



**UNIVERSITY OF DAR ES SALAAM**



**Towards Enhanced Sustainability of Strategic Research and Innovation Systems for Inclusive  
Development in Tanzania**

**PROGRESS REPORT  
JULY 2019 TO JUNE 2020**

**October, 2020**

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## OVERALL INSTITUTIONAL ANNUAL REPORT 2019-2020

### AGGREGATED SUMMARY OF ALL SUB-PROGRAMMES AND PROJECTS

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Towards Enhanced Sustainability of Strategic Research and Innovation Systems for Inclusive Development in Tanzania

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#### 1. Executive Summary of Programme

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The UDSM guided by its Vision 2061 to become “a leading centre of intellectual wealth spearheading the quest for sustainable and inclusive development” is committed to playing its rightful role in facilitating the BRN. As part of that effort, this proposal was developed in response to the Sida call of August 2014 for enhancing Tanzania-Sweden research partnerships 2015-2020 and is aimed at facilitating the UDSM aspirations “Towards Enhanced Sustainability of Strategic Research and Innovation Systems for Inclusive Development in Tanzania”. Taking full advantage of the various achievements from earlier support from Sida and other development partners, the overall objective is to generate sufficient analytical capacity and research based knowledge and technological innovations with appropriate and immediate valuable outcomes to relevant stakeholders (policy makers, industry, civil society etc.) in addressing the problem of poverty and promoting sustainable and inclusive development.

Sustainability measures include the enhancements of analytical capacities (through training of **64** PhD, **36** Masters and **20** Postdocs) and research environment (via establishment of **3** new research centres and strengthening 2 existing ones) for driver sector research. With UDSM outputs eventually feeding also into the Tanzania University Network, the proposed capacity strengthening measures would also improve our youth participation at higher levels of education (especially for females) and hence improve the percentage of high skilled workers that so far are insufficient (3%). The proposed research and analytical capacity development initiatives will involve a total of ten (10) Swedish institutions namely Stockholm University, Swedish University of Agricultural Sciences, Chalmers University of Technology, University of Uppsala, University of Skövde, University of Gothenburg, Royal Institute of Technology, Lund University, Linköping University and Mälardalen University.

The programme consists of 12 sub programmes 10 of which are research programmes and 2 are supporting programmes: Strengthening the Research Management at UDSM and Strengthening Access to and Utilization of Research Information at UDSM. The major motivations of the 10 research programmes are:

**Marine Sciences Programme** addresses problems of over-harvesting, declining fish stocks and diversity, and environmental changes caused by climate and non-climate factors. Researchers work in close collaboration with the local communities of fisher folks and their emerging enterprises will address the unavailability of reliable seed, lack of genetic management and poor hatchery procedures thus degrading the performance of farmed species through inbreeding, genetic drift and uncontrolled hybridization. They also intend to assess and recommend technologies suitable for maintaining the integrity of biologically rich environments and minimize impacts, reduce post-harvest losses, assess and recommend legal and policy environment to promote ecosystem approach to fisheries management and aquaculture development.

**The Food Security Programme**, with a multidisciplinary approach, will focus on research in agroforestry, peri-urban agriculture, crop breeding, diseases control, dairy farming and environmental management for improved Food Security.

**Molecular Bioscience Programme** attempts to develop cost-effective diagnostics and use plant and microbial natural products for development of new drugs to combat non-communicative diseases as well as contributing to food security by training researchers in mushrooms endophytic fungi and lichens in strong public-private partnership bringing discovery to the industry.

**The iGRID Research Training Programme** intends to develop human, technical and scientific capacity to facilitate the implementation of automation of monitoring, evaluation, analysis, control and management of electrical power system (smart grid) in order to improve delivery efficiency and to optimize operational costs in the electrical power system in Tanzania.

**Engendering Agribusiness Entrepreneurship – ENGAGE –Programme** will address the need for a gender informed value chain approach when studying agriculture and entrepreneurship. Failure to grasp the bigger picture has led to fragmented agricultural value chains in Tanzania, which points to the need for innovative models and approaches that will ensure inclusive and sustainable rural development.

**DAFWAT Programme** will investigate and optimize the use of low-cost affordable adsorbents to remove fluoride and arsenic from drinking water. A pilot water defluoridation plant will be constructed and tested at one of the places with excess fluoride. This will also involve a pilot plant for preparation of adsorbents from locally available resources.

**Sustainable Water Management Programme** addresses the broad question; how can the natural resources and their associated biodiversity be managed to provide goods and services equitably and sustainably to the people? The programme aims at collaborating across ongoing initiatives in an effort to establish sustainable water resources management options and mechanisms for implementing public-private partnerships for the sustainable development of the Kilimo Kwanza policy in Tanzania.

**Sustainable Sanitation Programme** addresses the lack of expertise in sanitation in Tanzania. It intends to strengthen the interdisciplinary research capacity in integrated sanitation management (ISM). In Tanzania, only a minority of its rural and urban population have access to potable water and sustainable sanitation. With a growing population, increasing rates of urbanization and expansion of slum areas, dilapidated water and sanitation infrastructure, pollution of existing water sources and the added threats of climate change; the needs for both water and sanitation in particular, will continue to rise, making this research area an urgent matter.

**Mathematics in Higher Learning Education Programme** addresses the general need for increased competence in Mathematics at a general level in Tanzania, but with focus on Higher Education (HE). Basic Science, Technology and Innovation (BSTI) play a major role in the socio-economic development of any country. Capacity building of human resource in BSTI is therefore vital. The advancement of BSTI and related research highly depends on mathematical knowledge and competencies in problem solving.

**Innovative and Sustainable Tourism** will carry out research on (1) the sustainability of natural and cultural tourism resources for inclusive development; (2) community involvement in the country's tourism planning and policies and their influence on local content strategies, green growth and innovations; (3) innovations and entrepreneurship in the private sector in tourism as pathways to sustainable growth and inclusive development; and (4) Tourism resource efficiency, social inclusiveness and conservation for economic growth.

## **2. General objectives and expected results 2015-2020**

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The overall objective of this programme is to generate sufficient analytical capacity and research based knowledge and technological innovations with appropriate and immediate valuable outcomes to relevant stakeholders (policy makers, industry, civil society etc.) in addressing the problem of poverty and promoting sustainable and inclusive development. In that spirit, the UDSM research and training during 2015-2020 will be guided by its Vision 2061 to be "A leading centre of intellectual wealth spearheading the quest for sustainable and inclusive development". Taking into consideration the various achievements from earlier support from Sida and other development partners, the proposed research and training has the following specific objectives:

- (i) To increase postgraduate curricula and the extent of research training for development in key strategic and priority areas (i.e. Food Security and Agriculture, Tourism, Agribusiness, Integrated Sanitation Management, Marine Sciences, Molecular Biosciences, Mathematics in high learning education and Smart Grid).
- (ii) To improve research environment by increasing the utilization of equipment and infrastructure and conformance to regulations, policies and guidelines.
- (iii) To increase the quality and use of research relevant to high priority issues of national development
- (iv) To Increase partnership with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas

**Table 1: Expected Programme Results**

S/N	Programme Objective	Expected results/output
1	Increase postgraduate curricula and the extent of research training for development in key strategic priority areas	1.1 Eight (8) PhD and Three (3) Master new taught Programmes will be developed and accredited by TCU. 1.2 Two (2) PhD and four (4) Master existing Programmes will be reviewed. 1.3 Thirty six (36) staff will be trained at Master level. 1.4 Sixty Four (64) staff will be trained at a PhD level.
2	To improve research environment by increasing the utilization of equipment and infrastructure and conformance to regulations, policies and guidelines	2.1 UDSM Research Agenda will be developed 2.2 Major and minor research equipment will be procured. 2.3 Two hundred and Twenty (220) papers will be published in peer reviewed journals in Tanzania. 2.4 Increased use of research facilities. 2.5 Five Hundred (500) postgraduate students will be trained in scientific writing skills. 2.6 Three hundred (300) Academic staff will be trained in postgraduate student supervision skills. 2.7 Three (3) centres of excellence and 20 multidisciplinary research groups will be established. 2.8 Twenty (20) Postdocs will be enrolled at UDSM
3	Increase the quality and use of research relevant to high priority issues of national development	3.1 Publications in highly ranked peer reviewed journals will be increased 3.2 Three (3) patents will be filed for IPR in local and international bodies. 3.3. Four (4) Research Dissemination conferences will be organised and hosted by UDSM units. 3.4 Ten (10) outreach programmes will be performed in local communities.
4	Increase partnerships with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas	4.1 Collaborative research with specific industries formulated 4.2 Improved quantity and quality of publications in highly ranked academic peer reviewed journals. 4.3 Dissemination workshops conducted 4.4 Hands- on training materials/packages for UDSM and public produced based on the research outputs. 4.5 Highly increased in researchers' advisory roles in public and private institutional boards.

### **3. Summary of Annual Targets 2019/2020**

#### **3.1 Programme objective 1: To increase postgraduate curricula and the extent of research training for development applied in key strategic priority areas**

##### **Planned and the specific activities to be carried out:**

- A. Capacity Building through PhD and Masters training
  - a. Supervising the recruited 62/64 PhD, 47/36, Master students and 13/20 postdocs who are in various stages of their studies.
  - b. Follow up of the PhD and Masters students from the previous phase
  - c. Conduct training on research methods for PhD students
- B. Completion taught PhD and Masters of Science curricula development
  - a. The following Taught PhD curricula accredited by TCU
    - 1. Doctor of Philosophy in Molecular Bioscience under MBB Subprogramme

2. Doctor of Philosophy in Mathematics by Coursework and Dissertation-Mathematics Subprogramme
3. Doctor of Philosophy in Intergrated Food Security (PhD-IFS)-Food Security Subprogramme.
4. Doctor of Philosophy in Hydrology and Geochemical Modelling-DAFWAT Subprogramme.
5. Doctor of Philosophy in Applied Marine Sciences-IMS Subprogramme
6. Doctor of Philosophy in Intergrated Sanitation Management
7. Doctor of Philosophy in Computer and IT systems Engeering-iGrid Subprogramme
8. Doctor of Philosophy Business Administration with modules in Tourism and Agribusiness
  - b. The following Taught Masters curricula accredited by TCU
    1. Masters of Science in Intergrated Food Security (Msc-IFS)
    2. The Reviewed Masters of Science in Mathematics-Mathematics Subprogramme
    3. The reviewed Masters of Science in Mathematics Modelling-Mathematics Subprogramme
    4. The developed Masters of Science Programme in Marine Science by Coursework and Dissertation
    5. The developed Masters of tourism and hospitality management
  - C. Running of the taught Phd curricula developed
    - a. The PhD Curriculum in the areas iGRID, Mathematics, Molecular Biosciences, Integrated Food Security, Applied Marine Sciences and Hydrology, Geochemical Modelling, Sanitation Management and Business Administration with modules in Tourism and Agribusiness are expected to run during 2018/19

#### **Expected Deliverables**

- i. 8 PhD curricula accredited by TCU.
- ii. 4 Masters curricular accredited by TCU
- iii. 25 Masters Students ((Mathematics (4), Food security (7), Igrid (6), DAFWAT (4), SUSTAIN (4)) to be supervised completed the studies in various programmes.
- iv. 64 PhD Students ((Mathematics (3/3), Tourism (4/4), ENGAGE (3/3), Food security (8/8), Water resources (3/3), Igrid (8/8), DAFWAT (4/4), IMS (15/16), MBB (7/7), SUSTAIN (8/8) to be supervised and completed the studies in various programmes.
- v. 11/20 Postdocs supervised.

#### **3.2 Programme objective 2: To improve research environment by increasing the utilization of equipment and infrastructure, and conformance to regulations, policies and guidelines**

Under this objective, a number of activities will be carried out including finalization of procurement of minor and major research equipment, publishing of articles in international journals, Production of TV and Radio dissemination programmes, and digitisation of local content materials.

#### **Expected deliverables**

- i. Major and minor research equipment procured
- ii. 120 academic staff trained in postgraduate student supervision skills, 50 % of whom are female.
- iii. Research equipment database/system developed
- iv. Research Clearance system developed
- v. Consolidating different components of RIMS
- vi. 100 academic staff equipped with the skills to write competitive fundable research



- proposals.
- vii. 20 Sensitization workshops on UDSM Quality Assurance (QA) Research guideline and tools conducted
- viii. 4 members of staff involved in research management equipped with the skills on Project Management.
- ix. 2 financial and project management training to be conducted to research managers
- x. 3 trainings on IPR to be conducted with a total of 120 academic staff equipped with the skills on Intellectual Property Rights
- xi. 2 IPR Stakeholder meeting conducted
- xii. 1 IPR unit Staff visit other Universities for learning purpose.
- xiii. The Centre of Research and Innovation Management (CRIM) established at the old library building.

### **3.3. Programme objective 3: Increase the quality and use of research relevant to high priority issues of national development**

#### **Specific Activities to be carried out:**

Under this objective, a number of activities will be carried out including trainings to postgraduate students on scientific writing skills as well as facilitation to UDSM units to organise dissemination workshops/training.

#### **Expected deliverables**

- i. 120 academic staff trained in postgraduate student supervision skills, 50 % of whom are female.
- ii. 120 junior staff and postgraduate students trained in research methodology skills, 50 % of whom are female.
- iii. 24 UDSM Journals uploaded in the University website.
- iv. Relevant online database selected and subscribed for staff and students at UDSM.
- v. 7 Online databases accessed
- vi. 1000 brochures on e-resources information distributed to departments
- vii. 10 UDSM units supported to organise dissemination workshops/conferences.
- viii. 2nd Annual Conference on Research and Inclusive Development to be organized by DRP and Sida Secretariat.
- ix. At least 100 papers published in peer reviewed journals.
- x. At least 100 conference paper published
- xi. 15 radio and TV dissemination programmes produced. SJMC and creative Arts to coordinate.
- xii. Up to 15 UDSM scholars facilitated to present their research findings in local and international conferences.
- xiii. Four Social Media accounts (Facebook, Instagram, Twitter, and YouTube) coordinated. Internal Personnel will be recruited.
- xiv. 100 Training Manuals, 100 Research Policy Briefs and 10 Conference Proceedings published.
- xv. 120 UDSM academic staff equipped with the skills to write policy briefs
- xvi. 80 Sida Subprogramme PIs, CoPIs, PhD and Masters Students equipped with the skills to write policy briefs. SJMC presence is key to alternative media/channels to communicate science.
- xvii. 10 Stakeholders' policy related workshop conducted.
- xviii. 20 policy briefs prepared and be available in UDSM website and shared through Stakeholders Policy brief workshop, website and in the social media accounts such as Instagram, Facebook, Twitter and YouTube.
- xix. The annual University Research Week and research exhibitions facilitated by this programme to provide the platform for the researchers to exhibit their research findings to the outside community.

### **3.4 Programme objective 4: Increase partnerships with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas**

#### **Specific Activities to be carried out:**

- i. Multi-disciplinary research groups/ research centres/professorial chairs will be established.
  - a. Support already established UDSM research centres of excellence and professorial chairs.
  - b. Support co-authorship across Sida Subprogrammes with conference attendance financial support with each publication (commencing plans for in this phase).
- ii. Support research groups to develop competitive research proposals.
  - a. Specifically, the Directorate will provide seed funds to the multidisciplinary groups who will develop competitive research proposals.
  - b. Research fundable proposal for next Sida phase to be facilitated
- iii. Develop the frameworks for strategic research collaboration with key stakeholders.
  - a. African Research Universities (ARUA) Network: The University of Dar es Salaam is a member of the ARUA network. DVC-R and the team attend ARUA meetings workshops. The purpose of the workshop is to build a shared research data among member institutions so as to increase their visibility at international arena.
  - b. The Directorate of Research has been the secretariat for EARIMA - a platform that brings researchers, policymakers, and innovators from eastern Africa to come together, sharing experiences in research that also address policy issues. In the planned year, the Directorate will host the conference that will bring researchers and innovators from the eastern Africa region. The Directorate of Research through research management subprogramme will support researchers and innovators to present papers.
  - c. DRP, Sida Coordination unit, DPS and University public relation office organize visitation to private and government organs. This is to create linkage with industries. DRP should support the public relation office visitations. The public relation office to submit the plans and the reports of the visitations. The reports should recommend the effective ways to increase and sustain effective communication between University and various stakeholders.

#### **Expected Deliverables**

- (i) Up to five research centres/Multi-disciplinary research groups focused on strategic national priorities to enhance research networks and collaboration with key stakeholders the project will be established.
- (ii) 10 staff attend ARUA meetings/workshops as a way of increasing UDSM visibility at international arena.
- (iii) 20 UDSM researchers, innovators and 5 research managers supported to attend and present papers to EARIMA Annual Conference.
- (iv) The UDSM Centre for Tourism Research coordinated and bi-annual international conferences on sustainable tourism in developing countries (ICST-DC) organized.
- (v) East African Centre of Excellence in Mathematical Research to be coordinated.
- (vi) To participate on two meetings of the East Africa Centre for Mathematical Research to write MoU, prepare strategic plan, to develop plan of soliciting funds of Centre and plans for joint activities.
- (vii) To participate in workshop for regional Research Groups planned to take place in August 2019.
- (viii) 5 research groups supported to develop competitive proposals.
- (ix) 4 Sida based Research centre initiated to support next phase application.
- (x) At least 5 networking visitations by DRP, DPS and PRO to the private and public organs supported.

#### 4. Summary of Achieved Results for 2019/2020

##### 4.1 Programme objective 1: Increase the quantity and quality of postgraduate programmes and the extent of research training for development in key strategic priority areas

###### i. Capacity Building through 64/64 PhD, 47/36 Master students and 14/20 postdocs supervised.

###### Output produced

- a. The total number of students supervised during the reporting year were **61/64** PhD students (23 females, equivalent to 37%). All recruited students were in different levels of progress in their studies in which fourteen (14) were doing their field work, thirty-one (31) were writing their thesis, seven (7) were submitted their thesis for examination and Nine (9) candidates graduated from various Subprogrammes during the reporting period.



- b. The total number of students supervised during the reporting year were 34 PhD students (23 females, equivalent to 37%). During the period, the students were in different levels of study progress in which three (3) were doing their field work, fourteen (14) were writing their thesis, four (4) were submitted their thesis for

examination and Eleven (11) candidates graduated from various Subprogrammes during the reporting period. Detailed information is in the table 2 to table 7.

**Table 2: Distribution of registered students in various sub-programmes in 2015/16**

S/N	Name of the sub-programme	Female	Male	TOTAL	% Female
<b>A</b>	<b>PhD Students</b>				
1.	Research Management	0	0	0	0
2.	Strengthening UDSM Library	0	0	0	0
3.	Mathematics Programme	0	3	3	0
4.	Molecular Biosciences Programme	1	1	2	50
5.	Agribusiness Programme	1	2	3	33
6.	Tourism Programme	1	3	4	33
7.	Marine Science Programme	5	5	10	50
8.	Food Security Programme	4	4	8	50
9.	iGRID	1	1	2	50
10.	DAFWAT	2	2	4	50
11.	SUSTAIN	0	0	0	0
12.	Water Resources Management	0	3	3	0
	<b>Subtotal –PhD students</b>	<b>15</b>	<b>23</b>	<b>38</b>	<b>40</b>
<b>B.</b>	<b>Masters Students</b>				
1	Water Resources Management	2	1	3	67
	<b>Subtotal-Master students</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>67</b>
	<b>GRAND TOTAL</b>	<b>17</b>	<b>24</b>	<b>41</b>	<b>39</b>

**Table 3: Distribution of registered students in various sub-programmes in 2016/17**

S/N	Name of the sub-programme	Female	Male	TOTAL	% Female
<b>A</b>	<b>PhD Students</b>				
1.	Research Management	0	0	0	0
2.	Strengthening UDSM Library	0	0	0	0
3.	Mathematics Programme	0	0	0	0
4.	Molecular Biosciences Programme	2	3	5	40
5.	Agribusiness Programme	0	0	0	0
6.	Tourism Programme	0	0	0	0
7.	Marine Science Programme	0	0	0	0
8.	Food Security Programme	0	0	0	0
9.	iGRID	1	5	7	25
10.	DAFWAT	0	0	0	0
11.	SUSTAIN	1	1	2	50
12.	Water Resources Management	0	0	0	0
	<b>Subtotal –PhD students</b>	<b>4</b>	<b>9</b>	<b>13</b>	<b>30</b>
<b>B.</b>	<b>Masters Students</b>				
1	Food Security Programme	2	1	3	66
	iGRID	2	1	3	67
	DAFWAT	0	2	2	0
	SUSTAIN	2	2	4	50
	Mathematics	2	2	4	50
	<b>Subtotal-Master students</b>	<b>8</b>	<b>8</b>	<b>16</b>	<b>50</b>
	<b>GRAND TOTAL</b>	<b>12</b>	<b>17</b>	<b>29</b>	<b>41</b>

**Table 4: Distribution of registered students in various sub-programmes in 2017/18**

S/N	Name of the sub-programme	Female	Male	TOTAL	% Female
<b>A</b>	<b>PhD Students</b>				
1.	Research Management	0	0	0	0
2.	Strengthening UDSM Library	0	0	0	0
3.	Mathematics Programme	0	0	0	0
4.	Molecular Biosciences Programme	0	0	0	0
5.	Agribusiness Programme	0	0	0	0
6.	Tourism Programme	0	0	0	0
7.	Marine Science Programme	1	3	4	25
8.	Food Security Programme	0	0	0	0
9.	iGRID	1	1	2	50
10.	DAFWAT	0	0	0	0
11.	SUSTAIN	2	0	2	100
12.	Water Resources Management	0	0	0	0
	<b>Subtotal –PhD students</b>	<b>4</b>	<b>5</b>	<b>9</b>	<b>44</b>
<b>B.</b>	<b>Masters Students</b>				
1.	Food Security Programme	2	4	6	33
2.	iGRID	1	4	5	20
3.	DAFWAT	1	3	4	40
4.	SUSTAIN	3	1	4	75
5.	Mathematics	2	2	4	50
6.	Water Resources Management	0	0	0	0
7.	<b>Subtotal-Master students</b>	<b>9</b>	<b>14</b>	<b>23</b>	<b>39</b>
	<b>GRAND TOTAL</b>	<b>13</b>	<b>19</b>	<b>32</b>	<b>40</b>

**Table 5: Distribution of registered students in various sub-programmes in 2018/19**

S/N	Name of the sub-programme	Female	Male	TOTAL	% Female
<b>A</b>	<b>PhD Students</b>				
1.	Research Management	0	0	0	0
2.	Strengthening UDSM Library	0	0	0	0
3.	Mathematics Programme	0	0	0	0
4.	Molecular Biosciences Programme	0	0	0	0
5.	Agribusiness Programme	0	0	0	0
6.	Tourism Programme	0	0	0	0
7.	Marine Science Programme	0	0	0	0
8.	Food Security Programme	0	0	0	0
9.	iGRID	0	0	0	0
10.	DAFWAT	0	0	0	0
11.	SUSTAIN	0	0	0	0
12.	Water Resources Management	0	0	0	0
	<b>Subtotal –PhD students</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>B.</b>	<b>Masters Students</b>				
1.	Food Security Programme	1	0	1	100
2.	iGRID	0	0	0	0
3.	DAFWAT	0	0	0	0
4.	SUSTAIN	0	0	0	0

S/N	Name of the sub-programme	Female	Male	TOTAL	% Female
5.	Mathematics	0	0	0	0
6.	Water Resources Management	0	0	0	0
	<b>Subtotal-Master students</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>100</b>
	<b>GRAND TOTAL</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>100</b>

**Table 6: Distribution of supervised students in various sub-programmes in from 2019/2020**

S/N	Name of the sub-programme	Female	Male	TOTAL	% Female
<b>A</b>	<b>PhD Students</b>				
1.	Research Management	0	0	0	0
2.	Strengthening UDSM Library	0	0	0	0
3.	Mathematics Programme	0	3	3	0
4.	Molecular Biosciences Programme	3	4	7	43
5.	Agribusiness Programme	1	2	3	33
6.	Tourism Programme	1	3	4	25
7.	Marine Science Programme (New)	8	8	16	42
	Marine Science Programme (old)	0	2	2	0
8.	Food Security Programme	4	4	8	50
9.	iGRID	3	7	10	30
10.	DAFWAT	2	2	4	50
11.	SUSTAIN	3	1	4	75
12.	Water Resources Management	0	3	3	0
	<b>Subtotal –PhD students</b>	<b>25</b>	<b>39</b>	<b>64</b>	<b>38</b>
<b>B.</b>	<b>Masters Students</b>				
1.	Food Security Programme	5	5	10	50
2.	iGRID	3	5	8	30
3.	DAFWAT	2	4	6	29
4.	SUSTAIN	5	3	8	63
5.	Mathematics	4	4	8	50
6.	Water Resources Management	2	1	3	67
7.	Marine Science Programme	2	2	4	
	<b>Subtotal-Master students</b>	<b>23</b>	<b>24</b>	<b>47</b>	<b>46</b>
	<b>GRAND TOTAL</b>	<b>48</b>	<b>63</b>	<b>111</b>	<b>42</b>

**Table 7: Distribution of recruited and graduated students in various sub-programmes in from 2015/16 to 2019/2020**

S/N	Name of the sub-programme	Recruited	On training				Graduated	% Female Graduated
			Proposal Writing	Field Work	Thesis Writing/ Data Analysis	Examination		
A	<b>PhD Students</b>							
1.	Research Management	0	0	0	0	0	0	0
2.	Strengthening UDSM Library	0	0	0	0	0	0	0
3.	Mathematics Programme	3	0	0	1	1	1	0
4.	Molecular Biosciences Programme	7	0	0	5	1	1	0
5.	Agribusiness Programme	3	0	0	3	0	0	0
6.	Tourism Programme	4	0	0	0	1	4	0
7.	Marine Science Programme	18	0	7	7	0	5	0
8.	Food Security Programme	8	0	0	6	0	2	0
9.	iGRID	10	0	2	6	2	0	0
10.	DAFWAT	4	0	1	3	0	0	0
11.	SUSTAIN	4	0	4	0	0	0	0
12.	Water Resources Management	3	0	0	0	2	2	0
	<b>Subtotal –PhD students</b>	<b>64</b>	<b>0</b>	<b>14</b>	<b>30</b>	<b>5</b>	<b>15</b>	<b>13</b>
B.	<b>Masters Students</b>	<b>Recruited</b>	<b>On training</b>				<b>Graduated</b>	<b>% Female Graduated</b>
			Proposal Writing	Field Work	Thesis Writing/ Data analysis	Examination		
1	Food Security Programme	10	0	2	4	0	2	0
2	iGRID	8	0	0	6	0	2	50
3	DAFWAT	6	0	0	1	1	4	50
4	SUSTAIN	8	0	0	1	1	6	33
5	Mathematics	8	0	0	1	0	7	50
6	Water Resources Management	3	0	0	0	0	3	67
7	IMS	4	0	1	1	2	0	0
	<b>Subtotal- Master students</b>	<b>47</b>	<b>0</b>	<b>3</b>	<b>14</b>	<b>6</b>	<b>24</b>	<b>36</b>
	<b>GRAND TOTAL</b>	<b>111</b>	<b>0</b>	<b>17</b>	<b>45</b>	<b>11</b>	<b>39</b>	<b>26</b>

**Actual outcome realized:** So far, out of 64 PhD students (2 from previous phase), 12 students from various subprogrammes (see in table 7 above) graduated during the reporting period. Furthermore, the total of 24 (35% female) Masters Candidates from six Subprogrammes (see

in table 7 above), graduated from their studies and all are working with different government and private organisation. For example, one female candidate is working with Water Institute, under the Ministry Water and Irrigation, as assistant lecturer.

**ii. 8 PhD curricula development in the areas of Tourism, Hydrology and Bio-geochemical modelling, Smart grid, Integrated Sanitation Management, Gender in Agribusiness Entrepreneurship, Interdisciplinary Molecular Biosciences, Mathematics and Food Security.**

**Output produced**

- a. In 2015/2016 three (3) PhD Programmes (Molecular Biosciences, Mathematics and Smart grid) were approved by the 359<sup>th</sup> Senate Meeting held on 24<sup>th</sup> June 2016 and forwarded to TCU for accreditation.
- b. In 2016/2017 three more taught PhD programmes (Applied Marine Sciences, Hydrology and geochemical modelling and Integrated Food Security) from the Marine Sciences, DAFWAT and Food Security sub-programmes were approved by the UDSM Senate and forwarded to TCU for accreditation. This adds up to six of eight initially planned taught PhD programmes to be developed under this support.
- c. In 2017/18, the remaining two taught PhD programme as PhD in Business Management with courses in Tourism and Agribusiness (from Tourism and Agribusiness sub-programmes) and PhD in ISM were approved by the 359<sup>th</sup> Senate Meeting held on 24<sup>th</sup> June 2016 and forwarded to TCU for accreditation.
- d. In 2018/2019, five (5) taught PhD programmes were accredited by TCU.
- e. During the reporting year (2019/2020) three (3) taught PhD programmes were accredited by TCU.

**Table 8: Status of Accreditation of PhD Taught Programmes by TCU**

<b>A New Taught PhD Programmes</b>						
	<b>Programme</b>	<b>Subprogramme</b>	<b>Approved by SENATE</b>	<b>1<sup>st</sup> Submission to TCU</b>	<b>2<sup>nd</sup> submission to TCU</b>	<b>Status</b>
1	Doctor of Philosophy (PhD) in Mathematics	Mathematics	Yes. 325 <sup>th</sup> Senate Meeting held on 24 <sup>th</sup> June 2016	September 22, 2017	August 2018	Accredited
2	PhD in Applied Marine Sciences	Marine Science	Yes. 325 <sup>th</sup> Senate Meeting held on 24 <sup>th</sup> June 2016	September 09, 2016	November, 2018	Accredited
3	Integrated Food Security (PhD-IFS)	Food Security	Yes. July-august 2017	September 27, 2017	August, 2018	Accredited
4	PhD in Computer and IT systems Engineering	IGRID	Yes. 325 <sup>th</sup> Senate Meeting held on 24 <sup>th</sup> June 2016	August 20, 2016	November, 2018	Accredited
5	PhD in Molecular Bioscience	IMB	Yes. 325 <sup>th</sup> Senate Meeting held on 24 <sup>th</sup> June 2016	September 01, 2016	August, 2018	Accredited
6	PhD in Business Administration with modules in Tourism and Agribusiness	TOURISM/ ENGAGE	Yes. 337 <sup>th</sup> 13 <sup>th</sup> February 2018	November 2018		Accredited



7	PhD in Hydrology and Geochemical Modelling	DAFWAT	Yes. 331 <sup>st</sup> Senate 28 <sup>th</sup> April 2017	May 17, 2017	November 2018	Accredited
8	PhD in Integrated Sanitation Management	SUSTAIN	Yes. 338 <sup>th</sup> 13 <sup>th</sup> February 2018	November 2018	-	Accredited
	<b>Programme</b>	<b>Department</b>	<b>Approved by Senate</b>	<b>1<sup>st</sup> Submission to TCU</b>	<b>2<sup>nd</sup> submission to TCU</b>	<b>Responsible Person</b>
<b>B</b>	<b>Reviewed Taught PhD Programmes</b>					
1	PhD program in Aquatic Sciences with four specialization in Fisheries, Aquaculture, Biological Oceanography, & Limnology at DASF	Marine Science	Yes. 325 <sup>th</sup> Senate Meeting held on 24 <sup>th</sup> June 2016	September 2016	November, 2018	Accredited

**Actual outcome realized:** Postgraduate students are already enrolled in the four programmes. This means some of the programmes (PhD in smart grid, Mathematics and Molecular Biosciences, Management) are operational. For instance, up to the reporting year, the taught programmes developed by Tourism and ENGAGE subprogrammes and IGRID subprogramme have attracted many students as compared to other subprogrammes. The Tourism and ENGAGE subprogrammes developed PhD in Management programme attracted eight self-sponsored students taking PhD studies. While IGRID subprogramme attracted thirteen (13) candidates for its PhD programme including three (3) candidates who are self-sponsoring.

**iii. 3 Master curricula development in the area of Tourism, Smart grid and Marine Science**

**Output produced**

So far four (4) taught Masters Curricula developed. Three new and 7 reviewed programmes have already been approved by the University Senate. Three (3) New curricular accredited by the Tanzania Commission for the Universities (TCU).

**Table 9: Status of Accreditation of PhD Taught Programmes by TCU**

<b>A New Taught Masters Programmes</b>						
	<b>Programme</b>	<b>Subprogramme</b>	<b>Approved by SENATE</b>	<b>1<sup>st</sup> Submission to TCU</b>	<b>2<sup>nd</sup> submission to TCU</b>	<b>Status</b>
1	MSc in Sustainable Fisheries Management	Marine Science	Yes. 325 <sup>th</sup> Senate Meeting held on 24 <sup>th</sup> June 2016	October 24, 2017	November, 2018	Accredited
2	MSc in Integrated Food Security	Food Security	Yes. July-august 2017	September 27, 2017	August 2018	Accredited

3	MSc in Computer and IT Systems Engineering	IGRID	Yes. 325th Senate Meeting held on 24th June 2016	August 20, 2016	November, 2018	Accredited
4	Master of Tourism and Hospitality	TOURISM	No. It is at the department level	-	-	It is at the school level
<b>B Reviewed Taught Masters Programmes</b>						
1	Master of Science in Mathematical Modelling (M.Sc. MATHEMATICAL MODELLING)	Mathematics	Yes. 325th Senate Meeting held on 24th June 2016	September 22, 2017	August 2018	Accredited
2	Masters of Science in Mathematics (M.Sc. MATHEMATICS)	Mathematics	Yes. 325th Senate Meeting held on 24th June 2016	September 22, 2017	August 2018	Accredited
3	MSc in Data Science	IGRID	Yes. 325th Senate Meeting held on 24th June 2016	November, 2018	-	Accredited
4	Master in Integrated Sanitation Management	SUSTAIN	No. It is at a College level	No.	No.	No. It is at a College level
5	MSc in Marine Science	Marine Science	Yes. 325th Senate Meeting held on 24th June 2016	October 24, 2017	November, 2018	Accredited

**Actual outcome realized:** Out of eight developed programme, three (3) are running and have attracted a number of students undertaking studies. For instance, taught programmes developed by iGRID subprogramme have attracted many students as compared to other subprogrammes. The iGRID's developed programmes have also attracted self-sponsored students taking masters studies. So far it has thirteen twelve (12) master students including four (4) self-sponsored students.

**iv. Review of 1 PhD and 4 Masters Programmes in Marine Sciences, Pure Mathematics and Mathematics modelling as well as Integrated Sanitation Management**

**Output produced:**

So far, One (1) PhD programme and seven (7) Masters were reviewed and are waiting for TCU accreditation. The reviewed PhD program is in Aquatic Sciences with four specialization in Fisheries, Aquaculture, Biological Oceanography, & Limnology at DASF. The reviewed masters are MSc Computer Science, MSc Health Informatics, MSc Information Systems Management, MSc in Data Science, MSc in Mathematics, MSc in Mathematical Modelling and Master in Integrated Sanitation Management.

**Actual outcome realized:** Postgraduate students are already enrolled in the reviewed programmes.

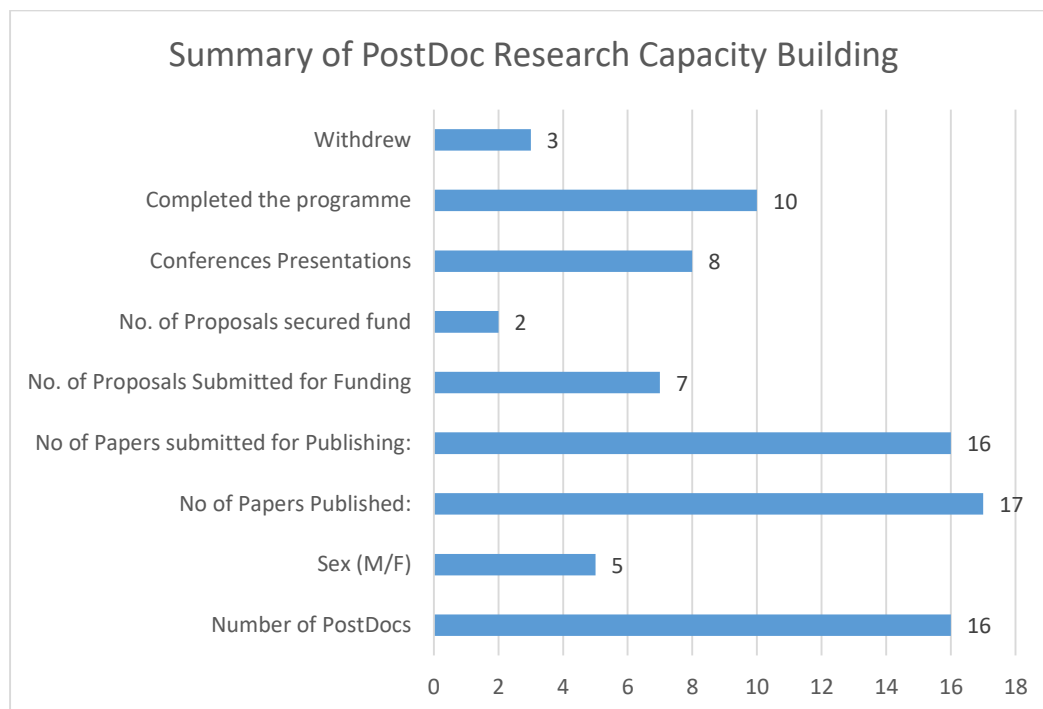
v. **4 Postdocs enrolled under Water Resources, Molecular Bioscience and Smart grid sub-programmes.**

- a. In 2015/2016, five Postdoctoral students (3 Female, 2 Male) were enrolled as postdoctoral candidates under smart grid (2) and Water Resource Management (3) sub-programmes. One postdoctoral candidate from the iGRID sub-programme passed away.
- b. In 2016/2017, six postdoctoral (2 females, equivalent to 33%) were enrolled as postdoctoral candidates under smart grid (3) and Food Security (3) sub-programmes.
- c. In 2017/2018 one postdoctoral candidates have been enrolled (I from Mathematics, sub-programmes) and therefore adding the numbers of enrolled postdoc to 15 out of the 20 initially planned.
- d. In 2018/2019 one postdoc enrolled by Mathematic Subprogramme, and one PostDoc of iGRID passed away, two withdrew on social grounds, six completed and seven postdoctoral candidates were supervised.
- e. In 2019/2020 three postdoctoral candidates, one from IGRID, one from food security and one from Mathematics subprogrammes were supervised. Mathematic subprogram awarded its postoc candidate a research visit to Sweden.

**Table 10: Status of the Progress of PostDoc Candidates**

S/N	Name	Subprogramme	Sex (M/F)	Progress %	Papers Published:	Papers submitted:	Proposal Submitted and Secured Funding	Conferences Presentations
1.	Libe Massawe	iGRID	F	Withdrew on Social grounds	0	0	0	0
2.	Richard Mgya	iGRID	M	Passed away	0	0	0	0
3.	Shililiandumi Naiman	iGRID	M	100%	5	2	4/2	1
4.	Ellen Kalinga	iGRID	F	100%	2	2		1
5.	Kwame Ibwe	iGRID	M	100%	6	4		5
6.	Hellen Mazika	iGRID	F	90%	0	0	0	0
7.	David Koloseni	MATHEMATIC	M	100%	2	0	0	0
8.	ThadeiSagamiko	MATHEMATIC	M	100%	1	0	0	0
9.	John Andongwisye	MATHEMATIC	M	50%	0	0	0	0
10.	Martin Chegere	Food Security	M	100%	0	2	0	0
11.	Liberata Mwita	Food Security	M	100%	0	2	0	0
12.	Victor VICENT	Food Security	M	50%	0	0	0	0
13.		Food Security	M	Withdrew on Social grounds	0	0	0	0
14.	Madaka Tumbo	Water Resources	F	100%	0	0	0	0
15.	Subira Munishi	Water Resources	F	100%	0	0	0	0
16.	Noah Pauline	Water Resources	M	100%	3	2	3	1
	<b>Total</b>				<b>17</b>	<b>16</b>	<b>7/2</b>	<b>8</b>

**Actual outcome realized:** Since inception of the programme, 19 papers published by PostDoc Candidates. Moreover, seven proposal submitted for funding and one awarded research funds apart from Sida which is postdoctoral researcher (Dr Kwame Ibwe) from iGRID subprogramme prepared a research proposal and were awarded a mini research project worth TZS. 120,000,000 (equivalent to SEK 500,000) from COSTECH.



**4.2 Programme objective 2: To improve research environment by increasing the utilization of equipment and infrastructure and conformance to regulations, policies and guidelines.**

**Output produced:**

**4.1.1 Research Management Information System (RMIS) developed**

**Output Produced**

- Four modules of the RMIS were planned to be developed.
  - These:
    - i. Research Clearance module
    - ii. Research Grant Module
    - iii. Publication Vetting Module
    - iv. Project Management Module (Planning and Reporting Module)

During the reporting period, four IT experts were commissioned to develop the modules. The Research Grant module has been completed. The remaining three modules were 100% completed. The full-fledged system will be operational by mid-November 2020.

- The expansion of RMIS also encompassed development of online research equipment management module. The module has been completed and now awaiting for

sensitization workshops so that laboratory technicians can use the system. The module does the following functions:

- Online inventory of all research equipment at UDSM
- Provide information on the availability of Lab services from various academic units so that UDSM researchers can book online to conduct their laboratory experiments

- Consolidating different components of RMIS

This is one of the extended RMIS activity aimed at having a single sign-on account to various systems used by UDSM staff. Currently, the four modules have been developed to enable users to use one account for all modules. This activity is 30% implemented.

#### Actual Outcome Realized:

1. Online Research Proposals application and Submission is operational: The Research Grant Module allowed UDSM researchers to apply online the 3rd Call of UDSM-Research Grant (2019/2020). The call was announced on 13th May 2020 and closed on 30th June 2020. 257 research proposals were submitted online. The system can be accessed through <https://rm.udsm.ac.tz>
2. Increased of Effective Monitoring of Research funding: Since inception of the programme, 1<sup>st</sup> July 2015 to 30<sup>th</sup> June 2020, the RMIS had 368 registered projects with total value 151 billion TZS. During the reporting period, a total of 66 research projects were registered. Therefore, RMIS support the university effectively monitor the research funding.

#### 4.1.2 Conducting Sensitization workshops to various UDSM units

##### Output Produced

1. Eight sensitization workshops to orient UDSM researchers on how to register research projects were organized. The workshops enlightened the role and importance of RIMS in increasing visibility of UDSM and in escalating efficient management of research projects at UDSM. Seventeen (17) Units were sensitised. The workshops were conducted to the researchers and system administrators of CoET, SoED, IDS, CoSS, CoHU, IKS, Library, UDBS, CoNAS, CoAF, IRA/CCCS, UDSoL, MCHAS, MUCE, DUCE and IMS. A total of 235 (27% female) UDSM researchers and system administrators were equipped with the skills and knowledge of effective use of RIMS.

**Table 11: Visit for Sensitization of Activities under the Directorate of Research and Publication Summary Report 2018/2019**

Number of Sessions = 8				
Units Sensitized = 17				
Session	UNIT	Participants		
		Male	Female	Total
22 <sup>nd</sup> Oct 2018	CoET, SoED, IDS	15	8	23
24 <sup>th</sup> Oct 2018	CoSS, CoHU, IKS, Library, UDBS	19	7	26
26 <sup>th</sup> Oct 2018	CoNAS, CoAF, IRA/CCCS, UDSoL	17	5	21
7 <sup>th</sup> Jan 2019	MCHAS	24	7	31
8 <sup>th</sup> Jan 2019	MUCE	33	12	45
28 <sup>th</sup> June 2019	SJMC	13	6	19

26 <sup>th</sup> June 2019	DUCE	41	13	54
15 <sup>th</sup> March 2019	IMS	11	5	16
<b>Total</b>		<b>173</b>	<b>63</b>	<b>235</b>

2. The activity was not conducted during 2019/2020 because the focus was on preparation RIMS modules. On the other hand, persistence existence of Covid-19 apandemic also contributed to the cancellation of the workshops. The activity was postponed to 2020/2021 implementation year where the sensitization of the use RIMS will be the key issue.

### Actual outcome realized

Up to 31<sup>th</sup> October 2020, the RIMS had 464 registered projects with total value 151 billion TZS.

Table 12: Registered Research Projects Summary

Registered Research Projects Summary: July 2015 to October 2020			
#	Centre	Number of Projects	Amount in TZS
1	Centre for Climate Change Studies (CCCS)	10	10,201,435,212
2	Confucius Institute	1	-
3	College of Agricultural Sciences and Fisheries Technologies (CoAF)	29	3,609,685,069
4	College of Engineering and Technology (CoET)	32	9,971,358,504
5	College of Humanities (CoHU)	38	7,830,890,776
6	College of Information and Communication Technologies (CoICT)	14	10,329,494,803
7	College of Natural and Applied Sciences (CoNAS)	58	9,679,936,049
8	College of Social Sciences (CoSS)	71	21,912,705,952
9	Directorate of Research and Publication (DRP)	4	45,834,853,916
10	Dar es Salaam University College of Education (DUCE)	57	3,307,853,594
11	Institute of Development Studies (IDS)	12	3,141,254,829
12	Institute of Kiswahili Studies (IKS)	5	76,000,000
13	Institute of Marine Science_Zanzibar (IMS)	27	3,934,455,964
14	Institute of Resource Assessment (IRA)	16	16,176,574,876
15	Library	3	54,680,920
16	Mbeya College of Health and Allied Sciences (MCHAS)	6	252,350,179
17	Mkwawa University College of Education (MUCE)	43	412,703,098
18	School of Journalism and Mass Communication (SJMC)	1	13,875,000

19	School of Education (SoED)	14	1,419,716,423
20	University of Dar es Salaam Business School (UDBS)	16	507,290,460
21	University of Dar es Salaam Innovation and Entrepreneurship Centre (UDIEC)	1	295,490,677
22	University of Dar es Salaam School of Law (UDSoL)	6	1,336,465,000
	<b>Total</b>	<b>464</b>	<b>140,097,636,089</b>

### **4.1.3 Number of policy and guidelines produced.**

#### **4.1.3.1 Development of Research Agenda**

##### **Output produced**

The Research agenda was approved at the 360 meeting of UDSM Senate in 21<sup>st</sup> February 2018. The UDSM Research agenda was shared during reporting year in the 1<sup>st</sup> Annual Conference on Research and Inclusive Development and in the East African Research, Innovation and Management in Easter Africa (EARIMA) in which more than 200 regional and international stakeholders who managing research attended. The Research agenda was published on line and available in the following link ([https://www.udsm.ac.tz/upload/20190805\\_095637\\_University%20of%20Dar%20es%20Salaam%20Research%20Agenda%202018\\_19%20-%202027\\_28.pdf](https://www.udsm.ac.tz/upload/20190805_095637_University%20of%20Dar%20es%20Salaam%20Research%20Agenda%202018_19%20-%202027_28.pdf) ).

##### **Actual outcome realized**

After being approved, the Research Agenda was used to develop the 1<sup>st</sup> and 2<sup>nd</sup> Call of UDSM Research Grants, 2018 and 2019 respectively. In these call, members of academic staff were invited to submit competitive research proposals categorized into seven thematic areas with a total grant amounting to TZS. 1.7 billion. 257 proposals were submitted and 182 evaluated for funding.

#### **4.1.4 Revised Quality Assurance Policy**

##### **Output Produced**

Draft Quality Assurance Policy has been submitted to DVC-Research seeking deliberations from the UDSM Committee of Deans meeting for further submission to senate for approval. Printed copies will be made after receiving the final policy.

##### **Actual Outcome Realized:**

The Policy is revised but not yet approved by SENATE.

#### **4.1.5 Sensitization workshops of UDSM Quality Assurance (QA) Policy**

##### **Output Produced:**

The workshops on the revised Quality Assurance Policy were not conducted during the reporting period. This is due to the fact that the work on revising the policy was not yet accomplished.

**Actual Outcome Realized:**

No outcome realized in this activity.

**4.1.6 Procurement of Major and Minor Equipment**

**Output produced:** (Detailed in the appendix 2 below)

From 2015/2016 to 2019/2020 the programme managed to acquire various minor and major equipment as detailed in (Detailed in the appendix 2 below). During the period, the DAFWAT, Research Management, Food Security, IMS, SUSTAIN and MBB managed to procure various equipment.



A newly procured HPLC Equipment used by Food Security Subprogramme Researchers for separation and qualification of amino acid in banana and quantifying sugar and acids on juice

**Actual outcome produced:** the procured equipment enhanced the research infrastructure at UDSM. The direct outcome of procuring the research equipment at UDSM, have been specifically realized by IMS, Food Security, IMB and DAFWAT Subprogrammes. More than 65 researchers were benefited with the availability of the equipment in which 54 scientific data analysis were conducted in 17 data analysis were fullest while 37 analyses were partially done as detailed in the table below:

Table 13: The use of Research Equipment

S/N	NAME OF SUBPROGRAMME	NUMBER OF RESEARCH ANALYSIS	Type of Equipment Procured by UDSM-Sida Programme	Remarks
	IMS	23	Pulse amplitude Modulated (PAM) fluorimeter, Aquaculture ponds, tanks and associated equipment, Microscopes, Ovens, Microscopes, culture tanks/flasks	17 full analysis 6 partial analysis
	Food Security	7	High Performance Liquid Chromatography (HPLC)	Partial Analysis
	IMB	14	Laminar Flow Cabinets, Bench top Centrifuge, pipettes and Rotatory	Partial Analysis



			evaporator	
	DAFWAT	10	IC-Integrion, ICP-OES Fluoride probe and As probe	Partial Analysis

### 4.2.3 Academic staff trained in postgraduate student supervision skills

#### Output produced:

During the reporting period (2019/2020), two supervision training workshops were held to staff from DUCE and IMS. The training was held from 7th to 10th October 2019 at MUCE Campus in Iringa and was attended by 34, (35% female) Academic members of staff from Mkwawa University College of Education. The aim of the training was to make participants be aware of the principles and rules that governs research as well as of appropriate approaches, methods and techniques in supervising their postgraduate students from the beginning to the end of the process. The overall progress of the postgraduate students' supervision training is summaries in the table below:

Table 14: Status of postgraduate students' supervision training

Date	Targeted Staff	No. Participants	Female (%)
2019/2020	MUCE staff	34	29%
2018/2019	Supervisors of UDSM Sida Postgraduate students; Mathematic department staff, and DUCE Staff	195	31%
2017/2018	UDSM Main campus staff and Mathematic Department	102	27%
2016/2017	UDSM Main campus Staff with SLU partners	67	31%
2015/2016	UDSM Main campus Staff	68	25%
<b>Total participants (Target 300)</b>		<b>466</b>	<b>29%</b>



MUCE participants received certificates of attendance after training on Postgraduates student's supervision held from 7th to 10th October 2019 at MUCE Campus in Iringa

#### Actual Outcome Realized:

Increased postgraduate graduation rate:

1. 12 PhD Sida sponsored students graduated
2. 24 masters Sida Sponsored Students graduated.
3. University graduation rate is 27% per year

**4.2.4 Academic staff equipped with the skills to write competitive fundable research proposals. At least 10 competitive proposals developed in a year.**

**Output Produced**

During the reporting period (2019/2020), three training workshops writing fundable proposals were held on 11h to 13th December 2019, 27th to 29th January 2020 and 11th to 13th March 2020 to staff from DUCE, CoICT and IMS. 71 staff (46% female) attended the training workshops. The topics covered included Types of proposals, Types of funding, Hints and tips for successful proposals, Main sections of a proposal, Common mistakes in proposal writing, writing concept notes and Potential funding sources. The overall progress of the fundable research proposals training from 2015/2016 to 2019/2020 is summaries in the table below:

Table 15: Progress of the fundable research proposals training from

Date	Targeted Staff	No. Participants	Female (%)
2019/2020	CoICT, IMS staff, DUCE Staff	71	46%
2018/2019	UDSM main campus, MUCE and MUCHAS	151	35%
2017/2018	UDSM main campus,	42	30%
2016/2017	NIL	0	
2015/2016	NIL	0	
<b>Total participants (Target 150)</b>		<b>264 (176% achievement)</b>	<b>37%</b>



Participants at the Institute of Marine Sciences (IMS) after the training on Writing Fundable proposal held from 18th to 20th December 2019 at IMS Buyu Campus in Zanzibar

**Actual Outcome Realized:**

The training resulted to Increase of submission fundable research proposals to various Research proposals. For example:

- b. During the reporting period 2019/2020;
  - i. University submitted 10 research proposals in response to the NORHED research call for proposal.

- ii. University submitted fundable research proposal to respond the Sida Call on strengthening research capacity in the field of Humanities in low-income countries becomes successful.
- c. In 2018/2019 ten (10) researchers who participated in the training had prepared and submitted their research proposals in response to the 1st Call of UDSM Research Grants, 2018 for funding. Out of them, 4 research proposals were awarded research grants by the University of Dar es Salaam.
- d. So far UDSM Sida subprogramme research groups submitted **100** fundable research proposals. As a result, five research proposals were awarded research funds by national funders while 11 proposals were granted international funding. For instance, Marine Science (IMS) subprogramme attracted extra research funds apart from Sida worth TZS 17,7 billion (SEK 70mill).

#### 4.2.5 Trainings on IPR conducted to academic staff

##### Output Produced

During the reporting period (2019/2020), four IPR training workshops were held to staff from CoET, IMS, CoNAS and CoICT. 116 (33% female) staff attended IPR training workshops as shown in the table below. Participants were equipped with IPR matters including, Introduction to Intellectual Property Rights, Patents Protection and Research Management, Copyright Protection and Research Management. So far IPR knowledge has been imparted to more than 230 (32% female) academic staff and student researchers from 2017 to 2020 out of 300 trainees planned to be given skills on Intellectual Property Rights. Hence, making 67% achievement realized so far as detailed below:

Table 16: Progress on Intellectual Property Rights

Date	Targeted Staff	No. Participants	Female (%)
2019/2020	MUCE staff, CoET staff, CoNAS staff, CoICT staff and IMS staff	116	33%
2018/2019	Researchers and Dean, Principal and Directors from UDSM	52	30%
2017/2018	UDSM Main campus researchers	62	35%
2016/2017	NIL	0	0
2015/2016	NIL	0	0
<b>Total participants (Target 300)</b>		<b>230 (67% achievement)</b>	<b>32%</b>

More training workshops will be conducted in 2020/2021 implementation year.



Participants at DUCE attentively during Turning Dissertation into Journal Articles Training held from 2nd to 6th December 2019 at DUCE conference room

**Actual outcome realized:**

- i. 33 potential projects have been identified and processed to varied levels for patenting or copyright protection.
- ii. Eight IPs projects have already been filed with BRELA for registration of Patent protection. Four IPs has been approved by BRELA and are ready for commercialization.
- iii. Two IP under Sida programme filed with BRELA for patenting. The submmited patents are
  - i. Extruded Snack From Banana Juice Spent Pulp (Bjsp) out of research done by Dr. L Rweyamamu, Dr. O Kibazohi and Ms Grace Michael; and
  - ii. ‘Sisal Bole Bio-product’ stemming from a research done by Prof. A. Kivaisi, Prof. A. Mshandete and Dr. O. Kibazohi.

**4.2.6 4 members of staff involved in research management equipped with the skills on Project Management.**

**4.2.6.1 Study Visit by UDSM staff to other universities advanced in using RIMS**

**Output Produced**

During the reporting period, 7 university staff from the Office of the DVC-Research, that include DVC-Research, made study visit to the Stockholm University, Department of Computer Systems (DSV) to take stock of experience to improve UDSM Research Information Management System (RIMS). The visit was made from 13<sup>th</sup> to 17<sup>th</sup> January 2020. During the visit, the UDSM delegation was introduced to the DSV Research Management Platforms (the web portal, SciPro (Science Project) system (User end), DiVA (Digital Scientific Archive – Swedish acronym), DiVA User experience was introduced by Wayne WestmorelandSwePub and Libris Systems, Daisy (Study Administrative System), Tutoring System, Project Proposals, Training on Result Based Management (RBM), Visiting DSV ICT Infrastructure and Visiting Stockholm University main library.

Lessons Learnt During the Visit include different systems can be developed from a variety of technologies depending on the need and be integrated as necessary, the aspect of science

communicator role can be introduced to UDSM or re-visit the role of marketing and outreach manager, also to extensively use of social media, podcast channel, podcast studio in dissemination of research results and Aspect of using proven scientific register of publication media when evaluating publication media.



The 7 University staff from the University of Dar es Salaam (UDSM), office of the DVC-Research observing how the ICT equipment is operated to support the Research Management at Stockholm University.

**Actual Outcome Realized:**

1. Four new RMIS modules were developed.
2. Planning and Reporting of UDSM-Sida programme improved on RBM format
3. Two Trainings on dissemination of research results was conducted.

#### 4.2.7 Training workshops on Financial and Project Management to be conducted to research managers

##### Output Produced

The Training workshop was initially planned to be held in April 2020. However, due to COVID-19 pandemic it was postponed. The workshop entitled: ‘Workshop on Basics of Research Management and Governance’ was eventually held at APC Conference Facility at Bunju, Dar es Salaam from 11<sup>th</sup> to 13<sup>th</sup> August 2020. The workshop which was attended by 85 participants was officially opened by Prof. Bernadeta Killian, the Deputy Vice Chancellor-Research. This workshop attracted facilitators from other institutions such as COSTECH, Sokoine University of Agriculture (SUA) to enhance networking and sharing experience on research management. The following topics were presented as shown below:

Topics	Presenter
Research Governance at Universities: Global Experience and Lessons	Prof. Ezron Karimulibo, Director for Postgraduate, Research and Technological Transfer and Consultancy: SUA
Innovation Management at Universities: Global Experiences and Lessons	Prof. Abraham Temu-(former Director of Innovation and Entrepreneurship, UDSM)
Professionalization of Research Management; the Role of EARIMA	Dr. E.C. Lyaya, (Coordinator EARIMA: UDSM)
Research Management and Accountability	Prof Mohamed Sheikh, (Manager, Physical Science Research-COSTECH)
Financial Rules and Regulation on Research and Consultancy Funding	Mr. Wilfred Luyangi, (Director of Finance-UDSM)
Audit Issues and Queries on Research and Consultancy	Mr. Sayumwe Kayanda (Chief Internal Audit-UDSM)
Monitoring the Quality of Research Out- puts at UDSM: Instruments and the Role of Research Managers	Dr. Pendo S. Malangwa (Director, QAB)
Managing Research and Publication at UDSM	Dr. Mussa I. Mgwatu, (Director, Research and Publication)
UDSM Research Management Information Systems (RMIS)	Mr. Dani Livingstone, (Principal System Administrator – DVC-R Office)
Global ranking and research Grants Management: The Role of Research Coordinators	Dr. Mathew Senga (UDSM Research Grants Coordinator)
Managing UDSM/Sida projects: Governance and Accountability	Dr. Latifa Mbelwa, (Coordinator – Sida Programme)
Publication opportunities at DUP	Dr. Deogratias Mahangila (Manager-DUP)
Visibility of UDSM Research, Innovation and Consultancy	Dr. Mona Mwakalinga, (Director Public Service)
Consultancy Management at UDSM	Dr. Pascal Mugabe, (Coordinator,UDSM Consultancy Bureau)
Managing Innovation at UDSM	Dr. Ambrose Itika, (Director – UDEIC)
Managing Entrepreneurship at UDSM	Dr. Mariam Nchimbi, (Deputy Director – UDEIC)
Issues, Opportunities and Challenges of IP at UDSM	Dr. Theodora Mwenegoha, (Manager-IPMO)
Access to and Utilisation of E-Resources at the University of Dar es Salaam	Dr. Paul Muneja, (Deputy Director Library)



#### **Actual Outcome Realized**

Increased awareness on research management and governance to research managers and administrators.

#### **4.2.8 Centre for Research and Innovation Management (CRIM) established at the old library building.**

##### **Output Produced**

This activity was intended to establish the centre for DVC-Research to manage research and innovation at UDSM under one umbrella. This was important in making sure that research and innovation initiatives are well coordinated and shared among researchers and innovators. The integration of research and innovation was expected to further advance the university's responsibility of contributing to industrial and social development. However, the centre established due to lack of funding and that the old library space was allocated for other purposes. The establishment of the Centre for Research and Innovation Management will be part of the strategic activity in the next phase.

#### **4.3 Programme objective 3: Increase the quality and use of research relevant to high priority issues of national development**

##### **4.3.1 Junior staff and postgraduate students trained on research methods, research ethics, and scholarly writing skills in order to improve the quality of research by UDSM researchers.**

##### **Output Produced**

During the reporting period, 2019/2020 three trainings were conducted and impacting the skills on Research Methods, scholarly writing and Ethics to postgraduates students and junior academic Staff of Dar es Salaam University. The trainings are detailed below;

- a. Training on Research Methods, Writing Skills and Ethics to Academic members of Staff for Dar es Salaam University College of Education (DUCE)**

The training was held from 16th to 20th December 2019 at DUCE Campus in Dar es Salaam and was attended by 48 (36% female) members of Academic staff. The aim of the training was to enable the participants to understand the theoretical and practical aspects of writing research proposals, conducting research and writing research reports, dissertations and theses.



Participants at DUCE attentively during Research Methods, Writing Skills and Ethics training held from 16th to 20th December 2019 at DUCE conference room

**b. Training to Junior Academic members of Staff at Mkwawa University College of Education (MUCE) on Turning Dissertation/Thesis into Journal Articles**

The training was held from 2nd to 5th November 2019 at MUCE Campus in Iringa attended by 71 (27% female) Academic members of staff from Mkwawa University College of Education. The primary objective of this workshop was to help early career researchers to turn their research (from Ph.D and M.A works) in Journal Articles and publish them into reputable journals.



Participants attentively listening during Turning dissertation / thesis training at MUCE



**c. Training to Academic members of Staff at Dar es Salaam University College of Education (DUCE) on Turning Dissertation/thesis into Journal Articles.**

The training was held from 2nd to 6th December 2019 at DUCE Campus in Dar es Salaam and was attended by 51 (29% female) Academic members of staff from DUCE. The primary objective of this workshop was to help early career researchers to turn their research (from Ph.D and M.A works) in Journal Articles and publish them into reputable journals.



Participants at DUCE attentively during Turning Dissertation into Journal Articles Training held from 2nd to 6th December 2019 at DUCE conference room

So far research methodology, writing skills and research ethics knowledge has been imparted to more than 590 (32% female) postgraduate students and junior researchers from 2015/2016 to 2019/2020 Hence, making 118% (591/500) achievement realized so far as detailed below:

Table 17: Research methodology, writing skills and research ethics knowledge

Date	Targeted Staff	No. Participants	Female (%)
2019/2020	UDSM Main campus, MUCE, DUCE	170	32%
2018/2019	UDSM Main campus researchers, Tourism subprogramme' postgraduate students	52	25%
2017/2018	UDSM Main campus researchers, Tourism and ENGAGE subprogramme postgraduate students	248	40%
2016/2017	UDSM Main campus researchers	43	30%
2015/2016	UDSM Main campus researchers	78	45%
<b>Total participants (Target 500)</b>		<b>591 (118% achievement)</b>	<b>32%</b>

**Actual Outcome Realized**

1. According to University annual report 2015/2016 to 2019/2020, 120 papers has been published in the local and international peer review journals
2. 300 research clearances were granted to the respective approved research proposals for data collection by 180 postgraduates students and 120 researchers
3. Between 2016 and 2020 a total of 256 staff submitted their publications for promotion
4. Between 2016 and 2020 a total of 2136 publications submitted for promotion
5. Between 2016 and 2020 a total of 1271 publications submitted for promotion, were recommended (60% acceptance)
6. Between 2016 and 2020 a total of 212 Publications published by highly ranked publishers

such as Taylor & Francis, Elsevier, Springer Emerald, Sage, Oxford and Cambridge

7. Between 2016 and 2020 a total of 365 Publications published by highly ranked indexing institutions such as AJOL, EBSCO, Scopus and Web of Science
8. Between 2016 and 2020 a total of 4363 Number of Publications submitted by UDSM Staff in UDSM Repository

#### 4.3.2 24 UDSM Journals reviewed to meet International Standards

##### Output Produced:

During the reporting period, UDSM Journals review were conducted in which 24 UDSM journals and 3 journals from other institutions were evaluated. University of Dar es Salaam journals were available on the UDSM Journal website. With regard to Journal Indexing, the current status shows that 11 out of 24 UDSM journals were considered as international journals as they been accepted for indexing by EBSCO, Sabine, Econbiz, AfriBib and AJOL.

These journals are: 1) The African Review: A Journal of African Politics, Development and International Affairs, 2) Kiswahili, 3) Tanzania Journal of Development Studies, 4) Tanzania Journal of Humanities Education and Sciences, 5) Tanzania Journal of Science, 6) Tanzania Zamani, 7) Kioo cha Lugha, 8) University of Dar es Salaam Library Journal, 9) Utafiti Journal and 10) Tanzania Economics Review, and (11) Business Management Review (BMR).

##### Actual outcome realized

1. At least 91.6% of the Journals are accessible online. 58%% are accessible in the international forum, such as **EBSCO, which is increase of 10% from 2018/2019 to 2019/2020**. This indicate the increase of visibility of the UDSM publication through online journals.

#### 2. UDSM Journal Issues Published online in 2019/2020

Increased visibility of UDSM publications through online journals. 26 issues were made in 2019/2020 as presented in table 18 below:

Table 18: UDSM Online Journals 2019/2020: Issues Made			
S/N	Journal Title	ABR	Number of Issues 2019/2020
1	Journal of Education, Humanities and Sciences	jehs	2
2	The African Review	ar	2
3	Tanzania Journal of Engineering and Technology	tjet	2
4	Business Management Review	bmr	2
5	Journal of Linguistics and Language in Education	jlle	0
6	ORSEA JOURNAL	orsea	2
7	Kioo cha Lugha	kcl	1
8	Mulika Journal	mj	1
9	Kiswahili	kiswahili	1
10	University of Dar es Salaam Library journal	lj	1
11	Tanzania Economic Review	ter	1
12	Nyerere Law Journal	nlj	0

13	Papers in Education and Development	ped	1
14	Tanzania Journal of Sociology	tjsociology	1
15	Tanzania Journal of Development Studies	tjds	1
16	The Eastern African Law Review	ealr	0
17	Tanzania Journal of Science	tjs	4
18	Studies in the African Past	sap	0
19	Utafiti Journal	uj	1
20	Tanzania Journal for Population studies and Development	tjpsd	1
21	Journal of the Geographical Association of Tanzania	jgat	0
22	Tanzania Zamani	tz	2
	<b>Total number of Issues</b>		<b>26</b>

### **4.3.3 Publication of 100 copies of 5 Training Manuals, 100 copies of 20 Research Policy Briefs and support publication of 5 Conference Proceedings Output Produced:**

#### **4.3.1.1 Copies of Training Manual Published**

Five type of training manual were expected to be prepared and published in soft and hard copies. During the year four out of five manuals were prepared but not yet published:

1. Training Manual for Postgraduate Supervision Skills
2. Training Manual for Competitive Research Proposal Writing
3. Training manual for IPR skills
4. Training manual for Research Methodology and Scientific writing skills
5. Training manual for Policy Briefs Skills

#### **4.3.1.2 Copies of Research Policy Briefs Published**

The policy briefs were prepared and published in one book. 1000 (500 copies in English version and 500 copies in Swahili version) copies were printed and shared at the 2<sup>nd</sup> Annual Conference on Inclusive Development which was held in Dodoma from 14<sup>th</sup> to 15<sup>th</sup> November 2019 in which more than 300 people attended.

### **4.3.4 Writing of Policy Training which Organised by CCE and UDSM-Sida Research Programme**

- a. Two trainings were conducted in 2018/2019 at UDSM-main campus (from 7<sup>th</sup> to 8<sup>th</sup> March 2019; and from 20<sup>th</sup> to 24<sup>th</sup> May 2019) and one at Institute of Marine Science (17-19 June 2019). A total of 49 researchers (30% female) were attended the training.
- b. Two trainings were conducted in 2019/2020 at MUCE from 18<sup>th</sup> to 20<sup>th</sup> November 2019. A total of 69 researchers (30% female) were attended the training.
- c. 40 Sida Subprogramme PIs, CoPIs, PhD and Masters students equipped with the skills to write policy briefs at COICT from 18<sup>th</sup> to 20<sup>th</sup> November 2019. A total of 40 researchers (30% female) were attended the training.

#### **Actual outcome realized**

26 eleven policy briefs prepared and submitted for presentation in the 1<sup>st</sup> and 2<sup>nd</sup> Conference of Research and inclusive Development.

### 4.3.5 Conference Papers Presentations

#### 4.3.5.1 Conference Papers Presentation by UDSM-Sida Subprogramme Researchers

##### Output Produced

- a. 2015/2020 to 2018/2019 One hundred and Fifty-one (151) papers were accepted and presented in local and international conferences.
- b. In reporting year (2019/2020), the conference supports were as follows:
  - i. 85 papers presented in various international conference in which 54 papers were presented in the 2nd Annual Conference on Research and Inclusive Development to be organized by UDSM Sida Research Programme under Directorate of Research and Publication, from 14<sup>th</sup> to 15<sup>th</sup> November 2019 in Dodoma.

#### 4.3.5.2 UDSM Scholars Facilitated to Present their Research Findings in Local and International Conferences.

##### Output Produced

During the reporting period (2019/2020) a total of 24 staff were provided with financial support to enable them to present their research findings at local and international conferences for enriching their academic papers. So far, from July 2015 to June 2020, a total of 149 staff were provided with financial support as summarized in the table below:

Table 19: Number of Academic Staff Provided with Financial Support to Attend and Present Papers at International Conferences

S/N	Unit	2015/ 16	2016/ 17	2017/ 18	2018/ 19	2019/ 20	Grand Total
1	College of Agricultural Sciences and Fisheries Technology (CoAF)	0	1	1	1	1	4
2	College of Engineering and Technology (CoET)	3	2	3	6	9	23
3	College of Humanities (CoHU)	2	6	6	8	5	27
4	College of Information and Communication Technologies (CoICT)	0	1	0	0	0	1
5	College of Natural and Applied Sciences (CoNAS)	6	4	0	3	1	14
6	College of Social Sciences (CoSS)	4	6	3	0	2	15
7	Dar es Salaam University College of Education (DUCE)	0	0	2	5	2	9
8	Dar es Salaam University Students Organization (DARUSO)	0	1	0	0	0	1
9	Directorate of Human Resource and Administration (DHRA)	0	0	0	1	0	1
10	Directorate of Postgraduate Studies (DPGS)	0	0	0	2	0	2
11	Directorate of Research and Publication (DRP)	0	0	0	3	0	3
12	Gender Centre	0	0	1	0	0	1
13	Institute of Development Studies (IDS)	0	0	1	2	1	4
14	Institute of Kiswahili Studies (IKS)	1	3	1	1	0	6
15	Mbeya College of Health and Allied Sciences (MCHAS)	0	0	0	1	0	1

16	Mkwawa University College of Education (MUCE)	0	0	0	5	1	6
17	Mwl. Nyerere Chair	0	0	0	1	0	1
18	Office of the DVC- Research	1	2	0	1	0	4
19	Office of the Vice Chancellor	0	0	0	1	0	1
20	Quality Assurance Bureau (QAB)	0	0	0	1	0	1
21	School of Education (SoED)	1	1	0	2	1	5
22	School of Journalism and Mass Communication (SJMC)	0	1	5	2	1	9
23	UDSM Library	0	1	0	2	0	3
24	University of Dar es Salaam Business School (UDBS)	0	1	1	1	0	3
25	University of Dar es Salaam Innovation and Entrepreneurship Centre (UDIEC)	0	4	0	0	0	4
	<b>Grand Total</b>	<b>18</b>	<b>34</b>	<b>24</b>	<b>49</b>	<b>24</b>	<b>149</b>

**Actual outcome realized:** provision of financial support to academic staff to attend and present papers to international conferences has positively contributed to the increased visibility of UDSM research outputs. As a result, **UDSM's 2020 ranking amongst African universities the best 200 African Universities, at 22<sup>th</sup> position** by <https://www.4icu.org/top-universities-africa/> while ranked at 35<sup>th</sup> in Africa by <https://www.webometrics.info/en/africa>.

#### 4.3.6 Local, Regional and International Dissemination Conferences organized by the University units supported.

##### Output Produced:

During the reporting period (2019/2020), 6 academic units were provided with financial support to organize international conferences. The support was in most cases tailored to finance conference budget lines relating to dissemination of conference proceedings or publishing of conference books of abstracts. From July 2015 to June 2020, a total of 14 academic units were provided with financial support as summarized in the table below:

**Table 20: Number of Academic Units Provided with Financial Support to Organize International Conferences**

S/N	Unit	2015/16	2016/17	2017/18	2018/19	2019/20	Total
1	College of Humanities (CoHU)	1	0	1	0	0	2
2	Dar es Salaam University College of Education (DUCE)	0	1	0	0	1	2
3	College of Natural and Applied Sciences (CoNAS)	0	0	2	0	0	2
4	College of Social Sciences (CoSS)	0	0	0	0	1	1
5	College of Engineering and Technology (CoET)	0	1	0	1	1	3
6	Mkwawa University College of Education (MUCE)	0	0	0	0	2	2
7	School of Education (SoED)	0	0	0	0	1	1
8	The Mwalimu Julius Nyerere Chair in Pan-African Studies	0	0	1	0	0	1
	<b>Total</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>6</b>	<b>14</b>

##### Actual Outcome Realized:

Increased visibility and dissemination of UDSM research outputs. This increased visibility of

UDSM research output. **UDSM's 2020 ranking amongst African universities the best 200 African Universities, at 22<sup>th</sup> position** by <https://www.4icu.org/top-universities-africa/> while ranked at 35<sup>th</sup> in Africa by <https://www.webometrics.info/en/africa>.

#### **4.3.7 2<sup>nd</sup> Annual Conference on Research and Inclusive Development to be organized by DRP and Sida Secretariat from 14<sup>th</sup> to 15<sup>th</sup> November 2019 in Dodoma**

##### **Output Produced:**

UDSM-Sida Programme organized the 2<sup>nd</sup> Conference on Research and Inclusive Development which was held from 14<sup>th</sup> to 15<sup>th</sup> November 2020 at LAPF Conference Hall, Dodoma. The conference was officially opened by the Minister of Industry and Trade, Innocent Lugha Bashungwa.

The main theme of the conference was **'Enhancing Strategic Research for Inclusive Industrial Development in Tanzania'**.

Picture...

##### **Actual Outcome Achieved:**

- i. Over 300 participants with wide range of interests and expertise from academia (within and outside Tanzania), members of diplomatic missions, legislators, policy makers and the selected leaders of Civil Society Organizations attended the conference.
- ii. Over 15 senior Officials from the following ministries of Ministry of Education and Vocation Training, Ministry of Energy, Ministry of Water, Ministry of Trade and Industry, Ministry of Agriculture and the Ministry of Livestock and Fisheries.
- iii. Over 40 Members of Parliament and 10 house of representation from Zanzibar. Members of parliament attended the conference were from the following parliamentary committees; Agriculture, Livestock and Water Committee, Energy and Minerals Committee, Industries, Trade and Environment Committee, Social Services and Community Development Committee and Land, Natural Resources and Tourism Committee
- iv. 54 papers were presented in the conference
- v. 15 Policy Briefs were presented and discussed by stakeholders.

#### **4.3.8 Social Media such as Facebook, Twitter and YouTube coordinated.**

Two social media accounts were coordinated during the year reviewed.

1. Facebook page: The UDSM-Sida Research Programme 2015-2020 facebook page is the programme social media account where by the activities and research results are shared in story telling techniques. During the year, the page had 1219 followers with 1727 likes. The followers of the page are at most researchers and communities. The page has the following link, [https://www.facebook.com/pg/UDSM.Sida20152020/posts/?ref=page\\_internal](https://www.facebook.com/pg/UDSM.Sida20152020/posts/?ref=page_internal)
2. Instagram Page: The UDSM-Sida Research Programme 2015-2020 Instagram page is the programme social media account where by the activities and research results are shared in the form of picture with few narration. During

the year, the page had 201 followers, 49 posts with 1200 likes. The followers of the page are at most researchers and communities. The page name is @udsmsida.

#### **Actual outcome realized**

Visibility of the programme activities has been enhanced and communicated to the communities.

#### **4.3.9 Support publication of Conference Proceedings**

The partial financial support was provided to six units organized International Conferences held in Tanzania. The financial supports focused to the preparation of Conference Proceedings. Therefore, 6 out of 10 planned conference proceedings were supported during the year.

#### **4.3.10 At least 100 papers published in peer reviewed journals.**

##### **Output Produced**

- a. During the reporting period 2019/2020, thirty-four (34) journal articles have been published in international peer reviewed journals mainly contributed by all subprogrammes.
- b. In 2018/2019 Forty-one (41) journal articles have been published in international peer reviewed journals mainly contributed by all subprogrammes.
- c. In, 2017/18; Thirty-Six (36) journal articles have been published in international peer reviewed journals mainly contributed by all subprogrammes.
- d. In 2016/17; Fourteen (14) journal articles have been published in international peer reviewed journals mainly contributed by Tourism, Marine Sciences and iGRID.
- e. In 2015/16; Six (6) papers were published in peer reviewed journals under the Tourism and Marine Science sub- programmes.

**Actual outcome realized:** So far, a total of One hundred and thirty one (131) papers have been published in various international journals. This increased visibility of UDSM research output. **UDSM's 2020 ranking amongst African universities the best 200 African Universities, at 22<sup>th</sup> position** by <https://www.4icu.org/top-universities-africa/> while ranked at 35<sup>th</sup> in Africa by <https://www.webometrics.info/en/africa>.

#### **4.3.11 The annual University Research Week and research exhibitions providing platform for the researchers to exhibit their research findings to the outside community facilitated.**

##### **Output Produced**

The 6<sup>th</sup> Annual University Research Week Event was not conducted because of persistence existence of COVID-19 pandemic. The fund amounting SEK 200,000 (TZS. 48,000,000) allocated for this event was further re-allocated to university initiatives to fight against COVID-19 pandemic. The initiatives include the following:

1. Establishment of an online University of Dar es Salaam COVID-19 awareness desk (<https://www.udsm.ac.tz/web/index.php/centres/covid-19>)
2. Preparation and printing of policy briefs on intervention against COVID-19
3. Support multidisciplinary research groups for responding to Calls for Proposals to combat COVID-19

##### **Actual Outcome Realized:**

1. Increased awareness among university students, staff and the community in general

- on precautionary measures to fight COVID-19
2. Increased visibility of university initiatives to fight against COVID-19 pandemic
  3. 3 research proposals on COVID-19 were prepared for submission to potential funders
    - i. The VV-Reminder: Engaging pregnant women and Children to Enhance adherence to Covid-19 prevention and control practices in antenatal and primary Schools in Tanzania (Potential funder the National Institute for Health Research, UK)
    - ii. Searching for home grown solutions to address COVID-19 and its impact in Tanzania : a multidisciplinary approach (Call and potential funder: CSCO: Pandemic and COVID-19 Science Technology and Social Impact and The UK National Science Foundation)
    - iii. COVID-19 Epidemiological Model: The Impact of Control and Mitigation Measures for Healthcare Providers and General Public (Potential Funder Global Effort on COVID-19 (GECO) Health Research supported by the UK Department of Health and Social Care (DHSC) through the NIHR and the Medical Research Council (MRC), which is part of the UK Research and Innovation (UKRI))
  4. Five Policy Briefs on COVID-19 developed and published
    - a. Raising awareness in support of local processors in the production of organic sanitizers using plant extracts
    - b. Repurposing of drugs and other remedies: a lesson from covid-19
    - c. Design and development of systems for controlling spread of covid-19
    - d. Do scarcity and collective culture matter? An exploration of preventive measures against the covid-19 pandemic in Tanzania
    - e. The use of proper fabric masks to improve people's health in Tanzania during the covid-19 pandemic
    - f. Rethinking the promotion of Tanzania's local textile industries in producing diverse textile materials

<https://www.udsm.ac.tz/web/index.php/centres/covid-19/a-book-of-policy-briefs-of-studies-on-implications-of-covid-19-pandemic-in-tanzania>

5. Developed products on combating COVID-19 developed and commercialised products
  - i. A multidisciplinary team supported by UDSM-Sida Programme came up with a steaming essential oil product known as Fukiza UDANOL from plant sources which exhibit various medicinal properties
  - ii. Developing sanitizer spray machine
  - iii. Designing concept for development of electro-mechanical ventilator
  - iv. Supporting purchase of hand washing machines distributed to university community

#### **4.3.12 2 outreach programme conducted**



10 hand washing machines were distributed to University community to combat Covid 19 pandemic. This outreach programme was organised by Research Management subprogramme and SUSTAIN subprogramme.



#### **4.3.13 Relevant online database selected and subscribed**

##### **Output produced:**

- a. During the year 2019/2020, UDSM through the University Library, subscribed 7 online journal e-resources databases namely: Cambridge Journals Online, EMERALD, SAGE Journals, Taylor and Francis Online, Wiley Online Library and CABI publishing.

**Actual outcome realized: So far 541,991 full-text e-journal articles have been downloaded from 2015 to 2019 which is 108.3%% of the five-year target of 500,000 download.** The journals are in the area of management, computing, engineering and Library and Information Sciences, business, humanities, social sciences and science, technology and medicine (STM) and humanities. Generally the journals are of social sciences and applied sciences. Moreover, 100,000 full-text e-journal articles downloaded in 2019/2020.

#### **4.4 Programme objective 4: Increase partnerships with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas.**

##### **4.4.1 Research centres/Multi-disciplinary research groups focused on strategic national priorities established to enhance research networks and collaboration with key stakeholders of the project.**

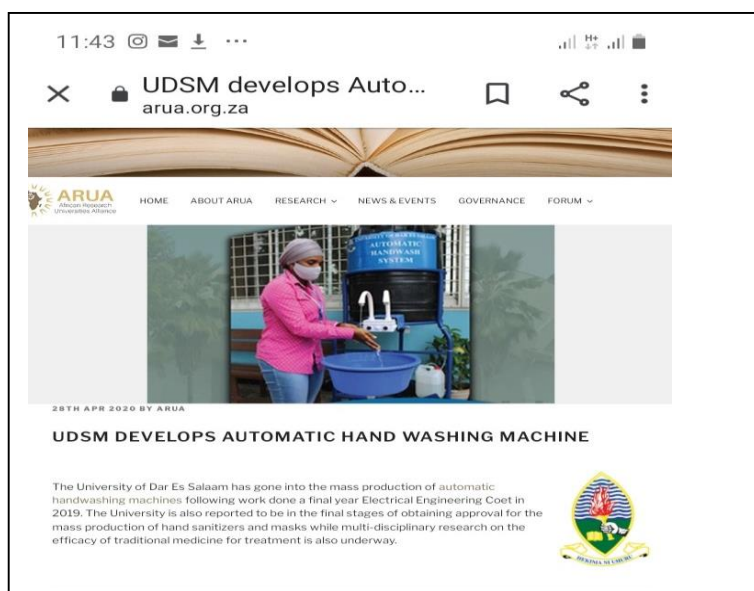
###### **4.4.1.1 Frameworks for strategic research collaboration with key stakeholders.**

###### **1. African Research Universities (ARUA) Network meeting coordinated and supported. Output Produced:**

1. ARUA meeting was planned to be held in South Africa between March and April 2020. Three events were planned; DVC meeting at Rhodes University, 11<sup>th</sup> – 12<sup>th</sup> March 2020, SDG Africa Summit 20<sup>th</sup> – 22<sup>nd</sup> April 2020 in Capetown 4 researchers were nominated to attend, and SDGs Network Africa Forum was to be attended by the Vice Chancellors 22 April 2020. However, these ARUA activities were postponed due to COVID-19 pandemic.

### Actual Outcome Realized:

Despite the fact that the above ARUA activities were not conducted as planned, the ARUA secretariat has been continuously working with member organizations seeking information on universities' initiatives in combating the global pandemic. The University of Dar es Salaam in particular provided information which was posted to ARUA website on intervention measures taken against COVID-19. The information is accessed through <https://arua.org.za/university-of-dar-es-salaam/>



#### 4.4.2 East African Research and Innovation Management Association (EARIMA) Conference supported; 20 UDSM researchers, innovators and 5 research managers supported to attend and present papers to EARIMA Annual Conference.

2.

##### Output Produced

During the reporting period the 5<sup>th</sup> EARIMA conference was supported. The fifth Annual EARIMA Conference that was held at the University of Nairobi from 2nd to 4th, December 2019. It focused on promoting governance and leadership of research and innovation management for sustainable development with the following sub-themes were: ethical issues in research and product development, project management in collaborative research, promoting commercialization of innovation, capacity building for research and innovation, impact assessment of research and innovation outputs. Participants included research managers from several countries across the region, mainly from Uganda, Tanzania, Somalia and Nigeria. The conference had a total number of 51 one participant in which 28 were male and 23 were female. The University of Dar es Salaam had 5 members who attended the conference out of which only one was female.

### Actual Outcome Realized:

The total number of presentations was 41 out of which 5 were from University of Dar es Salaam. Increased number of Collaborations through networks. Research networks between African researches associations such EARIMA, SARIMA and ARUA enhanced.

#### 4.4.3 Professorial chairs supported in organizing their annual events.

##### Output Produced:

UDSM-Sida programme supported the following activities:

- i. The Mwalimu Julius Nyerere Chair in Pan-African studies organized a commemorative conference to mark twenty years since Father of the Nation, President of Tanzania Mwalimu J. K. Nyerere passed away. The conference was held at Nkrumah Hall University of Dar es salaam from 10<sup>th</sup> to 11<sup>th</sup> October 2019. H.E. Dr. John Pombe Joseph Magufuli, the President of the United Republic of Tanzania was invited and attended the conference. The theme was Tanzania: ‘**Twenty years after Mwalimu**’. Sida support helped in the initial stage of paper writing.

**Actual Outcome Realized:**

- i. 22 papers presented at the conference are in the final stage for publication of the Kiswahili papers.

**4.4.4 Sida programme based multidisciplinary research centres of excellence established to support the next Sida phase research activities.**

**Output Produced:**

The main activity which conducted during the reporting period was the preparation of draft UDSM Concept Note for the next phase of Sida support.

**Actual Outcome Realized:**

Concept Note developed awaiting for official call from Sida.

**4.4.5 At least 10 research groups supported to develop competitive proposals.**

**Output Produced:**

- 4.4.5.1 During the reporting period 10 research groups supported to write 10 fundable research proposals in response of the NORHED research call for proposals. The call was on the following thematic areas:
  3. thematic sub-programme areas may be supported:
  4. Education and Teacher Training
  5. Health
  6. Climate Change and Natural Resources
  7. Political and Economic Governance
  8. Humanities and Social Sciences
  9. Energy
- 4.4.5.2 University through Sida facilitate the preparation of fundable research concept note in response of the Sida’ Call on strengthening research capacity in the field of Humanities in low-income countries becomes successful. Sida’s bilateral research programme set-up was divided into three main areas, which were Research policies and strategies, Research management, and Research capability.

**Actual Outcome Realized:**

- i. 10 fundable research proposals submitted in response of the NORHED research call for proposals.
- ii. One (1) concept note submitted to Sida for possible future funding. The title of the concept note was Humanities for an Inclusive Economy in Tanzania (HIETA)
- iii. Since inception of programme, 24 research proposals were submitted by UDSM-Sida Subprogrammes and awarded research funding more than 468,000 USD, 1,370,000 GDP and 503,050,000 TZS respectively in which 117,600,000TZS is UDSM Grant for Innovation and commercialization of farmed seaweeds project at IMS. Moreover, IMS managed to collect more than 850 Million TZS and 7mill USD for Marine infrastructure development and capacity of building at IMS Zanzibar and Pangani. For example, 600mill USD were secured by IMS for Construction of Fishing Harbour and Industrial Complex (FHIC) in Tanzania by Korea Government in 2020.

#### 4.4.6 Networking Initiatives: Partnerships, Research Collaborations, Academic Visits and Staff Exchange

##### 4.4.6.1 Research Collaborations and networks established by Sida funded subprogrammes

From 2015 to 2020, the university has, through Sida funded programmes, and successfully initiated twenty-one (21) national collaborations, Twenty-six (26) international collaborations and Seventeen (17) new partnerships. Out of these, 10 national collaborations were formalized, while 24 international collaborations were formally established. During the same period, 17 new partnerships were formalized. The major outcome of established collaborations and partnership is increasing of research funds apart from Sida. The table below summarized contribution of the established networks by each subprogramme.

Table 21: Networking Initiatives: Partnerships, Research Collaborations and Staff Exchange

S/N	Subprogramme	National collaboration		International Collaboration		New Partnership	
		Initiated	Formalized	Initiated	Formalized	Initiated	Formalized
1	Mathematics	0	0	2	2	0	0
2	TOURISM	3	2	2	2	1	1
3	Marine Science	1	1	2	2	8	8
4	Food Security	2	2	2	2	2	2
5	DAFWAT	0	0	2	2	2	2
6	ENGAGE	1	1	5	5	5	0
7	IGRID	1	1	1	1	1	1
8	IMB-MBB	7	2	5	5	6	2
9	SUSTAIN	7	1	3	3	3	3
10	WATER RESOURCES	0	0	3	1	0	0
	<b>TOTAL</b>	<b>16</b>	<b>10</b>	<b>26</b>	<b>24</b>	<b>24</b>	<b>19</b>

##### 4.4.6.2 At least 5 networking visitations by DRP, DPS and PRO to the private and public organs supported by Research Management Subprogramme

3 familiarisation meetings with COSOTA, Tanzania Public Service College and Public sector foundations respectively conducted.



Familiarization meeting with COSOTA staff , DRP, DPS and IPMO staff on 27<sup>th</sup> February 2020 at COSOTA main office Benjamin Mkapa Building – Ubungo External.

#### Actual outcome realized

Not realised. MOU not yet signed.

#### 4.4.6.3 Linkage with Local Communities for Research Findings Application

From 2015 to 2020, 30 policy briefs were presented and submitted for possible adoption by government. The policy briefs were shared and submitted through the 1<sup>st</sup> and 2<sup>nd</sup> Conference of Research and Inclusive Development together with online website publishing of six Covid-19 policy briefs. The partnerships solicited for application of research finding were 21 and 18 of them were actually formalized. The impact on policy and management practices is also expected to increase indirectly through the awareness of policy and management issues created during international conferences organized by the programme. High profile government officials and member of the parliament and house of representative took part in these conferences.

Table 22: Linkage with Local Communities for Application of Research Findings

	Subprogrammes	Policy Briefs	MOU/Partnership developed	
		Communicated/Shared	Initiated	Formalized
1	MATHEMATICS	2	2	2
2	TOURISM	5	1	0
3	IMS	2	3	3
4	FOOD SECURITY	3	0	0
5	DAFWAT	2	2	2
6	ENGAGE	2	5	5
7	IGRID	2	1	1
8	IMB-MBB	2	5	5
9	SUSTAIN	2	3	0
10	WATER RESOURCES	2	0	0
11	Research Management	6	3	0
	<b>TOTAL</b>	<b>30</b>	<b>21</b>	<b>18</b>

#### 4.4.6.4 Use of Research results by Local Communities and Government Institutions

During the reporting period, the results, as presented in table 10, show that 16 out of 12 organized outreach activities were conducted. It is also indicated that 8 new products and processes were submitted for a possibility to be adopted by local communities and 9 of them were adopted

Table 23: Use of Research Findings by Local Communities and Government Institutions

		Outreach Programme Organized	Product Developed	Product Adopted
1	MATHEMATICS	0	0	0
2	TOURISM	0	0	0
3	IMS	3	1	1
4	FOOD SECURITY	0	2	1
5	DAFWAT	0	1	1
6	ENGAGE	1	1	1
7	IGRID	4	1	1
8	IMB-MBB	0	0	0
9	LIBRARY	0	0	0
10	SUSTAIN	1	2	0

11	WATER RESOURCES	3	1	1
12	RESEARCH MANAGEMENT	1	2	2
	<b>TOTAL</b>	<b>12</b>	<b>10</b>	<b>9</b>

#### 4.3.1 Dissemination workshops conducted

##### Output produced

Three stakeholders' workshops organized by iGRID subprogramme with the challenge driven education model. This workshop involved students, TANESCO, EWURA, UDSM staff, PostDocs and KTH experts. The challenge driven education workshop run by at CoICT on design thinking meant to enhance capacity in implementation and planning of challenge driven education. The first year MSc students also made a site visit to key stakeholder, TANESCO, to learn more of their activities. The tour was also used to review different challenges faced by the utility company, before embarking on the two semester CDE course. With the help of their supervisors and client's experts, students chose "electricity theft" as their challenge of choice and distribute tasks among themselves in order to provide credible solutions to the client at the end of the academic year. The table below is elaborating:

**Table 24: Summary of workshops done under iGRID for 2018/19 financial year**

S/N	Workshop Title and Date	Attendance	Theme	Invitees	Workshop Venue
1	Stakeholders workshop, 15 <sup>th</sup> December 2019 MSc students to present their work	25 participants	MSc students to present their research work based on CDE	CoICT staff TANESCO Ministry of Energy PostDocs	DLab at CoICT Campus
2	stakeholders workshop 23 <sup>rd</sup> February 2019	22 participants	PhD students presenting their research work based on CDE	CoICT staff PostDocs MoE EWURA	Board room at CoICT Campus
3	Stakeholders Workshop 22 <sup>nd</sup> June 2019	25 participants	PhD students presenting their research work based on CDE	CoICT staff TANESCO MoE, EWURA PostDocs	Data Lab at CoICT Campus

##### Actual outcome realized

Increased visibility and dissemination of UDSM research outputs. Moreover, policy issues were identified and the use of research findings by community is increasing.

#### 4.3.2 Technical assistance/ advice to public offices and private firms provided

In reporting year in 2019/2020, 12 researchers of the subprogrammes were involved in various national assignments. So far, 20 Sida researchers involved in various 63 technical assignments, advisory roles, government appointments. For example, the following experts from IMS, SUSTAIN, Food Security and Tourism subprogrammes participated as follows:

- Dr. Mtolera, MSP (M), Coordinator, Development of the National Aquaculture Development Centre (NADC) with Institute of Marine Sciences as Secretariat
- Dr Richard Kimwaga (PI), was appointed a member of National Team that proposed the organization structure and functions for newly registered Rural Water Supply and Sanitation Agency (RUWASA)
- Dr. Oscar Kibazohi: Member of Tanzania Bureau of Standards Technical Committee on packaging since June 2019, then Chairperson of the committee since August 2020.
- DR. Catherine Masao: Board Member of the National Environmental Management Council (NEMC) of Tanzania since December 2018.
- Prof. Wineaster Anderson Chairman - Tourism Technical Advisory Committee to the Minister of Natural Resources and Tourism, Tanzania.

Table 25: Researchers Participation in National Assignments and Committees and their participation in International Panels and Meetings

S/N	Subprogramme	Participation in International Panels & Meetings	Participation in National Assignments & Committee
1	MATHEMATICS	9	0
2	TOURISM	1	22
3	IMS	4	24
4	FOOD SECURITY	7	3
5	DAFWAT	9	0
6	ENGAGE	5	0
7	IGRID	11	2
8	IMB-MBB	2	3
10	SUSTAIN	3	9
11	WATER RESOURCES	5	2
	<b>TOTAL</b>	<b>56</b>	<b>63</b>

**Actual outcome realized:** Increased visibility and dissemination of UDSM research outputs.

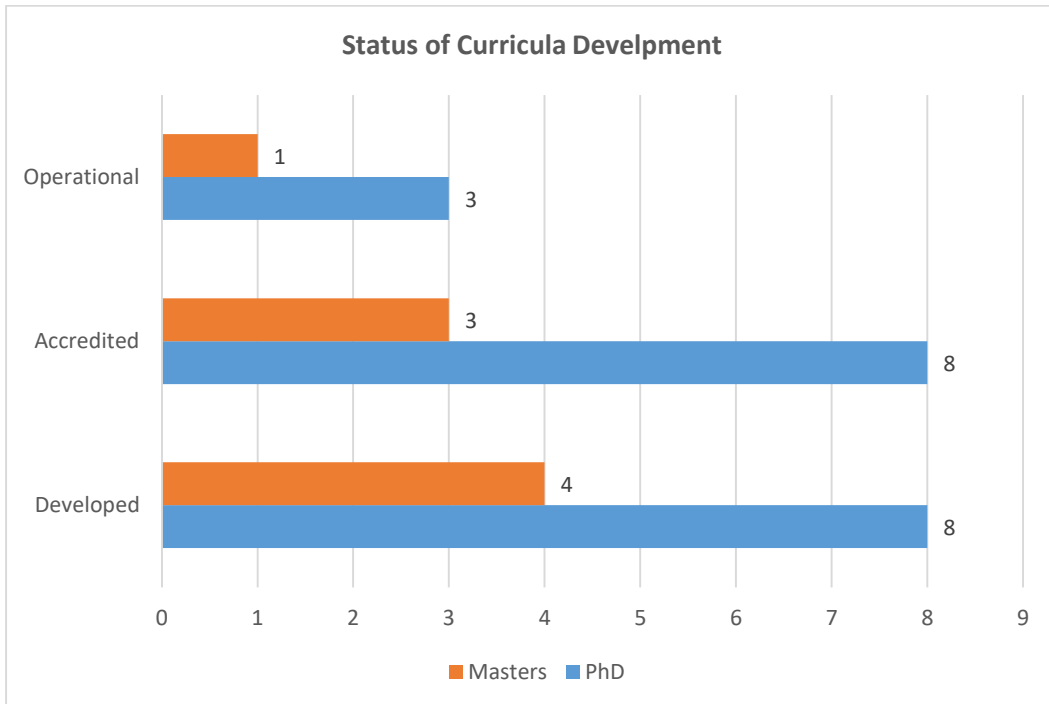
## 5. Performance Analysis Per the Programme Objective

### 5.1 To increase postgraduate curricula and the extent of research training for development in key strategic and priority areas

Postgraduate training particularly at the levels of Master's degree, PhD and postdoc and improvement of research environment has been the major outcome under capacity building and human resource development. This category covered issues pertaining to recruitment of postgraduate students, development of curricula for postgraduate programmes, development of research infrastructure and equipment, improvement of library service and research management systems.

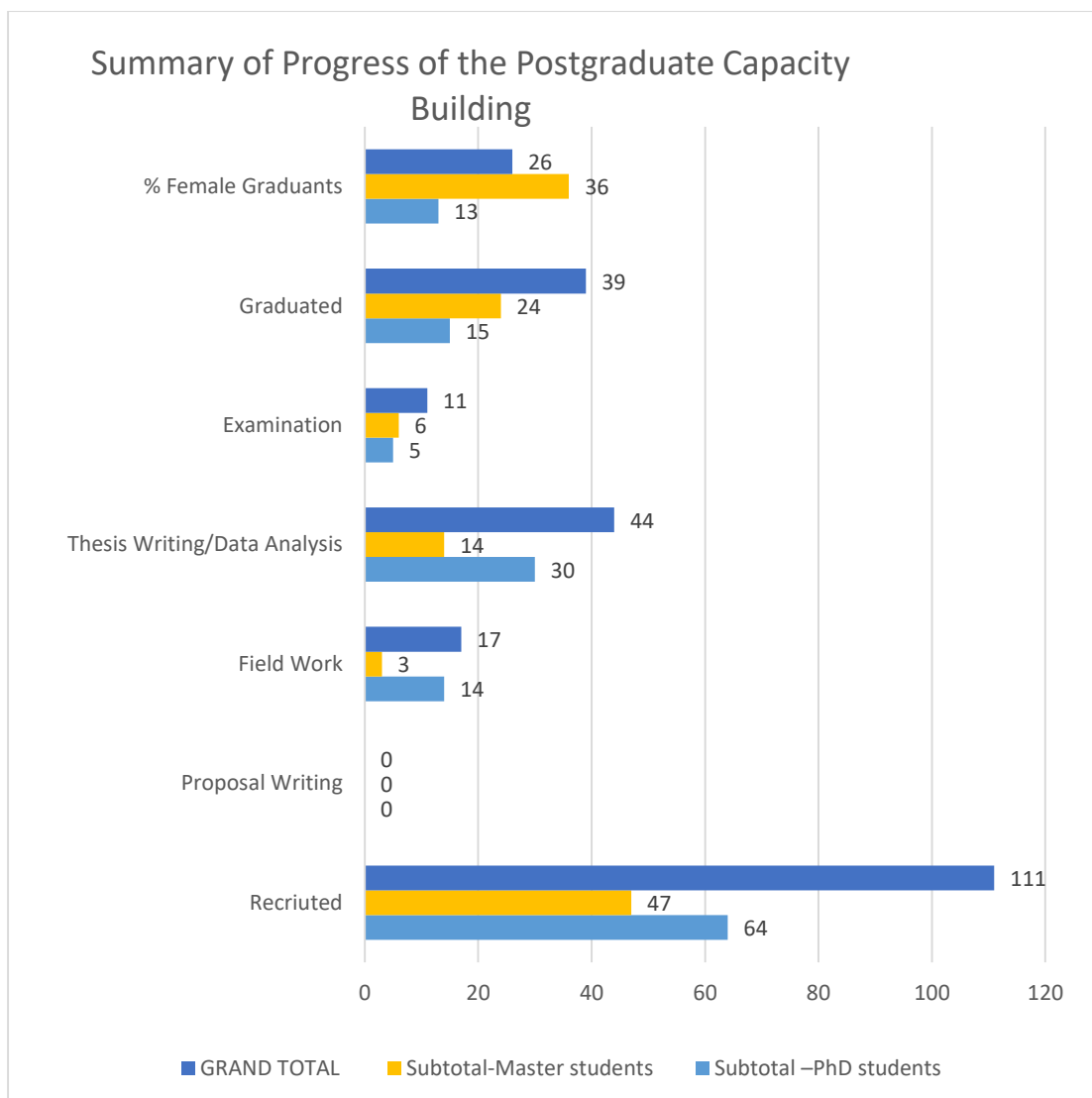
The programme is well done interm of creation of curricula for PhD and masters programmes in which all 8 PhD curricula accredited by TCU and 3 of them are operational. On the other hand, 3 out of 4 Masters curricula accredited by TCU in which Masters of International Tourism is still under approval of the University SENATE. 2 Masters programme are operational and have both private and Sida sponsored students. This promises the increase of the number of qualified researchers on the area of Smart Grid, food security, Sanitation, Tourism and agribusiness together with Marine science by 2021. However, the realization of

these outcomes is subject to the University operationalisation of the developed and accredited curricula. The below figure is elaborating more on the developed PhD and Masters Curricula:



In term of postgraduate research training, the UDSM-Sida Cooperation Programme has done very well with regard to recruiting the PhD and Masters students. Sofar as total 39 of students graduated whereas 15 (13% female) are PhD and 24 (36% female) are Master’s candidates respectively. The programme is remained with 72 postgraduate students on training, of whom 49 PhD and 23 masters’ candidates respectively. Most of Masters students are at the final stage of finalising their thesis writing and examination. For the remaining 49 PhD students, 5 (13%) are at examination stage, 30 (60%) are at the data analysis and report writing stages while the remaining 14 (27%) are at data collection stage. The summary of the progress of the postgraduate training as October 30<sup>th</sup> 2020 is as follows:





The slow progress of PhD candidates as indicated in the above analysis (i.e. 60% of those who are at data analysis and reporting stage and 27% who are at data collection) is associated with the following reasons:

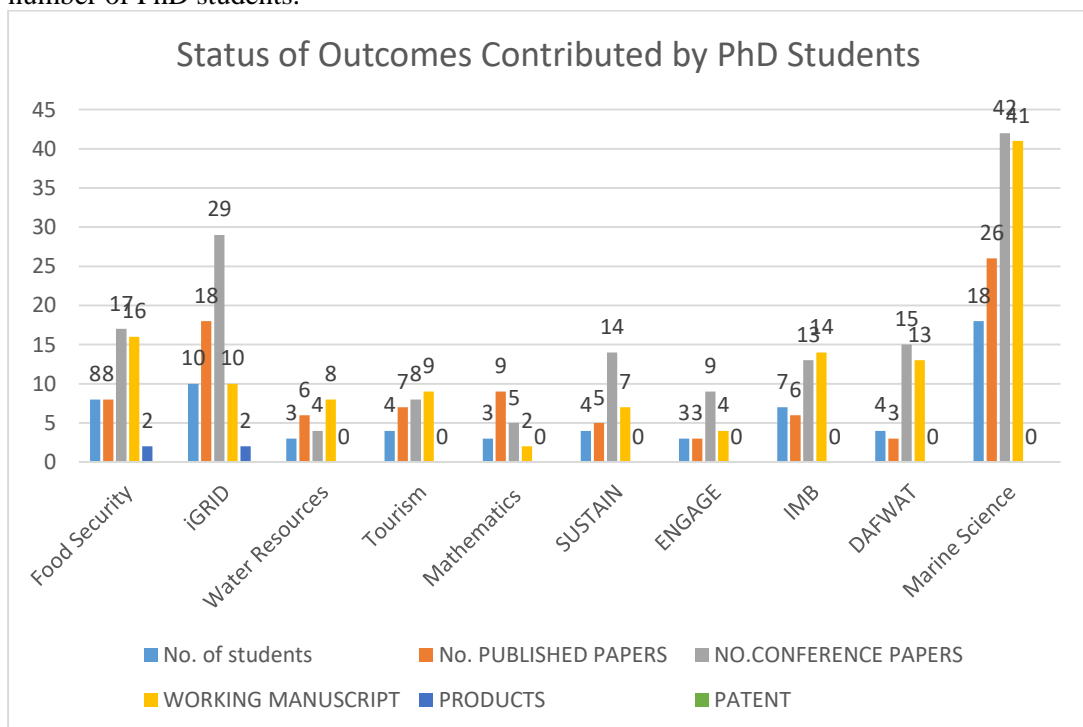
- a. Some sub-programmes (e.g. DAFWAT, iGRID, Molecular Biosciences, Food Security) experienced delays in equipment procurement which has led to delays in the implementation of some of students' research activities such as data analysis. So far 70% of planned major equipments have already been delivered and 30% are planned to be procured in the year 2019/2020. The programme mitigated the situation by allowing outsourcing of data analysis services within the University and from other institutions such as TBS, National Chemistry Department and from other universities such as SUA.
- b. The accreditation taught PhD curricular by TCU has adversely affected commencement of the planned taught programmes. Although all 8 planned taught programmes have been approved by SENATE. So far 5 PhD programme accredited by TCU, 3 in progress. Note that iGRID and MBB programme started to operate since 2017.
- c. Delays in processing students' field fund: The delays were associated with
  - (i) Poor understanding of financial procedures for normal transactions and those which were associated with procurement procedures.
  - (ii) Limited access to fund for Non staff students
  - (iii) Persistence existence of Covid-19 pandemic has contributed a lot delays

on procurement in which suppliers from China and South Africa failed to either deliver product on time or cancel to order due to long shutdown of the activities in their respective countries.

Several mitigation measures were developed to rescue the situation and speed up graduation rate for both PhD and Master Students that include:

- a. UDSM-Sida Research Programme Charter developed and shared
- b. Popular version for financial procedures developed and shared
- c. Procurement manual developed and shared
- d. Increased the threshold of imprest of supervisors or PIs or CoPIs who were requesting field fund on behalf of Non-staff students. Currently, they can take field fund up to TZS. 45million for maximum of TZS. 15million per student.
- e. The subprogrammes PIs have been mitigating the situation of Covid-19 by directing students to outsource data analysis services from various nation wide research institutions in order speed up the graduation rate.
- f. The organisation of retreat workshops that give a chance students and supervisors to sit together privately and also offer some research writing skills and knowledge. This has been useful and helpful to IGRID subprogramme students.

Despite the slow progress of the PhD students, the candidates are contributing significantly in terms of the programme outcomes. So far, the programme published 131 papers in the international journals of which 91 (70%) papers contributed by PhD students. Moreover, PhD students are at most presented papers in various local and international conferences as indicated in the figure below. Generally, the achievements are utmost contributed by Marine Sciences and IGRID subprogrammes for fact that the subprogrammes also accommodated with a good number of PhD students.



## 5.2 To improve research environment by increasing the utilization of equipment and infrastructure and conformance to regulations, policies and guidelines.

The ICT system at UDSM has been improved significantly by developing the research information registration system which captures and holds data on research projects undertaken by UDSM staff members and funding from different sources national and international. So far Four modules of the RMIS developed and launched for wide UDSM community use. The

modules included Research Clearance module, Research Grant Module, Publication Vetting Module and Project Management Module (Planning and Reporting Module). Therefore, the full-fledged system is operational as the result the 3rd Call of UDSM-Research Grant (2019/2020) was submitted online <https://rm.udsm.ac.tz>. Furthermore, the availability of RIMS supported the University to effective monitoring the research funding in which from 1<sup>st</sup> July 2015 to 30<sup>th</sup> June 2020, the RMIS had 368 registered projects with total value 151 billion TZS. Moreover, the University has strengthening research environment for fact that the programme also managed to meet the target of facilitate the development of the University Research agenda 2018/19 - 2027/28. So far the agenda is in use. For example, the agenda used to guide 1<sup>st</sup> to 2<sup>nd</sup> UDSM competitive calls for fundable research proposals with value amounting SEK 6,800,000 (TZS. 1.7 billion).

Sida Cooperation has been continuously supporting research at the University of Dar es Salaam through provision of direct support to Sida funded subprogrammes to enable them acquire major and minor research equipments for the purpose of undertaking both fundamental and applied research smoothly. So far, the programme completed procurement of several minor and major research equipments of five subprogrammes (Appendix). The subprogrammes which planned to procure major and minor research equipments are Food Security, DAFWAT, IMB-MBB, Marine Science and iGRID. The direct outcome of procuring these research equipments has been specifically realized by Food security, DAFWAT, IMS and MBB Lab equipment which enabled a number of postgraduate candidates to use those equipments for their research projects. Despite the achievement made in procuring the research equipment, some subprogrammes (e.g. DAFWAT, IMS, Molecular Biosciences, Food Security) experienced delays in procurement of equipment which has led to delays in the implementation of other Programme activities such as PhD and Masters research training. The outsourcing of procurement services of some research equipment from various research institutes such as National Chemistry laboratory has been a way forward to deal with procurement delays. The university deals with sitaition by preparing the procurement manual, establishment of Units/ programme procurement decentralized tender boards to cab the end-user and institutional based problem, which are contributing the overall procurement delays. Despite the existence challenging, the University has effectively managed built capacity in managing procurements of major research equipment. Therefore, it is advantage to the future phase of Sida and other programme.

### **5.3 To increase the quality and use of research relevant to high priority issues of national development**

To increase the quality and use of research to high priority area, focused mainly on the number and quality of publications in highly ranked peer reviewed journals, patents filed for IPR in local and international bodies, organisation of Research Dissemination conferences and outreach programmes performed in local communities. Commendable efforts have been done to enhance the research output of the UDSM and to bring it to an international quality level. There has been a significant increase in the number and quality of articles published in international peer reviewed journals and more is expected in the remaining project period. In the reporting period postdoc researchers also managed to publish with mentors in their respective subprogrammes. This achievement is attributable to various factors including training of staff on research methodology and scientific writing skills; support of staff in their participation in local and international conferences, provision of financial support for organization of conferences; organization of the UDSM research week; improvement of library services; and provision of postdoctoral grants.

The rise in UDSM's ranking from 35th position in Africa in 2015 to 26th in 2018 is a remarkable achievement. The outcome has in part been contributed by Sida's financial support provided for development of online research management systems such as research information management system (RIMS) and repository; increase in accessible research work done UDSM

staff, availability of 16 UDSM journals on line and online research information system together sponsorship to the UDSM researchers to attend and present papers in the local and international conferences. Despite the achievement, the University has not managed to be among the best 10 Universities in Africa as result, the DVC-R established the University Global ranking committee which deals with .....

One area in which the Program has not achieved results to the level of expectation is transformation of research output into useful products and processes and patenting them for appropriation of intellectual property. During the review period only a few products and processes have been produced and 2 applications for patents has been made for the products resulting from research activities of programme. An explanation to this would be that most research activities under the current Program are still a work in progress hence products, processes and patents are likely to emerge within the remaining program period. However, researchers need to be aware of the fact that they have a reason to pay attention to this matter as one of the expected outcome of the Program.

#### **5.4 To Increase partnership with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas**

Collaborations, networking and partnerships have been key strategy towards increasing university visibility and academic reputation and funding. The subprograms did well in forging national, regional and international collaborations. Almost every subprogramme has reported to have at least one formal collaboration or and partnership. To some extent, research results were fed into policy and community development practice. This is very good for the visibility and academic reputation of the UDSM and may bring up new sources of funds. In terms of outreach activities there are subprojects that have done very well in engaging with local communities. These include the BMSP subprogarmme that has taken a noble responsibility to overcome in an effort to develop a foundation for sustained knowledge generation in fisheries and aquaculture and the SUSTAIN subproject which has linked well with local municipal for adoption of research output. More community policy engagements are expected to be done in 2020/2021 implementation years whereby a good number of masters and PhD students are expected to graduate and be able communicate the research findings towards solving society problems.

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## **6. Summary of Recommendations**

- 6.1 UDSM as an institution needs to better handle all procurement issues and this is being addressed in University meetings
- 6.2 Sub-programmes be creative on supervising stundets and make closer followup to makesure that the students are graduating on time.

## 7. Enclosures

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### 7.1 Overall Aggregated Budget Per Sub-Programme and Itemized

During the reporting period, the programme had a balance of **SEK 16,327,660 (TZS 4,081,915,000)** brought from the previous year. The programme received **SEK 22,168,060 (TZS 5,542,015,000)** as this year's allocation from Sida, making a total of **SEK 38,495,721 (TZS 9,623,930,000)** available for implementing Programme activities. The programme's expenditure amounted to **SEK 21,094,277 (TZS 5,273,569,000)** which is **55%** of total available fund, leaving **SEK 17,401,444 (TZS 4,350,361,00)** as balance to be spent next year.

**7.1a. Overall Aggregated Financial Report per Sub-programme for 2019/2020 in SEK (250TZS/SEK)**

Subprogramme	Remain fund from Previous Year	Received Fund (Jan-June 2019)	Received Fund (July to Dec 2019)	Received Fund (Jan to June 2020)	Total Fund Received In Fiscal Year	Total Fund to Spend	Expenditures	Adjustment	Adjusted Expenditures	Balance as 30 June 2020	Execution rate
	SEK	SEK	SEK	SEK	SEK	SEK	SEK	SEK	SEK	SEK	
Research Management	1,261,070	1,547,279	1,953,755	1,971,626	5,472,661	6,733,731	7,280,590	(2,487,668)	4,792,922	2,031,824	71%
Strengthening UDSM Library	406,313	425,661	437,375	441,376	1,304,413	1,710,726	1,809,985	-	1,809,985	(99,259)	106%
Mathematics Programme	(220,220)	303,497	298,290	301,018	902,805	682,585	559,805	-	559,805	(86,080)	82%
Molecular Biosciences Program	804,978	722,347	359,522	362,811	1,444,681	2,249,659	1,058,587	318,043	1,376,629	875,459	61%
ENGAGE	568,310	330,483	254,946	257,278	842,708	1,411,018	389,287	1,063,959	1,453,246	(153,884)	103%
Tourism	280,365	334,144	230,934	233,047	798,125	1,078,489	463,004	-	463,004	615,485	43%
Marine Science Programme	5,266,836	806,203	790,337	797,566	2,394,106	7,660,942	3,247,056	-	3,247,056	4,413,886	42%
Food Security Programme	1,624,430	1,177,805	465,367	469,624	2,112,796	3,737,226	1,151,137	318,043	1,469,180	2,491,716	39%
iGRID	2,153,845	982,001	438,687	442,700	1,863,389	4,017,234	1,532,351	445,260	1,977,611	2,043,025	49%
DAFWAT	2,154,275	617,635	347,276	350,453	1,315,363	3,469,638	925,408	(203,644)	721,763	2,747,875	21%
SUSTAIN	(237,527)	236,668	272,922	242,368	751,958	514,432	810,385	(400,835)	409,550	104,882	80%
Water Resources Management	(16,706)	94,922	63,857	56,708	215,487	198,781	314,033	-	314,033	(115,252)	158%
12% Institution fee	-	1,193,452	709,592	711,189	2,614,233	2,614,233	1,724,429	-	1,724,429	889,804	66%
40 Years Anniversary	946,844	-	-	-	-	946,844	-	946,844	946,844	-	100%
Bank Charges	(118,544)	-	(74,999)	-	(74,999)	(193,543)	-	-	-	(193,543)	0%
Interest received during the year	372,409	-	210,335	-	210,335	582,744	-	-	-	582,744	0%
GAIN/LOSS ON EXCHANGE	1,080,983	-	-	-	-	1,080,983	(171,780)	-	(171,780)	1,252,763	-16%
<b>Total:</b>	<b>16,327,660</b>	<b>8,772,097</b>	<b>6,758,199</b>	<b>6,637,765</b>	<b>22,168,061</b>	<b>38,495,721</b>	<b>21,094,277</b>	<b>0</b>	<b>21,094,277</b>	<b>17,401,444</b>	<b>55%</b>

Dr. Latifa Mbelwa, UDSM –Sida Programme Coordinator

CPA. Arnold Moshi , Programme Accountant

**Signature:**

**Signature:**

**Note: Adjustments**

### 7.1a. Overall Aggregated Financial Report per Sub-programme for 2019/2020 in TZS

Sub Programme	Remain fund from Previous Year	Received Fund (Jan-June 2019)	Received Fund (July to Dec 2019)	Received Fund (Jan to June 2020)	Total Fund Received In Fiscal Year	Total Fund to Spend	Expenditures	Adjustments	Adjusted Expenditures	Variations	Execution rate
	TZS `000	TZS `000	TZS `000	TZS `000	TZS `000	TZS `000	TZS `000	TZS `000	TZS `000	TZS `000	%
Research Management	315,268	386,820	488,439	492,907	1,368,165	1,683,433	1,820,148	-621,917	1,198,230	485,202	71%
Strengthening UDSM Library	101,578	106,415	109,344	110,344	326,103	427,681	452,496		452,496	-24,815	106%
Mathematics Programme	-55,055	75,874	74,572	75,255	225,701	170,646	139,951		139,951	30,695	82%
Molecular Biosciences Program	201,244	180,587	89,881	90,703	361,170	562,415	264,647	79,511	344,157	218,257	61%
ENGAGE	142,078	82,621	63,737	64,320	210,677	352,754	97,322	265,990	363,311	-10,557	103%
Tourism	70,091	83,536	57,734	58,262	199,531	269,622	115,751		115,751	153,871	43%
Marine Science Programme	1,316,709	201,551	197,584	199,392	598,527	1,915,236	811,764		811,764	1,103,471	42%
Food Security Programme	406,107	294,451	116,342	117,406	528,199	934,306	287,784	79,511	367,295	567,011	39%
iGRID	538,461	245,500	109,672	110,675	465,847	1,004,308	383,088	111,315	494,403	509,906	49%
DAFWAT	538,569	154,409	86,819	87,613	328,841	867,410	231,352	-50,911	180,441	686,969	21%
SUSTAIN	-59,382	59,167	68,231	60,592	187,990	128,608	202,596	-100,209	102,387	26,221	80%
Water Resources Management	-4,177	23,731	15,964	14,177	53,872	49,695	78,508		78,508	-28,813	158%
12% Institution fee		298,363	177,398	177,797	653,558	653,558	431,107		431,107	222,451	66%
40 Years Anniversary	236,711				0	236,711		236,711	236,711	0	100%
Bank Charges	-29,636		18,750		-18,750	-48,386			-	-48,386	0%
Interest received during the year	93,102		52,584		52,584	145,686			-	145,686	0%
GAIN/LOSS ON EXCHANGE	270,246				0	270,246	-42,945		(42,945)	313,191	-16%
<b>Total:</b>	<b>4,081,915</b>	<b>2,193,024</b>	<b>1,689,550</b>	<b>1,659,441</b>	<b>5,542,015</b>	<b>9,623,930</b>	<b>5,273,569</b>	<b>0</b>	<b>5,273,569</b>	<b>4,350,361</b>	<b>55%</b>

Dr. Latifa Mbelwa, UDSM –Sida Programme Coordinator

CPA. Arnold Moshi , Programme Accountant

Signature:

Signature:

Note: Adjustments

## 7.2. Overall Result Matrix

### Overall Result Matrix

**Summary Problem Statement:** UDSM has inadequate analytical, research infrastructure and innovation outputs to generate appropriate and valuable outcomes to the society.

Overall objective: To generate and utilise sufficient analytical capacity and research based knowledge and technological innovations with appropriate and immediate valuable outcomes to relevant stakeholders (policy makers, industry, civil society etc.) in addressing problem of poverty and promoting sustainable and inclusive development.

Specific Objective # 1: To increase postgraduate curricula and the extent of research training for development applied in key strategic priority areas by 2020

Specific Objective # 2: To improve research environment by increasing the utilization of equipment and infrastructure, and conformance to regulations, policies and guidelines by 2020

Specific Objective # 3: To increase the quality and use of research relevant to high priority issues of national development by 2020

Specific Objective # 4: To Increase partnerships with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas by 2020.

### OVERALL RESULTS BASED MATRIX LOGFRAME

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
<b>Specific Objective # 1: To increase the postgraduate curricula and the extent of research training for development applied in key strategic priority areas</b>						
Taught PhD programmes in key strategic and priority areas prepared	1.1 At least 8 new PhD programmes accredited, by 2018	Number of PhD programmes accredited	6 existing Taught PhD programmes at UDSM in 2015	4 Taught PhD Programmes Accredited by TCU. 4 Taught PhD Programmes already accredited by TCU.	4 Taught PhD Programmes Accredited by TCU.  So far 8/8 Taught PhD Programmes Accredited by TCU.	4 Taught PhD Programmes submitted to TCU for accreditation.
Taught Masters programmes in key strategic and priority areas prepared	1.2 At least 3 new Masters programmes accredited by	Number of Masters programmes accredited	75 existing Taught Masters programmes at UDSM in 2015	2 new Masters' Programmes Accredited by TCU. 2 Taught Masers' Programmes already accredited by TCU.	1 new Masters' Programme (Masters of Intergrated Food Security) Accredited by TCU.  I programme (Masters of International Tourism) approved at School level So far 3/4 Taught Masers' Programmes already accredited by TCU.	1 new Masters' Programme of International Tourism developed



Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
Selected existing PhD programmes reviewed and revised	1.3 Two existing PhD programmes approved, by 2018	Number of PhD programs approved by UDSM Senate	One PhD programme reviewed and approved by Senate in 2015	2 PhD programmes approved.	2 PhD programme approved accredited by TCU	1 PhD programme submitted to TCU for accreditation
Selected existing Masters programmes reviewed	1.4 Four existing Masters programmes approved, by 2018	Number of Masters programs approved by UDSM Senate	One MSc programme reviewed in 2015	4 Master programmes approved.	4 Master programmes accredited by TCU	4 Master programmes submitted to TCU for accreditation
Trained Masters graduates, half of which are women	1.5 At least 36 Masters graduates graduated by 2020.	Number of Master graduates	232 Masters students trained in previous Sida support phase	34 Masters students supervised.	20 Masters students graduated	34 Masters students trained.
Trained PhD graduates, half of which are women	1.6 At least 64 PhD graduates enrolled and graduated by 2020.	Number of PhD graduates	80 PhD students trained in previous Sida support phase	63/64 graduated by 2020 June	9 graduated by in 2019/2020 12/64 graduated by 2020 June	9 PhD Thesis produced 61 students trained at PhD level
Trained UDSM staff at PhD level	1.7 Academic staff with PhD increased by at least 10% by 2020.	% of academic staff with PhD	UDSM has 515 staff who are PhD holders	32/35 PhD students supervised	8 staff with PhDs increased So far 11/35 staff with PhDs increased	32 staff trained at PhD level
<b>Assumptions for Specific Objective 1</b> <ul style="list-style-type: none"> <li>External stakeholders to the University are involved in the design and development of the new programmes</li> <li>UDSM Senate and the Council are supportive of the multi-disciplinary curricula in new high priority areas</li> <li>Additional funding available for the new programmes</li> </ul>						
<b>Specific Objective # 2: To improve research environment by increasing the utilization of equipment and infrastructure, and conformance to regulations, policies and guidelines)</b>						

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
Research agenda reviewed and revised	2.1 UDSM-wide research agenda approved by 2017	One UDSM Research Agenda document in place	UDSM Research Agenda 2009-2018	UDSM Research Agenda developed and submitted to various organ for approval. Research Agenda approved by UDSM organs by 2018.	Research Agenda approved by UDSM organs by 2018.	
	2.2 Increase of (at least 50%) a research focused on UDSM research agenda, by 2020	Extent to which research focused on UDSM agenda	UDSM Research Agenda 2009-2018	UDSM Research Agenda in use  Sensitization of UDSM academic staff to prepare research proposals for funding based on themes indicated in the Research Agenda	The Research Agenda was used to develop the 1st and 2nd Call of UDSM Research Grants, 2018 and 2019 respectively.	UDSM Call for Competitive Research Grants developed and announced to UDSM community.  257 proposals responded to the UDSM call and 182 evaluated for funding amounting TZS 1.7 billion.
New laboratory facilities	2.3 High quality research using the new equipment	Extent to which labs are used	50% utilization rate in previous Sida funding period	100% of the major procurement accomplished	So far 80% of planned major equipments have already been delivered.	20 Major equipment Procured 40 Minor Equipment procured
New state of the art lab equipment	2.4 Increased use of research facilities/lab by at least 10 externally funded research projects, by 2020	Extent to which staff and visiting researchers use equipment	6 Research projects conducted using the equipment acquired in the previous phase	Four funded projects (MBB, IMS, Food security, DAFWAT) use the facility procured in the current programme	More than 65 researchers benefited with the availability of the equipment. 54 scientific data analysis conducted.	3 New state of the arts lab equipment established
Upgraded ICT infrastructure	2.5 Increase of at least 100% use of online database by UDSM researchers	Number of downloads	90% students and 70% academic staff using online ICT materials	20% of UDSM staff using online ICT materials	100,000 full-text e-journal articles downloaded.  So far, <b>541,991 full-text e-journal articles have been downloaded from 2015 to 2019 which is</b>	Seven (7) Online databases subscribed and used. 6500 brochures on e-resources Distributed to departments

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
					<b>108.3% of the five year target of 500,000 download</b>	15 Outreach programmes conducted to school, institutes, and colleges at the UDSM.
Research Information Management System developed and used	1.1 Timely reporting of the progress to the satisfaction of all stakeholders by December 2018.	<ul style="list-style-type: none"> <li>• RIMS available and working</li> <li>• PIs are effectively using the system for planning and reporting purposes</li> <li>• Online registrations and downloads of UDSM projects information</li> </ul>	<ul style="list-style-type: none"> <li>• RIMS Phase-I which is in use since July 2017</li> <li>• Fragmented research information available</li> </ul>	80% of the proper research management system in place	<p>Online Research Proposals application and Submission is operational</p> <p>Online Monitoring of Research Project is operational.</p> <p>80% of the proper research management system in place</p>	Four modules of the RMIS developed
500 postgraduate students trained in scientific writing skills, research methodology, <b>IPR</b> 40% of which are female	2.6 At least 50% of students produce 1 scientific articles in peer reviewed journals	Number of publications produced, 40% produced by women students	60 students trained in 2014	<p>-120 postgraduate students trained in scientific writing skills and research methodology, 40% of which are female.</p> <p>-120 academic staff equipped with the skills on Intellectual Property Rights (IPR).</p>	<p>37 post graduate students and researchers equipped with research methods and scholarly writing skills. 32% of participants were female.</p> <p>So far research methodology, writing skills and research ethics knowledge has been imparted to more than 591 (32% female)</p>	3 trainings on Postgraduate Research Methodology and Ethics were conducted.
300 Academic staff trained in postgraduate	2.7 At least 300 academic staff apply new	Number of academic staff trained	6 ToT and 117 members of staff trained in	120 academic staff trained in supervisions skills.	466 academic staff equipped with supervisions skills, (29% female)	2 supervision training workshops were held.

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
student supervision skills, 40% of which are female	postgraduate student supervision.		research supervision between 2009 – 2014	120 academic staff equipped with the skills to write competitive fundable research proposals		
Multidisciplinary centres of excellence for public/private partnerships in research and innovation	2.8 At least 6 Innovation clusters formed with appropriate technologies for value additions in place	Number of research centres of excellency established	Two multidisciplinary centres in research, innovation and entrepreneurship	5 Research Centres supported	<p>-Developed and submitted proposal for formalizing the centre of EACMaR at UDSM.</p> <p>- Pangani Mariculture Centres as one of the centres for facilitating the national aquaculture development programme. So far six (6) mariculture ponds have been excavated and lined</p> <p>- The University of Dar es Salaam had 5 staff (one female) who attended the conference. 41 aers presented out of which 5 were from University of Dar es Salaam.</p>	<p>3 Research centres namely;</p> <p>-The East Africa Centre of Mathematics</p> <p>-Pangani Mariculture Centre</p> <p>-The Research Centre on Sustainable Tourism supported</p> <p>-2 Regional Research management centres namely ARUA and EARIMA supported</p>
Highly analytical capacities enhanced through postdoctoral research	2.9 At least 20 Postdocs enrolled at UDSM by 2020	Number of Postdocs enrolled	No postdocs in previous Sida support	13 postdocs enrolled and supervised.	<p>-2 concept notes, prepared and submitted for COSTECH funding opportunity and 1 awarded.</p> <p>5 research funding proposals submitted to UDSM funding opportunities and 2 awarded.</p> <p>-17 papers published</p> <p>-16 papers submitted</p> <p>-7 Proposal Submitted and Secured Funding</p> <p>8 papers presented in the conferences</p>	3 postdoctoral candidates from, IGRID, Food security and Mathematics were supervised.

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Observed in year (2019/20)	Achieved: in year	[Key] Outputs produced in year to obtain Outcome in 2019/20
<b>Assumptions for specific objective 2</b> <ul style="list-style-type: none"> <li>• Research guidelines and policies are in place at UDSM</li> <li>• Research agenda developed and adopted</li> <li>• Programme Coordinators are aware of the procurement procedures</li> <li>• Research Information Management System developed and used</li> <li>• Research groups grow into Research Centres of Excellency</li> </ul>							
<b>Specific Objective # 3: To increase the quality and use of research relevant to high priority issues of national development</b>							
<p>Uploaded institutional research results in electronic database</p> <p>Publications in highly ranked peer reviewed journals increased</p>	<p>3.1 Enhanced visibility and reputation of UDSM by 2018</p> <p>3.2 At least 220 publications in peer reviewed local and international journals by 2020</p>	<p>Higher ranking of UDSM nationally and internationally</p> <p>Number of peer reviewed articles</p>	<p>UDSM Ranked 39<sup>th</sup> in 2015 by journal consortium organization</p> <p>211 journal articles from the previous Sida support</p>	<p>UDSM ranked higher than the previous ranking</p> <p>At least 100 peer reviewed articles</p>	<p>-34 papers published in peer reviewed local and international in 2019/2020</p> <p>-In total since 2015-2020, Sida Research based subprogramme, published 131 papers.</p> <p>-At least 91.6% of the UDSM Journals are accessible online and 58% are accessible in the international forum, such as EBSCO.</p>	<p>-24 UDSM journals and 3 journals from other institutions evaluated.</p> <p>-UDSM online journals, issued or uploaded, 26 issues and 200 papers from 2015 to 2020.</p> <p>-100 papers uploaded in research repository</p> <p>-100 projects registered online</p>	

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
Patent in local and rational bodies increased	3.3 At least 3 patents granted by 2020	Number of patents approved	2 patents at UDSM	5 patent initiated	-8 IPs projects submitted to BRELA for patenting.  -4 IPs approved by BRELA.  -2 IP under Sida programme submitted for patenting.	-2015/2020 the total of 230 were trained in IPR. -2019/2020 the total 116 were trained in IPR.  -33 potential projects identified for patenting.
Organization and hosting of dissemination conferences and workshops	3.4 At least four (4) Sida sponsored conferences hosted by 2020	<ul style="list-style-type: none"> <li>• Number of conferences hosted</li> <li>• Number of articles presented</li> <li>• Number of articles published</li> </ul>	2 conferences in previous Sida funding	10 units to be supported to conduct dissemination conferences  2 <sup>nd</sup> Conference of Research and Inclusive Development organised and hosted by Sida programme  4 <sup>th</sup>	From 2015 to 2020, Udsm-sida programme, 236 papers were accepted and presented in local and international conferences.  -From 2019/2020 149 academic staff supported and presented papers in International conferences.  -From 2019/2020 24 papers have been presented by UDSM staff in local and international conferences.	
	3.5 500 researchers equipped with research briefs writing skills by 2020	<ul style="list-style-type: none"> <li>• Number of training workshops</li> <li>• Number of staff attended training workshop</li> </ul>	0	More than 150 researchers attend policy brief writing skills training	From 2015/2020 149 academic staff equipped knowledge on writing policy brief From 2019/2020 64 academic staff equipped knowledge on writing Policy Brief.	64 academic staff trained on Policy Brief.

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
	3.6 60 policy briefs from PhD candidates published and disseminated by 2020	<ul style="list-style-type: none"> <li>Number of policy briefs</li> </ul>	0	20 policy briefs available	<p>-26 policy briefs available.</p> <p>-1000 copies of policy briefs published.</p>	15 Policy Briefs prepared in 2019/2020
	3.7 300 participants/stakeholders from public and private organizations aware of research findings through policy briefs by 2020	<ul style="list-style-type: none"> <li>Number of Participants</li> </ul>	0	300 participants/stakeholders from public and private organizations aware of research findings through policy briefs. 10 stakeholder workshop to be conducted.	<p>More than 300 participants/stakeholders from public and private organizations aware of research findings through policy briefs, from 2019/2020</p> <p>-3 stakeholders workshop conducted by IGRID subprogramme.</p> <p>So far more than 500 participants from Public and Private organization aware of research findings through policy briefs from 2015/2020</p>	The 2 <sup>nd</sup> conference on Research and Inclusive Development organized.
	3.8 5 UDSM research week Organised by 2010 to increase visibility	Research week supported annually Number of units participated in the event	1 research week organised in 2015 at UDSM. Number of visitors	One research week organised	<p>6 Policy Briefs on COVID-19 published online.</p> <p><a href="https://www.udsm.ac.tz/web/index.php/ntres/covid-19">https://www.udsm.ac.tz/web/index.php/ntres/covid-19</a></p> <p>-5 products developed and commercialized.</p>	<p>6 Policy Briefs on COVID-19 developed.</p> <p>-3 research proposals on COVID 19 prepared for submission.</p>
Outreach programmes increased	3.9 At least 10 outreach programmes performed in local communities by 2020	Number of outreach programmes	2 Outreach programmes in previous Sida funding	2 outreach programme facilitated	<p>-10 hand washing machine were distributed to the UDSM community</p> <p>-So far 11 outreach programme conducted from 2015 to 2020</p>	2 Outreach management programme proposals developed, Tourism and RM.

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Observed in year (2019/20)	Achieved: in year	[Key] Outputs produced in year to obtain Outcome in 2019/20
<b>Assumptions for Specific Objective 3</b> <ul style="list-style-type: none"> <li>UDSM continues to attract and retain highly qualified and trained staff to undertake quality research</li> <li>UDSM staff pursue high quality research that can be published in quality journals</li> </ul>							
<b>Specific Objective # 4: To Increase partnerships with local, regional and international institutions/organizations for knowledge generation, sharing and utilization of research in high priority areas</b>							
Collaborative research with specific industries formulated	4.1 Threefold increase in collaborative joint efforts between researchers and industries in external settings, by 2020	Number of collaborative research projects involving use of University-based research	5 during previous Sida funding period	Collaborative research formulated (i) Up to five (5) research centres/Multi-disciplinary research groups focused on strategic national priorities established to enhance research networks and collaboration with key stakeholders of the project (ii) Up to five (5) professorial chairs supported in organizing their annual events. (iii) Sida programme based multidisciplinary research centres of excellence established to support the next Sida phase research activities. (iv) At least 10 groups supported to develop competitive proposals.	5 papers presented from University of Dar es Salaam.  22 papers presented in the Mwalimu Nyerere chair in Pan African studies.  10 Research fundable proposals submitted in Response of NORHED research call for proposal. So far 24 research proposals submitted by sida research subprogrammes and awarded more than 46800 USD, 1,370,000GDB and 500million TZS, for research and Infrastructures development.	5 <sup>th</sup> EARIMA conference supported  -The Mwalimu Julius Nyerere Chair in Pan-African studies organized a commemorative conference to mark twenty years since Father of the Nation, President of Tanzania Mwalimu J. K. Nyerere passed away  -Sida Programme Concept note for the next possible funding developed. -10 Research group supported to write fundable proposals.	3familiarization meetings conducted with COSOTA, TPSF and TPSC.



Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Results (2019/20)	Outcomes Observed in year	Achieved: in year	[Key] Outputs produced in year to obtain Outcome in 2019/20
				(v) Proposals prepared and submitted for funding in the next phase of Sida support (vi) 10 staff attend ARUA meetings/workshops as a way of increasing UDSM visibility at international arena. (vii) 20 UDSM researchers, innovators and 5 research managers supported to attend and present papers to EARIMA Annual Conference. (viii) At least 5 networking visitations by DRP, DPS and PRO to the private and public organs supported.				
Dissemination workshops conducted	4.2 Double workshops for dissemination of research results, by 2020	Number of Sida funded workshop proceedings/ research papers cited/reference d	20 workshops during previous Sida funding period	10 workshops organised	3 Workshops			
Technical assistance/ advice to public offices and private firms provided	4.3 Double public policies developed/reviewed (in part) based on research results, by 2020.	Number of public policies	2 during the previous Sida – funded program	20 policy briefs available	-Implicate National Tourism Policy and Practice. -Implicate National Water Policy. -Implicate			10 Technical assistance/ advice to public offices and private firms provided

Outputs	Outcomes	Performance indicator of outcome	Baseline	Annual Outcome Targets for 2019/20	Actual Outcomes Achieved: Results Observed in year (2019/20)	[Key] Outputs produced in year to obtain Outcome in 2019/20
Researchers advisory roles in public and private institutional boards increased with at least 50% female researchers	4.4 Double public policies supported in part by researchers, by 2020	Number of researchers active in external boards	20 during the previous Sida support	5 researchers involved in advisory roles		
Scientific papers prepared and submitted to conferences	4.5 Double scientific papers in local, regional and international conferences by 2020.	Number of invitations to present scientific papers in local, regional and international conferences	230 presentations in the previous Sida funding phase	More than 100 papers presented in international and national conference	<p>-24 papers have been presented by UDSM staff in the local and international conferences.</p> <p>- from 2015 to 2020: 149 academic staff supported and presented papers in the local and International conferences.</p> <p>-80 papers have been presented by UDSM Sida Researchers in the local and international conferences.</p> <p>-From 2015 to 2020, Udsm-sida programme, 236 papers were accepted and presented in the local and international conferences.</p> <p>So far a total of 400 papers presented in the local and international conference.</p>	

### 7.3. Overall Aggregated Student Progress

#### 7.3.1a List of recruited PhD Students in the year 2019/2020

S/N	PhD training Name of research student:	(M/F )	Year training started	Training in Sweden (no. months)	Local PhD Expected/ Year of completion	Sandwich PhD Expected/ Year of completion	Graduation Status	Progre ss %	Title of dissertation
<b>MATHEMATICS SUBPROGRAMME</b>									
1.	Edward Ngailo	M	2016	40	NA	June 2020	Graduated	100%	On the product of inverse covariance matrix and normal vector with applications to Discriminate analysis and Portfolio theory
2.	Pitos Seleka	M	2016	40.5	NA	Dec. 2020	On training	90%	PageRank algorithms, Markov chains and matrix analysis for changing networks and analysis of big data
3.	<b>Uledi Ngulo</b>	M	2016	40	NA	June 2021	On training	70%	An Investigation of decomposition methods for solving large-scale Multi-level Optimization models.
<b>MBB SUBPROGRAMME</b>									
4.	Juma Hussein	M	2016	39	NA	Completed	<u>Graduated</u>	<u>100%</u>	Investigation of some economically important Mushrooms of Tanzania
5.	Stella Temu	F	2016	42	NA	May 2021	On training	<u>80%</u>	Taxonomy of Tanzania cloud forest lichens
6.	3. Donatha Damian	M	2016	6	MAY, 2021	NA	On training	90%	Viral metagenomics and molecular epidemiology of vector-borne diseases in the wildlife-livestock interface
7.	HeriethRhodes Mero	F	2016	6	MAY, 2021	NA	On training	80%	Genetic diversity and Chloroplast genomics of cassava land cares and selected wild cassava relatives in Tanzania
8.	BernadetherRugumisha	F	2016	6	JUNE,2021	NA	On training	70%	Influence of inter-pregnancy interval after abortion on vaginal microbiome during the first trimester
9.	Jackson Thomas Mollel	M	2016	6	MAY, 2021	NA	On training	70%	Investigation of anti-HIV-1 activity and inhibitory properties of medicinal plants used for treatment and management of HIV/AIDS in Tanzanian

<b>S/N</b>	<b>PhD training Name of research student:</b>	<b>(M/F )</b>	<b>Year training started</b>	<b>Training in Sweden (no. months)</b>	<b>Local PhD Expected/ Year of completion</b>	<b>Sandwich PhD Expected/ Year of completion</b>	<b>Graduation Status</b>	<b>Progre ss %</b>	<b>Title of dissertation</b>
10.	Reuben Silas Maghembe	M	2016	6	MAY, 2021	NA	On training	70%	Molecular mapping of diversity and bioactivity of microalgae from selected marine and fresh water ecosystems in Tanzania
<b>ENGAGE SUBPROGRAMME</b>									
11.	Merezia Wilson Bambaganya.	F	2016	12	JUNE, 2021	NA	On training	<u>60%</u>	Rural entrepreneurship in Tanzania: Socio-spatial context and women engagement in agribusiness
12.	MesiaLomo Research.	M	2016	9	MAY, 2021	NA	On training	<u>70%</u>	Gender and participation of women and men in the rice value chain and rice marketplaces in Tanzania
13.	Mohamed A. Semkunde.	M	2016	9	JUNE, 2021	NA	On training	<u>60%</u>	Rural Entrepreneurship in women Producer Groups: The case of Rice Producers in Tanzania
<b>TOURISM SUBPROGRAMME</b>									
14.	Msafiri Njoroge Ngajeni	M	2015		November 2019		Graduated	100%	Entrepreneurial Orientation and Corporate Sustainability: A Study of Tourist Hotels in Tanzania
15.	Patrokil Kanje	M	2015		January 2020		Graduated	100%	The Influence of Tourists' Motivation and Customer Engagement on Electronic Word of Mouth Behavior in Social Media
16.	Said Suluo	M	2015		June 2020		Graduated	100%	Impact of Corporate Sustainability Practices on Financial Performance: The Case of Tourism Enterprises in Tanzania
17.	Theresia Busagara	F	2015		June 2020		Graduated	100%	Firm Innovativeness through interactions and customer participation Behaviour in Tourism Firms of Tanzania
<b>FOOD SECURITY SUBPROGRAMME</b>									
18.	Maganira Justine Daudi	F	2016		NA	May 2020	Graduated	100%	Transmission Biology of Taeniid Zoonotic Parasites: Assessment of Environmental Soil

<b>S/N</b>	<b>PhD training Name of research student:</b>	<b>(M/F )</b>	<b>Year training started</b>	<b>Training in Sweden (no. months)</b>	<b>Local PhD Expected/ Year of completion</b>	<b>Sandwich PhD Expected/ Year of completion</b>	<b>Graduation Status</b>	<b>Progre ss %</b>	<b>Title of dissertation</b>
									and Food Items Contamination By TaeniaSolium Eggs
19.	Ibrahim Juma	M	2016	29	NA	Sept 2020	Graduated	100%	Promotion of horticultural productivity for food nutrition and income generation; A case of avocado in Tanzania
20.	Peter R. Ruvuga	M	2016	26	NA	March 2021	On training	80%	Rangeland management practices for intensification of livestock production in miombo woodlands
21.	Nuria Kudra Majaliwa	F	2016	28	NA	March 2021	On training	85%	Potential role of protein-tannin interaction on banana Juice Extraction
22.	Matilda Stanslaus Ntiyakunze	F	2016	30	NA	March 2021	On training	80%	Forest Dependency in Tanzania: Analysis of household's heterogeneity, household's revealed energy choices, links etween forests and food security.
23.	Lufunyo Lulandala	M	2016	29	NA	March 2021	On training	80%	The influence of tree vegetation cover, land use and soil characteristics on underground water recharge
24.	Aneth David Mwakilili	F	2016	32	NA	March 2021	On training	75%	Microbiome analysis of push-pull companion plants in plant growth and protection
25.	Alice Isibika	F	2016	33.5	NA	March 2021	On training	75%	Larvae composing of Food industrial waste with focus on banana wastes for production of animal feed protein
<b>IGRID SUBPROGRAMME</b>									
26.	Mr Daudi Mnyaghwalo	M	2016	2	Jun-2021		On training	80	Optimal Sensor Network and Faults Classifications Algorithms for

<b>S/N</b>	<b>PhD training Name of research student:</b>	<b>(M/F )</b>	<b>Year training started</b>	<b>Training in Sweden (no. months)</b>	<b>Local PhD Expected/ Year of completion</b>	<b>Sandwich PhD Expected/ Year of completion</b>	<b>Graduation Status</b>	<b>Progre ss %</b>	<b>Title of dissertation</b>
									AutomaticFaults Clearance in the Secondary Electrical Power Distribution Network
27.	Ms Rukia Mwifunyi	F	2016	2	Jun-2021		On training	90	Automation of Fault Localization, Isolation and Service Restoration to Improve Reliability in Electrical Secondary Distribution Network
28.	Mr. Godfrey Chugulu	M	2016	2	Jun-2021		On training	80	A Smart Grid Communication Architecture for Enhancing Automatic FaultsDetection and Clearance in Tanzania Electrical Power Secondary Distribution Network
29.	Mr. Yona Andegelile	M	2016	2	Jun-2021		On training	80	Cost Effective Resilient Communication System for Fault detection and Clearance Automation in Secondary Distribution Power Grid
30.	Mr. Shante Kawambwa	M	2016	2	Jun-2021		On training	80	Coordination of Distributed Energy Resources for Enhancing Fault Clearance and Service Restoration in Electrical Power Distribution Network
31.	Mr. Gilbert Gilbert	M	2016	2	Jun-2021		On training	80	Integrated Computing Framework for Automatic Fault Clearance in Tanzania Electrical Power Grid
32.	Ms. Hadija Mbembati	F	2016	0	Jun-2021		On training	40	Preparing proposal after maternity
33.	Mr. Ally Bitebo	M	2016	2	Jun-2021		On training	70	A framework for Securing Communication Network for Fault Management in Secondary Electrical Power Distribution Network
34.	Mr. Aron Kondoro	M	2016	22		Dec-20	On training	95	Enhancing Security in Distributed Internet-of-Things Based Communication System for Agent Driven Smart Micro-grid
35.	Ms. Diana Rwegasira	F	2016	22		Dec-20	On training	95	Agent Based System for Improved Control and Monitoring of a solar driven DC micro grid
<b>IMS SUBPROGRAMME</b>									

<b>S/N</b>	<b>PhD training Name of research student:</b>	<b>(M/F )</b>	<b>Year training started</b>	<b>Training in Sweden (no. months)</b>	<b>Local PhD Expected/ Year of completion</b>	<b>Sandwich PhD Expected/ Year of completion</b>	<b>Graduation Status</b>	<b>Progre ss %</b>	<b>Title of dissertation</b>
36.	Leonard, L.	M	2015		2018	2019	Graduated	100%	Potential for Aquaculture of Nile and Rufuji Tilapia Hybrids (Lead supervisor Dirk-Jan De Koning; CS:, Dr. AvitiMmochi, Christos Palaiokostas, Phillip Bwathondi, Mtolera, Matern)
37.	Nyangoko, B.	M	Jan 2017			June 2021		60%	Managing Mangrove Ecosystem Services for Livelihoods and Local Adaptations in Tanzania
38.	Mulokozi, D.	M	Oct 2016			March 2021		70%	Integrated aquaculture-agriculture (IAA) systems for diversified food production in Tanzania
39.	Kajungiro, R. A.	F	April 2016			Dec 2020		95%	Towards a Sustainable Nile Tilapia Breeding Program in Tanzania and the role of local strains
40.	Simon, C.	F	June 2016			Dec 2020		80%	Sustainable Tilapia Breeding in Tanzania and the Role of Rufiji Tilapia (Oreochromis urolepis urolepis)
41.	Yusuf, Y. S.	M	Jan 2016		Dec 2020			95%	Artificial Seed Production of Tropical Sea Cucumber (Holothuria scabra) in Tanzania.
42.	Mmanda, F. P.	M	April 2016			June 2020	Graduated	100%	Nutritive value and use of locally available low-cost feed ingredients for Tilapia farming in Tanzania.
43.	Michael, A.	F	Jan 2016		September 2020		Graduated	100%	The potential of the cyanobacterium (Arthrospira fusiformis) in providing cost effective and high quality feed for tilapia farming in Tanzania
44.	Tarimo, B.	M	April 2017			March 2021		65%	Mangrove-seagrass continuum: Linkages to Larval Fish Production, Dispersal and Growth
45.	Ismail, R. O.	M	Feb 2016			October 2020		85%	Balance between Productivity and Calcification in Tropical seagrass beds and its implication for Net Carbon sequestration

<b>S/N</b>	<b>PhD training Name of research student:</b>	<b>(M/F )</b>	<b>Year training started</b>	<b>Training in Sweden (no. months)</b>	<b>Local PhD Expected/ Year of completion</b>	<b>Sandwich PhD Expected/ Year of completion</b>	<b>Graduation Status</b>	<b>Progre ss %</b>	<b>Title of dissertation</b>
46.	John, O.	F	Jan 2016		October 2020			95%	The impact of calcareous macroalgae and anthropogenic stress on production and carbon storage in tropical seagrass meadows
47.	Rashid, M. A.	F	May 2016		Dec 2020			70%	Pangani Basin hydrology and coastal environmental changes associated with climate change.
48.	Mbiru, M.	M	Jan 2017		Nov 2020			75%	Introduced Nile Tilapia Strains and Their Role in the Tanzania Tilapia Breeding Initiative
49.	Mapunda John	M	Nov 2017		March 2021			65%:	Brood-stock maturation, seed production and larviculture of Silver Pompano, Trachinotus Blochii (Lucepede, 1801) for mariculture in Tanzania
50.	Yahya, B.M.	F	Nov 2016		Dec 2020			95%:	Fish Assemblage Structure in Relation to Habitat Complexity in Seaweed farms and adjacent Seagrass Beds, and Coral Reefs
51.	Mtaki, K	F	Nov 2017		March 2021			65%	Artificial culture of rotifers as live feeds for optimal growth of tilapia larvae in Tanzania
<b>DAFWAT SUBPROGRAMME</b>									
52.	Vivian Kimambo	F	2016	30		June 2021		50%	Fluoride Removal with Improved Sorption Process for Groundwater Sources
53.	Regina Irunde	F	2017	30		June 2021		60%	Adsorptive removal of arsenic from drinking water sources in Geita and Mara, Tanzania using local available materials.
54.	Ijumlana Julien Magezi	M	2016	30		March 2021		75%	Hydrogeological controls on spatial variability of geogenic contaminants in drinking water resources
55.	Fanuel Ligate	M	2016	30		June 2021		65%	Arsenic and Fluoride Contamination in the Groundwater Resources of Tanzanian Rift Valley: Source, Mobilization and Impacts on Drinking Water Quality



<b>S/N</b>	<b>PhD training Name of research student:</b>	<b>(M/F )</b>	<b>Year training started</b>	<b>Training in Sweden (no. months)</b>	<b>Local PhD Expected/ Year of completion</b>	<b>Sandwich PhD Expected/ Year of completion</b>	<b>Graduation Status</b>	<b>Progre ss %</b>	<b>Title of dissertation</b>
<b>SUSTAIN SUBPROGRAMME</b>									
56.	Seleman Amour	M	Oct 2016	6months	May '2021			60%	Framework for desludging and transport of Faecal Sludge
57.	Isabela Thomas Mkude	F	Oct 2016	6months	May '2021			60%	Framework for Resource Recovery and Reuse from Faecal Sludge
58.	Mary Kayombo	F	Oct 2017	4months	May '2021			40%	Potential uses of high rate Algal ponds for Biological treatment of wastewater and resource recovery, Case study of Dar es Salaam
59.	Doglas Benjamin	F	Oct 2017	4months	May '2021			40%	Local conditioners performance in treatment of faecal sludge from on-site sanitation from Agricultural use in the Dar es Salaam
<b>WATER RESOURCES SUBPROGRAMME</b>									
60.	William Senkondo	M	2016	<u>6</u>		May, 2020	Graduated	100%	Assessment of Water Resources in Tanzania's Kilombero Valley
61.	Edmond Alavaisha	M	2016	<u>6</u>		Sept, 2020	Graduated	100%	Assessment of trade-offs between ecosystem services under gradients of land and water use
62.	Victor Mbande	M	2016	<u>6</u>		June,2021		95%	Development of Policy and management strategy framework for public-private partnership and optimized water allocation in the Kilombero river basin

### 7.3.2a List of recruited Master Students and PostDoc Candidates

<i>A. Overall Aggregated Masters of Science Students Plan/Progress</i>									
S/N	MSc training Name of student:	(M/F)	College/ Subprogramme	Year training started	Expected/ Year of completion	Name of Supervisors	Sandwich Program (Trip to Sweden)	Progress %	Title of dissertation
1.	Mathayo Gervas	M	CoET/ Food Security	2016	2018			100	
2.	Martha Chuya	F	CoET/ Food Security	2016	2020			75	
3.	Grace Michael	F	CoET/ Food Security	2016	2018			100	
4.	Jerard Mang'ena	M	CoET/ Food Security	2018	2020			60	
5.	Kilenga, Noela Gregory	M	CoET/ Food Security	2018	2020			60	
6.	Mustafa Aulath L.	F	CoET/ Food Security	2018	2020			50	
7.	Finias Fidelis	M	CoET/ Food Security	2018	2020			50	
8.	AyoubElijah	M	CoET/ Food Security	2018	2020			50	
9.	Tonola Beatrice	F	CoET/ Food Security	2018	2020			60	
10.	Mercy Kobelo	F	CoET/ Food Security	2018	2020			40	

11.	Merina Marcelino	F	CoICT/ iGRID	2016	2019			Graduated	A cost effective IoT based smart metering system using open source middleware
12.	Ms. Mwajua Shiraz	F	CoICT/ iGRID	2017	May 2020			50	Working on CDE challenge.
13.	Mr. Ramadhani Maulid	M	CoICT/ iGRID	2017	May 2020			50	Working on CDE challenge.
14.	Mr. Stephan Mgya	M	CoICT/ iGRID	2017	Nov 2020			40	Working on CDE challenge.
15.	Mr. Mkupete Mkupete	M	CoICT/ iGRID	2017	Nov 2020			40	Working on CDE challenge.
16.	Mr. Salim Yahya	M	CoICT/ iGRID	2016	May 2020			95	Wireless Sensor Network for enhancing power consumption visibility in secondary electrical distribution network
17.	Ms. Lucina Lawi	F	CoICT/ iGRID	2016	May 2020			95	Big Data visualizer for consumption data within the secondary distribution network of the electrical grid.
18.	Mr. Bernard Sengo	M	CoICT/ iGRID	2016	Nov 2020			40	Big data analytics for power consumption visibility in electrical power secondary distribution network
19.	EDSON NZAGANYA NZAGANYA	M	MATH	OCT. 2017	May. 2020	Prof.Sa ntoch Kumar		100%	Topology of projective hypersurface
20.	EVELINA WILSON	F	CONAS/ Mathematics	OCT. 2017	May 2020	Dr. Grayso n Kakiko		100%	Investigation on some more Properties of Ordered Sets
21.	FATMA ALI RASHID	F	CONAS/ Mathematics	OCT. 2017	Nov. 2020	Prof.Sa ntoch Kumar		80%	Maximal Topology
22.	RICHARD OSWARD	M	CONAS/ Mathematics	OCT. 2017	Nov. 2019	Dr.Mak unguM		100%	Further Investigation on Fixed Points, Variational

						wanzali ma			Inequality and Equilibrium Problem
23.	SHOLASTICA LUAMBANO	F	CONAS/ Mathematics	OCT. 2016	Nov. 2018	Dr. Grayson Kakiko (UDSM )		100%	Some fixed point theorems for F-contraction mappings in partial metric spaces.
24.	JESLINE ELIEZA GOWELE	F	CONAS/ Mathematics	OCT. 2016	Nov. 2018	Prof. Santoch Kumar (UDSM )		100%	The structure of Lipchitz – free Banach space (Approximation properties)
25.	FAUSTINE NZIKU	M	CONAS/ Mathematics	OCT. 2016	Nov. 2018	Dr.Mak unguM wanzali ma (UDSM ) Dr. Jared Ongaro (UoN)		100%	Some Boyd And Wong Type Fixed Point Theorems In Partial Metric Spaces
26.	DAMAS KAMEL MGANI	M	CONAS/ Mathematics	OCT. 2016	Nov. 2018	Dr. Marco Mpimbo (UDSM ) &Prof. Dube (South Africa)		100%	On Hilbert Functions and h- vectors of Graded Modules for Finite Sets of Points in Projective Space.
27.	GhanimaChanzi	F	IRA/Water Resources	2015	2017	Joel Nobert		100	Assessment of Water Availability and Uses in The

						Noah Pauline Madaka Tumbo			Kilombero Basin Using SWAT and WEAP Models
28.	BatengaMaryRose	F	IRA/Water Resources	2015	2017			100	Vulnerability of Rural Livelihoods to Multiple Stressors in Kilombero Valley, Tanzania
29.	SamwelDaudiNyasan i	M	IRA/ Water Resources	2015	2017			100	Drivers and Land use/cover change: Implication on sustainable natural resources management: The case of Kilombero Valley, Tanzania.
30.	Mhepela, Bertha	F	COET/ SUSTAIN	2017	2018	Prof.Al oyce Mayo Dr. Sara Gabriel sson		100	The Suitability of Menstrual Cups as an Alternative to Disposable Pads and Other Traditional Menstrual Care Technologies in Tanzania
31.	HezronMagambo	M	COET/SUST AIN	2017	2018	Prof. T.S.A. Mbwett e Dr. Richard Kimwa ga		100	The Potential of Simplified Sewerage System in increasing community access to affordable and acceptable sanitation in informal settlements in Dar es Salaam
32.	Abbas, Hidaya Abdullah	F	COET/ SUSTAIN	2017	2018	Prof.Al oyce Mayo Dr. Sara Gabriel sson		100	Investigation on the potential causes of diarrheal persistence in Zanzibar

33.	Marcel, JumaKakulu	M	COET/ SUSTAIN	2017	2018	Prof. T.S.A. Mbwett e  Dr. Richard Kimwa ga		100	Evaluation of the extent of the household's participation in Solid Waste Characterization and quantification for decentralized management Practice at Tambukareli Ward, Itigi District Council
34.	Mwamlima Petro	M	COET/ SUSTAIN	2018	2019	Prof.Al oyce Mayo, Dr. Richard Kimwa ga, Dr. Sara Gabriel ssonN. A		100	Potential use of faecal sludge char briquettes as a source of cooking energy in Dar es salaam Tanzania
35.	TenendeNuntwale	F	COET/ SUSTAIN	2018	2019	Prof. Aloyce Mayo, Dr. Richard Kimwa ga, Dr. Sara Gabriel ssonN. A		100	An exploratory study on social cultural norms and religious beliefs around menstrual hygiene management in Tanzania. A case study of Moshi district Potential use of faecal sludge char briquettes as a source of cooking energy in Dar es salaam Tanzania
36.	SwaiJackline Lucas	F	COET/ SUSTAIN	2018	2019	Prof. Aloyce Mayo, Dr.		90	Assessment of menstrual waste manangement in secondary school of Ilala district of Dar es Salaam

						Richard Kimwaga, Dr. Sara GabrielsonN. A			
37.	Marco Suzan	F	COET/SUSTAIN	2018	2019	Prof. Aloyce Mayo, Dr. Richard Kimwaga, Dr. Sara GabrielsonN. A		90	Assessment of biodegradation of human placenta in an anaerobic digester at Mwananyamala Hospital Dar es salaam
38.	Brenda Anthony Mndolwa	F	COET/DAF WAT	2016	2018	Prof. Felix Mtalo		100%	Optimal composite composition of natural adsorbents for removal of fluoride and arsenic
39.	Dennis Dismas	M	COET/DAF WAT	2016	2018	Prof. Felix Mtalo		90%	Adsorptive removal of arsenic and fluoride using locally adsorbents from drinking water sources
40.	Bernard Lugayi	M	COET/DAF WAT	2016	2018	Prof. Felix Mtalo		100	Fluoride removal using bauxite and Magnesite
41.	Mohamed Abdallah	M	COET/DAF WAT	2018	2019	Prof. Felix Mtalo		98	

42.	OkokoKossam	M	COET/DAF WAT	2018	2019	Prof. Felix Mtalo		98	
43.	Agness Fataki	F	COET/DAF WAT	2018	2019	Prof. Felix Mtalo		98	
44.	Andrew Peter	M	COET/DAF WAT	2018	2019	Prof. Felix Mtalo		98	
45.	Malesa, F.M.	M	IMS	Oct. 2018	2020			80%: To complete by September 2020	
46.	Mtonga, K.J.	M	IMS	Oct 2018	2020			75%: To complete by September 2020	
47.	Joseph, V.	M	IMS	Oct 2018	2020			80%: To complete by September 2020	
48.	Iraba, N. T.	F	IMS	Oct 2018	2020			75%: To complete by September 2020	
Total 45 (only 43 are Sida Funded)									
<b><i>B. Overall Aggregated Postdoctoral Research Fellows Plan/Progress</i></b>									
	Postdoctoral research fellows	(M/F)	College/ Subprogramm e	Year research started	Expected/ Year of completi on	Trip to Sweden	No of expecte d	Progress %	Title of manuscripts
	Name of researcher:								



							publicat ions		
1.	Libe Massawe	F	COICT- iGRID	2015	0		2016	Withdrew on Social grounds	N/A
2.	Richard Mgaya	M	COICT- iGRID	2015	0	N/A	-	Passed away	N/A
3.	Shililiandumi Naiman	M	COICT- iGRID	2016	2 months	N/A	2017	100	Completed
4.	Ellen Kalinga	F	COICT- iGRID	Jan 2017	2 months	N/A	Jan 2018	100	Completed
5.	Kwame Ibwe	M	COICT- iGRID	Jan 2017	2 months	N/A	Jan 2018	100	Completed
6.	Hellen Mazika	F	COICT- iGRID	June 2018	0	N/A	June 2019	50	On Research
7.	Leonard, L.	M	IMS	2020	2021				
8.	Soud, S.	M	IMS	2020	2021				
9.	Rushingisha, G.	M	IMS	2020	2021				
10.	Dr. David Koloseni	M	MATH	January 2018 - June 2018		6 Month		100%	Numerical Integration for multidimensional Choquetintegra
11.	Dr.ThadeiSagamiko	M	MATH	October 2018- June 2019	6 Months	Sweden	Linköpi ng Univers ity	100%	Optimal control of a threatened wildebeest-lion prey-predator system with prey species pool in the Serengeti ecosystem
12.	MadakaTumbo	M	Water Resources					Quitted	
13.	Dr.SubiraMunishi	M	Water Resources					Quitted	
14.	Dr. Noah Pauline	M	Water Resources					100%	
15.	Martic Chegele		IRA; Food security					100%	

16.	Liberata Mwita		CONAS; Food security					100%	
17.	Victor Vicent		COET, Food security					100%	
18.	Rita Morondo		COET; Food security					Withdrew on Social grounds	
Total 18: Actual 13 Postdocu									

#### 7.4 List of Appendices (Outcomes)

##### 1) Eight (8) Taught PhD Programs Developed

- 1) PhD in Applied Marine Sciences
- 2) Integrated Food Security (PhD-IFS)
- 3) PhD in Computer and IT systems Engineering
- 4) PhD in Molecular Bioscience
- 5) PhD in Mathematics
- 6) PhD in Business Administration with modules in Tourism and Agribusiness
- 7) PhD in Hydrology and Geochemical Modelling
- 8) PhD in Integrated Sanitation Management

##### 2) One (1) Taught PhD Program Reviewed

- 1) PhD program in Aquatic Sciences with four specialization in Fisheries, Aquaculture, Biological Oceanography, & Limnology at DASF; Status: Operational

##### 3) Four (4) Taught Masters Program Developed

- 1) MSc in Marine Science
- 2) MSc in Integrated Food Security
- 3) MSc in Computer and IT systems Engineering
- 4) Master of International Tourism and Hospitality Management (MITHM)

##### 4) SEVEN (7) TAUGHT MASTERS PROGRAMMES REVIEWED

- 1) MSc Computer Science
- 2) MSc Health Informatics
- 3) MSc Information Systems Management
- 4) MSc in Data Science
- 5) MSc in Mathematics
- 6) MSc in Mathematical Modelling
- 7) Master in Integrated Sanitation Management

##### 5) LIST OF BOOK/THESIS AND DISSERTATION PRODUCED

1. [Anderson, W., Mossberg, L., & Andersson, T. \(Eds\) \(2020\). \*Tourism and Sustainable Development in Tanzania.\*](#)

Themes, chapters and authors of the book “*Tourism and Sustainable Development in Tanzania*”

<b>Themes</b>	<b>Chapters</b>	<b>Authors</b>
Introduction	1. Introduction to Tourism and Sustainable Development in Tanzania	<i>Wineaster Anderson, Tommy Andersson, Lena</i>

		<i>Mossberg</i>
Theme 1: Sustainability in Tourism	2. Tourism Sustainability: Reconceptualization and Measurements	<i>Msafiri Njoroge</i>
	3. Travel Motivations and Willingness to Support Sustainable Tourism: A case of inbound tourists to Tanzania	<i>Saliel Kanza, Wineaster Anderson, Lena Mossberg, Tommy Andersson and Ladis Komba</i>
	4. Determinants of International Tourists' Dining Experiences in Tanzania	<i>Bahati Mbilinyi</i>
Theme 2: Tourism Potentials and Operation Challenges	5. Tourism Opportunities and Challenges in Tanzania	<i>John Philemon</i>
	6. Challenges of Skills Development for Tourism and Hospitality Industry in Tanzania	<i>John J. Sanga &amp; Wineaster Anderson</i>
	7. Challenges Facing Lodging Operations in Tanzanian National Parks	<i>Francis C. Mhalafu and Dev Jani</i>
Theme 3: Value Chain & Inclusive Tourism Development	8. The Nexus of Tourism and Industrialization in Tanzania	<i>Wineaster Anderson, Lena Mossberg and Tommy Andersson</i>
	9. Contextual differences in Tourism-Agriculture Linkages in selected regions of Tanzania	<i>Dev Jani &amp; Winnie Nguni</i>
	10. Sustaining Green eBusiness Adoption among Small and Medium Tour operators in Tanzania	<i>Juma James Masele</i>
Theme 4: Responsible Tourism Development in Zanzibar	11. Reconciling Tourism Investment and Land Rights in Zanzibar	<i>Godwin Adiel Lema</i>
	12. Women empowerment and tourism lifestyle entrepreneurship in Zanzibar	<i>Nelly Maliva</i>
	13. Tourism employment, moral norms and pro-conservation behavior in Zanzibar	<i>Noel Biseko Lwoga</i>

## 6) List of PhDs' Thesis

1. Ngailo E. (2020), *Contribution to Linear discriminant analysis with applications to growth curves*. PhD thesis, Linkoping University.
2. Hussein J. (2020), *Polyporoid Fungi of Tanzania: Taxonomy, transcriptomics and biochemical analyses of kusaghiporia usambarensis and piptoporellus baudonii*. PhD thesis, Uppsala University
3. Leonard L. (2019), *Growth Performance of Hybrids of Oreochromis niloticus and Oreochromis urolepis urolepis*. PhD thesis, University of Dar es salaam.
4. Lyimo L. (2020), *Carbon sequestration processes in tropical seagrass beds*. PhD thesis, Stockholm University.
5. Njoroge M. (2019), *Entrepreneurial orientation and corporate sustainability: A study of Tourist*

*hotels in Tanzania*. PhD thesis, University of Dar es salaam.

6. Kanje P. (2020), *The Influence of Motivation and consumer engagement on electronic month behaviour in social media evidence from International vacationers in Tanzania*. PhD thesis, University of Dar es salaam.

7. Rushigisha G. (2020), *Seagrasses in Warming Oceans: Physiology and biogeochemical Responses*. PhD thesis, Stockholm University.

8. Senkondo W. (2020), *Modelling water resources despite data limitations in Tanzania's Kilombero Valley*. PhD thesis, Stockholm University.

9. Busagara T. (2020), *Firm Innovativeness through interactions and customer participation Behaviour in Tourism Firms of Tanzania*. PhD thesis, University of Dar es salaam.

10. Suluo. S. (2020), *Impact of Corporate Sustainability Practices on Financial Performance: The Case of Tourism Enterprises in Tanzania*. PhD thesis, University of Dar es salaam.

11. Alavaisha E. (2020), *Assessment of trade-offs between ecosystem services under gradients of land and water use*. PhD thesis, Stockholm University.

12. Michael A. (2020), *Effect of different live feeds on the growth of Tilapia in Tanzania*. PhD thesis, University of Dar es salaam.

13. Mmanda F. (2020), *Effect of different artificial feeds on the growth of Tilapia in Tanzania*. PhD thesis, Swedish University of Agricultural Sciences.

14. Maganira J. (2020), *Transmission Biology of Taeniid Zoonotic Parasites: Assessment of Environmental Soil and Food Items Contamination by Taenia Solium Eggs*. PhD thesis, Swedish University of Agricultural Sciences.

15. Vuga I. (2020), *Promotion of Horticultural Productivity for Food, Nutrition and Income Generation: A Case Study of Avocado in Tanzania*. PhD thesis, Swedish University of Agricultural Sciences.

## 7) LIST OF MASTERS STUDENTS GRADUATED FROM 2017 TO 2020

S/N	Subprogramme	Name of Masters' Graduate	Gender	Registration No.	College
1.	SUSTAIN Subprogramme	Mhepela, Bertha	F	2016-06-02509	COET
2.	SUSTAIN Subprogramme	Marcel, Juma Kakulu	M	2016-06-00097	COET
3.	SUSTAIN Subprogramme	Hezron Magambo	M	2016-06-02596	COET
4.	SUSTAIN Subprogramme	Tenende Nuntwale	M	2017-06-01965	COET
5.	SUSTAIN Subprogramme	Mwamlima Petro	M	2017-06-01968	COET
6.	SUSTAIN Subprogramme	Hidaya Abbas	F	2016-06-00096	COET
7.	Mathematics Subprogramme	Osward, Richard	M	2017-06-00893	CONAS
8.	Mathematics Subprogramme	EVELINA WILSON	F	2017-06-00869	CONAS
9.	Mathematics Subprogramme	Nzaganya, Edson Nzaganya	M	2017-06-01375	CONAS
10.	Mathematics Subprogramme	Sholastica Luambano	F	2016-06-00302	CONAS
11.	Mathematics Subprogramme	Jesline Elieza Gowele	F	2016-06-00294	CONAS
12.	Mathematics Subprogramme	Faustine Nziku	M	2016-06-00298	CONAS
13.	Mathematics Subprogramme	Damas Kamel Mgani	M	2016-06-00300	CONAS
14.	Mathematics Subprogramme	Richard Osward	M	2017-06-00893	CONAS
15.	DAFWAT-Subprogram	Kossam Okoko	M	2017-06-01945	COET
16.	DAFWAT-Subprogram	Agness Fataki	F	2017-06-02235	COET
17.	DAFWAT-Subprogram	Brenda Anthony Mndolwa	F	2016-06-00137	COET
18.	DAFWAT-Subprogram	Bernard Lugayi	M	2015-06-02090	COET
19.	Food Security Subprogramme	Mathayo Gervas	F	2016-06-02513	COET
20.	Food Security Subprogramme	Grance Micheal	M	2016-06-02512	COET
21.	Water Resources Subprogramme	Ghanima Chanzi	F		IRA
22.	Water Resources Subprogramme	Batenga Maryrose	F		IRA
23.	Water Resources Subprogramme	Samwel Daudi Nyasani	M		IRA

## 8) LIST OF PUBLISHED PAPERS

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