provisions made to incentivize female researchers? Are there any conditions that discourage female faculty from the research enterprise?
6. Do faculty participate in development project research? In what ways? How do they make these contacts?
7. How has conflict affected execution of Research in the HEIs?

The findings from this assessment provide an opportunity for identification and prioritization of key capacity gaps that ought to be addressed in order to increase the impact of development research outputs emanating from HEIs in low- and middle-income countries affected by conflict. In addition, these findings inform the design of institutional capacity strengthening activities for researchers, university officials at individual HEIs, and within secretariats of institutional networks.

Methods

The assessment used a mixed methods approach employing both qualitative and quantitative techniques. The survey targeted 13 universities in Somalia and South Sudan. A total of 28 KIIs (25 from Somalia and 3 from South Sudan) were conducted among purposely selected researchers from the 13 HEIs in July and August 2021.

This assessment was guided by two frameworks for research capacity assessment, (the modified Cooke's Framework and Research Management and Support Systems (RMSS) analytical framework), that have

been used in past studies. The modified Cooke's framework is composed of eight dimensions: 1) Research Infrastructure, 2) Skills and Confidence, 3) Linkages, Partnerships, and Collaboration, 4) Continuity and Sustainability, 5) Leadership, 6) Empowerment, 7) Research Applicability, and 8) Dissemination and Knowledge Translation. The RMSS analytical framework incorporates eight sub-dimensions of research infrastructure: i) Research Strategies and Policies, ii) Institutional Support Services and Infrastructure, iii) Supporting Funding Applications, iv) Project Management and Control, v) Human Resource Management for Research, vi) Human Resource Development for Research, vii) External Promotion of Research, and viii) National Research Engagement.

The dimensions and sub-dimensions from these frameworks were translated into a questionnaire for the quantitative survey (Annex 1B) and an interview guide for the qualitative assessments (Annex 1A). The bulk of the questionnaire items were presented on a 0–5-point Likert scale while other items were entered as numerical counts (e.g. total or percentages).

Key findings

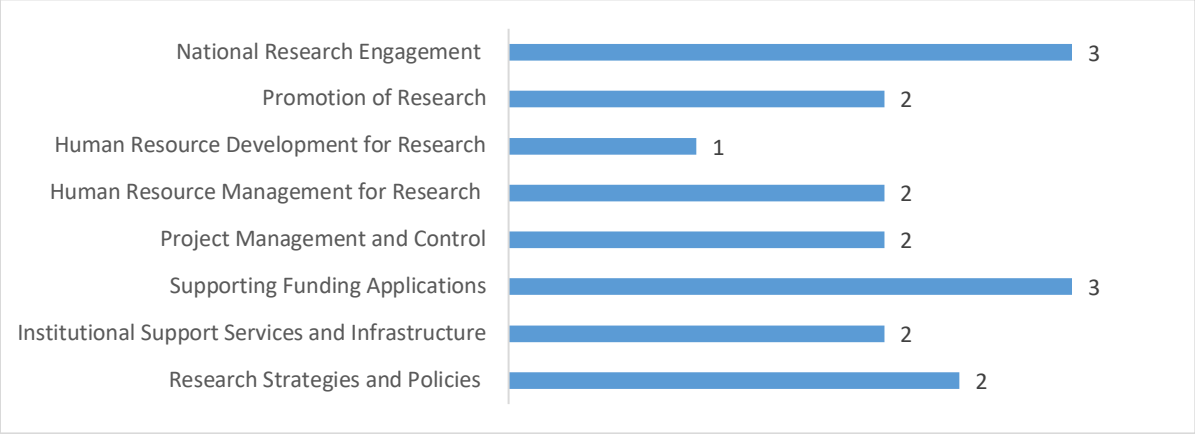
Participating Universities were highly variable in size and ownership and included both privately-owned and Government-owned institutions. Overall, the research ecosystems of the surveyed HEIs were found to be strong in the following aspects: existence of technical linkages with national level sector ministries, existence of linkages with communities and community-level presence, presence of functional and adequately supported research support offices, and availability of systems to track financial spending against budget and accountability for research projects.

The HEIs were found to be weakest in the following dimensions: human capital development, participation of females in research, the relationship between HEIs' research departments with the respective Governments departments, research infrastructure such as well-equipped laboratories and stocked libraries; and partnerships with HEIs from high-income countries (HICs). Below is a summary of the key findings from the research capacity assessment:

1. Research Infrastructure

The assessment of research infrastructure looked at the presence of research strategies and policies, institutional support services, support for funding applications, research project management and control, human resource development for research, and national research engagements. HEIs having an enabling research infrastructure is crucial in supporting the process of applying for research grants as well as implementing the research projects/awards.

Figure 1: Overall average scores for the difference sub dimensions under research infrastructure



- The sub dimensions 'national engagement' and 'support for funding applications' both had an average score of 3 (moderate) representing 41 to 60 percent availability among the participating HEIs. This implies a 40 – 60 gap for these two dimensions.
- The availability of Research Strategies and Policies, Institutional Support Services and Infrastructure, Project Management and Control, Human Resource Management for Research, Promotion of Research all had an average score of 2 (weak) representing a gap of 60 to 80 percent capacity.
- Human Resource Development for Research which assessed the availability of core research training courses, training in non-research skills that enhance research, and current enrolment levels in Ph.D., programs focused on technical areas that are critical to development, scored the worst with an average of 1 (very weak or 1-20% availability).

2. Continuity and Sustainability

This dimension focused on adequacy of funding, the extent to which universities fund research from their internal budgets and resources, and the balance between local funding for research compared to reliance on donor funds. The overall average score for this dimension was 2 (weak) representing 20 to 40 percent availability. Both the parameters i.e. adequacy of funding for research support offices and the presence of a functional provision to fund research from within its own local funds in addition to external funding scored weakly.

Quantitative findings showed that the main sources of research funding for the participating HEIs are the institutions/universities, faculty consulting research activities, donors, and the private sector. Although the government was not mentioned amongst the top HEIs research funding sources, qualitative results revealed that in Somalia, the Government through ministries and departments occasionally contracts public HEIs to undertake research to address prevailing research needs.

3. Linkages, Partnerships and Collaboration

This dimension assessed the existence of strategic linkages and partnerships for research. This focussed on the extent of partnerships between HEIs, the private sector and development agencies. It also assessed linkages between HEIs and communities, between academic units and their sector ministries at national level, and between local researchers and international researchers from HEIs in developed countries. The overall average score for the participating HEIs for this dimension was 3 (moderate).

- Adequate access to HEI researchers from HICs universities for partnering on research grant applications and implementation average score of 2 (weak).
- HEI has a strong linkage and presence as an implementer in the communities with community research sites or project implementation sites average score of 3 (moderate).
- HEI has strong technical linkages with national level sector Ministries and is involved in their Technical Working Groups average score of 4 (good).

4. Leadership

This dimension assessed whether institutions have training courses that target cross-cutting non-technical skills important for management of research projects like leadership, supervision and project management. The overall average score for this dimension was moderate (3). The majority of the HEIs (43 percent) scored weak for this dimension indicating low capacities for research leadership.

5. Empowerment

This dimension assessed the level of involvement of junior researchers, female researchers and other groups that tend to be marginalized in research. The availability of incentives to promote female researchers and junior faculty members to lead research projects was also assessed. Overall, the HEIs on average scored moderately (3) on this dimension. Comparably, there is a wide gender disparity amongst HEIs staff with PhDs. Only 4 of 113 faculties with PhDs were female. Additionally, only two of the seven

HEIs surveyed had Women and/or Gender Studies Units. Male enrollment for both undergraduate and graduate programs was significantly higher than that of females in both Somalia and South Sudan.

6. Dissemination, Knowledge Translation and Research Applicability

This dimension assessed whether 1) Institution has a fully-fledged knowledge translation unit that supports researchers to disseminate their findings for impact, 2) The institution has an adequate number of knowledge translation experts to support researchers in developing communication and knowledge products, 3) Institution has a clear research relationship with government in which governments channel their research needs directly to the institution, and 4) Institution has strong credibility with the private sector as a source of innovations and research evidence for private businesses.

The overall average score for this dimension was 2 representing weak capacities regarding dissemination, knowledge translation and research applicability among the participating HEIs.

In addition to the weak score, qualitative results revealed that research translation and dissemination by HEIs in conflict affected countries is constrained by other factors including insecurity, cultural barriers and resistance from communities, inadequate skills for research translation, weak institutional research administration/management systems as well as limited funding opportunities.

General Effects of Conflict on Research

Qualitative results revealed that conflicts in Somalia and South Sudan have affected research execution both directly and indirectly. Conflicts in the two countries have led to brain drain, job insecurity of researchers, inability to access some communities as study sites, monetization of research, and hesitancy of funders due to security concerns. Researchers are often unable to publish findings that highlight shortcomings of ruling governments such as corruption and nepotism for fear of being expelled from HEIs, losing their jobs or even killed for inciting the communities against the ruling governments.

Conclusions and Recommendations

Overall, participating HEIs in the two countries scored weak to moderate for most of the dimensions assessed indicating huge capacity gaps across all the dimensions. The findings from this assessment have important implications for the HEIs, governments, and the development partners for capacity-building strategies as they indicate critical gaps and recommendations that universities, governments and partners need to address to build a vibrant research ecosystem in universities and countries affected by conflict. Based on results from this assessment, development partners and other stakeholders supporting development research in HEIs such as the LASER PULSE network could roll out initiatives such as thematic workshops, short courses, and mentorship activities to strengthen the capacity of research ecosystems in HEIs in these countries.

Recommendations

- *Research infrastructure development;* HEIs in conflict settings should improve the provision of institutional support services for research within their constituent academic units. This should include but not be limited to reinforcing the research support infrastructure including internet connectivity, computers and software, and operating units such as research support and grants management offices, laboratories, libraries and information resources, IRBs, research communication support and research skills training. An improved research infrastructure will boost the capability of the HEIs to conduct and utilize research for development.
- *Continuity and sustainability of research*; From the analysis, we recommend that HEIs allocate resources to support research using internal funds. Universities including private HEIs also

need to engage their governments to provide more appropriations for research funding in national budgets.

- *Linkages partnerships and collaborations;* We recommend that HEI should forge research partnerships and collaborations with different key stakeholders including HEIs in HICs, private sectors, government ministries and departments as well as development agencies. Development partners need to increasingly engage HEIs in countries affected by conflicts as partners in development because the latter have the advantage of proximity to communities and community presence and can therefore provide more contextualized evidence of the development context, local implementation challenges and successes, and effectiveness of interventions.
- *Empowerment;* From this analysis we recommend that HEIs in conflict affected countries devise initiatives and strategies that empower entry level and female researchers as well as encourage more women to undertake careers in research. Such initiatives may include forming clear institutional level policies on Diversity, Equity and Inclusion (DEI), to guide the recruitment and promotion practices. Guidelines on additional support and mentorship for underrepresented groups may also be formulated, for example: opportunities for mentorship and training for entry level and female researchers.
- *Research leadership and management;* From this assessment, we recommend that HEIs in countries affected by conflict implement targeted efforts to build capacity of their faculty in research leadership and management through institutionalization of training courses.
- *Dissemination, Knowledge translation and promotion of research applicability;* HEIs in countries previously affected by conflict should enhance their capacity for research dissemination, knowledge translation and promotion of research applicability by: establishing fully fledged knowledge translation units that support researchers to develop knowledge products for different audiences and to disseminate them to relevant stakeholders for impact; establishing strong research dissemination and using partnerships with governments, the private sector and other implementing partners for uptake of research products of interest to them.
- *Improving Security;* Governments and development partners should strengthen efforts to improve security in fragile countries to create an environment where researchers and respondents feel safe to engage and collaborate with both local and international agencies productively. This could ultimately contribute to reduction of brain drain amongst researchers who exodus out of conflict settings in search for peace and a politically stable working environment.

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List of Abbreviations

AFENET	African Field Epidemiology Network
ERT	Embedded Research Translation
EU	European Union
GAVI	Global Alliance for Vaccines and Immunization
HEI	Higher Education Institution
HIC	Higher Income Country
ILO	International Labor Organization
JUST	Jumhuriya University of Science and Technology
LASER	Long-Term Assistance and Services for Research
LMIC	Low- and Middle-Income Country
MoH	Ministry of Health
NGO	Non-Governmental Organization
PULSE	Partner University-Led Solutions Engine
RAN	ResilientAfrica Network
RMSS	Research Management and Support Systems
STIP	Science, Technology and Innovation Partnership
TiKA	Turkish Cooperation and Coordination Agency
UKAID	United Kingdom Agency for International Development
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

1.0 BACKGROUND

1.1 About LASER-PULSE

LASER (Long-term SErvices for Research) PULSE (Partners for University-Led Solutions Engine) is a five-year, $70M program funded through USAID's Innovation, Technology, and Research Hub, that delivers research-driven solutions to field-sourced development challenges in USAID interest countries. LASER PULSE is a consortium led by Purdue University, with core partners Catholic Relief Services, Indiana University, Makerere University, and the University of Notre Dame, and is implemented through a growing network of 3000+ researchers and development practitioners in 74 countries. LASER PULSE collaborates with USAID missions, bureaus, and independent offices and other local stakeholders to identify research needs for critical development challenges, and funds and strengthens capacity of researcher-practitioner teams to co-design solutions that translate into policy and practice.

1.2 University research capacity assessment in conflict affected countries

Research ecosystems of universities in conflict affected countries are constrained by a number of factors arising from political instability, civil wars and insecurity. Universities in conflict affected countries suffer structural conditions that constrain the production of good quality research. Such structural barriers include universities having very few or no staff with research qualifications (e.g. PhDs), infrastructural deficits such as the limited or no access to the internet, reading materials and libraries (Pellini, et al., 2020), as well as lack of research funding opportunities.
Consequently, research outputs like policy briefs and other publications from conflict affected country universities are relatively few and of low quality. As a result, there is inadequate data and tools to inform decisions of development practitioners and funders in these countries.

Despite these shortfalls, universities in such countries are strategically placed to address information and data needs to inform the development of these countries given their proximity to target communities, a better understanding of the local context and development issues, as well as linkages with government entities. In order to increase development research outputs from universities in conflict affected countries, there is a need to build research capacity. This requires identification of key capacity strengths and gaps in these ecosystems in order to facilitate the design of specific mechanisms to fill some of these gaps.

One of LASER PULSE's core activities is to conduct capacity assessment of the research environment in partner universities, especially targeting institutions in low and middle income countries (LMICs) affected by conflict. Makerere University is leading the initial Higher Education Institutions (HEIs) research needs assessment to identify research capacity gaps and barriers to the research enterprise and translation of research in HEIs in low-income countries. This assessment was carried out in July and August 2021 amongst HEIs within the fragile and conflict-affected countries of Somalia and South Sudan. The assessment answered the following questions;

1. What system and infrastructure exist to support research in the HEIs? What systems exist to support research translation in the HEIs?
2. Characterize the research relationship between the government and the HEI? Private sector and HEI. Are HEIs seen as legitimate sources of evidence upon which to base government policies? Or innovation products for the private sector?
3. What are the sustainability mechanisms for research and research translation in the HEIs?
4. What are the existing incentives for junior faculty? Are there any conditions that discourage junior faculty from the research enterprise?
5. Are there any special provisions made to incentivize female researchers? Are there any conditions that discourage female faculty from the research enterprise?

6. Do faculty participate in development project research? In what ways? How do they make these contacts?
7. How has conflict affected execution of Research in the HEIs?

The findings from this study will be used to identify, prioritize and describe key capacity gaps that ought to be addressed in order to strengthen the development of HEI research outputs in fragile and conflict affected country settings. Study findings will also inform the design of institutional capacity-strengthening activities for researchers, university officials at the individual HEI and at secretariats of institutional networks so that activities are targeted to areas of highest need.

1.3 HEIs in Somalia and South Sudan

Education can play a crucial role in the reconstruction and reconciliation of societies emerging from conflict by building peace and social cohesion, facilitating economic recovery, and guiding countries towards accelerated development (Novelli & Smith, 2011). The role higher education and academic research play in economic, social and political development is undebatable (Haller, 2017).

However, the higher education sector in Africa faces challenges such as shortage of quality faculty; limited capacity with regard to governance, leadership and management; inadequate funding coupled with non-diversified income streams; inadequate facilities and infrastructure; quality and relevance of teaching and research; limited capacity of for research, knowledge generation and adaptation; and limitations in meeting increasing demand for equitable access (Atuahene, 2011). These issues are amplified in fragile settings. Moreover, in post-conflict societies, security is scarce, memories of violence are fresh and the gulf between formerly warring parties persists. The psychosocial scars of war often linger and may take decades, or whole generations to heal, if at all they do (de Jong, Komproe, & Van Ommeren, 2003). This has a direct effect on participation in research by both researchers and respondents.

Somalia is a post-conflict country located on the sunrise of the Horn of Africa and lies along the Indian Ocean and the Gulf of Aden, bordered by Ethiopia to the west and Kenya to the southwest. Higher education institutions (HEIs) in Somalia are being revived, having collapsed during the civil war. All social services including roads, education, health, energy, transportation, information and communication technology were disrupted during the conflicts. Through research and innovation, HEIs have a major role to play in the rebuilding efforts (Pellini A. , 2020) of these challenges.

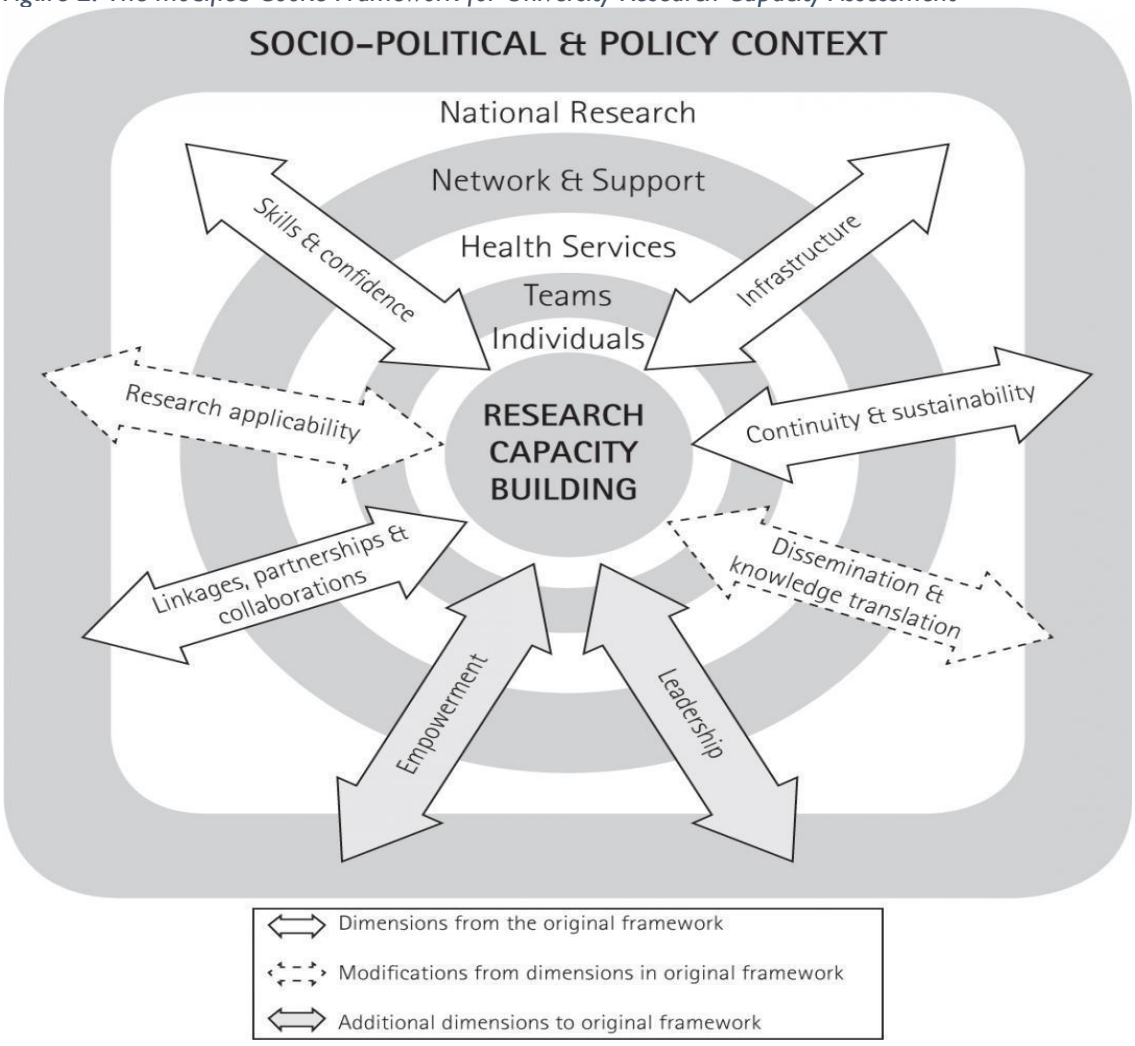
HEIs in South Sudan, the world's newest nation, face severe problems due to civil war, poverty, and other factors (Blanchard, 2015). The country has a total of six universities, five of which are public universities and one is privately-owned. The top three university administrators (a vice-chancellor and two deputies for academic affairs and administration and finance) are appointed by the country's president (Kuany, 2016). The universities have no specific departments for research. The most important challenge to higher education institutions including research in South Sudan is the vicious circle of insecurity in both the periphery and center of the country. Four of the five public universities are located in states prone to attacks either by rebels fighting the Government or by local communities in conflict with each other (Kuany, 2016). This has significantly affected HEIs' participation in both development and academic research. Additionally, in South Sudan, female literacy is estimated to be under 30 percent due to patriarchal societal norms (Gender Equality and Civicness in Higher Education in South Sudan). Consequently, fewer females participate in development activities including research.

2.0 CONCEPTUAL FRAMEWORK FOR HEI CAPACITY ASSESSMENT

2.1 Guiding frameworks for the evaluation

This capacity assessment was guided by two frameworks that have been used in past studies and settings including in African HEIs. The main guiding framework was a modified version of the framework by Cooke used to evaluate research capacity building in health care (Simba, Mukose, & Bazeyo, 2014), modified by Rensburg and colleagues (Belizán & Miller, 2017). The choice of this framework hinged on its strong emphasis on individual and institutional capacities, as well acknowledgement of the context and organizational infrastructure to support research capacity building by reducing barriers and adopting a whole systems approach based on local needs and existing levels of capacity. It prescribes eight (8) constructs that need to be discerned in a research capacity assessment, namely: 1) research infrastructure, 2) skills and confidence, 3) linkages, partnerships and collaboration, 4) continuity and sustainability, 5) leadership, 6) empowerment, 7) research applicability, and 8) dissemination and knowledge translation. The framework is presented in the figure below.

Figure 2: The modified Cooke Framework for University Research Capacity Assessment



In addition to the Cooke Framework, the 8 key elements used in the Research Management and Support Systems (RMSS) analytical framework for research capacity in universities were amalgamated as sub-elements of the 'Research Infrastructure' component of the Cooke Framework. The RMSS Framework

was used by the Liverpool School of Tropical Medicine in its research capacity-building program for universities in Ghana, Malawi, Senegal and Tanzania between 2014 and 2016 (Datta & Huong, 2013). The 8 sub-elements of this framework include 1) research strategies and policies, 2) institutional support services and infrastructure, 3) supporting funding applications, 4) project management and control, 5) human resource management for research, 6) human resource development for research, 7) external promotion of research, and 8) national research engagement (Datta & Huong, 2013).

2.2 Methodology

The assessment used both qualitative and quantitative techniques to gather the relevant information. Data was collected in July and August from 13 (public and private) HEIs in Somalia and South Sudan. Respondents included researchers, teaching staff and HEI administrators who offer research support. The quantitative aspect of the study involved an assessment of seven universities namely SIMAD University, Galkayo University, Banaadir University, Mogadishu University, Jumhuriya University of Science and Technology (JUST), Nugaal University from Somalia, and Rumbek University from South Sudan. Qualitative data were collected from 28 key informants (25 participants; 2 female and 23 males from 10 HEIs in Somalia and 3 participants; all male from 3 HEIs in South Sudan).

Quantitative Data Collection and Analysis; for the quantitative part of the assessment, the unit of assessment was 'a higher education institution' and the level of assessment was the central administration of the university; the vice chancellor's office. Survey dimensions and sub-dimensions described in previous sections were converted into a questionnaire, incorporating items from the Cooke Framework and the RMSS Assessment Tool. Survey questions were developed mainly in the format of structured Likert Scales, enabling the assessment team to make comparisons across institutions. The questionnaire also contained a few open-ended questions to preempt a qualitative description of enabling and supporting factors for key capacity dimensions. The internal validity of the assessment tool was enhanced by consulting various stakeholders within the LASER-PULSE network with an interest in university research capacity. The main dimensions that were assessed in the survey included: research infrastructure (like strategies and policies; supporting funding applications; project management and control; human resource development and management for research; external promotion of research; and national research engagement), continuity and sustainability of research; linkages, partnerships and collaborations; empowerment; leadership; research dissemination, knowledge translation and research applicability.

The unit of assessment was the higher education institution/ university (and not academic units such as college, school or faculty). The survey respondents were university administrators such as the vice chancellor or any other high level official appointed by the same office.

Quantitative data were analyzed using Stata Version 14. For Likert scale items, the median score for each questionnaire item was determined. Thereafter, the average and median scores for each dimension (or sub-dimension for larger dimensions) was determined and graded as '0' for 'nothing established'; '1' for 'very weak'; 2 for 'weak'; 3 for 'moderate'; 4 for 'good'; and 5 for 'very good.

Qualitative Data Collection and Analysis; a Key Informant Interview (KII) guide was developed based on Cooke's framework, in which the following broad themes were assessed: research leadership; research translation; sustainability of research; and research in conflict setting. These interviews were conducted with purposely selected researchers (respondents) in positions that have access to the required information from HEIs in South Sudan and Somalia. The assessment was carried out between July and August 2021. The respondents were contacted through email and requested to voluntarily participate in the study. With participants' consent, recorded (audio) interviews were conducted via Zoom or telephone by a team from RAN. All KIIs were transcribed verbatim and cleaned before analysis. The transcripts were exported to ATLAS.ti Version 7 software for coding and analysis. Rigor was enhanced through triangulation where

two groups of two people each independently coded, analyzed and thereafter compared findings. Qualitative thematic content analysis was used, where categories and themes inductively arose from the data.

3.0 RESULTS AND DISCUSSION

3.1 Background characteristics of participating universities

Table 1 presents the list of participating HEIs and their corresponding number of interviews from the two countries. A total of 28 KIIs were conducted with purposively selected respondents in positions that have access to all the required information from 13 HEIs (10 in Somalia and 3 in South Sudan). For the quantitative survey, data were collected from 7 universities. The universities involved in the study were of varying sizes ranging from 4 to 29 academic units (semi-autonomous faculties, schools or colleges) with an average of 16 academic units.

- Total enrollment of undergraduate students ranged from 782 students in the smallest institution to 6,535 in the largest one. Two out of the seven universities surveyed had no female undergraduate students.
- Total enrollment of masters' students ranged from none (1/7 universities) to 321 students. Two out of the seven universities surveyed had no female graduate students.
- Only one of the seven universities had students enrolled in PhD programs with a total enrollment of 25 students, 3 of whom were female.
- The total number of academic staff ranged from 72 in the smallest institution to 306 in the largest one.
- The total number of faculty with the expertise to be independent researchers (i.e. academic staff with a PhD level or equivalent qualification) ranged from none in 1/7 universities to 36 in the largest one. The total number of academic staff with PhD level qualifications for all the seven universities was 113. However, of the 113 only 4 were female.

Table 1: Participating HEIs from the countries

	HEI Name	Country	Quantitative Survey (No. of Respondents)	Qualitative Survey (No. of Respondents)
1	Mogadishu University	Somalia	1	3
2	SIMAD University	Somalia	1	3
3	Galkayo University	Somalia	1	3
4	Benadir University	Somalia	1	3
5	Jamhuriya University of Science & Technology (JUST)	Somalia	1	3
6	Nugaal University	Somalia	1	3
7	SORDI	Somalia	0	2
8	Jazeera University	Somalia	0	3

9	NIH Somalia	Somalia	0	1
10	Hargara Institute	Somalia	0	1
11	Rumbek University of Science and Technology	South Sudan	1	1
12	Juba University	South Sudan	0	1
13	Upper Nile University	South Sudan	0	1

3.2 HEI Research Capacity Assessment

In this subsection results of the different constructs related to research capacity in HEIs are discussed based on the developed assessment framework. The different measures or dimensions discussed include 1) research infrastructure, 2) continuity and sustainability of research, 3) linkages, partnerships and collaborations, 4) empowerment, 5) leadership, 6) dissemination, knowledge translation and research applicability.

1. Research infrastructure

This construct assessed several sub-dimensions of research infrastructure in HEIs including; a) research strategies and policies, b) institutional support services and infrastructure, c) support for funding applications, d) research project management and control, e) human resource management for research, f) human resource development for research and f) national research engagements.

a) Research infrastructure: Research strategies and policies

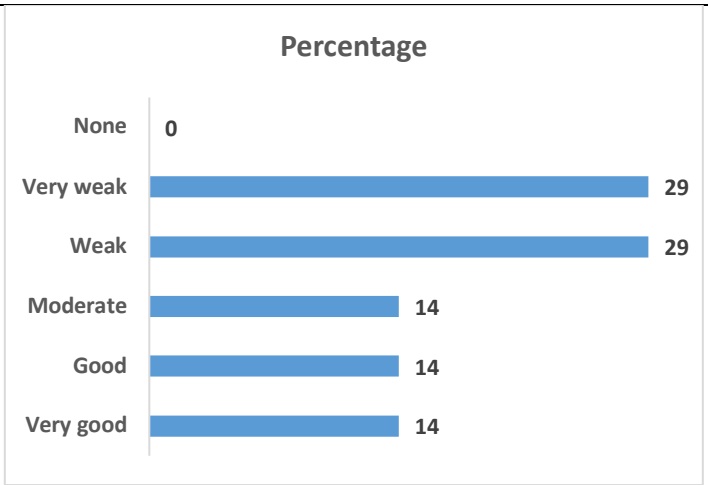
This sub-domain assessed the existence of a policy and guidelines to support the implementation of research, and the extent to which the policy is applied to development research in HEIs. It also assessed incentives for fostering research as well as the existence of policies on commercialization of research including intellectual property (IP). In all instances, we sought to find out if available policies were operational.

The overall average score for research strategies and policies was 2.0, representing 21 – 40 percent availability (Figure 2). This is a low score representing weak parameters relating to protection of IP, existence of clear policies and mechanisms to support IP, commercialization of research and innovations, support and incentives for research, and linkages of research agendas of academic units with the overall institutional agenda.

- The HEIs assessed scored moderately on the availability of a research policy and guidelines, and the availability of approved research agendas (with a mean score of 3.4 and 2.6 respectively). The extent to which research output and dissemination is a prominent part of technical faculties' consideration for promotion also scored moderately at 2.6.
- Weak scores came from the presence of clear mechanism for linking academic unit research agendas with the overall institutional research agendas (average score of 2.3), the extent to which the institution has clear policies and mechanisms to support commercialization of research and innovations (average score 2.0), and the extent to which the policies and mechanisms for protection of IP and commercialization of research are favorable and agreeable to most researchers (average score 2.1).
- Research support and incentives scored lowest with an average score of 1.4.

Figure 3: Distribution of capacity score grades for research strategies and policies among HEIs

Average Score	Number of HEIs	%
Very good	1	14
Good	1	14
Moderate	1	14
Weak	2	29
Very weak	2	29
None	0	0
Total	7	100
Overall Mean Score	**2**	**Weak**



The quantitative results were affirmed by qualitative findings. Several KII respondents reported the absence of clear guidance for protection of IP for their innovations and commercialization of their research outputs. It was also reported that in most universities, other than academic promotion, there are hardly any incentives for conducting research. For example, KII respondents from South Sudan's HEIs highlighted the total absence of any written strategies for research, its commercialization, and IP protection, pointing out that HEI faculty mostly carry out research on individual basis, rarely at institutional level.

> *"The university has no strategic plan in regards to research, so we are working individually. Whatever anyone does, you plan and write it up in a journal on your own." KII South Sudan.*
>
> *"For incentives, the funds provided to the university are very limited. Mainly the academic staff are encouraged to write particularly for promotions only and I mean that writers and reviewers are encouraged to write and submit articles as a team to grow in university ranks" KII Somalia.*

b) Research infrastructure: Institutional support services and infrastructure

This construct assessed the presence of institutional research support offices and services including:

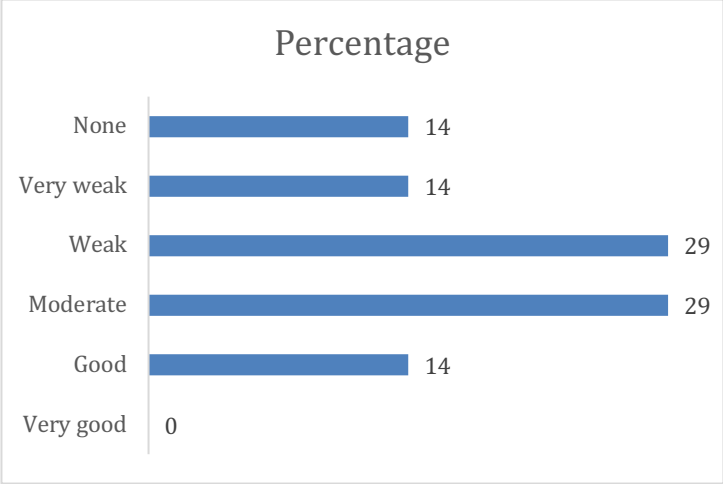
- a grants management office(s)
- a functional relationship between the research support offices and lower academic units (academic departments within a school or faculty or Institute at an HEI).
- well-equipped research laboratories capable of supporting specialized research in all key disciplines
- well-stocked libraries to support research
- other critical research support infrastructure such as the internet, journals and e-resources, as well as ethical and scientific review boards
- an institutional research agenda.

The overall average score for this dimension was 2, indicating weak capacities for institutional support services and infrastructure amongst the participating HEIs. Most HEIs had low or very low median scores across all sub dimensions. The median score for the existence of a grants management office amongst all

seven HEIs surveyed was 1.0 – 'a very weak score' representing 0 – 20% rate of establishment of such offices. Three HEIs (two privately-owned HEIs in Somalia and one HEI from South Sudan) scored 0.0 meaning that they do not have a grants management office. One HEI in Somalia scored 1.0 while the other three from Somalia scored 4.0 (61 – 80% rate of establishment of a grants management office).

Figure 4: Distribution of capacity score grades for institutional support services and infrastructure among HEIs

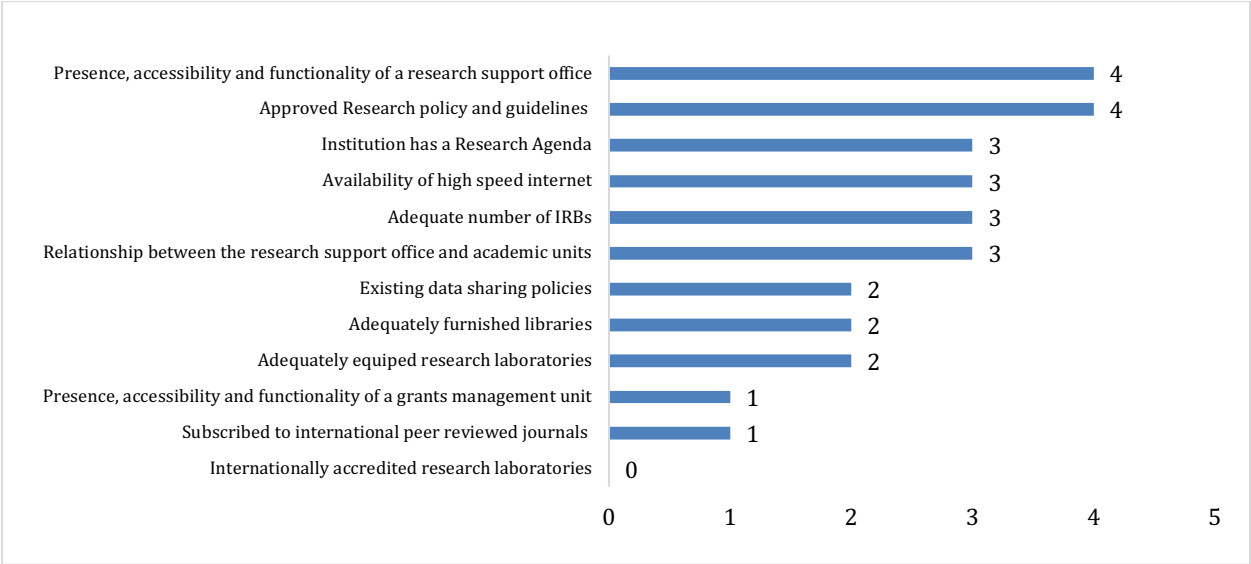
Average Score	Number of HEIs	%
Very good	0	0
Good	14	1
Moderate	29	2
Weak	29	2
Very weak	14	1
None	14	1
Total	100	7
Overall Mean Score	**2**	**Weak**



There is a fairly functional relationship between the institutional research support offices and lower academic units with a median score of 3.0, representing 41 – 60% rate of existence of such functional relationships. Specifically relating to the existence of adequately equipped laboratories to support research, the HEIs had a median score of 2.0 – weak ranking representing 21 – 40% rate of availability of such laboratories. None of the surveyed HEIs had an internationally accredited laboratory, manifested by a mean and median score of 0.0 for this variable. HEIs from South Sudan scored 0.0 in all variables in this sub dimension implying major weaknesses in institutional support services for research.

Access to internet and ethical and scientific review boards, which are critical research support infrastructure, was moderately available with a median score of 3.0, representing 41 – 60% access rate. Subscription and access to international journals and e-resources was very weak with a median score of 1.0, representing 0 – 20% access rate. These findings were from HEIs in Somalia, while those in South Sudan had median scores of 0.0 on all variables (internet connectivity, subscription to international journals and e-resources and access to ethical and scientific review boards). This finding is similar to what was found in South Sudan's country profile on research (Pellini, et al., 2020).

Figure 5: Median scores for existence of institutional support structures in Somalia HEIs



The scores in this sub-dimension were affirmed by findings from the qualitative interviews where respondents reported that their HEIs have research units which support the conduct of research. However, privately owned and government HEIs had differences in the capacity and availability of infrastructure to support research. For example, in Somalia, some respondents from government-owned HEIs reported having systems that support research such as Research and Ethics Committees (RECs), Grants Management Committees (GMCs), and a Department of Research and Development which is mandated to oversee research activities in their institutions. RECs were headed by a Director and supported by Board members. The Directorate of research manages all research and supports research implementation, development of research guidelines, sharing research funding opportunity announcements, capacity building for research, coordinates the identification of research thematic areas, manages HEI research networks, knowledge transfer, and financial management.

On the other hand, KII respondents from South Sudan reported the absence of both GMCs and RECs at their institutions. As with all other aspects of HEIs in South Sudan, ethical approvals are done by the Government through a very lengthy and bureaucratic process which constrains research processes. Decisions related to research including funding and ethical approvals, are made by a national committee. This environment limits the capacity for HEIs to compete and innovate because of the bureaucracies involved in research processes.

> *"We don't have internet connectivity. The University only brought the internet connection to the Vice Chancellor's office, and it was not extended to the students and staff. Worse still, most of our students and lecturers don't even have computers. We are basically doing things manually. We are not really enjoying this world of today."* ***KII, HEI, South Sudan***
>
> *"We do not have a research office…. There is no such a department at the University…. We are just trying to set up a research support system at the University."* ***KII, HEI, South Sudan***

Absence of such infrastructure and the lengthy and bureaucratic process were reported to demotivate many from pursuing research especially in South Sudan. The respondents reported that they thought that

the research enterprise has not been given a priority in the country since the country is aiming and creating peace and political stability at the moment. Other factors like heavy teaching loads, and lack of sustained funding from governments and the private sector also affects the involvement of HEIs in research similar to other HEIs in LMICs.

> *"Government always says we don't have money to support research because of war …, security is our priority now, they say"* ***KII HEI, South Sudan***

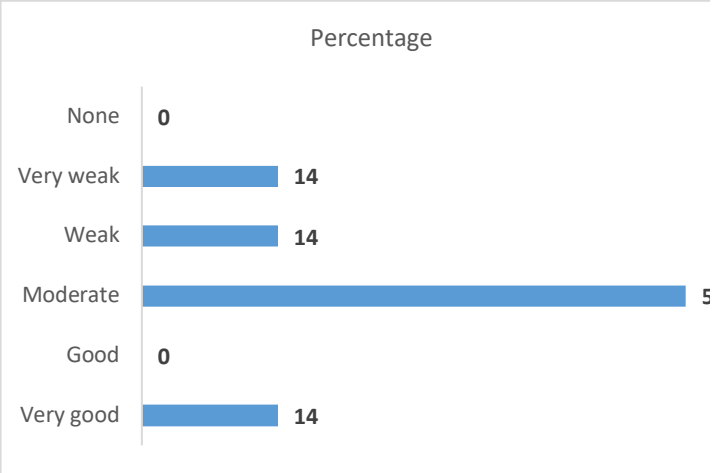
c) Research infrastructure: Supporting Funding Applications

This sub dimension assessed 1) the e extent to which the institution has mechanisms for supporting (including funding) and coordinating timely, multi-disciplinary input into application proposal development, and 2) the extent to which the institution has clear and functional processes for quality assurance, attainment of support documentation and authorization of proposals before submission. The overall average score for this sub dimension among the participating HEIs was 3 (moderate) (Figure 5).

- On average HEIs scored 2 (weak) on the extent to which the institution has mechanisms for supporting (including funding) and coordinating timely, multi-disciplinary input into application proposal development.
- On average HEIs score 3 (moderate) on the extent to which the institution has clear and functional processes for quality assurance, attainment of support documentation and authorization of proposals before submission.

Figure 6: Distribution of capacity score grades for supporting funding applications among HEIs

Average Score	Number of HEIs	%
Very good	1	14
Good	0	0
Moderate	4	57
Weak	1	14
Very weak	1	14
None	0	0
Total	7	100
Overall Mean Score	**3**	**Moderate**



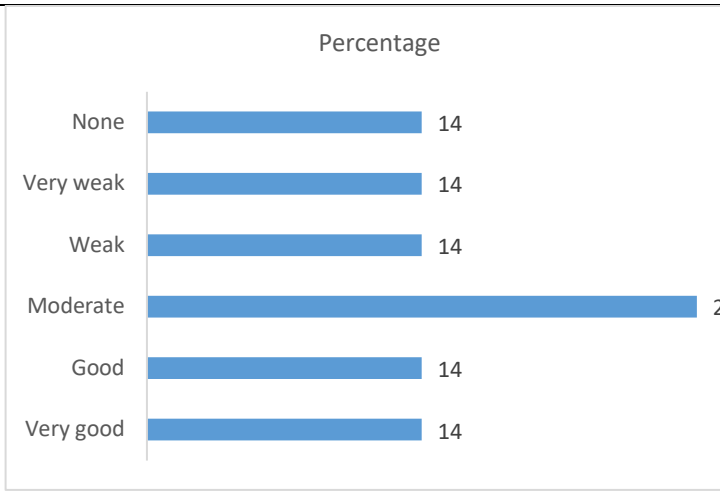
d) Research infrastructure: Research project management and control

This sub-dimension assessed the presence and integrity of mechanisms to manage research projects in the HEIs and the ability to track concurrent research projects. The latter includes tracking of contracts/agreements, protocols, budgets, reports and deliverables, overheads, formal approvals, and other review processes including mitigation of research-related risks.

The overall average score for this dimension was moderate (average score 3) among the participating HEIs (Figure 7).

Figure 7: Distribution of capacity score grades for research project management and control among HEIs

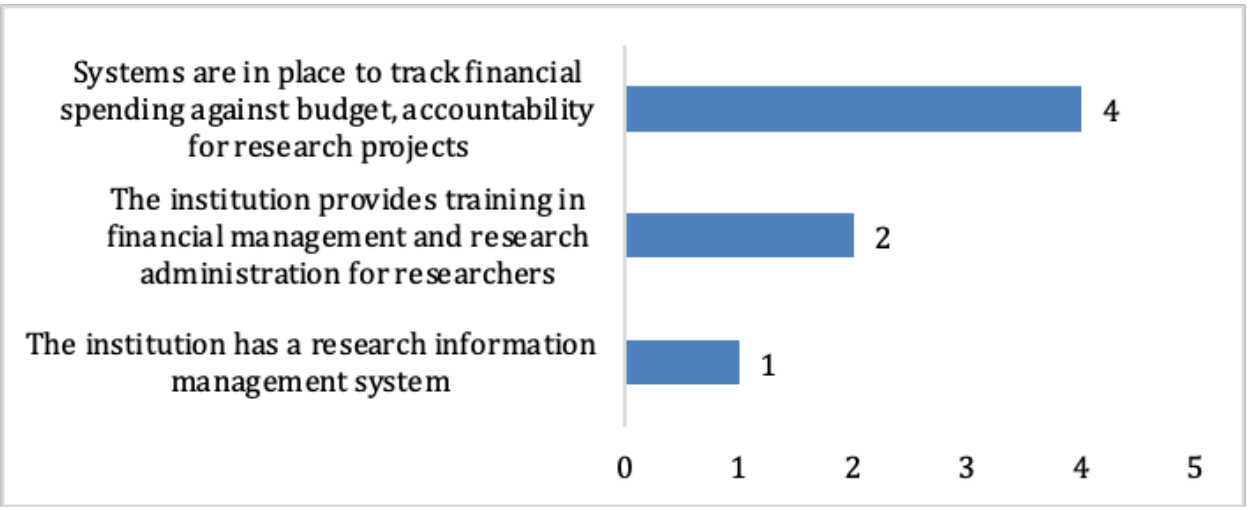
Average Score	Number of HEIs	%
Very good	1	14
Good	1	14
Moderate	2	29
Weak	1	14
Very weak	1	14
None	1	14
Total	7	100
Overall Mean Score	**3**	**Moderate**



Assessment results show that HEIs had good systems to track financial spending against budgets and accountability for research projects, as shown by the median score of 4.0 (61 – 80% availability rate). HEIs had a low/weak score of 2.0, representing 21 – 40% rate of training in financial management and research administration for researchers. The median score for the existence of a research information management system was 1.0 – 'a very weak ranking' representing 0 – 20% rate of availability of such systems. Three HEIs scored 0.0, one HEI scored 1.0 and three recorded scores greater than 3.0.

HEIs in South Sudan reported a total absence (median score of 0.0) of systems to track financial spending against budgets, research information management systems and training on financial management and research administration.

Figure 8: Median scores for research project management and control



The findings were further supported by qualitative findings where the majority of respondents from Somalia reported the absence of institutional training in project management and control, while those from South Sudan reported the total absence of such opportunities. Researchers reported that enrolment into research and project management courses is done individually, which is costly in terms of time and money. This was also reported to demotivate many researchers.

> *"There is a need for training for more skills that we need for us to do research, this would motivate us. It would put us at the international standards."* ***KII HEI, Somalia***.

Absence of information management systems to track research projects is a big capacity gap since institutions may not be able to manage and coordinate different projects across departments. This finding may explain why there was lack of coordination as reported by respondents between different departments with regard to conduct of research.

> *"There is also no coordination between the different departments conducting research since we don't have a unifier, research is done individually per project, per department."* ***KII, HEI, Somalia***.

e) Research infrastructure: Human resource management for research

This sub-dimension assessed the following variables:

- presence of research administrative support staff who are well-remunerated and facilitated to support research projects and are recognized by the university structure
- provision within the human resource structure for formal appointment of technical research staff (e.g. research fellows, research professors, etc.)
- flexibility of contracts to allow adequate time for researchers to conduct research in addition to their academic duties.
- existence of a predictable and sustainable remuneration structure for technical research staff
- presence of a career pathway for research technical staff
- existence of Ph.D. and post-doctoral training programs

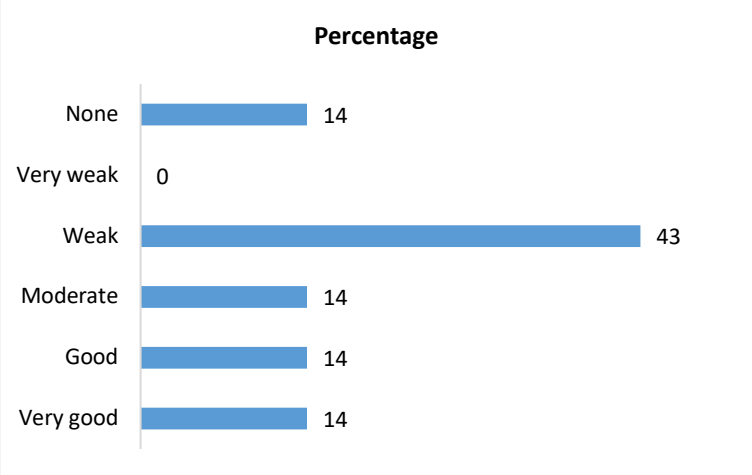
The overall average score for this sub dimension was 2 (weak) among the surveyed HEIs.

- The institution has adequate research administrative support staff who are well remunerated and facilitated to support research projects and are included in the university structure average score 3 (moderate).
- The institution has a provision in its human resource structure for formal appointment of technical research staff (e.g. Research Fellows/Research Professors etc.) average score 2 (weak).
- The institution has a predictable and sustainable remuneration structure for technical research staff average score 2 (weak).
- Career tracks for research technical staff are established, with clear opportunities for progressing from a junior researcher to a senior researcher and are protected and implemented to motivate research staff 2 (weak)
- The institution has a flexible contract structure for academic staff that allows a reasonable part of their time to be availed for research and community services in addition to their academic obligations, without being constrained by teaching loads 3 (moderate).

HEIs' capacities were weakest (median score of 0.0) in respect to the attribute concerning Ph.D. and post-doctoral training programs. Of the seven HEIs surveyed, only one offers Ph.D. programs and none offers postdoctoral programs. The universities also had weak, below average (median score of 2.0 representing 21-40% availability) ratings with regard to flexibility of contracts for academic staff, establishment of career paths for research technical teams, predictability and sustainability of the remuneration structure for research staff, and presence of formal appointment policies for staff. These low (weak) scores point to a non-conducive environment for individuals interested in pursuing a research career. The areas in which the universities scored highly included the existence of undergraduate and graduate programs with research projects and field placements as well as presence of adequate research administrative support staff.

Figure 9: Distribution of capacity score grades for Human Resource Management for Research among HEIs

Average Score	**Number of HEIs**	**%**
Very good	1	14
Good	1	14
Moderate	1	14
Weak	3	43
Very weak	0	0
None	1	14
Total	7	100
Overall Mean Score	**2**	**Weak**



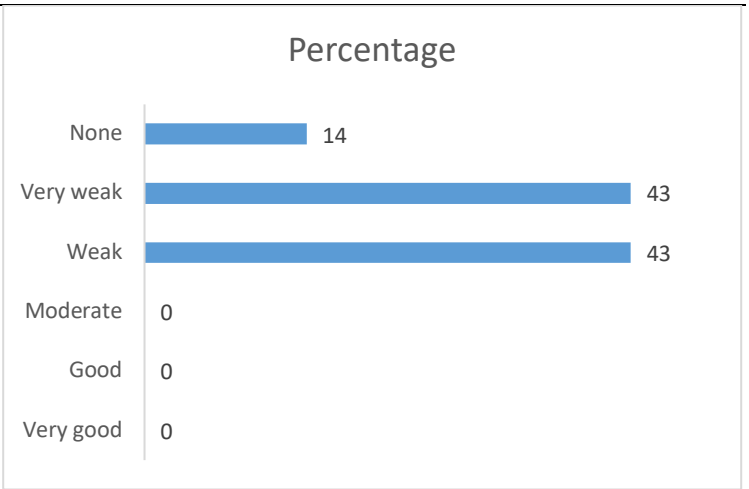
f) Research infrastructure: Human resource development for research

This sub dimension assessed provisions available within target HEIs for development of human resources for research including availability of core research training courses, training in non-research skills that enhance research, and current enrolment levels in Ph.D. programs focused on technical areas that are

critical to development. The overall score for this sub dimension was very weak with an average score of 1 indicating a 0 – 20 percent availability.

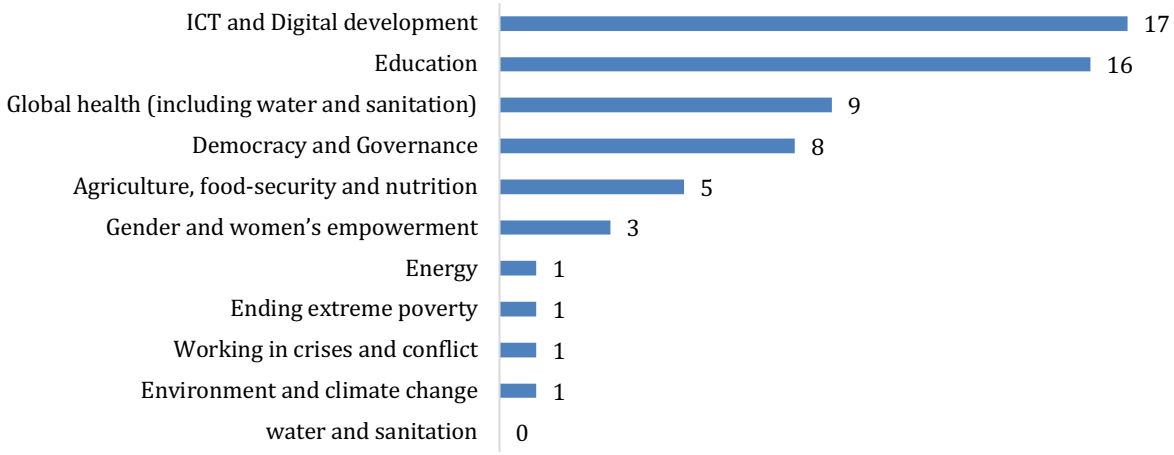
Figure 10: Distribution of capacity score grades for Human Resource Development for Research among HEIs

Average Score	Number of HEIs	%
Very good	0	0
Good	0	0
Moderate	0	0
Weak	3	43
Very weak	3	43
None	1	14
Total	7	100
Overall Mean Score	**1**	**Very Weak**



We also assessed the overall number of Ph.D. holders in the seven surveyed HEIs. Figure 11 shows the distribution of PhDs by key development research areas selected from USAID's Science, Technology, Innovation and Partnership (STIP) priorities.

Figure 11: Total number of academic staff with a Ph.D. by development area



Overall, there were 113 academic staff with PhDs in the seven surveyed institutions in South Sudan and Somalia. There were no academic staff with PhDs in the area of Water, Sanitation and Hygiene (WASH) in all the HEIs. Development areas of energy, environment/climate change ending extreme poverty, as well as crisis and conflict had just one academic staff with a Ph.D. across all the assessed HEIs. These findings are an indication of the magnitude of capacity gaps both in terms of distribution of expertise and absolute numbers of experts. However, the development areas of education and ICT and digital development had the highest number of faculty members with PhDs in the assessed HEIs.

Universities returned a weak result (median score of 2.0) when assessed for availability of core research training courses and training in non-research skills that enhance research. This score represents 21 – 40 percent availability of these courses, implying that researchers are deprived of knowledge that they would otherwise apply during research activities, and therefore leaves a gap in the research ecosystem.

Respondents in qualitative interviews also asserted that the low number of academic staff with PhDs could be explained by the fact that civil wars in the countries forced well-trained staff to relocate to other countries with guaranteed security and political stability. This has resulted in substantial human resource gaps in HEIs in conflict-prone areas, with negative impacts on the development of the countries.

> *"The main negative impact is; everyone who is an expert in this field flew away from the country due to insecurity. These people are living in other countries and then they can't participate in research back home. It's not easy for them to come back; they may never come back."* ***KII HEI, Somalia***

g) Research infrastructure: External promotion of research / promotion of research visibility

This sub-dimension assessed the existence of programs for promoting the visibility of research conducted within the institutions, availability of research communication training, and availability of opportunities for field placements for students.

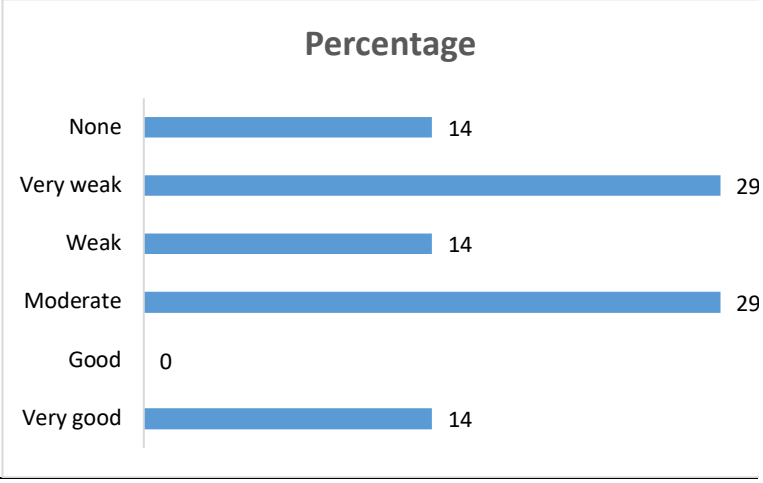
HEIs were rated low on the issue of promotion of research visibility with an overall average score of 2.0, representing a 21 – 40% rate of implementation of activities such as having a research section of the institution's website with up-to-date information on ongoing research, feedback and knowledge translations products, and establishment of a dedicated unit for promoting the visibility of institutional research activities and outputs. The low score (weak ranking) could be explained by the lack of capacity in research management information systems to track the status of research projects in HEIs.

South Sudan's HEIs reported a complete absence (median score of 0.0) of an up-to-date website with ongoing research, feedback and knowledge translation products and lacked dedicated units for promoting the visibility of institutional research activities and outputs. These findings could be explained by the absence of infrastructure such as computers and lack of active internet connection in HEIs.

Figure 12: Distribution of capacity score grades for Promotion of Research among HEIs

Average Score	Number of HEIs	%

Very good	1	14
Good	0	0
Moderate	2	29
Weak	1	14
Very weak	2	29
None	1	14
Total	7	100
Overall Mean Score	**2**	**Weak**

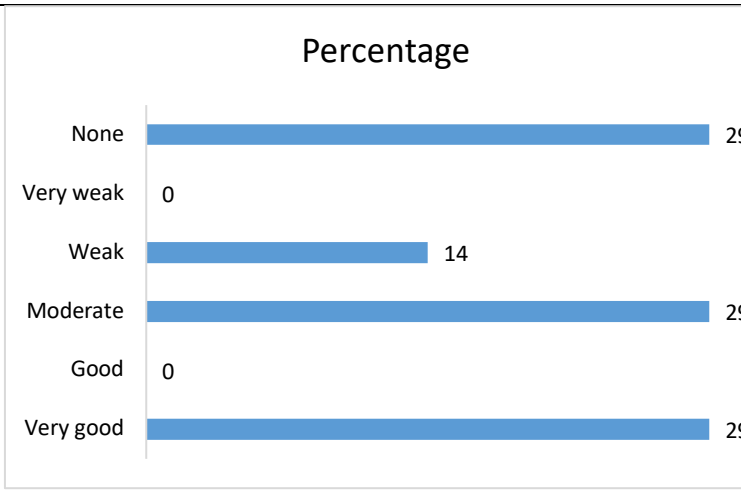


h) Research infrastructure: National research engagement

This sub-dimension focused on assessing whether the institution engages with policymakers at national and subnational levels for uptake of research, and existence of linkages with the national research policy. HEIs scored moderately (overall average score 3) for this sub dimension.

Figure 13: Distribution of capacity score grades for national research engagement among HEIs

Average Score	**Number of HEIs**	**%**
Very good	2	29
Good	0	0
Moderate	2	29
Weak	1	14
Very weak	0	0
None	2	29
Very good	2	29
Overall Mean Score	**3**	**Moderate**



Universities recorded a median score of 3.0, representing 41 – 60 percent rate of alignment of their institutional research strategy with the national development strategy. Regarding the extent to which HEIs engaged with policy makers, program implementers/development practitioners at national level for uptake of research for development, the result was a low median score of 2.0, representing a limited extent of interaction. This implies that there is limited integration of research partnerships into the research process, hindering custom-generation of research as well as adoption and applicability of research findings by practitioners.

Respondents from Somalia's public HEIs reported having strong engagements with the Government and other policymakers during the development of their institutional research agendas, while respondents

from privately-owned HEIs reported little or no engagement with the Government. Respondents noted that the Government of Somalia provides funds for research, and utilizes the research outputs specifically, from public (government-owned) HEIs and not privately-owned HEIs, during decision making and policy formulation. Respondents from government-owned HEIs reported that on several occasions, the Government commissions research to inform program design or implementation.

Respondents from South Sudan reported strong collaborations with the Government, given the latter's role of regulation of research activities including providing ethical approvals for research. The Government of South Sudan actively engages with HEI researchers including on research question identification to ensure that research questions are aligned to Government priorities, dissemination of results, and incorporation of research findings into action plans, once the Government gets funding from development partners.

"Okay, so research is aligned to the National Development Plan of Somalia. Even when Donors want to do some work in Somalia, they have to align with the National Development Plan. So, most of the research we do is aligned to the NDP." ***KII, HEI Somalia***

"Us in private universities, we don't have a clear plan, shared by the Ministry of Education and our research is not aligned with the National Strategic Plan. So as individuals we are researching what we see as gaps, not necessarily aligning with the National Strategic Plan or as dictated by the regulatory bodies." ***KII, HEI Somalia***

2. Continuity and sustainability of research in HEIs in conflict settings

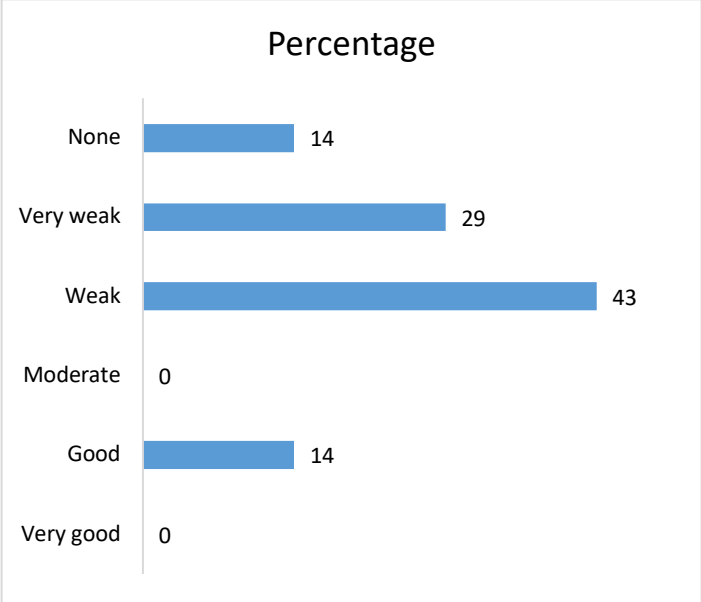
Sustainability of the HEIs' research infrastructure and activities was assessed with a focus on adequacy of funding, the extent to which universities fund research from their internal budgets and resources, and the balance between local funding for research compared to reliance on donor funds.

The score for continuity and sustainability for research score for the participating HEIs was weak with an overall average score of 2. Both the parameters i.e. adequacy of funding for research support offices and the presence of a functional provision to fund research from within its own local funds in addition to external funding scored weakly.

Figure 14: Distribution of capacity score grades for continuity and sustainability of research among HEIs

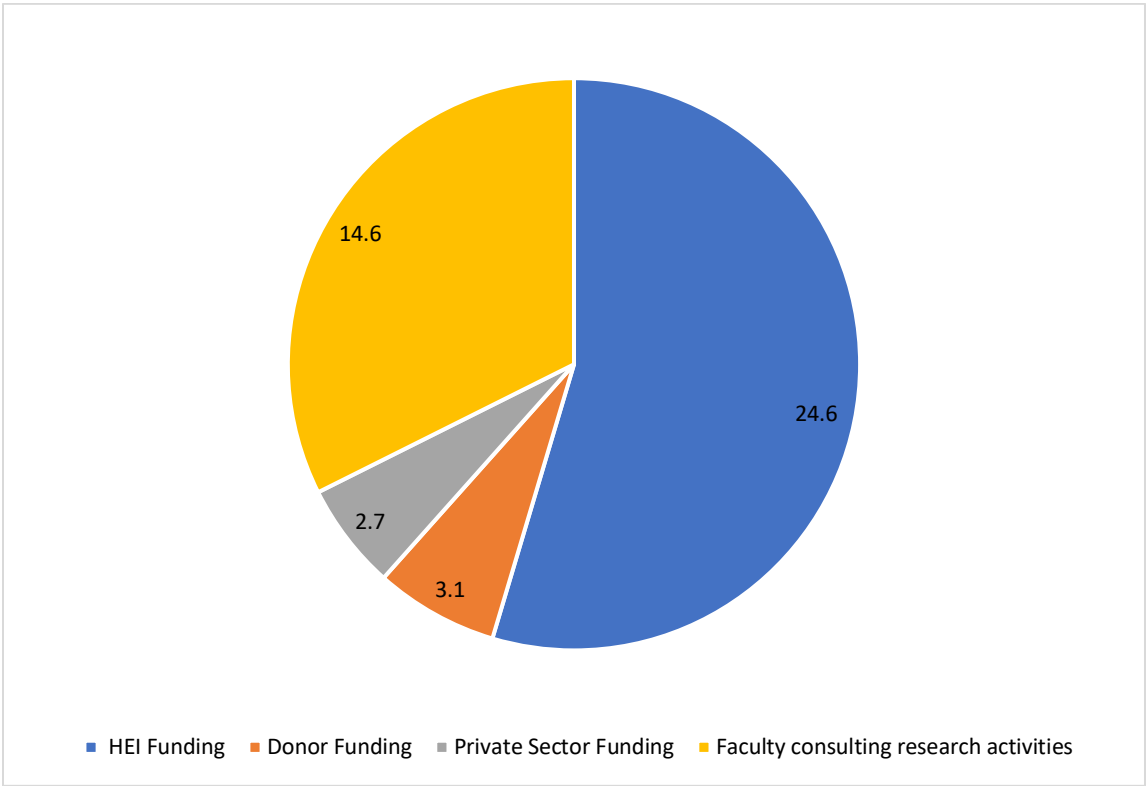
Average Score	Number of HEIs	%
Very good	0	0
Good	1	14
Moderate	0	0
Weak	3	43
Very weak	2	29
None	1	14
Total	7	100

Overall Mean Score	**2**	**Weak**



Additionally, the HEIs were tasked to provide the proportion of the total institution's expenditure on research that is funded from various sources. Research funding from the participating HEIs comes mainly from the institutions or universities, faculty consulting research activities, donors, and the private sector. None of the assessed HEIs had the government mentioned among one of the top three sources of funding.

Figure 15: Funding sources for research in HEIs in South Sudan and Somalia (% of total expenditure on research)



Qualitative results revealed that research conducted by Somalia's government owned HEIs is occasionally funded by the Government through line ministries and departments to address prevailing research needs, though this was not mentioned as one of the top three sources of funding. These research needs may occur due to epidemics such as cholera outbreaks. For instance, the Somalia MoH funded research on COVID-19 to inform the development of national guidelines on the case management of the COVID-19 in Somalia's hospitals.

While government owned institutions reported occasionally getting research funding from the government, the private owned institutions had never received any form of funding for research from the government. On the other hand, respondents from South Sudan highlighted that the country's HEIs had never obtained funding from their Government for research but instead got funding from NGOs, the private sector and international humanitarian agencies.

Similarly, privately-owned HEIs in Somalia reported (during interviews) that most funding for research was accessed from international donors and occasionally from individuals with specific priorities and interests. As such, the funders dictate research questions aligned with their agendas and HEI faculty only come in at the peripheral stages of data collection, management and analysis and never participate in setting the research questions. It was also reported that less established HEIs, especially private owned universities hardly receive any external funding for research from either the Government or donors, but instead often had self-funded projects sponsored by students or the university.

The study respondents to KIIs reported that the main reason why the government did not commit any funds to development research is because they have other priorities, especially ending conflict and creating peace in their countries. This was reported by researchers from both countries who reported that the government is prioritizing funding to activities aimed at creating peace other than development initiatives.

> *"Government always says we don't have money to support research because of war …"* ***KII HEI, South Sudan***
>
> *"The funding normally comes from donors for research as part of their operational programs for the projects that they are undertaking in Somalia; mainly needs assessment or operational research projects. So, in Somalia, the only way we get funding is through the donors or implementation agencies like the UN and some other international NGOs."* ***KII, HEI, Somalia***
>
> "*There is a gap in research funding: we don't have any grants or donors for our research, no extra funding at all or we are not lucky like some other universities. At HEI, all the research conducted is funded by the university. If we had funds, we could do many things, especially the experimental studies. This is our limitation."* ***KII, HEI, Somalia***

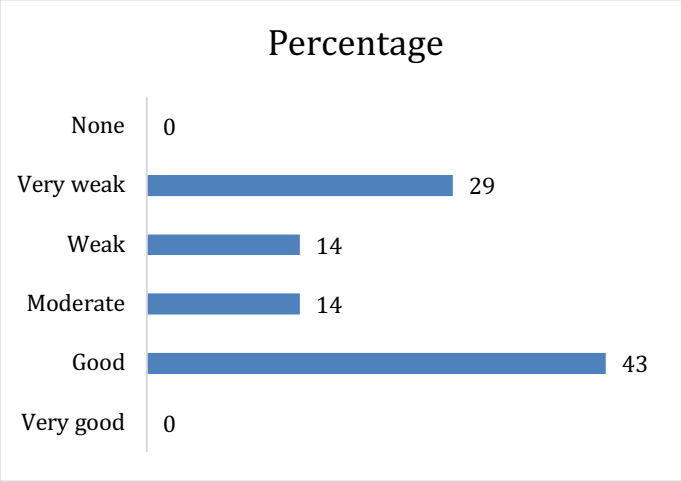
3. Research linkages, partnerships and collaboration

The existence of strategic linkages and partnerships for research was assessed with a focus on the extent of partnerships between HEIs, the private sector and development agencies, and the presence of linkages with communities, between academic units and their sector ministries at national level, and between local researchers and international researchers from HEIs in developed countries.

The overall average score for the participating HEIs for this sub dimension was moderate (3) with the majority 43 percent scoring "good" (Figure 16).

Figure 16: Distribution of capacity score grades for research linkages, partnerships and collaboration of research among HEIs

Average Score	Number of HEIs	%
Very good	0	0
Good	3	43
Moderate	1	14
Weak	1	14
Very weak	2	29
None	0	0
Total	7	100
Overall Mean Score	**3**	**Moderate**

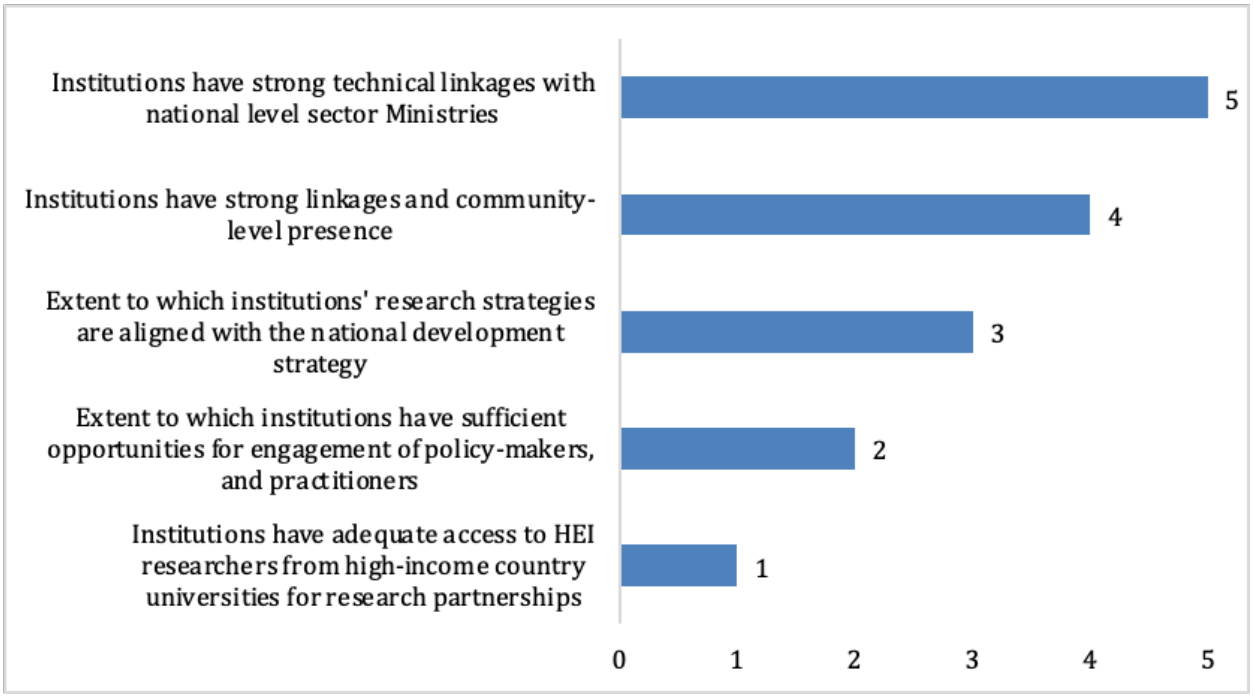


HEIs recorded a median score of 1.0 and 2.0 respectively, representing a 'weak-to-very-weak score' on accessibility to counterparts from high-income countries (HICs) for research partnerships & collaborations, and the extent to which they have opportunities for engagements with policymakers and practitioners respectively. Unlike the weak engagements with the research partners from HICs and other practitioners, the institutions scored median scores of 4.0 and 5.0 ('good-to-very-good') representing 61 – 80% and 81 – 100% attainment in the areas of existence of strong linkages with communities as evidenced by presence at community level, and collaboration at national level with sector ministries and departments respectively.

These survey findings were affirmed by the qualitative research findings where respondents reported good linkages, partnerships, and collaborations with the respective governments, ministries, and departments, and having presence at community level. In Somalia, partnerships with the Government were strong in government-owned HEIs which reported that most of their research is aligned with government priorities, and that they receive funding for such projects. For instance, one HEI reported having a partnership with the Somalia MOH to carry out studies to address health challenges such as epidemics in their region, and to promote good WASH practices. This approach fosters research translation as government policymakers and other stakeholders are involved in research design, implementation and application of resulting recommendations.

Furthermore, several HEIs work collaboratively on research projects with several NGOs and multilateral agencies such as USAID, World Health Organization (WHO), GAVI Alliance, United Nations Children's Fund (UNICEF), African Field Epidemiology Network (AFENET), United Kingdom Agency for International Development (UKAID), the European Union (EU), Turkish Cooperation and Coordination Agency (TiKA), Save the Children, World Vision, International Labor Organization (ILO), Care International and Oxfam. All listed entities have funded development research projects in Somalia and South Sudan HEIs, mostly focusing on humanitarian development.

Figure 17: Median rankings for partnerships and engagements



Some universities reported not having any research collaborations with their governments or any government ministries and departments. This applied mainly to privately-owned universities which reported having such collaborations with partners external to the Government.

Respondents from South Sudan reported that they have a close partnership with the Government which is responsible for ethical review and approval for research. They also reported the existence of a strong partnership amongst HEIs through umbrella organizations, which has facilitated strong collaborations for ERT.

As discussed earlier, HEIs in South Sudan reported little community presence citing that communities are not open to research given the distrust that they have developed because of the conflict. Communities do not trust strangers as they think they may be rebels or rebel intelligence groups disguised as researchers carrying out data collection. This behavior is common in communities affected by conflict and is attributed to psychological and post-traumatic disorders (de Jong, Komproe, & Van Ommeren, 2003). This reduces such communities' participation in research and hinders research translation, especially the application of research recommendations.

The relationship is good, with the Government. Five universities including our university are part of the national universities of the Government of South Sudan and we collaborate in doing research. "That's the relation and even all the responsibility is taken by the Government and their teaching staff and everything we expect from the Government as an institution." ***KII, HEI, South Sudan.***

"Our relationship with the Government is minimal and I think this relationship is even chaotic, because the Government, I don't think they pass legislation regulating universities to monitor and evaluate the standards of research systems. The universities look at the legislation as constricting or limiting the independence of higher

education to do research and even in the dissemination of knowledge and so on, we feel limited by the regulations." KII ***, HEI, Somalia.***

"*In the community, the people can beat the foreigners and take all the research assistants of the project and they can kill or leave you to go. Unless one can do research with an NGOs and compile data with the NGOs, sometimes they do not attack the NGOs but still in other areas they can attack the NGOs, mainly the areas affected badly by the war."* ***KII, HEI, South Sudan.***

Respondents from the qualitative interviews highlighted critical individual and institutional enablers of collaboration on research and research translation between researchers and development practitioners such as the governments and NGOs.

Two individual researcher enablers for collaboration were mentioned:

- A good working relationship between the faculty and other stakeholders. If a researcher had a good working relationship with fellow university faculty and other stakeholders, it was easy to establish linkages/partnerships between this researcher and either the government or the other stakeholders.
- A reputable principal investigator, to foster trust between the stakeholders and researchers. The participants highlighted that a project led or principal investigator was more likely to be trusted by the government if he/she had no political ambitions, did not belong to the opposition political party or was a stronghold in the ruling party. With this, the research would not be viewed as pushing their personal or political agendas but rather community/ national development interests.

Institutional enablers of collaboration in research included:

- Good communication is critical for HEIs researchers and stakeholders such as governments and NGOs to keep the researchers informed of available funding opportunities and give them an understanding of research priorities based on the national development agenda. Additionally, open communication between stakeholders and researchers facilitates joint co-creation of research questions, aimed at addressing common community challenges and this strengthens collaboration, partnerships and community buy-in.
- Establishment of a national research office by governments to serve as a center of collaboration for the researchers and stakeholders such as the Government, NGOs, and funders. Other entities that would benefit from such an office include all HEIs, research hospitals, surveillance centers and practitioners, policymakers, and the private sector.
- Development of national and regional research agendas to improve research coordination. The former would aid in identifying research needs around specific policy areas and bring together government agencies, HEIs and development partners to align identified needs with the policy priorities of governments. This would facilitate integration of research translation partners early on and throughout the research process including adoption and application of research outcomes. Currently, Somalia and South Sudan do not have national research agendas.

"Establishing a national research center, to coordinate universities, teaching & research hospitals, inspection centers, census centers, and statistical centers for research, can help establish good collaboration." ***KII, HEI, Somalia***

"One of them is to have a national strategic plan as a country with a research agenda, so if there is a strategic national research agenda, everyone will be aligning focus on that strategic plan, and at least we can cooperate in certain areas." ***KII, HEI, Somalia***

"The other thing is to have a forum in which Government bodies, NGOs and other institutions can discuss co-

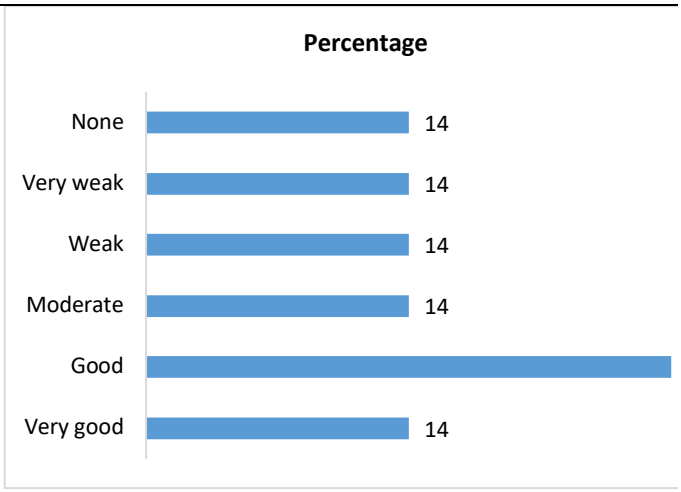
creation activities and areas of improvement." ***KII, HEI, South Sudan***

3. Empowerment for research

This dimension assessed the level of involvement of junior researchers, female researchers and other groups that tend to be marginalized in research. The availability of incentives to promote female researchers and junior faculty members to lead research projects was also assessed.
Overall, the HEIs on average score moderately (overall average score of 3) on this dimension.

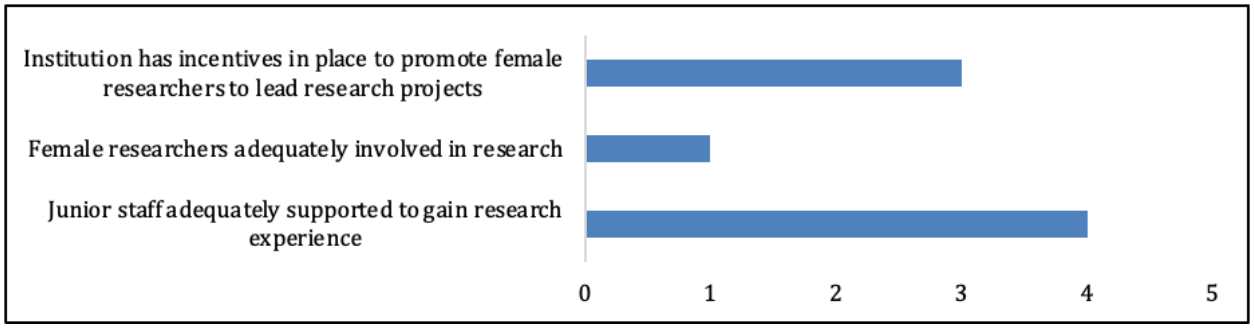
Figure 18: Distribution of capacity score grades for Empowerment of research among HEIs

Average Score	Number of HEIs	%
Very good	1	14
Good	2	29
Moderate	1	14
Weak	1	14
Very weak	1	14
None	1	14
Total	7	100
Overall Mean Score	**3**	**Moderate**



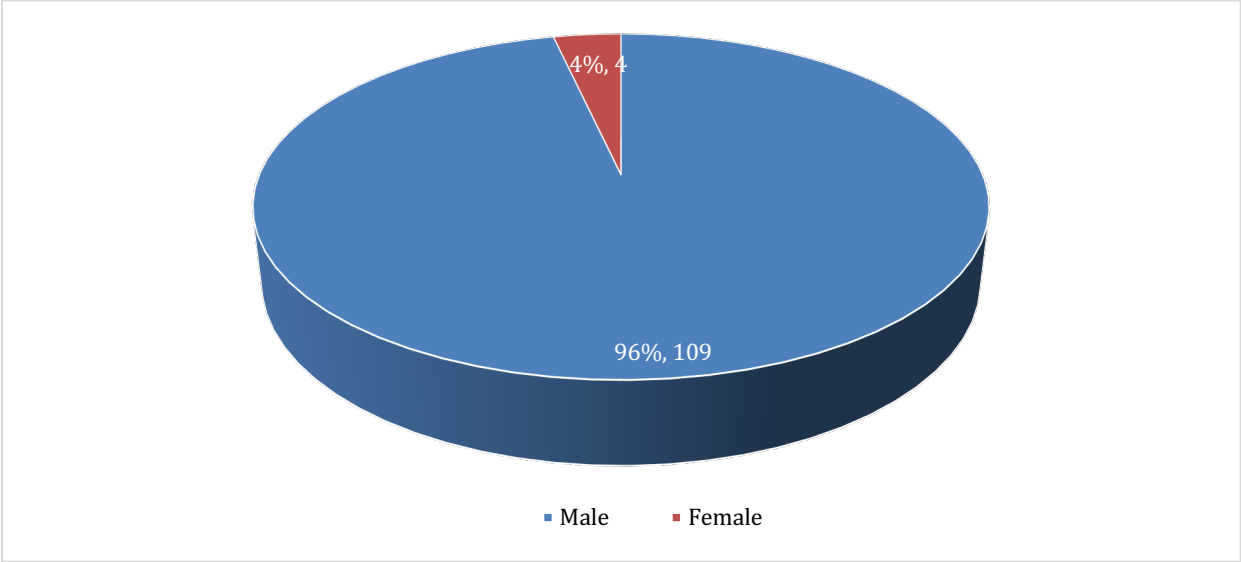
Respondents in the survey highlighted that the junior staff are adequately supported to gain research experience as evidenced by the 'good score' of 4.0 (61 – 80%). This suggests that the support extended to junior staff empowers them with critical skills and levers to conduct and participate in robust research that may be pivotal to the development projects of the country.
Study results show that empowerment was connected to the types of incentives provided to researchers. Qualitative interviews revealed that researchers who excelled in research regardless of gender or seniority were given incentives such as financial bonuses, promotions and recognition at the workplace, mentorship and training in a way to motivate and empower them further.

Figure 19: Empowerment of female researchers and junior faculty



Comparably, there is a wide gender disparity amongst HEIs staff with PhDs. Only 4 (4%) of 113 faculties with PhDs were female. Additionally, only two of the seven HEIs surveyed had Women and/or Gender Studies Units. Male enrollment for both undergraduate and graduate programs was significantly higher than that of females in both Somalia and South Sudan.

Figure 20: Proportion of Academic staff with PhDs by gender



Incentives for female researchers; The main incentives for females to participate in research were affirmative action during recruitment, promotion, provision of equal opportunities for mentorship and training. It was noted that there were no incentives specifically targeted towards increasing participation of females in research. For instance, there were no research grants targeting females. Likewise, there was no discrimination against female faculty's participation in research. Other studies have shown that even though affirmative action is generally used by universities to encourage female participation in the former's programs, implementation of the strategy is uneven with little monitoring and transparency of its effects, this may be the case in Somalia and South Sudan.

The low number of females with PhDs amongst the academic staff of surveyed HEIs could be explained by the fact that there is a "cultural barrier" to female enrolment in higher education, and consequently in research. This is because Somalia and South Sudan are predominantly Muslim countries, which perpetuates

the belief that females are a weaker sex and should stay home as housewives. This has resulted in low participation of females in most development initiatives including research. This is not an isolated finding; studies in Vietnam and other areas have showed that the main barriers to female enrolment in higher education are strong family obligations and negative gender stereotypes regarding females as a weaker sex (Kuany, 2016). The major facilitators of female academic advancement were self-effort, strong family support (Nguyen, 2013) and affirmative action (Eerdewijk, 2015). Family support to the girls and women to pursue higher education is lacking in Somalia given the strong patriarchal nature of the society.

"For incentives the fund provided to the university is very limited, just the academic staff are encouraged to write specifically to attain promotions, but we don't give the financial bonuses. I mean that writers, reviewers, all of them regardless of sex are encouraged and they submit articles as a team for professional growth." ***KII, HEI, Somalia.***

"It's not easy for women to study here in Somalia, women are mainly seen as wives and mothers and mainly run family businesses but not engage in academia," Female **KII, HEI Somalia**

When we are hiring new researchers, we try to allocate and encourage females to join. So, at the recruitment stage we try to give affirmative policy and accommodation to females and once they join, we keep encouraging and supporting them. ***KII, HEI, Somalia.***

Incentives for junior researchers; Findings from the key informant interviews highlighted several incentives for young researchers to participate in research, these included:

- Mentorship and training by more senior colleagues who engage the young researchers in research activities and provide guidance through the process. The junior researchers gain more knowledge and skills through these experiences.
- Availability of appropriate tools, equipment, and infrastructure such the internet, laptops, computers, and dedicated office space provide a conducive environment for one to participate in research. Lack of tools like laptops dis-incentivizes young faculty from participating in research since it requires more time to use paper-based systems and processes in research.

Good remuneration and promotions within the academic hierarchy for junior faculty actively involved in research. Their salaries were higher than those of their counterparts who did not participate in research and concentrated on teaching.

- The desire to generate new knowledge to aid in setting recommendations to counter development challenges. For instance, young researchers set out to find a remedy for frequent cholera outbreaks out of altruism.

"For the young faculty, we usually give them some incentives to motivate them to do more research. For example, access to the internet and computers to help them in collecting data. There is no fund specific for the young researchers but our departments annually offer training to them." ***KII, HEI, Somalia.***

"The first incentives for young scientists to participate in research is promotion of their knowledge through mentorships and training, as well as encouragement. This is what we offer to young faculty about research." ***KII, HEI, Somalia.***

"We award them when they do well, I mean with money, for example, we can say a day, you can work with us for USD 50 or something like that." ***KII, HEI, Somalia.***

"In rare cases, if a young staff member does well, we may give them a promotion. But it's rare. In some of the cases I'm not aware of, but I have a feeling that, if there are some promotions for someone to come from a position to another higher position, one who has conducted a number of researches can take the offer." ***KII, HEI, Somalia.***

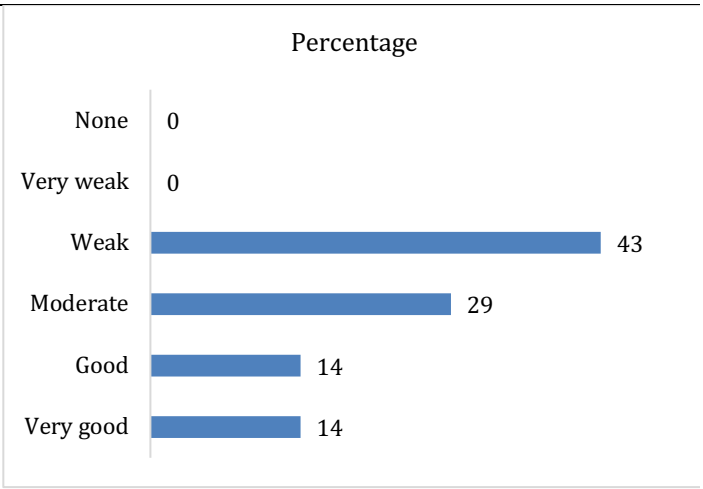
Overall, our findings suggest a number of policy implications for HEIs if they are to improve their participation in development research including a strong faculty development program, collaborations, improved research productivity, and a good incentive system. These findings are similar to those of other studies that explored policy implications and approaches to improve research productivity in HEIs (Quimbo & Sulabo, 2014).

4. Leadership

This dimension assessed whether institutions have training courses that target cross-cutting non-technical skills important for management of research projects like leadership, supervision and project management. The overall average score for this dimension was moderate with an average score of 3. The majority of the HEIs (43 percent) scored weak for this dimension indicating low capacities for research leadership.

Figure 21: Distribution of capacity score grades for leadership of research among HEIs

Average Score	Number of HEIs	%
Very good	1	14
Good	1	14
Moderate	2	29
Weak	3	43
Very weak	0	0
None	0	0
	7	100
Overall Mean Score	**3**	**Moderate**



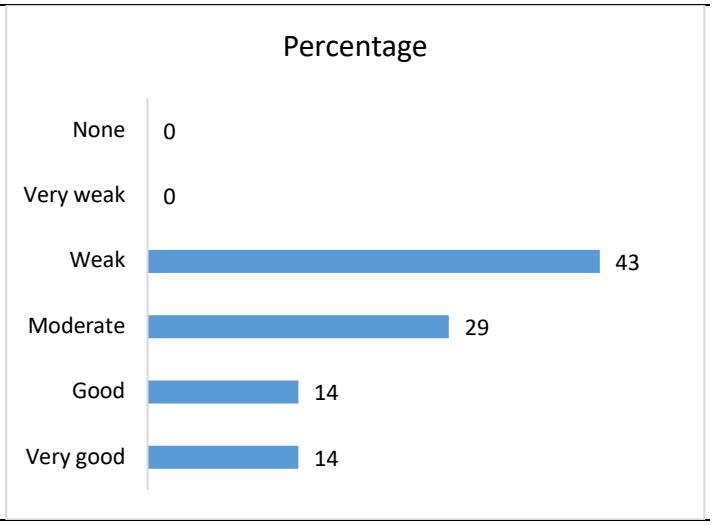
5. Dissemination, knowledge translation and research applicability

This dimension assessed whether 1) Institution has a fully-fledged knowledge translation unit that supports researchers to disseminate their findings for impact, 2) The institution has an adequate number of knowledge translation experts to support researchers in developing communication and knowledge products, 3) Institution has a clear research relationship with government in which governments channel their research needs directly to the institution, and 4) Institution has strong credibility with the private sector as a source of innovations and research evidence for private businesses.

The overall average score for this dimension was 2 representing weak capacities regarding dissemination, knowledge translation and research applicability among the participating HEIs.

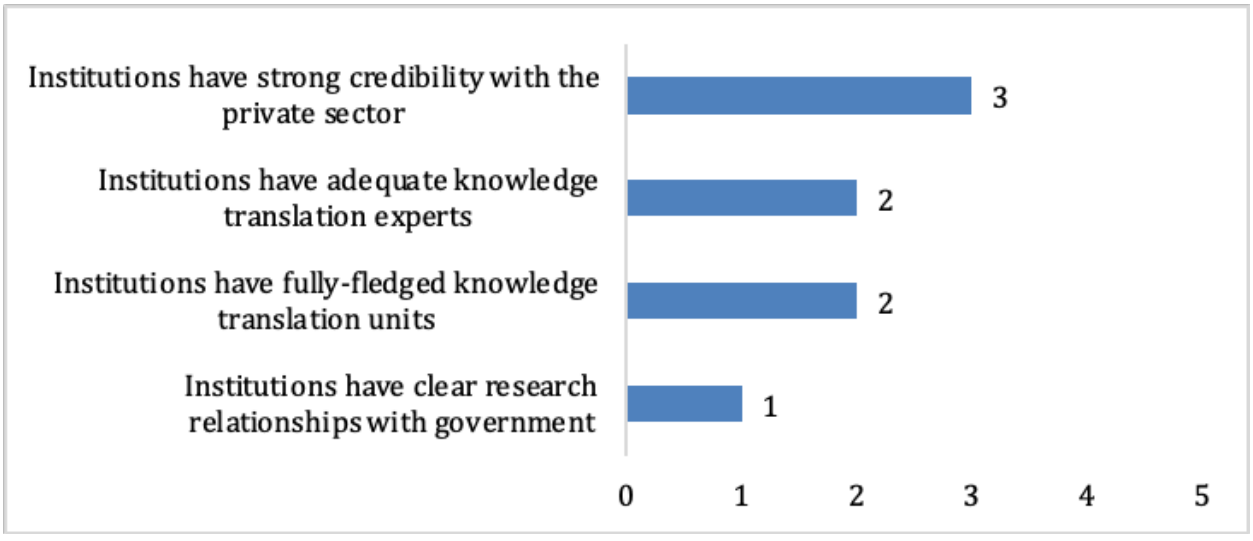
Figure 22: Distribution of capacity score grades for leadership of research among HEIs

Average Score	Number of HEIs	%
Very good	1	14
Good	1	14
Moderate	2	29
Weak	3	43
Very weak	0	0
None	0	0
	7	100
Overall Mean Score	**2**	**Weak**



HEIs scored 'very-low-to-low' with median scores of 1.0 (1 – 20%) and 2.0 (21 – 40%) respectively, when assessed in the sub capabilities of having a clear research relationship with the Government, and the existence of fully-fledged knowledge translation units and adequate knowledge translation experts. Institutions reported stronger credibility with the private sector with a moderate median score of 3.0 (41 – 60%), which demonstrates that there are stronger translation systems with the private sector than with the Governments. The researchers attributed this to the prevailing conflict situations where the governments have put most of their efforts on ensuring peace other than research and development and left NGOs and other development partners to lead on the development projects.

Figure 23: Scores for the existence of dissemination, knowledge translation and research applicability (n=7 HEIs)



These findings were confirmed by respondents in KIIs who reported that the systems which support research and research translation were mainly partnerships especially with the private sector and some government ministries and departments. On a different note, there are no established systems for co-designing research studies or research translation products by HEI researchers and practitioners. Instead,

researchers randomly engage with stakeholders on an individual basis to develop research translation products such as briefs, training guides or videos.

Respondents from South Sudan reported stronger systems for research translation since the Government is involved in research right from the ethical review processes. This keeps the Government informed of all research activities and provides a platform for research translation. The availability of avenues for research translation are however hindered by the absence of systems to encourage research translation and scaling and wider application of translated products or measure the outcomes and impacts of their use. This has hindered the scaling and application of translated products as well as evaluation of the impact of researchers' efforts.

The researchers remarked that the challenges to research translation are partly attributed to the prevailing conflicts in South Sudan and Somalia. This is because these conflict-stricken countries have put a lot of effort in peacebuilding activities and humanitarian assistance other than prioritizing development research and innovations and scaling the research/ innovation products to enable wider application and impact to the communities. They remarked that whenever they try to engage the government, the response is "we have no money because of war, let's first stabilize the country" which leaves research being a non-priority to the government.

"We have been sharing our findings directly with the community or with the Government. We are sharing that information but we don't know if they are applying it or not. The implementation is still missing follow-up at the university level. Even in the hospitals, when we do research we provide our findings of the research, but we don't know if they are implemented or not." KII, HEI, Somalia.

"One thing we did for our previous study was to recommend to the hospital administration and the Ministry of Health to reinforce the protocols and do the training of the staff. At the university level, what we were able to do was to bring out the protocols, put them at each hand sanitizing area and train the staff on hand washing. We also gave out copies of the research findings to the administrative staff of the hospital for dissemination. We didn't follow up to see if the recommendations were followed." ***KII, HEI, Somalia.***

Key challenges HEIs face during translation and dissemination of research findings

Qualitative results revealed that, as a result of persistent conflict in two countries, dissemination of some research findings which are deemed sensitive with potential to impact the ruling government is not possible. Research findings are considered sensitive if they contradict the national development agenda, culture and religious beliefs of the natives. Research findings are therefore first discussed within departments and later with the university research department before sharing with external parties in a bid to protect the institutions and individual researchers. Respondents reported several barriers to dissemination of sensitive research findings:

1. *Dissemination of 'sensitive research finding;* Respondents reported inability to share any research findings or develop translation products if they felt that the findings are sensitive and may jeopardize the researchers' security. Dissemination of research findings that are against the Government's agenda, can lead to expulsion of such a researcher from the institution or revoking of the institution's operating license. This creates fear amongst researchers, limits their ability to investigate development issues freely since they have to be mindful of the Government's national policies and practices and ensure that all their research ideas are not contrary to it.
2. *Cultural barriers and resistance from communities:* respondents also reported that communities have blocked the dissemination of sensitive findings, especially when they contradict their cultural and

religious beliefs, regardless of whether they are innovative or evidence-based. Respondents from Somalia reported that if any research findings were against the cultural beliefs of the Somalis, it was very hard to disseminate them as they usually met a lot of resistance from the locals. For example, many religious leaders are against women empowerment studies. Similarly, any studies that may show results that contradict the cultural norms in the different communities will not be welcomed by the community members in those areas. The resistance could manifest in the form of refusal to participate in development of dissemination plans or reluctance to embrace research recommendations.

> *"Somalia is an institution which protects its culture even if they find the solution to the actual problem if they see that it's against the culture, it should be a sensitive matter and will not be accepted. It's not recommended to disseminate such findings in Somalia."* ***KII, HEI, Somalia***
>
> *Yes; we fear for our lives. As I told you about some findings, my friend suggested to me that this can essentially risk my life. I had done a case study for a special organization so my friend said I shouldn't do it in this way because I was talking about the reality. So, I had to go back and modify my results and talk generally without detail to protect my life.* ***KII, HEI, Somalia***

3. *Inadequate skills for research translation;* Respondents reported that faculty lack adequate skills to meaningfully participate in research translation. As a result, a lot of research produced by HEIs does not reach potential end-users as it is only published in scientific journals or shelved in university archives, and used to get academic awards including promotions. This hinders the utility of research findings especially for evidence-based decision making. Additionally, respondents reported that some HEIs and faculty lack the skills and strategies to follow up on research utility by end-users including community uptake of these recommendations following translation and dissemination of research findings.

4. *Institutional research administration/management systems;* Bureaucratic research approval processes within HEIs were identified as critical bottlenecks to successful research translation and dissemination of findings. For instance, the process of acquiring approvals for research involves authorization from various offices starting from the departmental level up to the Office of the Vice President for Research (in some HEIs in Somalia) which is so hectic and a researcher seeks the same approvals to be able to disseminate their findings to communities. Similarly, respondents from South Sudan faced similar challenges with the bureaucracies involved in obtaining approvals for research implementation, dissemination and utilization from the Government. This substantially slows down the research process and inevitably makes it difficult for timely research implementation, translation and use of findings.

5. *Weak partnerships between researchers, policymakers and other practitioners;* The interaction between researchers and policy makers is weak, despite the obvious link between knowledge generation and action. This is a major hindrance to evidence-based decision-making since there are no direct collaborations between the policy makers and researchers who generate the evidence. Researchers noted that there was a need to strengthen the interaction between them and policy & decision makers and other stakeholders to facilitate information sharing throughout the research process including the findings. The weak relationships amongst stakeholders who generate the information, the translators and the users who make decisions and policies, therefore hinders collaboration and partnership.

   Respondents also reported having a weak relationship with funders in relation to research translation since they only seek to answer their research question(s) and do not care to inform

communities or the Government of their findings once they have achieved their objective. This hinders use of the research findings to inform national policies and guidelines.

"Okay, barriers are many but one of them is security. So, in Somalia, there are security issues and problems so if you have the intentions to do research you may not go to some places to research so that is a general problem." ***KII, HEI, Somalia***

"Yes, you may find information during research, but when you try to disseminate or maybe to inform the public of the findings, you have to take care of the cultural and religious beliefs, and norms of the people of Somalia. Somalia is a country that respects their culture and religion, if any research findings are against the culture, it is a very sensitive matter. It's not recommended to be disseminated and its recommendations will not be accepted by the people of Somalia." ***KII, HEI, Somalia***

"Lack of cooperation, some research findings may create a gap to the political stability, so for those researchers in oppositions against the Government, you cannot honestly share the true results once they can affect the Government. Otherwise, you think of security issues to self." ***KII, HEI, Somalia***

"There are several reasons why research findings may not be shared and applied; economic barriers or lack of funding, there's knowledge and skill barrier, security barrier, sometimes is lack of awareness among the research and improve the importance of research on translation. Those are the gaps and barriers that we have." ***KII, HEI, Somalia***

3.3 General Challenges of Conducting research in conflict settings

The conflicts in Somalia and South Sudan have affected research execution both directly and indirectly. Respondents reported that the prevailing conflict and insecurity has resulted in brain drain, uncertainty of researchers about security, inability to access some communities for research, monetization of research, and avoidance by funders due to security concerns.
Our findings from KIIs indicated the following challenges to conducting research in conflict settings:

Insecurity in communities impacting collection of good quality data: Respondents reported that some communities are still insecure, making it hard for researchers to involve them in development research since it may be impossible to conduct some activities like data collection in the affected areas. This directly affects research in such conflict-stricken areas.

"They can beat and harass the strangers and take all their belongings and they can kill or leave them to go. The rebels sometimes do not attack the NGOs, though in some areas they can attack the NGOs. We can't do research in such areas." ***KII, HEI, South Sudan.***

Lack of trust between communities and researchers: Even when research teams manage to collect data from these areas, researchers are reluctant (due to security concerns) to return to these communities to disseminate their findings. Respondents also highlighted mistrust by communities, due to previous experiences, making it hard for the former to open up to researchers. In some cases, the mistrust is hinged on the belief that some researchers could be rebel spies disguised as researchers.

"…there are still conflicts; some armed malicious people could meet you and ask what you are doing in their communities and kill you." ***KII, HEI, Somalia***

Lack of research funding in conflict areas: Respondents reported that some funders usually shy away from supporting research in conflict-settings because activities could be disrupted before completion, making it difficult for them to answer their research questions. Additionally, hesitation to participate in research in these areas is caused by the fear for their lives due to insecurity. This has affected development research especially in South Sudan.

"Government always says we don't have money to support research because of war …" ***KII HEI, South Sudan.***

"They can beat and harass the strangers and take all their belongings and they can kill or leave them to go. The rebels sometimes do not attack the NGOs, though in some areas they can attack the NGOs. We can't do research in such areas." ***KII, HEI, South Sudan.***

"Government always says we don't have money to support research because of war …" ***KII HEI, South Sudan***

"…there are still conflicts; some armed malicious people could meet you and ask what you are doing in their communities and kill you." ***KII, HEI, Somalia.***

High illiteracy levels as a result of low enrollment & retention of children in school due to wars coupled with limited community awareness about the importance and benefits of research has made it hard for researchers to get the population to participate in research as respondents. Moreover with the population being used to humanitarian aid, respondents during KIIs reported that there is an expectation of payment and other monetary benefits by communities, in exchange for their participation in research as study participants, which makes it very costly for researchers. This is due to persistent conflict, which has resulted in communities getting conditioned to receive aid in terms of money and other benefits.

Brain drain: Several researchers who would otherwise be actively participating in research have been displaced due to conflict, some of whom have settled in other countries. This has affected research capacity in Somalia and South Sudan as the workforce is limited in number.

"The main negative impact is; everyone who is an expert in this field flew away from the country due to insecurity. These people are living in other countries and then they can't participate in research back home. It's not easy for them to come back; they may never come back, they are citizens in other countries." - ***KII HEI, Somalia***

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

This assessment shows that Higher Education Institutions (HEIs) in conflict settings have capacity gaps across all of the capabilities related to development research. No capability in its entirety attained a median score of 4.0 and above (i.e. 'good to very good') in all its sub-capabilities. There is thus a need for these countries' HEIs to be targeted for capacity enhancement by development partners such as donors and

other organizations like the LASER PULSE consortium to improve the capacity of these institutions to participate in development research and innovations.

4.2 Recommendations

a. HEIs in African countries affected by conflict should implement targeted efforts to build their capacity for research leadership mainly through institutionalization of training courses on research leadership, presentation of research findings and project management and make them accessible to all researchers across all HEIs in these areas.

b. HEIs in countries previously affected by conflict should enhance their capacity for research dissemination, knowledge translation and promotion of research applicability. This should partly involve;
   I. the establishment of fully fledged knowledge translation units that support researchers to develop knowledge products for different audiences and to disseminate them to relevant stakeholders for use;
   II. inclusion in their establishments of adequate numbers of knowledge translation experts to support researchers in developing communication and knowledge products;
   III. mainstreaming knowledge translation into all research training; and
   IV. establishing strong research dissemination and use partnerships with governments, private sector and other implementing partners for uptake of research products that are of interest to them

c. HEIs in conflict settings should prioritize the empowerment of groups that are marginalized within their institutional research set-up with specific focus on empowerment of females in higher education and involvement of females in research, empowerment of young and upcoming researchers, and empowerment of academic units with low research outputs and impact. There is a need to design and implement a comprehensive strategy for female faculty that focuses on equal outcomes, rather than equal opportunities. A comprehensive affirmative action strategy encompassing measures related to access to institutions, as well as academic and leadership support, and a gender-friendly environment is required. There is also a need to establish gender units in universities to improve gender inclusion in all aspects of development.

d. Continuity and sustainability of research should become a priority for HEIs in Africa especially in conflict settings since it can bridge the development gaps created by conflict. Universities in particular, need to include in their budgets a budget-line for supporting research using internal funds. Universities including private HEIs also need to engage governments to provide more appropriations for research in national budgets. This requires universities to lobby various Government sectors and policy makers to improve their appreciation of the role of research in transforming their countries.

e. HEIs in conflict settings should improve the provision of institutional support services for research within their constituent academic units. This should include but not limited to reinforcing the research support infrastructure including internet connectivity, computers and software, and operating units such as research support and grants management offices, laboratories, libraries and information resources, IRBs, research communication support and research skills training.

f. Development Agencies should increasingly engage HEIs in Africa as partners in development. Given the latter's proximity to communities, they are able to provide more contextualized

evidence of the development context, local implementation challenges and success factors, and effectiveness of interventions.

g. There is a need to improve political stability and security in fragile countries to create an environment where researchers and respondents feel safe to engage and collaborate with both local and international agencies productively. This will reduce brain drain of competent researchers in pursuit of safety and greener pastures.

h. *Community sensitization on the importance of research and research dissemination*, to enhance their participation in research without asking researchers for money in exchange for their participation. Engaging communities to participate in research questions generation and research activities, this facilitates buy-in. Once the communities embrace research, the hostility towards researchers during field activities will be lessened. Involving communities in research generation to enhance ownership of the studies and their results. In addition, research of the products and recommendations developed will easily be accepted and embraced by the communities.

i. *Collaborations between HEIs both locally and internationally* to facilitate mentorship and training on generation and execution of research activities and dissemination of research findings. Mentorship and training could be through student or faculty exchange programs.

j. *Collaborations and partnership between HEIs and other stakeholders and other development partners.* Collaboration with the development partners can ease researchers' entry into communities since some of the organizations have participated in community humanitarian activities during the conflicts and are trusted by the communities. It was anticipated that if HEIs built strong collaborations with NGOs and other development agencies, they would be able to get into communities with some protection. This is because most NGOs and international agencies such as UNHCR, WFP and UNICEF are trusted by communities and are rarely attacked by community members or rebels. Communities find it easier to trust some organizations which have provided them with humanitarian aid before than those who come interested in carrying out research. In addition, through collaborations and partnerships, HEI researchers can be made aware of the prevailing research gaps, the available funding opportunities, and provide a platform for the dissemination of research findings.

k. *Strong collaborations and partnerships between HEIs, the private sector*, NGOs, CSOs and local & international development partners were highlighted as a means of ensuring sustainability for research. Collaboration with the Government would encourage HEIs to develop research questions and activities aligned with the country's national development agenda and findings of such research would be translated into appropriate products for end-users and used to improve systems and procedures.

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ANNEX

Annex 1A: Key Informant Interview Guide

Introduction

1. Tell me about yourself and your role in the University
2. Tell me about the HEI/university systems and infrastructure in your country that support research
    a. How do faculty participate in development research?

Leadership

3. Tell us about the research leadership within your university.
4. How is research managed at the university level and within the academic units/departments?
5. How is research generated and utilized by the university, policy makers, program implementers and other stakeholders?
6. How does research align to the national/government development strategies?
7. How is research funded?

Research Translation

8. Tell us about existing systems for research translation at your university.

a. What are the incentives for research and research translation?
b. What are the incentives for female faculty to engage in research? Are there any conditions that discourage female faculty from the research enterprise?
c. What are the incentives for young faculty to participate in Research?
d. What are the gaps/barriers for research translation/applicability (dissemination, translation process and/or commercialization, translation products, partnerships and M&E)?
e. What measures and/or incentives would you suggest to overcome these barriers?
f. Describe the relationship between your University and the Government; including situations where Government has channeled its research needs directly to your University
g. Describe the relationship between your University and non-government partners (private sector, donors, NGOs etc.); including situations where these partners have channeled research needs directly to your University
h. Comment on whether your institution has adequate number of research translation experts/units to support researchers in developing research translation products
i. Does your university/department have a research translation strategy in place? What are your views regarding the strategy in addressing research needs for current development challenges in your country?
j. As a researcher, how have you been working with practitioners (NGOs, policy makers, private sector etc.) to translate research?
k. What are the existing/anticipated barriers to collaboration with these practitioners?

Sustainability

9. Describe the sustainability mechanisms for research and research translation at your University
10. What mechanisms are available to support research collaborations including funding and networks with other partners (universities, NGOs, donors, private sector, policy makers etc.)
    a. What agencies are currently funding research and research translation in areas of resilience and civic engagement?
    b. What opportunities are available for researchers to engage policy-makers, program implementers/development practitioners at a national level for uptake of research for development?

c. In your opinion, what are the key individual and institutional prerequisites for facilitating collaboration on research translation between researchers, such as yourself, and development practitioners (NGOs and/or government agencies)?

Annex 1B: Quantitative Tool for Assessment Of Research Capacity In Higher Education Institutions In Low- And Middle- Income Countries

Name of Higher Education Institution:	
Country of Location:	
Number of Academic Units in the institution: *(Use the largest functionally semi-autonomous sub-division of the institution e.g.: Faculties, Schools or Colleges)*	
Total number of undergraduate students enrolled in the institution:	
Total number of graduate students enrolled in the institution:	
Total number of PhD students enrolled in the institution: *(across all units and programs)*	
Total number of academic staff in the institution:	
Total number of female academic staff in the institution	
Designation of the respondent to this tool:	

At Central level
This tool should be answered by the person in charge of the coordinating research in the university or her/his designated alternative
In the subsequent sections, you will be presented with a set of questions, the majority of which require you to score the status of your institution using a Likert Scale of 0-5: • 0 meaning 'there is nothing established in the institution with regard to that particular capability' • 1 meaning 1-20% • 2 meaning 21-40% • 3 meaning 41-60% • 4 meaning 61-80% • 5 meaning 81-100%

A few of the items require you to provide a direct number or a percentage based on your estimate of what is available in the institution. Provide the best possible estimate available to you.						
	0	1	2	3	4	5
1. Research infrastructure						
1.1 Research Strategies and Policies						
1.1.01 Institution has a research policy and guidelines approved by its highest administrative organs and adopted by all academic units						
1.1.02 Institution has a Research Agenda, that was updated within the last 3-5 years and was developed in close collaboration with the constituent academic units and other relevant stakeholders outside the university						
1.1.03 Number of academic units (Colleges, Schools, or Faculties) with unit-specific research agendas *(Indicate Number)*						
1.1.04 There is a clear mechanism for linking academic unit research agendas with the overall institutional research agendas						
1.1.05 Research is given as much support and incentives as teaching within the institution's setting						
1.1.06 Research output and dissemination is a prominent part of technical faculties' consideration for promotion within the university ranks						
1.1.07 The institution has clear policies and mechanisms to support commercialization of research and innovations						
1.1.08 The institution has clear policies and mechanisms for protection of Intellectual Property (IP) and commercialization of research.						
1.1.09 If available, the policies and mechanisms for protection of IP and commercialization of research are favorable and agreeable to most researchers (e.g. ownership/IP, stake in findings and outputs, bureaucracy)						
1.2 Institutional Support Services and Infrastructure						
1.2.01 Presence, accessibility and functionality of a research support office to coordinate research in the institution						
1.2.02 Presence, accessibility and functionality of a grants management unit/sponsored programs office to support grant applications and management						
1.2.03 Apart from the central research support office, number of individual academic units that have established their own research support offices *(Indicate Number)*						

1.2.04 Apart from the central grants management office Number of individual academic units that have established their own grants management units *(Indicate Number)*						
1.2.05 The roles and relationships between the central research support office and the lower academic unit (faculty/school/college) research support offices are streamlined						
1.2.06 Presence of sufficient numbers of adequately equipped basic research laboratories in all key development related disciplines requiring them, and with sufficient accessibility by researchers						
1.2.07 The institution's basic research laboratories have achieved international accreditation from appropriate international bodies						
1.2.08 The institution has sufficient libraries with adequate access to current literature and e-resources to support researchers in all academic disciplines						
1.2.09 The institution subscribes to sufficient numbers of quality journals that are made easily accessible to researchers						
1.2.10 For all research involving human subjects the institution has an adequate number of Institutional Review Boards (in terms of technical capacity and systems) to expeditiously review and approve the protocols in a manner that ensures protection of ethics						
1.2.11 All researchers have access to reliable high-speed internet, computers, and data storage capacity (including cloud services) to facilitate their work						
1.2.12 The institution has a clear policy for data sharing that is known by all researchers						
1.3 Supporting Funding Applications						
1.3.1 The institution has mechanisms for supporting (including funding) and coordinating timely, multi-disciplinary input into application proposal development						
1.3.3 The institution has clear and functional processes for quality assurance, attainment of support documentation and authorization of proposals before submission						
1.4 Project Management and Control						
1.4.1 The institution has a research information management system (electronic or manual) to track research projects including contracts and						

agreements, protocols, budgets, funding requirements, reports and deliverables, overheads, formal approval and continuous review						
1.4.2 The institution provides training in financial management and research administration for researchers and finance officers to increase clarity and understanding about their various roles						
1.4.3 Systems are in place to track financial spending against budget, accounting and auditing, and risk management of research projects						
1.4.4 Number of individual academic units with sound systems for research project management *(Indicate Number)*						
1.5 Human Resource Management for Research						
1.5.1 The institution has adequate research administrative support staff who are well remunerated and facilitated to support research projects and are included in the university structure						
1.5.2 The institution has a provision in its human resource structure for formal appointment of technical research staff *(e.g. Research Fellows/Research Professors etc.)*						
1.5.3 The institution has a predictable and sustainable remuneration structure for technical research staff						
1.5.4 Career tracks for research technical staff are established, with clear opportunities for progressing from a junior researcher to a senior researcher and are protected and implemented to motivate research staff						
1.5.5 The institution has a flexible contract structure for academic staff that allows a reasonable part of their time to be availed for research and community services in addition to their academic obligations, without being constrained by teaching loads						
1.6 Human Resource Development for Research						
1.6.01 The institution has a formal induction program for young/upcoming researchers						
1.6.02 The institution has adequate formal training courses for researchers on basic and advanced research methods						
1.6.04 The institution has adequate formal training courses for researchers on skills that enhance research e.g. ICT use in research, data management, research communication, etc.						
1.6.05 Number of academic faculty in the institution with a PhD						

1.6.06 All undergraduate programs have a research project and field placement as required credit gaining activities						
1.6.07 All graduate programs have a research project and field placement as required credit gaining activities						
1.6.08 The institution has active PhD training programs						
1.6.09 The institution has postdoctoral training programs to train researchers into independent researchers						
1.6.11 Total number of PhD level faculty in the areas of Agriculture, food-security and nutrition						
1.6.12 Total number of PhD level faculty in the areas of Democracy and Governance						
1.6.13 Total number of PhD level faculty in the areas of Environment and climate change						
1.6.14 Total number of PhD level faculty in the areas of Global health (including water and sanitation)						
1.6.14 Total number of PhD level faculty in the areas of water and sanitation						
1.6.15 Total number of PhD level faculty in the areas of Education						
1.6.16 Total number of PhD level faculty in the areas of Working in crises and conflict						
1.6.17 Total number of PhD level faculty in the areas of Gender and women's empowerment						
1.6.15 Total number of PhD level faculty in the areas of Ending extreme poverty						
1.6.18 Total number of PhD level faculty in the areas of ICT and Digital development						
1.6.19 Total number of PhD level faculty in the areas of Energy						
1.7 External Promotion of Research						
1.7.1 The institution has a dedicated unit for promoting visibility of institutional research activities and outputs						
1.7.2 The research section of the institution's website has up-to-date information on on-going research projects including updates, interim feed-back, a knowledge dissemination portal						

1.8 National Research Engagement						
1.8.1 The institution has sufficient opportunities for engagement of policy-makers, program implementers/development practitioners at a national level for uptake of research for development						
1.8.2 The institution's research strategy is aligned with the national level research policy						
2. Continuity and sustainability						
2.1 Research support offices receive adequate funding to undertake their activities						
2.2 The institution has a functional provision to fund research from within its own local funds in addition to external funding						
2.3 Percentage of the total expenditure on research that is funded by the institution						
2.4 Percentage of the total institution's expenditure on research that is funded by donors *(Indicate percentage)*						
2.5 Percentage of the total institution's expenditure on research that is funded by the private sector *(Indicate percentage)*						
3. Linkages, partnerships and collaborations						
3.1 Number of active research grants and partnerships with other entities (Research-based MoUs) *(Indicate Number)*						
3.2 Number of active research grants and partnerships with the private sector *(Indicate Number)*						
3.4 The institution has adequate access to HEI researchers from high-income country universities for partnering on research grant applications and implementation						
3.5 The institution has a strong linkage and presence as an implementer in the communities with community research sites or project implementation sites						
3.6 The institution has strong technical linkages with national level sector Ministries and is involved in their Technical Working Groups						
4. Empowerment						

4.1 Junior staff are adequately supported to gain research experience by including them on research initiatives as associates or assistants						
4.2 Female researchers are adequately involved in research						
4.3 Estimated percentage of females among all technical faculty in the institution *(Indicate percentage)*						
4.4 Estimated percentage of Principal Investigators on research projects in the institution that are female *(Indicate percentage)*						
4.5 The institution has incentives in place to promote female researchers to lead research projects						
5. Leadership						
5.1 The institution has training courses that target cross-cutting non-technical skills important for management of research projects like leadership, supervision and project management						
6. Dissemination, knowledge translation and research applicability						
6.1 Institution has a fully-fledged knowledge translation unit that supports researchers to disseminate their findings for impact						
6.2 The institution has an adequate number of knowledge translation experts to support researchers in developing communication and knowledge products						
6.3 Institution has a clear research relationship with government in which governments channel their research needs directly to the institution						
6.4 Institution has strong credibility with the private sector as a source of innovations and research evidence for private businesses						
6.5 Estimated percentage of research outputs from faculty and student researchers that were translated into knowledge products other than journal articles and disseminated to stakeholders in the last 3 years *(Indicate percentage)*						
6.6 Number of research dissemination events held with stakeholders in the last academic year *(Indicate Number)*						
6.7 Estimated percentage of research outputs that result in policy or program impacts in the last 5 years *(Indicate Number)*						

7. Research portfolio						
7.01 Total number of publications from the institution in the last full academic year *(Indicate Number)*						
7.02 Name the academic unit in the institution with the largest amount of research funding						
7.03 What is the estimated amount of research funds per year that the unit with the largest amount of research funding handles?						
7.04 Name the academic unit in the institution with the lowest amount of research funding						
7.05 What is the estimated amount of research funds per year that the unit with the lowest amount of research funding handles?						
7.06 Name the academic unit in the institution with the largest innovations (not primary research) portfolio						
7.07 Name the academic unit in the institution with the lowest involvement in innovations (not primary research)						

[NB: There will be provision for a space for open comments at the end of every dimension/sub-dimension]

END