UNIVERSITY OF DAR ES SALAAM
Directorate of Research

&

STOCKHOLM UNIVERSITY
Department of Computer and Systems Sciences

2219 - Strengthening Research Management at the University of Dar es Salaam

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<tr>
<th>Home Institution in Tanzania</th>
<th>Collaborating Institution in Sweden</th>
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<tbody>
<tr>
<td>Prof. Shukrani Manya</td>
<td>Eng. Nils Jensen</td>
</tr>
<tr>
<td>Director of Research</td>
<td>ICT4D Advisor at SPIDER</td>
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<tr>
<td>University of Dar es Salaam</td>
<td>Department of Computer and Systems Sciences, Stockholm University</td>
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<td>P. O. Box 35191</td>
<td>Borgarfjordsgatan 12, Postbox 7003, 164 07</td>
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<td>Dar es Salaam</td>
<td>Kista</td>
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<td>Tanzania</td>
<td>Sweden</td>
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Phone: +255-22-2410743         Phone: +468162000
E-mail: research@udsm.ac.tz     E-mail: nils@dsv.su.se
## STRENGTHENING RESEARCH MANAGEMENT AT THE UNIVERSITY OF DAR ES SALAAM

<table>
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<tr>
<th>Name of the Lead Applicant and Unit at the University of Dar es Salaam (UDSM)</th>
<th>Director of Research</th>
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<tr>
<td>Name of the Swedish Partner Universities and Units</td>
<td>Stockholm University (SU), Department of Computer and Systems Sciences (DSV)</td>
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<tr>
<td>Project Name/Title</td>
<td>Strengthening Research Management at the University of Dar es Salaam</td>
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<td>Collaborating Universities in Tanzania</td>
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| Main Components in the Sub-programme | 1. Capacity building of UDSM staff in research management and innovation  
2. Supportive environment for science, technology and innovation |
| Proposed Starting and Finishing Dates of the Sub-programme | 1<sup>st</sup> July 2015 – 30<sup>th</sup> June 2020 |
| Sub-programme Coordinator at the University of Dar es Salaam | Prof. Shukrani Manya  
Director of Research  
University of Dar es Salaam  
E-mail: research@udsm.ac.tz |
| Sub-programme Coordinator in Sweden | Eng. Nils Jensen  
ICT4D Advisor at SPIDER, Department of Computer and Systems Sciences, Stockholm University  
E-mail: nils@dsv.su.se |
| Principal investigators at the University of Dar es Salaam | Prof. Shukrani Manya, Directorate of Research  
Prof. Charles Lugomela, Directorate of Knowledge Exchange |
| Principal investigators at the Stockholm University | Eng. Nils Jensen, ICT4D Advisor at SPIDER, Department of Computer and Systems Sciences  
Mr. Rodolfo Candia, Department of Computer and Systems Sciences |
SUMMARY OF THE PROGRAMME

The fast expanding research needs and challenges demand for more effective and efficient research management capacities. Research management encompasses the whole spectrum of activities that are involved in the initiation, implementation and coordination of research. These include possession of a critical mass of qualified and well motivated researchers, identification of research areas, accessing sources of research funds, managing research resources and disseminating of research outputs. Only through effective and efficient research management can research resources be harnessed to support the country’s effort towards poverty alleviation and equitable development. Effective research management will contribute to the provision of conducive and competitive research environment to staff, postgraduate students, postdoctoral fellows nationally, regionally and internationally to undertake multidisciplinary and interdisciplinary research in cutting edge science and technology. The proposed programme to strengthen research management at the University of Dar es Salaam (UDSM) is in line with the wider aspirations of the UDSM Vision 2061 as well as the National Development Vision (Vision 2025) regarding quality livelihood and international competitiveness.

The programme aims at enhancing the management and administration of research at the University of Dar es Salaam so as to maximize the impact of research outputs locally and internationally. The programme has the following specific objectives:

(i) To improve efficiency on research management at UDSM;
(ii) To enhance research capacity and quality of outputs;
(iii) To enhance dissemination of research results to end-users; and
(iv) To enhance research networks and collaboration with key stakeholders.

The expected outputs will entail improved research management at all levels of the University through training, having the necessary infrastructure such as ICT facilities and increased participation of academic staff members in research disseminations forums. This will in turn lead to improved quality and quantity of research outputs that are relevant to knowledge development and socio-economic development of Tanzania, and the world. The Programme will be implemented jointly by the University of Dar es Salaam and the Department of Computer and Systems Sciences (DSV) of Stockholm University. The total funds requested for the programme period (July 2015 – June 2020) is 20,000,000 million SEK.

POPULAR SCIENCE DESCRIPTION

Efficient and effective research management at higher learning institutions is important in the implementation, monitoring and evaluation of the big research programmes. Several UDSM stakeholders have noted that research management at the institution needs to be strengthened. Among the weaknesses for effective research management at this institution include the poor research management systems, lack of approved research agenda as well as limited expertise in managing and coordinating big research programmes.

This programme therefore intends to strengthen the research management system by improving on the UDSM research repository and establishing a research database where the University will be able to efficiently capture and monitor the ongoing research activities by its researchers. Furthermore, the programme will improve research skills by providing...
training and re-training in research methodology, research proposal development and research ethics to the researchers, as well as communication of research findings to wider audience. The emphasis is towards generating knowledge, and building skills deemed to be of lasting benefit to the University and the country as whole. This programme also aims at developing a comprehensive research agenda through which linkage, coordination and harmonization of existing research priorities will support various policies and initiatives to achieve the 2025 national vision.

Effective research management will also contribute to the development of regional research networks coordinated and hosted by UDSM, including providing conducive and competitive research environment to staff, postgraduate students, postdoctoral fellows nationally, regionally and internationally to undertake multidisciplinary and interdisciplinary research in selected themes relevant for the development of the region. Effective research management will also enable the undertaking of research in cutting edge science and technology. Effective research management will further strengthen the UDSM's national as well as regional and international linkages with a view to fostering innovative technological advances that increase productivity in all sectors of the Tanzanian economy. Research management will also ensure the visibility and marketability of the University as a high calibre research institution and thus attract increased partnership of government institutions, private sector and international research communities. This is the ultimate goal of any reputable research University and the anchor of sustainable research funding.
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ENCLOSURE 1: STRENGTHENING RESEARCH MANAGEMENT

1 Introduction
Research and development is critical to national development in increasing productivity, improving livelihoods and stimulating economic growth. Academic institutions are prime sources of knowledge which is embodied in research results that can be converted into useful innovations for improved efficiency and thus competitiveness in the market place.

Although the UDSM is under the Ministry of Education and Vocation Training, research issues at national level are coordinated under the Ministry of Science, Technology and Communications through the Tanzania Commission for science and technology (COSTECH). The role of COSTECH is to facilitate research activities, which include solicitation of research proposals, reviewing, funding and overseeing the entire research process country wide. The proposed programme at UDSM aims at capacity building in research management by strengthening internal capacity mainly through training of staff and postgraduate students, improving research information management system, development of methodologies for assessing and rewarding quality research and dissemination of research findings. To achieve these UDSM will work closely with COSTECH and R&D institutions on exchange of information and sharing of research experiences.

On marking its 50th Anniversary in 2011, the UDSM promulgated its 2061 Vision, which among other things, aims at making it a strong research university. This calls for comprehensive research management at all levels including: establishment of suitable research agenda and prioritising it from national agenda; setting-up research policies and operational procedures to improve effectiveness; capacity building and improved quality; managing IPR including suitable incentive scheme for researchers; and devising frameworks for dissemination of research results and fostering collaboration with key stakeholders.

Strengthening research capacity at UDSM has been one of the key objectives of Swedish support to Tanzania, where efforts have been in providing conducive research environment, research training, and improving research management. The current proposal builds on such experience and is in line with national vision of becoming a middle income country by 2025.

Among the major achievements noted in research management thus far is the consolidation of the research and postgraduate teaching whereby units developed research agendas based on the University Strategic Plan. Furthermore the University-wide research agenda has been developed and implemented under the current Sida support phase. This has resulted in increased research output due to optimal utilization of resources for teaching and research such as human resources, equipment, facilities and office/laboratory space sharing.

In order to safeguard previous achievements and ensure effective use of resources the University aims at strengthening the research management and capacity building including: (i) assisting scholars to write fundable research proposals; (ii) equipping junior staff and postgraduate students with skills on research methodology and ethics; (iii) and honing skills on postgraduate supervision. The efforts will include enhanced disseminate research results to end-users which hitherto have not been fully exploited. This will include assisting scholars to present findings to local and international conferences, organizing research weeks, seminars and exhibitions to showcase research results.
2. Background

2.1 Context of programme in relation to University Concept Note
This proposal is part of the UDSM applications for the next round (2015-2020) of Sida support to on research cooperation between Sweden and Tanzania. The UDSM in collaboration with Swedish institutions are developing multi- and inter-disciplinary proposals which focus on six thematic areas namely: food security and agricultural value chains; infrastructure; energy; environment and climate change; natural resources and tourism and entrepreneurship and innovation. The Sida institutional support is geared towards promoting economic growth, economic and social equality, economic and political independence, democratic development, environmental protection and gender equality. The initiatives fall within the broad areas of Sida support on economy, infrastructure, humanitarian assistance, water and urban development. Apart from Swedish institutions the research work shall involve collaboration with national stakeholders including Government, non-governmental organisations (NGOs), small and medium enterprises (SMEs), private sector local research institutions and local communities.

It is important to note that apart from the thematic areas listed in the University Concept Note, research management is a cross cutting theme that needs capacity building for improved efficiency and smooth delivery of all components of the Sida cooperation programme.

2.2 Scientific issues and capacity building in research management
Efficient research management is vital for effective research undertakings because it stipulates methodologies, quality standards, IPR and training issues, equipment access, financial rules, rewards and sharing of benefits accrued from research work. Strengthening research management is in line with UDSM Vision 2061, which aims at becoming a strong research University concentrating mainly on postgraduate training. The overall goal is to harness the power of scientific research to exploit existing resources for the benefit of industry and the wider society. The specific objectives of the programme include:

(i) To improve efficiency on research management at UDSM;
(ii) To enhance research capacity and quality of outputs;
(iii) To enhance dissemination of research results to end-users; and
(iv) To enhance research networks and collaboration with key stakeholders

In this proposal research management at UDSM is expected to be implemented through the following activities:

(i) Improved research management and coordination at all levels.
(ii) Advanced research management training for pertinent units.
(iii) Enhanced coordination and research database management.
(iv) Creating frameworks for strategic collaboration with key stakeholders and establishing structures that foster multi-disciplinary research collaboration.
(v) Supporting dissemination of research findings through books, journal and popular publications, participation in conferences/workshops. This includes annual research week and exhibitions in which university researchers will showcase research findings.
(vi) Human resource capacity building to realise a critical mass of faculty with essential research skills ranging from proposal writing, research funds mobilisation and
management, research methods, writing of research manuscripts and IPR management.

(vii) Review of UDSM research agenda and programmes to realign with national priorities. This is expected to be achieved through the introduction of new University wide multi-disciplinary research programmes focused on strategic national priorities.

(viii) Establishing a Research Information and Management System (RIMS) for tracking research capacity, outputs, quality, outcomes and impacts at various levels. This is expected to be achieved through establishment of a research repository and research database.

2.3 Relevance and demand of increased expertise in research management

The fast expanding research needs, diversity of research activities, and challenges demands for more effective and efficient research management capacities both at Unit and University levels. As fountains of knowledge, the mission of Universities is to generate, refine and exchange knowledge for betterment of society and mankind. This role is largely played by researching into past and current knowledge whereby findings helps to bridge knowledge gaps and enrich University teaching, provision of public service and support the country’s effort towards poverty alleviation and equitable development.

The proposed programme aims at progressively sustaining efforts which started in previous Sida support phases as well as further strengthening the research management at UDSM. The University of Dar es Salaam appreciates the value of research for the technological and economic development of the society and understands that a University that does not generate, refine and advance knowledge as well as use it to enrich teaching and illuminate problem solving is not worth the name. Effective management of research is thus critically important for the University to realise this mission.

It has been noted by several UDSM stakeholders that research management at the institution leaves a lot to be desired and therefore needs to be strengthened. Among the weaknesses for effective research management at this institution include the poor research management system to among other things monitor research activities, limited expertise and inadequacy of other resources. Also, though there are central offices responsible for coordinating research activities at university level, research offices at lower levels in colleges/institutes/schools are still not well established.

This programme therefore aims at developing a comprehensive research agenda through which linkage, coordination and harmonization of existing research priorities will support various policies and initiatives to achieve the 2025 national vision. The programme also intends to strengthen the research management system by developing a research management information system (RIMS) including improving on the UDSM research repository and establishing a research database where the University will be able to efficiently capture and monitor research activities by its researchers. Further, the programme will improve research skills by providing training and re-training in research methodology, research proposal development skills, research resources mobilisation, research ethics, and intellectual property right (IPR) to the researchers. Furthermore the programme will provide training to impart skills on scientific writing and workshops on communication of research findings.

Very often there are no funds to carry out dissemination activities beyond the distribution of research reports. The lack of resources also restricts professional presentation of research
findings for policy audiences and peer groups at local and international fora. This project will endeavour to establish linkages and channels of communication between researchers, policy makers and other stakeholders to facilitated evidence based decision making. Part of the Sida research management funds will be used for supporting dissemination of research results to the target groups. Indeed, transfer of knowledge and commercialization of research results to end-users, are complex issues which involve scaling-up, licensing and transfer agreements. In this phase, however, only dissemination activities are planned, including publishing of research results in journals, local news media, participation in national and international conferences and in fairs and exhibitions.

Another research management component which is partly associated with monitoring and evaluation is internal quality control of research outputs. Most often auditing is done only for financial accountability but ‘technical audits’ are rarely undertaken. This adversely affects the quality of research such as lack of repeatability and re-inventing the wheel. This calls for institutionalizing guidelines, policies and tools for quality assurance such as peer review and oversight; performance indicators; shared utilisation of research facilities across faculties, and a system of rewarding excellence in research. Through this programme a number of guidelines for effective implementation of these issues will be developed. The emphasis is towards generating knowledge, and building skills deemed to be of lasting benefit to the University and the country as whole.

Effective research management will also contribute to the development of regional research networks coordinated and hosted by UDSM, including providing conducive and competitive research environment to staff, postgraduate students, postdoctoral fellows nationally, regionally and internationally to undertake multidisciplinary and interdisciplinary research in selected themes relevant for the development of the region. Effective research management will also enable the undertaking of research in cutting edge science and technology. Effective research management will further strengthen the UDSM's national as well as regional and international linkages with a view to fostering innovative technological advances that increase productivity in all sectors of the Tanzanian economy.

To be able to harness research opportunities, the research management project will continue to enhance coordination of research programmes for improved research output and dissemination and establishing strategies for mobilising or accessing the research resources. Research management will also ensure the visibility and marketability of the University as a high calibre research institution and thus attract increased partnership of government institutions, private sector and international research communities. This is the ultimate goal of any reputable research University and the anchor of sustainable research funding.

2.4 Approaches chosen for capacity building
Research management is a supportive component geared at enhancing research functions in all units of the University and in all research areas, and is aimed at having a sustainable impact beyond the proposed research collaboration programme. Through this component the UDSM will develop a supportive environment for strong and sustainable base in science, technology and innovation. The component is geared towards addressing two sub-themes, namely, Capacity building of UDSM staff in research management and innovation, and Creating a supportive environment for science, technology and innovation.
Apart from the various training to be offered to research staff at operational and administrative levels, the UDSM will resort to other measures to strengthen research capacity including:

(i) Facilitating formation of multi-disciplinary research groups through networks which will allow sharing of experiences nationally and internationally;
(ii) Foster the formation of research centres which are dedicated to in-depth studies in specific priority areas or themes; and
(iii) Facilitating the establishment of professorial chairs by recognizing and supporting prominent scholars;

Under this collaboration it is also envisaged that research administrative staff at UDSM and SU shall conduct study visits in Sweden and Tanzania to share experiences on research management.

3. Benefits and value added by partnership between UDSM and Swedish University

Partnership in this research management is an important prerequisite for effective research undertakings, where multi- and interdisciplinary perspectives will be employed including capacity building on research management. As part of this partnership between UDSM and Stockholm University, staff involved in research will be involved in short-term training (e.g. on various aspects of research management, such as proposal writing, fund mobilisation, and communicating research findings). Members of the University staff will also be supported to participate in conferences for awareness building and dissemination of research findings, strategic planning, development of research information system to better manage all sides of research, as well as sharing experiences between the partner institutions.

Through this partnership the UDSM will benefit from enhanced knowledge on research management that will be imparted by training of research coordinators and administrators on research management. The university will also benefit through improved accountability and coordination of research resources attributable to the training of project PIs, accountants, procurement officers and administrative officers.

Further, through training of trainers on writing fundable research proposals to be implemented through this partnership, UDSM will benefit from the improved quality and number of research proposals that will enhance the sustainability of research funding resulting from the cross-disciplinarity, inter- and trans-disciplinarity obtained through the partnership. Similar benefits will be acquired by building the capacity of junior staff and postgraduate students on research methods, research ethics and writing skills for thesis and journal manuscripts where the quality of proposals, theses and graduation rate are envisaged to improve. In addition, training on postgraduate supervision will enhance the supervision skills and improve theses and graduation rate. Through this partnership the University envisage to enhance disseminated of research findings, inform a wider range of stakeholders thereby enhance utilization of research results, enhance accessibility of publications and other research information as well as increase international visibility of UDSM. The partnership will also improve collaboration and networks with various stakeholders.

Furthermore, through the establishment of a system for regular assessment of UDSM research capacity, outputs, outcomes and impacts at various levels it is expected that the
University will systematically and periodically realign with the national development needs while enhancing the university’s visibility.

SPIDER at Stockholm University (SU) is the preferred partner due to its experience from projects with similar goals and content, their experienced project coordinators and for its large network of researchers and experts in various fields including cooperation agreements with many (14) Swedish universities. As part of the Department for Computer and Systems Sciences (DSV) SPIDER has close access to about 250 DSV staff members, many with international experience and some with experiences from projects of similar nature as ours.

4. Plans and expected outcomes of strengthening research management
The planned activities under strengthening Research Management are detailed in Table 1 and the expected outputs and outcomes are delineated in the results matrix found in Enclosure 2.
### Table 1. Planned Activities for Research Management

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Year 2015/16</th>
<th>Year 2016/17</th>
<th>Year 2017/18</th>
<th>Year 2018/19</th>
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**Specific Objective 1: Improved efficiency on research management at UDSM**

1.1 Training research coordinators/administrators on management of research resources

1.2 Developing a research information management system (RIMS)

1.3 Improving and maintenance of UDSM Research Repository to capture more information, publications and international visibility

   - To add digital object identifier "doi" to the system
   - Add bibliometric values
   - Add research project features

1.4 Procurement of ICT hardware, software and related infrastructure for research management

1.5 Orientation courses for Sida PIs, Accountants, Procurement Officers and Administrative officers

1.6 Exchange study visits (Sweden-Tanzania) to share research management experiences
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<th>No.</th>
<th>Activity</th>
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<tr>
<td>1.7</td>
<td>Training staff at the Directorate of Research and Knowledge Exchange on</td>
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<td>project management and IPR</td>
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<td><strong>Specific Objective 2: Enhance research capacity and quality of outputs</strong></td>
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<td>2.1</td>
<td>Training of Trainers (ToT) on writing fundable research proposals</td>
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<td>2.2</td>
<td>Training junior staff and postgraduate students on research methods,</td>
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<td>research ethics, IPR and writing skills for thesis and manuscripts.</td>
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<td>2.3</td>
<td>Training academic staff on postgraduate research supervision</td>
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<td>Y</td>
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<td>2.4</td>
<td>Develop methodology and tools for assessing and rewarding quality</td>
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<td><strong>Specific Objective 3: Enhance dissemination of research results</strong></td>
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<td>3.1</td>
<td>Dissemination of research findings through books, journals and</td>
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<td>3.2</td>
<td>Strengthening the capacity of SJMC in communicating and</td>
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<td>disseminating research findings and innovations</td>
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<td>3.3</td>
<td>Production of TV and Radio programmes based on research findings and</td>
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<td>innovations through SJMC</td>
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### 2219 - Research Management Support Component

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<th>Year 2017/18</th>
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<tr>
<td>3.4</td>
<td>Support scholars to present research findings in local and international conferences, seminars and workshops</td>
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<td>3.5</td>
<td>Support Units to organize local and international conferences and exhibitions</td>
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<td>3.6</td>
<td>Support annual University research week/forums for exhibiting research results</td>
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#### Specific Objective 4: To enhance research networks and collaboration with stakeholders

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<th>No.</th>
<th>Activity</th>
<th>Year 2015/16</th>
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<tr>
<td>4.1</td>
<td>Support establishment of multi-disciplinary research groups, research centres and professorial chairs focused on strategic national priorities</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4.2</td>
<td>Create frameworks for strategic research collaboration with key stakeholders, i.e., Government, industry and end-users.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### ENCLOSURE 2: RESULTS MATRIX

<table>
<thead>
<tr>
<th>Output</th>
<th>Outcomes</th>
<th>Performance indicator of outcome (including target values)</th>
<th>Baseline</th>
<th>Data source</th>
<th>Method of collecting data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specific objective #1: Improved efficiency on research management at UDSM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1.1 A research information management system (RIMS) developed and research repository consolidated and upgraded annually. | • Research information visible internationally  
• Indexed publications accessible online  
• Profile of researchers accessible online | • Research information management system and repository links fully developed | • Limited information  
• Only 742 out of >1500 CVs uploaded | • UDSM website  
www.udsm.ac.tz/  
• Other UDSM data base | • Internet survey |
| 1.2 Research management ICT-equipments procured | • Improved research data base and availability of research information.  
• Efficient reproduction of research reports | • (1) server, one (1) heavy duty photocopier and software procured | • Low capacity server | • Annual reports | • Consultation with staff |
| 1.3 Orientation course conducted to Sida PIs, Administrators, Accountants and Procurement Officers | • Improved coordination and accountability of research projects and resource management | • Sida PIs, Accountants, Procurement Officers and Administrative officers orientated on Sida programme administration and coordination | • New staff members involved in the coordination of Sida programme  
• Inadequate capacity | • Training reports  
• Progress reports  
• Accounting and procurement reports | • Review of reports  
• Interviews with trained personnel. |
| 1.4 Exchange visits conducted between Sweden and Tanzania Research Management personnel | • Enhanced experience on effective and efficient research management  
• Improved research management | • 8 members of staff participated in exchange visits  
• Itinerary, travel documents and reports | • Inadequate experience/exp erience | • Directorate of Research  
• Financial reports | • Review of reports |
| 1.5 Training on project management conducted to staff at Directorate of Research and Knowledge Exchange | • Enhanced management of research projects | • Ten (10) staff at Directorate of Research and Knowledge Exchange trained | • Insufficient knowledge on research management | • Training reports | • Review of reports |
## 2219 - Research Management Support Component

<table>
<thead>
<tr>
<th>Output</th>
<th>Outcomes</th>
<th>Performance indicator of outcome (including target values)</th>
<th>Baseline</th>
<th>Data source</th>
<th>Method of collecting data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 UDSM researchers trained on Intellectual Property Rights (IPR)</td>
<td>• Increased awareness of Intellectual Property issues to UDSM researchers</td>
<td>• 60 researchers trained annually on IPR issues</td>
<td>• Low awareness on IPR</td>
<td>• Progress Reports</td>
<td>• Review of reports</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Number of patented research outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assumptions for specific objective #1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Availability of funds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Specific objective #2: Enhanced research capacity and quality of research outputs

| 2.1 Training on writing fundable research proposals conducted to UDSM researchers | • Improved quality of research proposals from UDSM | • 150 researchers trained on writing fundable proposals | • Inadequate skills to write competitive proposals | • University reports | • Review of reports |
|                                                                                   | • Improved solicitation of research funds from competitive sources       | • Number of Research proposals submitted annually.      |                                                    |                       |                           |
| 2.2 Junior staff and postgraduate students trained on research methods, research ethics, IPR and writing skills for thesis and manuscripts. | • Enhanced skills in research methods, ethics and thesis writing | • 500 Junior staff and postgraduate students trained | • Inadequate writing skills among postgraduate students | • Student progress reports | • Review of unit reports |
|                                                                                   | • Improved quality of postgraduate proposals and theses                   | • Number of postgraduate students graduating annually.  |                                                    |                       |                           |
| 2.3 Training on supervision of postgraduate research conducted to academic staff | • Increased research supervision skills                                | • Train 300 academic staff trained                      | • Inadequate skills to supervise postgraduate students | • Number of these/dissertation supervised Publications | • Review of institutional reports |
|                                                                                   | • Improved quality of postgraduate proposals and theses                   | • Timely completion of theses and dissertations         |                                                    |                       |                           |
|                                                                                   | • Increased postgraduate graduation rates                                 | • Supervision roles clearly defined                     |                                                    |                       |                           |
| 2.4 Methodology and tools for assessing and rewarding quality research results | • Inventory of potential research results compiled                        | • Compendium of research results                        | • The only reward system                            | • Annual reports        | • Review of institutional reports |
|                                                                                   |                                                                          |                                                              |                                                    |                       |                           |


<table>
<thead>
<tr>
<th>Output</th>
<th>Outcomes</th>
<th>Performance indicator of outcome (including target values)</th>
<th>Baseline</th>
<th>Data source</th>
<th>Method of collecting data</th>
</tr>
</thead>
<tbody>
<tr>
<td>developed</td>
<td>• Rewarding mechanism for quality research results put in place</td>
<td>• List of awardees</td>
<td>is through promotion to higher academic ranks</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Assumptions for specific objective #2.
1. Availability of funds
2. Trainers identified

**Specific Objective 3: Enhance dissemination of research results**

3.1 High quality Books, Journals and Brochures disseminating UDSM research results published
- Improved dissemination of research findings from UDSM
- Increased accessibility of research outputs.
- Enhanced utilization of research results
- At least 300 articles published in international peer reviewed journals by 2020
- At least 15 UDSM journals published in international indexed journals
- Most journal not indexed available only in print media
- Inadequate dissemination of research information
- Research repository
- Facts and figures
- Journals and books
- Review of research reports

3.2 SJMC capacity to communicate and disseminate research findings and innovations enhanced
- Enhanced skills for SJMC staff
- Improved production of research dissemination programmes
- Hundred (100) staff trained
- Equipment and invoices procured
- Inadequate number and quality scientific reporting
- Annual reports
- Training reports
- Review of reports

3.3 Research results disseminated through SJMC radio and TV programmes
- Enhanced wider dissemination of research results through media
- A total of 240 radio and 300 TV programs produced by 2020
- Very few research dissemination programs
- CD ROM and audio tapes
- Review of audio visual resources and reports

3.4 UDSM scholars presented research findings in local and international conferences
- Increased dissemination of research results locally, regionally and globally
- Increased International visibility of UDSM
- Support at least 30 per annum
- Conference proceedings
- Inadequate support
- Proceeding s, financial reports, facts and figures
- Review of reports
## Output

### 3.5 Local, Regional and International Dissemination Conferences Organized and Facilitated

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Performance indicator of outcome (including target values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enhanced dissemination and sharing of research experiences</td>
<td>• At least 10 dissemination conferences supported</td>
</tr>
<tr>
<td>• Improved research networking</td>
<td>• Number of Proceedings</td>
</tr>
<tr>
<td>• Increased number of publications</td>
<td>• Number of networks established</td>
</tr>
<tr>
<td></td>
<td>• Few units organize dissemination conferences annually</td>
</tr>
</tbody>
</table>

**Baseline:** Few units organize dissemination conferences annually

**Data source:** Proceeding s, financial reports, facts and figures

**Method of collecting data:** Review of reports

### 3.6 University Research Week and Research Exhibitions Facilitated Annually

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Performance indicator of outcome (including target values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Enhanced visibility of UDSM</td>
<td>• Number of participating units and awards given during exhibitions</td>
</tr>
<tr>
<td>• Enhanced uptake of research outputs</td>
<td>• Number of researchers recognized</td>
</tr>
<tr>
<td></td>
<td>• Showcasing University research competence</td>
</tr>
</tbody>
</table>

**Baseline:** University research results Showcased only in trade fairs

**Data source:** Exhibition reports

**Method of collecting data:** Review of reports

---

Assumptions for specific objective #3.

1. **Availability of funds**

### Specific Objective 4: To enhance research networks and collaboration with stakeholders

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Performance indicator of outcome (including target values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increased number of multidisciplinary researches</td>
<td>• Number of multidisciplinary research programmes established and supported</td>
</tr>
<tr>
<td>• Improved evidence based policy</td>
<td>• At least 2 Multidisciplinary research groups, research centres and professorial chairs formed annually</td>
</tr>
<tr>
<td></td>
<td>• Number of Policy</td>
</tr>
<tr>
<td></td>
<td>• 22 existing centres in place</td>
</tr>
<tr>
<td></td>
<td>• 7 existing professorial chairs</td>
</tr>
</tbody>
</table>

**Baseline:** University reports

**Data source:** University reports

**Method of collecting data:** Review of reports
### 4.2 Frameworks for strategic research collaboration with key stakeholders such as Government, industry and end-users created.

- Enhanced networking and collaboration with key stakeholders
- Increased application and use of research evidence to support policy making
- Increased Commercialisation of research results

#### Assumptions for specific objective #3.

1. Researchers commitment
2. Stakeholders availability and willingness to collaborate with UDSM
5 Capacity development process

5.1 Training
The programme consists of non-degree research management training to be offered to members of academic staff, postgraduate students as well as research coordinators and administrators at various levels of the university. The aim is to enhance their capacity in research management and administration, fund mobilisation and on dissemination of research results.

5.2 The research environment
There is a very close link at the University between postgraduate training and research, in that postgraduate research constitutes the core and bulk of research activities. Both staff and students become engaged in research for subsequent publications of the findings. The spin-offs of such linkage are wide-ranging as they offer opportunities for collaboration with other universities through sandwich and exchange programmes, thus strengthening the research capacity in the country. It also provides opportunities for the mentoring of young scholars who would come to constitute the core of the country’s researchers. In fact, the country’s future direction depends on postgraduate training, as the ultimate anchor of all other educational interventions. Postgraduate training is the one area which has significant impact in the national economy and in the provision of social services. In general, postgraduate sandwich and exchange programmes have enormously contributed to the University of Dar es Salaam in terms of research collaboration and capacity building compared to other local universities.

On research management, there is now increasing recognition of the importance of research management, itself arising from the realisation that the increase in research capacity has the potential of alleviating poverty and raising living standards. Research management is a process, and includes the sub-processes of the establishment of a relevant and viable research policy; the search for funding sources; the dissemination of information about funding opportunities; and the provision of support in the production of fundable proposals, including their budgeting. At UDSM, it also includes the monitoring of adherence to the research agenda and research priorities, both institutional and national; the provision of ethical and gender-sensitive guidelines for conducting research; the monitoring of the timely submission of research reports; and the oversight of adherence to budget lines and ceilings as well as financial regulations.

Universities and other research institutions have various measures in place to ensure that they produce high-quality research outputs, confer prestige on the institutions, and attract research funding. Therefore the need for quality assurance of research activities at UDSM cannot be underestimated. This is due to increased postgraduate students’ enrolment and expanded postgraduate programmes. In order to assure quality output of graduates and postgraduate research results, quality assurance of research activities is needed. The goal is to strengthen the research management in terms of the assessment of research outputs; capacitating academic staff in research supervision; and capacitating junior staff and postgraduate students in research methods, intellectual property right (IPR), proposal writing skills and research ethics.

Internal assessment of research outputs – with particular emphasis on quality of publications in the Global Web of Science - plays a critical part in the visibility of universities. In the case
of UDSM, the Research Policy and Operational Procedures of 2008 provides guidelines to stakeholders on the effective and efficient utilization of resources and on strengthening university research capacity to bring about increased competitiveness in the global market. The policy has put in place a framework for prioritizing research and for monitoring and evaluation of research results. Nevertheless, the UDSM self-assessment of 2013 indicated that, over the years, research management has been weak. It is against this background that the University aims at strengthening research management through internally-driven monitoring and evaluation of the quality of research outputs. This will be done once in each academic year involving all faculty, from Assistant Lecturers and above. Apart from improving research outputs, the project will also identify and address the limitations that affect the quality of publications. This will directly contribute towards an improved visibility of the University.

Following the increase of private and government universities in the country, UDSM has continued to play an important role in the training of trainers of these universities. It offers both taught (classroom-based) and thesis (research alone-based) Master's and PhD programmes. However, recent postgraduate student evaluations (2012/2013) suggested that the availability of instructors/supervisors for consultations and timely feedback were the lowest ranked attributes. These attributes are found to be universal/across all the academic units of the university. Yet, these are critical attributes for quality of graduates. Whereas low rating of these attributes undermine the efforts to produce high quality graduates in the country they also confirm the training needs for both supervisors and students. As the University remains the cog in the country’s training for academic staff of the newly established universities, and as it strives to strengthen and expand its postgraduate programmes, quality of its products become of ultimate importance. A series of postgraduate research supervision training is therefore intended to strengthen the capacity of the staff members by focusing on roles and responsibilities of supervisors, supervisor-supervisee relations, co-supervision and research management.

UDSM has approximately 4,000 postgraduate students. However, a large number of these students lack skills in research methodology, proposal writing and research ethics. Lack of research skills has a negative implication on the rate of completion and the number of graduates. This activity aims to reach junior staff members and postgraduate students with the aim of assuring timely completion of students as well as improved graduation rate.

Other areas that need more emphasis in managing research include the marketing of the institution’s research capacity; the dissemination of the research results to both the research community and the wider community, including industry and government; the coordination of the documentation of research databases in the form of researchers and research abstracts; the archiving of data in a retrievable form by other researchers; the establishment and maintenance of networks with other research communities; the protection of intellectual property rights; and the commercialisation of innovations where applicable, including the development of patents.

The Directorate of Research has for years been coordinating research activities of the University, including projects funded by Sida. Some of these activities have included managing the funds for such research projects; disseminating information about funding sources and possible research networks; and taking part in research management and research networks. However, research management has faced several challenges, including scarcity of
funding, non-involvement of departments and faculties in fund-raising, limited commercialisation of innovations and limited capacity to deal with issues of patents and intellectual property rights.

Regarding research infrastructure, one of the basic challenges is Tanzania’s inability to fully participate and benefit from research and the new technological revolution due to inadequacy of basic scientific infrastructure such as scientific equipment, limited access to current literature and international contacts and limited incentives for scientists. In this respect, the University’s research activities have to be supported by an infrastructural foundation which would facilitate the conduct of research and the transfer of research results into products and services. The research infrastructure includes ICT, gender-disaggregated databases, a well-stocked library, online repositories and research equipment.

While UDSM has been disseminating research findings traditionally through conferences and various forms of scientific publications, the dissemination of the same especially to the general public has been underrated. The general public who are among the research beneficiaries, need to be reached out in a systematic way including using the media to be informed about the research findings. The School of Journalism and Mass Communication (SJMC) will use its media facilities for dissemination of research findings and innovation by producing radio and TV programmes with contents derived from research findings. For this to materialize, the school will need to purchase necessary equipment including professional camera, professional audio recorders, professional TV cameras, desktop Mac, and editing suites among others. This is aimed at strengthening the School’s media equipment. The programmes will be aired in Mlimani Radio and Mlimani TV (both owned by UDSM and managed by SJMC) and will include live shows, recorded and discussion ones.

5.3 Existing and required research infrastructure

Research infrastructure provides the ability to carry out research. However, Tanzania, like many other developing countries is afflicted by underdeveloped research infrastructure, especially for sustaining scientific research. Despite being a flagship University, UDSM is still tightly handicapped due to lack of scientific equipment and technologies that are crucial for supporting cutting-edge research. This limitation renders the University unattractive for partnering in research and development both in the country and internationally. Even the enhanced researchers’ capacity may not be as effective if no infrastructure is put in place. It is thus imperative that the research infrastructural needs are urgently addressed. The basic research infrastructure includes ICT, gender-disaggregated databases, a well-stocked library, online repositories, online journal databases and research equipment.

5.4 Existing academic networks

Over the years UDSM has attracted an increasing number of collaborative research networks and partnerships. These include, among others: CCIAM (Climate Change Impact, Adaptation and Mitigation in Tanzania), PITRO (Programme for Institutional Transformation, Research and Outreach), IAP (Irish African Ownership for Research Capacity Building), BSU (Building Stronger Universities), RIMI4AC (Research and Innovation Management, Improvement for Africa and Caribbean), NETRIS (Network on Regional Integration Studies), EARIMA (Eastern African Research and Innovation Management Association), LEADHER (Leadership Development for Higher Education Reform), PLATINA (People Place and Time in Africa), NOMA (NORAD’s Programme for Masters Studies), ZMT (Centre for Tropical Marine Ecology, Bremen, Germany) and CHIESA (Climate Change Impact on Ecosystem
Services and Food Security on Eastern Africa Programme). This is a major spin-off of the Sida support to research management at UDSM that has increased the international recognition of UDSM research capacity as evidenced by the international networks seeking some form of research collaboration. The programme will also rely on regional networks such as that of Inter-University Council of East Africa (IUCEA). The proposed programme will utilize and strengthen these existing local, regional and international networks and establish new ones.

5.5 Academic mobility and university retention policy
Staff exchange is an important component of the programme. UDSM staff will visit SU in Sweden where they will participate in short term research management learning visits. The purpose of these visits is mainly for the staff to gain experience of what research management courses are taught, how courses are taught, how courses are developed, and how such programmes are organized in Sweden. Similar visits will be made by Swedish partners to UDSM where they will participate in sharing experiences and in lecturing some of the research management trainings.

6 Planned contributions and responsibility of partners (ENCLOSURE 3)
The UDSM and SU will contribute infrastructure and human resources in the implementation of the research management programme. However, the trainings proposed for the programme will not require new infrastructure but will use existing ones at both institutions. It is expected that SU will play a significant role at the beginning of the project through trainings of UDSM training of trainers as well as through their staff participation in later research management trainings at UDSM. For the project for sustainability, the UDSM will take over the trainings while the Coordinator of the project from SU will continue to monitor the implementation of trainings and other project components through visits. Overall, the two Universities will ensure that the project is successfully implemented.

7 Management
7.1 Administrative resources available
The Directorate of Research and Directorate of Knowledge Exchange at the UDSM and the Department of Computer and Systems Sciences at SU will manage the programme. Human and office infrastructure are already in place at these centres but the programme will call in more experts from different academic units on specific tasks related to the project.

Administrative routines of the programme will be regulated from Directorate of Research, UDSM including the financial control system. The quality assurance of the training and dissemination material and overall the resource management is handled by the Quality Assurance Bureau of the UDSM. The quality assurance of the PhD education is performed both at Stockholm University and University of Dar es Salaam according to existing rules and regulations of these institutions.

7.2 Management of career opportunities for participating lecturers and students
Professional development of academic staff and other research administrators will be supported throughout the programme. These training will be done to said staff needing relevant expertise.
7.3 Potential internal and external risks and mitigation plans
The proposed programme is largely for local trainings hence there is no much risks for retention. However, risks which include the timing of the trainings might be affected by the teaching sessions of the rest of the University because trainees are also regular teachers. Thus a careful planning will be needed to avoid interruptions when the University teaching session is on. Another challenge could come from changing the management of the responsible partner institutions, which may risk losing key people who conceptualized and understands the programme, both at the UDSM and SU.

8 Operational issues for research support component
The operational system of the programme is regulated in the MoU between the partner institutions (Enclosure7).

8.1 The awarding university
The research management trainings are non-degrees courses that will be issued by UDSM. However, participants from these courses will be issues a certificate of attendance.

8.2 Governance and procedure for recruiting participants
The selection and recruiting of participants to the research management trainings and dissemination events will follow enrolment procedures, rules and regulations of SU and UDSM respectively.

8.3 Procedures for quality assurance
The quality assurance of all training programmes is handled by both universities (UDSM and SU). The academic quality assurance of the proposed training programme will be handled by the Directorate of Postgraduate Studies and the Quality Assurance Bureau of the UDSM and similar units at SU.

8.4 Time perspective of partnership and sustainability plans
The programme will run for five years, however, for sustainability, training modules and materials developed during this programme will continue to be offered after the SIDA funding. The Directorate of Research and Directorate of Knowledge Exchange are expected to have facilitated smooth transition of the programme that will ensure continuity beyond Sida funding.

8.5 Short and long-term financial strategies
The programme will provide a base for the development of competitive funding proposals. It is expected that the capacity built through the trainings in research management will effectively be engaged in fund mobilisation where part of it would be ploughed back to the training for ensured sustainability.

8.6 Monitoring and evaluation
8.6.1 Overall University coordination
At UDSM the academic quality of the training programme will be overseen by the Centre for Continuing Education, in the Directorate of Knowledge Exchange as well as the Quality Assurance Bureau. The overall project evaluations will be done internally (self evaluation by the UDSM and SU). The UDSM has a robust system of monitoring research progress and financial accountability. For each quarter all research projects have to prepare progress reports and financial accounting which are presented at the Planning and Finance Committee.
Overall narrative and financial reporting at UDSM will be undertaken by the Directorate of Research, the principal applicant for this programme. The financial reporting at UDSM and SU is separate. The financial administration and audit is at UDSM organised by UDSM Directorate of Research. The financial administration at SU will be at departmental level. The audit of this programme at SU is external and is organised by the co-coordinator at SU.

8.6.2 Individual programmes
Since this research management training is a non-degree programme, it will not entail field data collection by individuals. As such the overall performance will be measured through participants and mentors evaluations during the training sessions.

9. Organisation of the personnel welfare in relation to exchange of staff
When trainers or other scholars from SU are visiting UDSM assistance will be provided at the programme level. At the UDSM the Directorate of Research and the Directorate of Knowledge Exchange will be responsible for the welcoming exchange staff who will be visiting UDSM to take part in the various training modules. They are also responsible for ensuring that the departmental structure at SU is supportive in this responsibility. The departments are also responsible for providing the exchange staff with relevant working conditions (laboratory and office including computer access).

10. Ethical Considerations
A fundamental approach in the training in higher education is the participants’ own experiences. Agreements on ethical issues will be sought from course participants.

11. References

### 12. Intellectual Property Rights

<table>
<thead>
<tr>
<th>Issues to be Addressed and Agreed Upon</th>
<th>Yes</th>
<th>No</th>
<th>Comments, Status and follow-up plans (deadline dates for when issue is agreed upon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all key members of the partnership aware of/conversant with the IPR regulations of target country?</td>
<td>√</td>
<td></td>
<td>The IPR system is in place at UDSM</td>
</tr>
<tr>
<td>Are all key members of the partnership aware of/conversant with IPR related policies of the target university/institution?</td>
<td>√</td>
<td></td>
<td>Stated that issue to be discussed on commencement of the programme</td>
</tr>
<tr>
<td>Are all key members of the partnership aware of/conversant with IPR regulations of Sweden?</td>
<td>√</td>
<td></td>
<td>Stated that issue to be discussed on commencement of the programme</td>
</tr>
<tr>
<td>Are all key members of the partnership aware of/conversant with IPR related policies of the Swedish partner university?</td>
<td>√</td>
<td></td>
<td>Stated that issue to be discussed on commencement of the programme</td>
</tr>
<tr>
<td>Has the question of ensuring the protection of research findings and results obtained as part of the partnership been discussed by the partnership?</td>
<td>√</td>
<td></td>
<td>A more detailed discussion has to be performed when the issue has been further developed at UDSM.</td>
</tr>
<tr>
<td>Has the question of coverage of costs related to IPR activities during the life time of the programme and after the end of the programme been discussed by the partnership?</td>
<td>√</td>
<td></td>
<td>To be agreed on commencement of the programme</td>
</tr>
<tr>
<td>Have the questions of “background ownership” (i.e. IPR ownership prior to the current partnership) been discussed by the partnership?</td>
<td>√</td>
<td></td>
<td>To be agreed on commencement of the programme</td>
</tr>
<tr>
<td>Have the questions of “foreground ownership” (i.e. IPR ownership as a direct consequence of the current partnership) been discussed by the partnership?</td>
<td>√</td>
<td></td>
<td>Stated that issue has to be agreed on commencement of the programme</td>
</tr>
<tr>
<td>Has a decision been made on the policy of dissemination of research findings and results that came out of the partnership?</td>
<td>√</td>
<td></td>
<td>The rules are to be discussed and agreed in the partnership agreement.</td>
</tr>
<tr>
<td>Has a decision been made by the partnership on the exploitation of results (products or services)?</td>
<td>√</td>
<td></td>
<td>The rules are to be discussed and agreed in the partnership agreement.</td>
</tr>
<tr>
<td>Is there legal assistance in the Target Country to assist the partnership in IPR issues (including potential patents)?</td>
<td>√</td>
<td></td>
<td>UDSM-IPR office</td>
</tr>
<tr>
<td>Is there legal assistance available at the Swedish partner university/institution to assist the partnership in IPR issues (including patents)?</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there a plan to develop capacity for IPR issues within the partnership?</td>
<td>√</td>
<td></td>
<td>UDSM-IPR Office exist needs to be strengthened</td>
</tr>
<tr>
<td>IPR and patent issues not addressed above</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ENCLOSURE 4: CURRICULUM VITAE

Curriculum Vitae for Prof. Shukrani Manya, UDSM

Name:  SHUKRANI MANYA

1. Higher education degree(s) (year, subject area)
B.Sc. Geology (1999), Geology
M.Sc. Geology (2001), Geochemistry

2. Doctoral degree (year, discipline/subject area, dissertation title, and supervisor)
PhD (2005), Geochemistry and geochronology of the volcanic and plutonic rocks of the Tarime segment of the Musoma-Mara greenstone belt, northern Tanzania. Supervisor: Prof. M.A.H. Maboko

3. Postdoctoral work (year and placement)

4. Qualifications as research/fellow/associate professor (year)
Associate Professor since July 2014

5. Specialist certification or equivalent (year, discipline/subject area)

6. Current position, period of appointment, share of time spent in research
Director of Research at UDSM since April 2014.
I spend 1/4 of my time in research.

7. Previous positions and periods of appointment (specify type of position)
Senior Lecturer (2005-2009)
Lecturer (2005-2009)
Assistant Lecturer (2001-2005)

8. Interruptions in research. Indicate if active research time has been interrupted to the extent that it affected the opportunity to acquire qualifications, e.g. by parental leave, illness, clinical internship/residency, positions of trust in trade union organisations and student organisations, or other similar reasons. Specify the reason(s) and give the time and dates of the interruption

9. Individuals who have completed their doctoral degree under your supervision (name, year of PhD thesis defence) or postdoctoral period under your main supervision.

10. Pedagogic experience. List 5 most important Master/PhD training courses you have been involved in organising. Specify your role and the year(s)
I have supervised 5 MSc geology students by thesis and they are:
  1. Dr. Charles Kasanzu (M.Sc. student, 2005 - 2007), M.Sc. in geochemistry of clastic sediments, now a Lecturer at UDSM, Geology Department
2. Kwelwa Shimba (M.Sc. student, 2007 – 2009) M.Sc in Geochemistry of igneous rocks, now a PhD student at James Cook University, Australia
3. Gagao Bahame (M.Sc. student, 2009 – 2012), M.Sc. in Geochemistry and Geochronology of igneous rocks, now a senior geologist at BArrick Gold Limited.

4. Tulibonywa Tulibako (M.Sc. student, 2010 -2013), M.Sc. in geochemistry and geochronology of igneous rocks, now an Assistant lecturer at University of Dodoma.

11. Other information of importance to the application
Recipient of Sida grants for the 2005-2009, 2009-2015 phases, co-recipient of grants for research in volcanology and geochemistry of the most recent kimberlitic volcanoes on Earth and established researcher with an international network.
Curriculum Vitae for Prof. Emrod Elisante, UDSM

1. Higher Education Degree(s)
   1992, M.Sc. Chemical Engineering, Arizona State University, USA
   1986, BSc. Chemical and Process Engineering, UDSM, Tanzania

2. Doctoral Degree
   2000, PhD. Chemical Engineering, Tohoku University, Japan

3. Postdoctoral Work
   National University of Singapore Nov 2001- Oct 2002

4. Qualifications
   Junior Research and Development Engineer IPI¹, 1986-1988
   Assistant Research and Development Engineer IPI, 1988-1991
   Development Engineer IPI, 1991-2000
   Lecturer, Chemical and Process Engineering Department, 2001-2001
   Senior Lecturer, 2001-2011
   Associate Professor, 2011-Todate

5. Specialist Certification Or Equivalent
   Georgetown Foundation Prize for best agricultural equipment innovation (Major Recipient).
   IDESA Award. Innovation for Development in Eastern and Southern Africa.
   ACP-EU African Caribbean Pacific countries. Instituted by the European Economic Community.
   Swedish Organization. Awarded for innovation of stone crusher for small-scale mining/construction industry.

6. Current Administrative Positions Held At The University Of Dar Es Salaam And Outside The University
   Director of Knowledge Exchange, University of Dar es Salaam, 2012 – Present

7. Previous Administrative Positions Held At The University Of Dar Es Salaam And Outside The University
   Founding Director, Innovation & Technology Exchange Centre 2006-2012
   Assistant Coordinator, Carnegie Project- Piloting Technology and Business Incubators in Tanzania, UDSM, 2009 - 2010.

8. Research advisory
   Director of Knowledge Exchange University of Dar es Salaam, 2012-2014

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¹ Institute of Production Innovation, UDSM
Curriculum Vitae for Eng. Nils Jensen, Stockholm University

DSV Coordinator of the Sida funded Research Training Partnership Programme at Universidad Mayor de San Andres (UMSA) in La Paz, Bolivia. Including the strengthening of the university’s Research Management functions and the development of a Master Plan for ICT for the university. 2013 May –ongoing.

DSV Coordinator of the Sida funded Research Training Partnership Programme at Universidad Mayor de San Simón (UMSS) in La Paz, Bolivia. Including the development of a Master Plan for ICT for the university. 2013 May –ongoing.

Work package leader in the EU-funded iMentors project for the mapping of infrastructures in Sub-Saharan Africa during the last five years. 2012 May-2014 October


Nicaragua 2002 IT-manager (CIO) for the Nicaraguan telecommunication company Enitel. With the aim of modernizing the company and making it competitive after privatization, my responsibilities included the design, planning and implement required for developments in the IT-area, including capacity development, re-design of the technical platform and support systems, and procurement of hardware and software at a budget of US$ 15 million. (Swedtel)

Nicaragua 2001 Design and development of a knowledge databank on tropical trees, their current use and potential utilization at MARENA. NDF (Orgut)

Nicaragua 2001 Evaluation and re-design of a system for supervision, monitoring and evaluation of the POSAF project at MARENA. IDB & NDF. (Orgut)

Jordan 2001 Design of the IT-component of a Property Tax system and elaboration of a Project Document for its development and implementation. Ministry of Finance. UNDP/UNOPS. (Swedserv)

Nicaragua 2001 Feasibility study regarding a Supervision, Monitoring and Evaluation system for the FondeAgro project. Sida, Sweden. (Orgut).

Sweden 2000 - 2001 Project Management, in a team of three, managing 18 sub-projects of the FästaBlicken project, at insurance company SEB Trygg Liv. (Spinator)

Belize 2000-2001 Project leader and information systems designer in a project for computerization of the Belize Law, with Ministry of Attorney General. The BLIN-project. IDB (Swedserv)

Dominican Republic 1999 Development of a Master Plan for Information Systems and technical platform at the President’s Office. UNDP (Swedserv)

Belize 1998-1999 Project Coordinator of the Land Administration Project (LAP). Design and Development of an Information System, including IT, for Registration of Land rights and for Administration of Land Revenues (taxes and rents). IDB. (Kampsax/Swedserv)

Nicaragua 1998 Analysis and systems design as part of a project for institutional capacity building at the Supreme Court of Nicaragua. Sida (Swedserv)

Jordan 1998 Design and formulation of the IT-part of a governmental Performance Budgeting system. Ministry of Finance and National Audit Bureau. UNDP/UNOPS. (Swedserv)

Ecuador 1998 Responsible for the IT-strategies and plans in a re-organization project at the
<table>
<thead>
<tr>
<th>Country</th>
<th>Start Year</th>
<th>End Year</th>
<th>Role Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecuador</td>
<td>1997-1998</td>
<td></td>
<td>Design and development of Information Systems and Capacity Building as part of the &quot;Modernization Project&quot; at the Ministry of Foreign Affairs. European Union. (Swedserv)</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1995-1996</td>
<td></td>
<td>Conceptual design of an Information System for Administration of Taxes on Land at the country's municipalities. GBM/IBM (Cyber)</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1994-1996</td>
<td></td>
<td>Responsible for the implementation of a new IT-strategy that supports the decentralization of the National Social Security System at CajaCostarricense de Seguro Social (28,000 employees). BITS Sweden (Swedserv)</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1994-1996</td>
<td></td>
<td>Designing and implementing a new IT-strategy for the insurance company Instituto Nacional de Seguros (INS), Costa Rica, the 5th largest insurance company in Latin America. BITS Sweden. (Swedserv)</td>
</tr>
<tr>
<td>Paraguay</td>
<td>1994</td>
<td></td>
<td>A feasibility study for modernization of the Legislative Process at the Parliament of Paraguay, together with the Deputy Speaker of the Swedish Parliament. BITS Sweden (Swedserv)</td>
</tr>
<tr>
<td>Sweden</td>
<td>1986-1989</td>
<td></td>
<td>Designer and responsible for Maintenance of the Information System for Property Taxes at Riksskatteverket (the Swedish Tax authority). (Diator)</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>1985</td>
<td></td>
<td>Design of tax-system at Ministero de Hacienda (Ministry of Finance). (Statskonsult International)</td>
</tr>
<tr>
<td>Spain</td>
<td>1977-1978</td>
<td></td>
<td>Principal Programmer and Database Designer in the Development of an Information System (order, invoicing, stock) for the optical factory Optica Prats, Barcelona. (Corematica S.A.)</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1977-1978</td>
<td></td>
<td>Senior programmer in a System Development Project at the Ministry of Finance. (Statskonsult International)</td>
</tr>
<tr>
<td>Spain</td>
<td>1977</td>
<td></td>
<td>Systems Designer and Programmer in various Projects for Information Systems Development, including for SPP, Swedish Prison Authority, Swedish Employment Agency. (Diator)</td>
</tr>
<tr>
<td>Sweden</td>
<td>1972-1976</td>
<td></td>
<td>Systems analyst and programmer for development of information system for subscription of magazines. (Software Service)</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1967-1968</td>
<td></td>
<td>Programmer in the development of Tax Systems at CentralaFolkbokförings- och Uppbördsnämnden/Riksskatteverket (Swedish Tax Authority)</td>
</tr>
</tbody>
</table>

8. Interruptions in research. Indicate if active research time has been interrupted to the extent that it affected the opportunity to acquire qualifications, e.g. by parental leave, illness, clinical
internship/residency, positions of trust in trade union organisations and student organisations, or other similar reasons. Specify the reason(s) and give the time and dates of the interruption.

9. Individuals who have completed their doctoral degree under your supervision (name, year of PhD thesis defence) or postdoctoral period under your main supervision.

10. Pedagogic experience. List 5 most important Master/PhD training courses you have been involved in organising. Specify your role and the year(s)

11. Other information of importance to the application

As employee of Spider, DSV, Stockholm University:
Coordinator at Universidad Mayor de San Andres in La Paz, Bolivia for Institutional Capacity Building at the university´s department for Research Management and for development of the university´s ICT Policies and Masterplan and coordinator at Universidad Mayor de San Sebastian in Cochabamba, Bolivia, for development of the university´s ICT Policies and Masterplan with focus on research. The two projects are funded by Sida in a research partnership programme 2013-2017. April 2013 – ongoing.

Publication list (Enclosure 6)
Publication list of coordinators, supervisors and key personnel with a major role in the collaboration
Attach a list of a maximum of 10 selected publications from the past 10 years, marking the five most important publications with an asterisk (*).
Curriculum Vitae for Mr. Rodolfo Candia

Name: Rodolfo Candia
Address: Gröndalsvägen 157, 117 69 Stockholm, Sweden
Date of birth: December 7, 1945
Place of Birth: Argentina
Citizenships: Swedish, Argentine
Marital Status: Married, three daughters, one son
Professional status: Project manager
E-mail: candia@dsv.su.se

Key qualifications:
Over the past 26 years, manager and coordinator of programmes and projects related to academic development and capacity building. Responsible of core tasks in all phases of the projects: applications for financing, design and initiation of projects, interdisciplinary coordination, monitoring of activities, financial management and reporting.

Education:
1964: Certificate of Proficiency in English, University of Michigan
1964: American Field Service (AFS) scholarship Alameda High School Diploma, Alameda, California, USA
1964: Bachiller Nacional degree, Rosario, Argentina

Current Employment
2000-to date: Programme coordinator at the Dept of Computer and Systems Sciences (DSV), Stockholm University. Management of international projects.

Projects at Stockholm University:
- EnRiMa (Energy Efficiency and Risk Management in Public Buildings) – Project coordinator - (2010-2014). Funding: EU, FP7, (Grant Agreement Number 260041)
- eBIT (External Bachelor in Information Technology) – The project transformed an external bachelor programme in ICT at the University of Colombo, School of Computing (UCSC), Sri Lanka, into a programme completely based on e-learning methods and techniques (2006-2008). Funding: EU.
- Support to the Hanoi University of Civil Engineering (HUCE), Vietnam, implemented in cooperation with Delft University of Technology (DUT), the Netherlands. The project developed and formulated the university's IT Policy and ICT Master Plan (2003-2004). Funding: EU.
- Support for the Hanoi University of Civil Engineering (HUCE), Vietnam, also in cooperation with DUT. The project implemented the university's ICT Master Plan, as formulated in the previous project (2005-2007). Funding: EU.
- Academic Development in ICT - Sandwich PhD programs funded by Sida (Swedish International Development Cooperation Agency), in cooperation with:
• Tanzania: University of Dar es Salam (2000-2012)
• Mozambique: Universidade Eduardo Mondlane (2000-2012)
• Viet Nam: Ministry of Science and Technology (2002-2006)
• Uganda: Makerere University (2004-2012)
• Ethiopia: Addis Ababa University (2003-2011)
• Nicaragua: Universidad Nacional de Ingenieria (2008-2011)

Through these programmes, 52 participants from the named countries (11 women) have embarked on doctoral studies in Sweden. So far, these programs have produced 19 doctors.

- NeLC (National e-Learning Centre). The project created and started a national centre for eLearning at the University of Colombo, School of Computing (UCSC), Sri Lanka (2004-2009). Funding: Sida.
- ICT Burkina Faso. The project developed and formulated ICT Policy and ICT Master Plan, common to Université de Ouagadougou (UO), Centre National pour la Recherche Scientifique et Technique (CNRST) and Université Polytechnique de Bobo-Dioulasso (UPB), in Burkina Faso (2003-2005). Funding: Sida.
- Support for UO, and UPB CNRST, Burkina Faso, for the implementation of their common ICT Master Plan, as formulated in the previous project (2007-2011). Funding: Sida.
- Spider (Swedish Programme for ICT in Development Regions) (2004-2013). Active participation in the creation and start-up of the Spider programme, as well in the creation of the Spider network of partners. Financing: Sida

Previous employment
1988-2000: Royal Institute of Technology (KTH), Stockholm - Programme coordinator at the Dept. of Civil and Environmental Engineering, KTH. Management of multidisciplinary programmes with developing countries, primarily on environmental sciences and natural disaster prevention.

Languages:

<table>
<thead>
<tr>
<th>Language</th>
<th>Understanding (mother tongue)</th>
<th>Speech</th>
<th>Reading</th>
<th>Writing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swedish</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>English</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>Portuguese</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>French</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
<td>very good</td>
</tr>
<tr>
<td>Italian</td>
<td>excellent</td>
<td>very good</td>
<td>very good</td>
<td>good</td>
</tr>
<tr>
<td>Finnish</td>
<td>good</td>
<td>good</td>
<td>fair</td>
<td>fair</td>
</tr>
</tbody>
</table>

23
ENCLOSURE 5: PUBLICATION LIST

Publications List by Prof. Kangalawe)

Peer reviewed Articles


Review articles, book chapters, books


Publications List (Prof. Emrod Elisante)

1. Peer reviewed journal articles


2. Peer reviewed conference contributions


2.2 **Elisante, E.,** Chove, B. and C. Mchunguzi; “Development of Technology for Small-Scale Drying of Fish and its By-products,” American Institute of Chemical Engineers Annual Meeting, Salt Lake City, Utah 7-12th October 2010. (Accepted 2010)


Publication List by Dr. Mussa Mgwatu

1. Peer-reviewed articles


2. Peer-reviewed conference contributions (the results of which are not presented in other publications)


M. I. Mgwatu (2012), Optimisation of Machining parameters, Tool Wear and Surface


<table>
<thead>
<tr>
<th><strong>Date</strong></th>
<th>11 April 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub Program</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Period</strong></td>
<td>2015-2020</td>
</tr>
<tr>
<td><strong>Tanzanian Institution/Dept</strong></td>
<td>UDSM Directorate of Research</td>
</tr>
<tr>
<td><strong>Collaborating Institution/s in Sweden</strong></td>
<td>SU</td>
</tr>
<tr>
<td><strong>OBS! All major budget items should be the same for all.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Tanzania</strong></td>
<td>2015/16</td>
</tr>
<tr>
<td></td>
<td>SEK</td>
</tr>
<tr>
<td><strong>Cost of Training</strong></td>
<td>513,750</td>
</tr>
<tr>
<td><strong>Research equipment</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Research consumables</strong></td>
<td>1,526,000</td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td>264,800</td>
</tr>
<tr>
<td><strong>Field/Lab work</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Student fees</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Student stipends</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Conferences</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Publication costs</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Travel insurance</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Audit</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Other costs</strong></td>
<td>408,400</td>
</tr>
<tr>
<td><strong>Institutional fee</strong></td>
<td>325,000</td>
</tr>
<tr>
<td><strong>SUB TOTAL</strong></td>
<td>3,037,950</td>
</tr>
</tbody>
</table>

<p>| <strong>Sweden</strong> | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | <strong>Total</strong> |
| | SEK | SEK | SEK | SEK | SEK | SEK |</p>
<table>
<thead>
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<th></th>
<th>2015/16</th>
<th>2016/17</th>
<th>2017/18</th>
<th>2018/19</th>
<th>2019/20</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SEK</td>
<td>SEK</td>
<td>SEK</td>
<td>SEK</td>
<td>SEK</td>
<td>SEK</td>
</tr>
<tr>
<td>Cost of Training</td>
<td>47,200</td>
<td>188,800</td>
<td>0</td>
<td>0</td>
<td>236,000</td>
<td></td>
</tr>
<tr>
<td>Research Cosumable</td>
<td>70,800</td>
<td>94,400</td>
<td>94,400</td>
<td>0</td>
<td>259,600</td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>225,000</td>
<td>250,000</td>
<td>50,000</td>
<td>25,000</td>
<td>50,000</td>
<td>600,000</td>
</tr>
<tr>
<td>Other costs</td>
<td>184,600</td>
<td>179,800</td>
<td>179,800</td>
<td>177,400</td>
<td>177,400</td>
<td>899,000</td>
</tr>
<tr>
<td>Audit Cost</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>40,000</td>
<td>200,000</td>
</tr>
<tr>
<td>SUB TOTAL</td>
<td>567,600</td>
<td>753,000</td>
<td>364,200</td>
<td>242,400</td>
<td>267,400</td>
<td>2,194,600</td>
</tr>
<tr>
<td>GRAND TOTAL</td>
<td>3,605,550</td>
<td>4,935,650</td>
<td>3,916,550</td>
<td>3,638,550</td>
<td>3,903,700</td>
<td>20,000,000</td>
</tr>
</tbody>
</table>
### ENCLOSURE 6: BUDGET

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cost of Curriculum Development</td>
<td>UDSM 100,000</td>
<td>SWED 47,200</td>
<td>UDSM 100,000</td>
<td>UDSM -</td>
<td>UDSM 100,000</td>
</tr>
<tr>
<td>2. Cost of Training</td>
<td>100,000</td>
<td>47,200</td>
<td>100,000</td>
<td>-</td>
<td>100,000</td>
</tr>
<tr>
<td>2.1 Training of Trainers (ToT) on Intellectual Property Rights</td>
<td>100,000</td>
<td>47,200</td>
<td>100,000</td>
<td>-</td>
<td>100,000</td>
</tr>
<tr>
<td>2.2 Training on Research Methods, Research Writing Skills and research ethics</td>
<td>205,750</td>
<td>205,750</td>
<td>205,750</td>
<td>205,750</td>
<td>205,750</td>
</tr>
<tr>
<td>2.3 Training on Postgraduate Research Supervision</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>2.3 Training on Postgraduate Research Supervision</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>2.4 Orientation course to Sida PIs, and Administrators</td>
<td>88,000</td>
<td>47,200</td>
<td>88,000</td>
<td>47,200</td>
<td>88,000</td>
</tr>
<tr>
<td>2.6 Training on Project Management to Research Management unit staff</td>
<td>200,000</td>
<td>94,400</td>
<td>250,000</td>
<td>200,000</td>
<td>200,000</td>
</tr>
<tr>
<td>2.7 Training to enhance skills for SJMC staff</td>
<td>120,000</td>
<td>120,000</td>
<td>120,000</td>
<td>120,000</td>
<td>120,000</td>
</tr>
<tr>
<td>Subtotal</td>
<td>130,750</td>
<td>47,200</td>
<td>188,800</td>
<td>205,750</td>
<td>654,000</td>
</tr>
<tr>
<td>3. Cost Related to Exchange</td>
<td>513,750</td>
<td>47,200</td>
<td>785,750</td>
<td>835,750</td>
<td>525,750</td>
</tr>
<tr>
<td>Subtotal</td>
<td>691,750</td>
<td>47,200</td>
<td>188,800</td>
<td>205,750</td>
<td>620,000</td>
</tr>
<tr>
<td>4. Subsistance Allowances</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Cost for Sandwich in Sweden</td>
<td>408,400</td>
<td>184,600</td>
<td>745,600</td>
<td>561,000</td>
<td>670,000</td>
</tr>
<tr>
<td>6. Allowances and Perdiem</td>
<td>184,600</td>
<td>47,200</td>
<td>179,800</td>
<td>179,800</td>
<td>177,400</td>
</tr>
<tr>
<td>6.1 Dissemination Local</td>
<td>175,000</td>
<td>175,000</td>
<td>175,000</td>
<td>175,000</td>
<td>175,000</td>
</tr>
<tr>
<td>6.2 Dissemination - International</td>
<td>479,600</td>
<td>545,000</td>
<td>566,800</td>
<td>654,000</td>
<td></td>
</tr>
<tr>
<td>6.3 Coordination Swedish</td>
<td></td>
<td>175,000</td>
<td>175,000</td>
<td>175,000</td>
<td>175,000</td>
</tr>
<tr>
<td>6.4 Perdiem to UDSM Research Management</td>
<td>248,400</td>
<td>4,800</td>
<td>248,400</td>
<td>4,800</td>
<td>2,400</td>
</tr>
<tr>
<td>6.5 Perdiem to Swedish research Management (Coordination)</td>
<td>9,600</td>
<td>4,800</td>
<td>9,600</td>
<td>4,800</td>
<td>2,400</td>
</tr>
<tr>
<td>Subtotal</td>
<td>408,400</td>
<td>184,600</td>
<td>745,600</td>
<td>561,000</td>
<td>670,000</td>
</tr>
</tbody>
</table>
### 7 Cost Related to Research Support and Equipments

| 7.1 | Support Units to organise dissemination Conferences | 200,000 | 200,000 | 337,000 | 70,800 | 210,000 | 345,000 | 70,000 |
| 7.2 | Support units to publish Journal | 190,000 | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 |
| 7.3 | Support Research Week | 200,000 | 200,000 | 200,000 | 200,000 | 200,000 |
| 7.4 | Maintance and Improvement of Research Repository | 100,000 | 100,000 | 50,000 | 50,000 | 50,000 |
| 7.5 | Support the production of various policies /guidelines | 160,000 | 200,000 | 100,000 | 80,000 | 100,000 |
| 7.6 | Establishment of Research Information Management System and Back up | 100,000 | 47,200 | 200,000 | 47,200 | 100,000 |
| 7.7 | Purchase of Computer, Printer and fax machine | 108,000 |
| 7.8 | Support Multi-disciplinary proposal writing | | 240,000 | 23,600 | 240,000 | 23,600 | 240,000 | 240,000 |
| 7.9 | Support the establishment of multidiciplinary research groups | 120,000 | 23,600 | 150,000 | 23,600 | 120,000 | 180,000 | 120,000 |
| 7.10 | Assessment of the quality of research outputs | 68,000 | 68,000 | 68,000 | 68,000 | 68,000 |
| 7.11 | Dissemination equipments and programme | 280,000 | 280,000 | 280,000 | 280,000 | 280,000 |

**Subtotal**

| 1,526,000 | 70,800 | 1,818,000 | 94,400 | 1,415,000 | 94,400 | 1,228,000 | 1,323,000 |

### 8 Cost of Travel Abroad

| 8.1 | Airfare to Sweden UDSM research managmeent team | - | 64,000 | - | 32,000 | - | 25,000 |
| 8.2 | Airfare to DSM SU research managmeent team | 225,000 | 250,000 | 50,000 | 25,000 | 25,000 |
| 8.3 | Travel for reserchers - Local | 20,000 | 22,000 | 20,000 | 20,000 | 20,000 |
| 8.4 | Travel for reserchers - International | 244,800 | 299,200 | 340,000 | 353,600 | 408,000 |

**Subtotal**

| 264,800 | 225,000 | 385,200 | 250,000 | 360,000 | 50,000 | 405,600 | 25,000 | 428,000 | 50,000 |

### 9 Cost of Audit

| - | 40,000 | - | 40,000 | - | 40,000 | - | 40,000 | - | 40,000 |

**Subtotal**

| - | 40,000 | - | 40,000 | - | 40,000 | - | 40,000 |

**Project Closure**

| 300,000 |

**Subtotal**

| - | - | - | - | - | - | - | - | 300,000 |

**GRAND TOTAL**

<p>| 2,712,950 | 567,600 | 3,734,550 | 753,000 | 3,171,750 | 364,200 | 3,032,350 | 242,400 | 3,246,750 | 267,400 |</p>
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<th>Institutional fee 12%</th>
<th>325,000</th>
<th>-</th>
<th>448,100</th>
<th>-</th>
<th>380,600</th>
<th>-</th>
<th>363,800</th>
<th>-</th>
<th>389,550</th>
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<td>4,182,650</td>
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<td>242,400</td>
<td>3,636,300</td>
<td>267,400</td>
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<td>3,916,550</td>
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<td>TOTAL</td>
<td>17,805,400</td>
<td>2,194,600</td>
<td>20,000,000</td>
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Budget Justification

Trainings

1. Cost for conducting training is as follows depending on the nature of the course.
   i. Training 60 members of staff on Intellectual Property Rights. Training will be done annually for three years at a unit cost of SEK 1,500
   ii. Training 500 postgraduates on Research Methods, Research Writing Skills and research ethics for five years. 100 students to be trained yearly at a unit cost of SEK 1,500.
   iii. Training 40 researchers on Writing Fundable Research Proposal. Training will be done annually for three years at a unit cost of SEK 1,500
   iv. Training 300 supervisors on Postgraduate Research Supervision for five years. 60 supervisors to be trained annually at a unit cost of SEK 1,667
   v. Conducting Orientation course for 60 members including Programme PIs, Procurement Officers, Accountants and Administrators at a unit cost of SEK 1,500
   vi. Training 70 research coordinators on Research Resources Management 35 annually for two years at a unit cost of SEK 3,000.
   vii. Training 15 project administrators on Project Management at a unit cost of SEK 22,000
   viii. 50 SJMC staff members to be trained to enhance skills on media dissemination of research findings at a unit cost of SEK 2,400.

2. Support members of staff to disseminate their research findings in local Conference at the unit cost of SEK 1,600 per person
3. Support members staff to disseminate research findings in International conference at unit cost: SEK 3,105 to cover for transport and allowance for six days
4. Support Units to organize dissemination conferences. At least three Units will receive partial support annually.

5. Partial support in the establishment of multidisciplinary research groups/centres. At least eight groups/centres will be supported by the end of the project.
6. Provide partial support multidisciplinary proposal writing. At least ten proposals will be written annually.
7. The project will support the organisation of University of Dar es Salaam Research Week
8. Maintenance of University of Dar es Salaam Research Repository
9. Provide partial support in the production of various research guidelines and policies which will be developed and the revised ones.
Memorandum of Understanding on Cooperation

between

The University of Dar es Salaam (UDSM), Tanzania

and

Stockholm University (SU), Sweden
Preamble:

THIS Memorandum of Understanding is made BETWEEN the University of Dar es Salaam, Tanzania, hereafter referred to as 'UDSM', P.O. Box 35191, Dar es Salaam, Tanzania, on one part; AND Stockholm University, Sweden, hereafter referred to as (SU), P.O. Box 7003, 164 07 Kista-Stockholm, Sweden.

WHEREAS in furtherance of their mutual interests in the fields of education and research, the Directorate of Research at University of Dar es Salaam (hereafter referred to as (DR) and Department of Computer and Systems Sciences (DSV) at Stockholm University, (hereafter referred to as DSV) hereby agree upon the following areas of cooperation:

1. Capacity building of UDSM staff in research management and innovation
2. Supportive environment for science, technology and innovation

WHEREAS this collaboration will be developed between appropriate schools, directorates, departments and units at the two universities, specified in agreements which are linked to this Memorandum of Understanding (MoU).

NOW THEREFORE the parties herein agree as follows:

Article 1

The parties agree to seek mutually beneficial ways to share professional experiences and exchange information on research and teaching methodology, curricula, the training of specialists, and to explore and implement other forms of professional interaction and exchange.

Article 2: RESEARCH AND PUBLICATIONS

2.1 Joint research projects shall be conducted and joint papers presented at scientific meetings and published in appropriate journals.

2.2 Each party agrees to provide the other party with an advance courtesy copy of any publications in which either party might have an interest that is related to the Collaboration. The advance copy shall be provided at least sixty (60) days in advance of the intended publication date or fifteen (15) days for abstracts ("Advance Publication Notice"). Under no circumstances may a publication be held up for more than 90 days.

2.3 In all activities, publications and/or seminar presentations jointly undertaken or arising from or pursuant to the Collaboration, both parties must be acknowledged, provided that both parties have materially contributed to the activity, publication and/or seminar presentation at issue. Such acknowledgement may include but will not be limited to display in equal prominence of the full names and symbols and/or logos of both parties on all materials. Similarly, the faculty and staff from each party who have been
involved in activities resulting in publication shall be acknowledged according to the conventions for attribution of academic or research contribution.

2.4 Both parties agree that adequate safeguards shall be taken whenever using human or animal subjects in research, consistent with applicable laws and policies regarding the use of human and animal subjects, including an institutional review committee, research ethics board, or animal care and use committee composed of members with varying backgrounds who will perform a complete and adequate review of projects involving the use of such subjects. Informed consent shall be obtained in accordance with national laws and regulations, international research standards, and accepted guidelines on good research practices and ethics. Each party will assist the other in obtaining any necessary government approvals or permissions for any research that is related to the Collaboration, and each party shall, to the extent necessary for the legal conduct of such projects, comply with the laws and regulations of the other party's country.

**Article 3: INTELECTUAL PROPERTY**

3.1 Any Intellectual property developed as part of this collaboration whether patentable or not shall be promptly and confidentially disclosed by one party to the other in writing. Inventorship shall be determined according to the patent laws of the party's respective country. Each party shall own its undivided interest in joint inventions; each party shall solely own its sole inventions.

3.2 Management: If Parties agree (according to the patent laws of the country in which a patent application is made) to be joint inventors on a patent application, the parties will then discuss securing intellectual property rights to protect potentially patentable inventions, and determine how expenses and revenue will be shared for the joint invention, and which party will take the lead in patenting and commercializing the joint invention. The parties may choose to memorialize such an arrangement in a written inter-institutional agreement at that time. The leading party shall keep the other party informed and involved in decision-making regarding the patent and commercialization activities of the joint invention. Sole inventions shall be solely managed by the sole owner, with no obligation to share information or revenue.

If another kind of intellectual property right occurs, than patentable ones, the parties shall discuss the rights to protect them on a case-by-case basis. A specific written inter-institutional agreement shall be worked out for each case.

3.3 Reservation of Rights: Parties shall reserve the right to use joint inventions (conceived and reduced to practice under the Collaboration by both Parties inventors - for educational and research purposes) both within the Collaboration and in institutional activities not related to the Collaboration.
Article 4: INVITATION OF REPRESENTATIVES
Each party agrees to invite representatives of the other party to participate in major congresses, conferences and symposia of mutual interest.

Article 5: SCOPE OF THE MoU
This MoU encompasses all projects where the two parties are collaborating. This MoU does not exclude the possibility of organizing other forms of cooperation or expanding this MoU should both parties so desire.

Article 6: CONFIDENTIALITY
In the process of collaboration with each other, each collaborating party may become privy to certain confidential information including that relating to the business practices of the other party. Each party agrees that it will clearly designate proprietary and confidential information where possible and not divulge or transmit such information to any other persons or organizations without the expressed written permission of the owner of the information. Each party agrees that information need not be marked as confidential to be considered and treated as such under the terms of this clause. All such confidential information shall be considered proprietary unless it is provided specifically for disclosure to the public or other entity.

Article 7: DISPUTE RESOLUTION
In the event of any dispute arising between CoICT and DSV in relation to this collaboration or touching on the meaning of this CoICT or the rights and liabilities of the parties hereto, the same shall be submitted to a decision of a single arbitrator agreed upon by the parties, failing which it shall be submitted to decision of two arbitrators and an umpire. This shall be a condition precedent to any legal action following Tanzanian law.

Article 8: FORCE MAJEURE
Either party shall promptly notify the other party in writing of any situation or event arising from circumstances beyond their control that they could not have reasonably foreseen and that make fulfilment of all or part of the parties' obligations under this Memorandum of Understanding impossible. Upon notification of the occurrence of such a situation or event, the fulfilment of this Memorandum of Understanding shall be deemed to be postponed for a period of time.

Article 9: DURATION
This MoU shall come into effect on the day of approval by both universities with duration of five (5) years. Either university may terminate this MoU provided that written notice of the intent is given at least six(6) months prior to termination.

Article 10: AMMENDMENT OR CHANGES
Amendments or changes to this MoU shall be made in writing and signed by the duly authorized representatives of the universities.
Article 11: SIGNING
The MoU has been signed in duplicates, of which each university will keep one copy.

Signatures

Dar es Salaam, 20th November 2014
For University of Dar es Salaam, Tanzania

[Signature]
Prof. Rwekaza S. Mukandala
Vice Chancellor

Stockholm, 20th November 2014
For Department of Computer and Systems Sciences, Stockholm University, Sweden

[Signature]
Prof. Dr. Leve Ekenberg
Head of the DSV, Stockholm University

VICE CHANCELLOR
UNIVERSITY OF DAR-ES-SALAAM
P.O. BOX 35001
DAR-ES-SALAAM