

**KILIMANJARO CHRISTIAN MEDICAL UNIVERSITY COLLEGE (KCMUCO)
BSU-III PARTINERSHIP PROPOSAL**

Revised Partnership Proposal Incorporating Comments from the Appraisal Team,

Aug 11th, 2017

1.0 RATIONALE, AND MAIN LESSONS LEARNT DURING BSUII

1.1 Reflections on BSUII

The main objective of BSUII was to ensure that KCMUCo is set to undertake relevant and evidence-based research with a strong emphasis on high quality knowledge generation, translation, dissemination and communication to the relevant key stakeholders, which include undergraduate and postgraduate candidates graduating from the College and the community at large. Significant progress towards this was achieved through strengthening of research and teaching processes. Activities were in line with and influenced KCMUCo policies and strategies. The implementation of key priority research themes led to work that enhanced both individual and institutional research capacity in cognizance with the national, regional and international priorities and trends.

The KCMUCo BSUII partnership encompasses a multitude of competencies at both the north and south collaborating Universities. The specific focus areas made it paramount that collaborators with relevant skills would partner. Special emphasis was made to ensure complementarity with existing national and international efforts between researchers at KCMC/KCMUCo and the researchers from the consortium of Danish Institutions. A number of these research links have existed for years and have been very productive scientifically and in production of much needed human resource for health (HRH).

The partnership achieved optimal operation through strategic planning. . The 10 Outputs in BSUII were led by dedicated Work-Package (WP) leaders. Regular Skype meetings, teleconferences as well as face-to-face meetings helped cement the high level of ambition. The high management support from KCMUCo/KCMC and the appointment of the BSUII PhD candidate from KCMC a testimony to the BSUII capacity building success at KCMUCo/KCMC.

The work programme was focused and well executed. The north and south work-package leaders were flexible enough to ensure successful implementation of planned activities in a cost effective manner. Experience from BSUII has led us to redefine the research areas for the BSUIII partnership program.

1.2 Rationale for bringing the partnership into the third phase

Research is an important element in both pre - and post-graduate education, and research training can only be provided in institutions with active research programs¹. The BSU contribution will be used strategically to build institutional research capacity². BSU-III aims to consolidate these efforts in broader and sustainable terms, based on successful implementation of BSUII. In BSUIII, new outreach activities will be implemented in an integrated manner across research themes. Specifically, BSUIII will enhance; capacity in research and grants management, enhanced research infrastructure and knowledge translation and research dissemination. Research capacity building through PhD/postdoc education focused will provide opportunities for learning and establishment of more research teams framework (spill-over effect) across different departments.

In this proposal, the partnership (through three themes) aims to enhance national, regional and international collaboration and outreach activities between north-south, south-south as well as

¹ Kilimanjaro Christian Medical University College is a constituent College of Tumaini University Makumira. -

² Tangible research outputs are the results of a long series of different research activities and support undertakings, which all have to be in place to establish a functional research system.

inter-departmental links within the KCMUCo/KCMC institutions, resulting in enhanced education, patient care and research.

2.0 STRATEGIC CONSIDERATIONS, THEORY OF CHANGE AND NARRATIVE DESCRIPTION

2.1 Goal, Strategy and theory of change

In accordance with the theory of change (Figure 1) KCMUCo **impact level** is research (for which one indicator could be number and quality of publications – as measured by impact factor), teaching (possible indicator: number of graduates), and health provision (indicator: number and quality of services provided). The **outcome level** is the University capacity to support research, the research system, education and uptake of research results, which improve health provision. The KCMU research and teaching capacity can, with some reservations, be monitored by the international University ranking systems. The **activity level** include strengthening of the; Grants and Financial management, Stable internet access and e-health services, Ph.D/postdoc training, Lab oratory facilities (DNA sequencing), research policies and regulations.

The expected results in BSUIII will be achieved through careful implementation and monitoring of activities and results/outcomes. The pre-condition for success is sharper focus and consolidation of BSUII best practices.

	RESULTS		POTENTIAL INDICATORS
IMPACT LEVEL	Societal impact of KCMUCo research increased		Research products and health solutions Graduates for health services Outreach
OUTCOME LEVEL	University capacity improved within research and research education		University ranking Number of research graduates Number and quality of research papers
OUTPUT LEVEL	Outputs from other University activities	BSU outputs	Outputs from BSU work packages 1 -5 measured by specific indicators
ACTIVITY LEVEL	Other University activities	BSU	Activities from BSU work packages 1-5

Figure 1: Outline of the project according to the theory of change. BSU activities (in yellow) results in outputs, which in combination with the outputs of other University activities (in blue) increase the capacity for research and research education. This increased capacity should impact on the society at large. The processes from activity to impact can be monitored by specific indicators.

2.2 Narrative project description

Taking stock of the KCMUCo/KCMC research system and activities within BSUII, the BSUII concept note and a realistic BSUIII budget frame, we have developed a comprehensive BSUIII proposal with activities targeted to result in outputs leading to outcomes that will contribute to the overall objective for research at KCMUCo in reflection of the national research agenda.

Considerable resources will be invested in *development of Ph.D education and postdoctoral placements*. We are doing this for two reasons. Firstly and foremost, training of young

researchers is paramount for KCMUCo to recruit new scientific staff and for securing a vibrant research environment. Secondly, in the past BSU phases, the enrolment of Ph.D students at KCMUCo has expanded tremendously (from 13 to 30 students). The expansion creates a number of management, training and supervision challenges, which this proposal intends to address. Outreach is essential element of all research and research training, and the proposal specifically address the need to equip young researchers with outreach skills as part of their early research training.

Currently our Ph.D program and the administration of the program is not optimised to meet the above-mentioned demands. Thus, we will implement *changes in Ph.D program management, mentorship & supervision, development of advanced and specialized Ph.D courses and in the requirements for obtaining the Ph.D degree* (number and quality of publications). We will also have activities to increase the number of new and qualified Ph.D supervisors. These activities will improve the quality of Ph.D candidates and research outputs. We will also increase the quality of the Ph.D program by promoting dissemination of research findings.

Resources will also be allocated to *infrastructure improvement in ICT services, research laboratories, and equipping of the Ph.D resource centre*. These facilities are paramount for teaching, learning and research activities. As a result of BSUII support in e-library and e-learning, the demand for bandwidth has increased significantly. BSUIII aims to enhance the bandwidth on the existing high speed fibre-optic cable, and develop policies and strategies for sustainable cost recovery. Initial funds from BSUIII are imperative until the cost recovery system is in place.

Other strategic investments include *upkeep and securing cost recovery for the genome sequencing facility* established with support from a FFU funded research grant and *establishment of a telemedicine unit, primarily for research, but also training and patient care*. Resources will be used to align research activities within the priority areas, support these activities and to support outreach activities and training in performing outreach.

We have re-analysed the priority areas for research and have acknowledged that some KCMUCo priority research areas are better supported by other programs (and non-Danish collaborators). Thus, the BSUII priority areas on Tuberculosis and Neglected Tropical Diseases are not part of BSUIII. The research areas being carried over from BSUII, are areas where the collaboration between KCMUCo and Danish researchers have been very active and productive during BSUII. During BSUII a collaborating link was established within HIV research. The KCMUCo activities on HIV research are still limited, but they hold promise and we will explore its expansion during BSUIII. BSUIII research areas will be:

- a) **Reproductive health** including obstetrics and gynaecology and linkage with pathology through telemedicine. Research capacity building and sustainability will be secured through the collaboration with University of Southern Denmark and the active collaboration with several Departments at Odense University Hospital on clinical care supported outside BSU.
- b) **Malaria**. This will build on the long, successful collaboration on research on malaria and other febrile illnesses between KCMUCo and University of Copenhagen as well as the collaboration with Danish Technical University based on establishment of a second generation sequencing facility at KCMUCo. Both these activities have been supported by FFU during the past 4 years.
- c) **HIV**. Though BSUII, collaborative links have been established between early/midterm career HIV researchers at KCMUCo and researchers at University of Copenhagen/ Copenhagen University Hospital. These links will be deepened.

The outcome areas of BSUIII for KCMUCo corresponds to the outcome areas in Danida's concept note. For management reasons, and to ensure the thematic anchoring of activities which again are paramount for keeping capacity development in research based education and research systems together with research and outreach practices, we will have 5 WP that relates to the 3 outcome areas of the concept note as described in Figure 2. WP1 will deal with strengthening of administrative processes and infrastructure, corresponding to heading 1 in the concept note. WP2 will deal with cross-cutting issues (issues not related to specific research themes) that falls

within outcome area 2 and 3 of the concept note, and WP3-5 contribute to outcome areas 2 and 3 related to reproductive health, malaria and HIV, respectively.

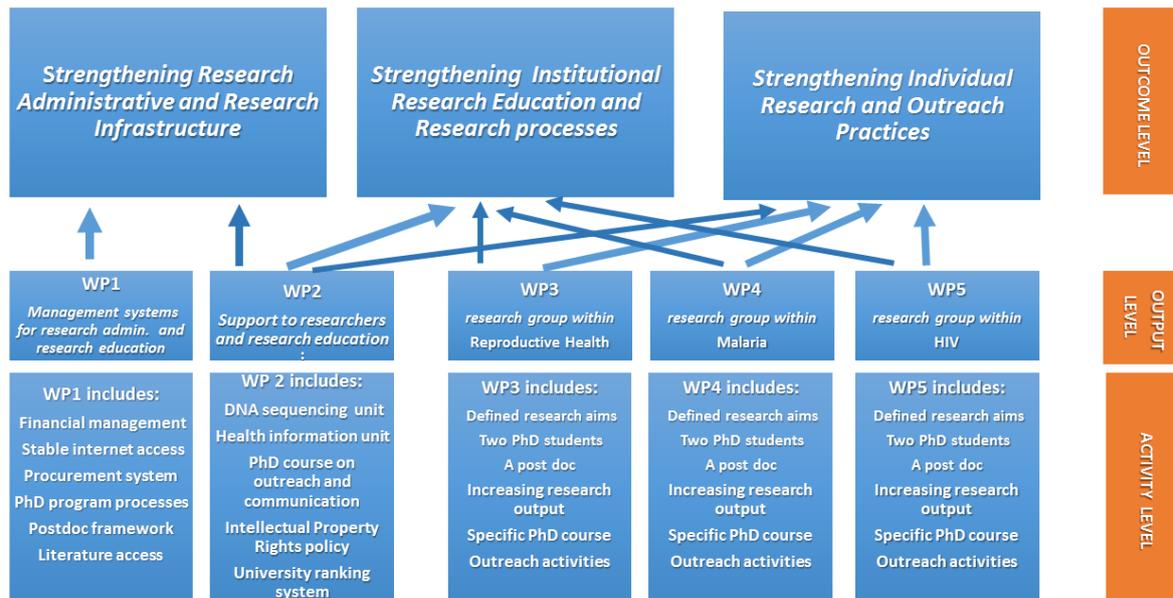


Figure 2: Organization of the programme. The programme will deliver outcomes to the three Danida headlines described in the concept note. Practically the work will be organized into 5 work packages, which will deliver outputs as indicated by the arrows (arrows size and color reflect relative contribution to the headlines).

WP1 represents a continuity of the approach of BSUII in the sense that the aim, the analytical frame for reaching the aim and method of program implementation remain largely unchanged. BSUII strengthened administrative processes in several ways and this will aid the implementation of BSUIII. Some of these processes are now self-reliant, others like e.g. financial support processes still needs some BSU support for full implementation.

BSUIII will support each thematic area through the formation of collaborative research teams involving senior researchers, early/midterm career researchers, PhD students and master students from both countries to promote peer to peer training. The proposal will fund research planning activities, pilot research activities, research outreach activities, research communication activities and research training. This will include PhD student training and training of early midterm career researchers including a time-bound postdoc position.

2.3 Outreach and policy implications of research

Innovations in healthcare aim at enhancing life expectancy, quality of life and cost effectiveness of healthcare systems. Our ability to create sustainable and efficient health systems depend on our capacity to invent, deploy and scale-up solutions that are sensitive and appropriate for local communities. Essentially all research activities at KCMUCo involves outreach. The point of departure for nearly all studies are patients or study participants in the community. Some studies compare different treatment or disease control strategies (this can be at the hospital, at health dispensaries or community like mosquito control). These studies require that study participants understand the study and accept to participate (for reasons of research ethics and participant compliance). Obtaining such informed consent in a meaningful way involves considerable outreach activities at health facility and often also in communities (community acceptance is essential for community trials). The outcome of community trials is always communicated back to the communities. Trials are conducted to change treatment policies, but since policies are enacted under different circumstances, it is often important to conduct several trials before policy change can be decided. Policy change can be made at facility, district, regional, country or international level and processes involved in policy change are obviously based on the specific case. Thus, the mechanisms that the researcher should use to move

research results into policy in terms of communication and advocacy cannot be put into a simple standard operational proceeding guideline. Here it is important that the researcher has a communication strategy and is able to communicate the findings in manners suitable for the audience.

Outreach can also be used in a narrower meaning, where researchers are guided by health providers or community members to define research questions and research strategies. Action research is an example of this. The choice of research method obviously depends on the research question and a research method does not carry any value in its own right. Action research has merit in certain situations and as such it is important that researchers are acquainted with the possibilities this method.

BSUIII will strengthen outreach and research communication in several ways. We will implement training in action research methodology, research translation and communication to under-privileged communities through PhD training, policy briefs, press releases, meetings with health providers and users of the health system to discuss research findings and research agenda. As part of WP2, we will include teaching of PhD students about the KCMUCo Intellectual Property Rights (IPR) policy, which was developed in BSUII. This will synergize with a series of KCMUCo arranged courses sponsored by the EU through World Intellectual Property organisation (WIPO).

2.4 Synergies and upscaling

BSUIII will build on the existing efforts. As detailed above this includes several FFU programmes; the Joint Malaria Programme (JMP) a collaboration including London School Hygiene and Tropical Medicine; activities with European and Developing Countries Clinical Trials Partnership (EDCTP). Malaria entomology research supported by Gates Foundation; Medical Education Partnership Initiative (MEPI) supported by US government and the European Union (EU-TBT program) support on Intellectual Property Rights (IPR) awareness.

Efforts to improve PhD education and administration, enhancement of ICT services and research laboratory will benefit students, researchers and other stakeholders. The infrastructure investments will benefit all students and researchers at KCMUCo.

3.0 OBJECTIVES, OUTCOMES AND OUTPUTS FOR THE PARTNERSHIP IN BSUIII

3.1 Immediate Objective

As a consequence of BSU III KCMUCo should have enhanced its role as provider of scientific knowledge and research-based education and advice to society. KCMUCo researchers should find that the essential research support systems are operating better than presently. Society, patients and students should experience that the research output within priority areas has improved in terms of quality and quantity. Society and researchers should experience that best practices have been improved with regard to outreach activities and alignment of research activities.

3.2 Outcomes

Outcomes and outputs are reached as a results of activities in the 5 work packages, which each relates to the three headings provided in the Danida application guideline as outlined in Figure 3.

1) University capacity is improved by strengthening administrative frameworks for university research and research infrastructure:

By 2021 Researchers and postgraduate students will have better opportunities for conducting high level research and engaging in high quality post graduate training because they have access to state of the art financial management systems, a simple purchasing system, stable and fast internet access, access to recent and relevant literature, and a PhD education system optimised to service PhD students and future PhD student throughout the process of obtaining the degree, and a post doc programme aligned with the policy of the national Commission for Science and Technology.

- 2) *For all KCMUCo researchers (across research themes) University capacity is improved by strengthening organisation and systems for researcher education and research processes*

By 2021, all KCMUCo researchers will have improved possibility of conducting high quality research because they have access to better research facilities, better research education and because the University have established a system to monitor its teaching and research performance relative to competing institutions. Giving the Institution the possibility to analyse and take action if the indicators not show a satisfactory development.

- 3) *University capacity is improved by strengthening research and outreach practices and networks within the priority areas:*

By 2021 KCMUCo will have established research groups within Reproductive Health, Malaria, and HIV, which can compete for international funding and be considered among the best at African Institutions.

3.3 Outputs

Outputs are described according to the work packages described in section 2 and illustrated in Figure 2. Outputs are numbered below and in the budget form as follows: first number (refers to outcome level), second number (refers to WP number), letters (refers to defined output). E.G: 1(outcome level). 1 (WP in which the work is done), a (output text). The output codes are referred to in the budget

WP1:

Output 1.1,a-c: management systems strengthened. This includes

- a) That grants and financial management of research projects are operating and able to support individual research projects with real time data on expenditure on budget lines and projected expenses.
- b) That KCMUCo operates a cost recovery system which ensures end-users a reliable, stable and fast internet access.
- c) That the procurement system is flexible and efficient allowing timely delivery of research according to the nature of the obtained goods.

Output 2.1,a-c: management of research education strengthened. This includes:

- a) That administrative and academic processes with regard to PhD education have been optimised according to on-going analyses of administrative processes, PhD student satisfaction, ability to provide PhD supervisors and National PhD policies.
- b) An institutional postdoc framework in compliance with the National Commission for Science and Technology (COSTECH) guidelines.
- c) That relevant and recent literature accessible and are being used by staff and students at KCMUCo.

Indicative Activities:

- a) Implementation of the Pastel Evolution management system at KCMUCo, KCRI and KCMC. (By customization of Pastel according to user needs).
- b) KCMUCo bandwidth increased. Cost recovery system in place and operating. (by increasing connection speed to 70-100 Mbit/s with an annual percentage increase according to number of new users, by working out cost recovery mechanisms so as to recover bandwidth costs and hence foot the bill).
- c) A document analysing current procurement practices and requirements with special emphasis on procurement for research project inclusive of laboratory reagents and equipment. (By critical analysis of the "PPA Amendment Act 2016" and the "Principal Act", by conducting workshop with PMU unit, laboratory users at KCMUCo on best way to order and expedite supply of reagents for research).

- d) A document suggesting changes in current practices around PhD procedures. (By Letters of commitment, by a critical analysis of the findings from the Ph.D assessment that completed under BSU-II, by dialogue with key stakeholders).
- e) KCMUCo to spearhead a process of change on Ph.D training processes across Tanzania. The stakeholders include national regulators (COSTECH, TCU, NIMR) research and universities/Colleges offering Ph.D training in Tanzania.
- f) The current PhD holders at KCMUCo are mentored to compete for national (COSTECH), regional and international postdoctoral programs. The 3 BSU-3 Ph.D/Postdocs will be paired with a research leader/mentor from a Danish Institution to develop winning postdoc proposals.
- g) KCMUCo staff and students all have access to and actually use relevant e-databases.

Work package 2:

By 2021, Researchers across KCMUCo use DNA sequencing and telemedicine technology in their research; and are engaged in outreach activities. KCMUCo is monitoring its research and teaching performance inter alia through comparative rankings. This will enable the University have to monitor its teaching and research performance relative to competing institutions and provide the Institution with the possibility off responding to unsatisfactory developments.

Output 1.2, a-e: KCMUCo capacity to support researchers and research education strengthened

This includes:

- a) That all researchers at KCMUCo will have access to a unit for high through-put DNA sequencing;
- b) That researchers at KCMUCo will have access to a unit for health information technology;
- c) That all PhD students have participated in a course on outreach, action research and knowledge translation and dissemination/communication of research findings in a simple manner that is readily understandable by local/lay communities.
- d) That the Intellectual Property Rights (IPR) policy is operational. IPR awareness increased among postgraduate students and researchers. IPR modules are incorporated as part of foundation courses for sustainability.
- e) That the University is able to measure its research and teaching performance by establishment of systems allowing KCMUCo to be evaluated by international ranking systems. The ranking will have improved over the BSU3 period.

Indicative Activities:

- a) That the sequencing facility at KCMC Biotech Laboratory is maintained and operational. (by maintenance and optimization of equipment. Promoting knowledge about the unit, implementing user fees). A cross-cutting activity on research capacity building, research-based teaching as well as outreach with other research groups who needs the MiSeq level of services.
- b) An e-health unit established and operational. (a plan for this is available). Another cross-cutting activity across the 3 research themes. This shows greater linkage between BSU-2 and BSU-3. Enhance capacity building on research-based teaching as well as outreach activities between departments at KCMUCo/KCMC and inter-departmental outreach linkages at Odense Teaching hospital (pathology & reproductive health). Joint mentorship of MScs, Ph.Ds and Postdocs.
- c) KCMUCo PhD students are taught in outreach activities such as formulation of policy briefs and communication of research activities to the layman as part of the Ph.D mandatory foundation courses, embed in and offered the University for Sustainability.
- d) Entrepreneurship, IPR Sensitization and awareness increased. Compliance and conflict of interest declarations developed (by seminars).
- e) Ranking system identified and subscribed to. Ranking organisation receive relevant information. Ranking monitored, analysed and reflected on by management (as high level indicator for university performance).

Work package 3: Reproductive health

Work package 4: Malaria

Work package 5: HIV

WP3-5 outputs: 3.3,a-d; 3.4,a-d; 3.5,a-d

- a) Research groups are functional, which a defined research aims and ranked among the leading within their field in Africa.
- b) That senior researchers are being maintained with in KCMUCo by one postdoc taking a research leading position and that at least 50% of the Masters and Ph.D students mentored within the research groups are retained at KCMUCo as postdocs.
- c) Outreach secured in that health promotion activities in collaboration with key stakeholders in targeted communities implemented
- d) That research is aligned nationally and internationally by annual scientific symposia for students and researchers have been held.

WP3-5 outputs: 2.3,a-b; 2.4,a-b; 2.5,a-b

- a) That research activities are being institutionalised by graduation of 2 PhDs
- b) That the quality of PhD studies is increased by students received specialised skills within their research focus area through specialized/discipline specific PhD courses. Outreach is envisaged through joint development of the courses and allow access to PhD students from institutions offering Ph.D training in health within the region.

Indicative Activities for each area:

- a) Defined research strategy and work plan
- b) One PhD and one post doc identified, employed and mentored.
- c) Increasing research output
- d) Specific PhD courses
- e) Integrated Outreach activities

4.0 COORDINATION, LEARNING, PARTNERSHIP AND MANAGEMENT

4.1 KCMUCo

KCMC has introduced a new accounting and grant management system that enables the KCMC Management to obtain an overview of capacity and research activities at KCMC. This system serves as a tool to ensure an effective co-ordination of activities as the information will indicate where synergies can be obtained and overlaps avoided. During BSUI and BSUII linkages and collaboration between BSU and other capacity building projects as MCDC, THRIVE and MEPI has been established, resulting in joint activities as for example meetings and courses. Linkages and collaboration with research projects, as the 3 Danish funded FFU-projects at KCMC and the British funded PAMVERC, has also proved beneficial. In BSUIII the partnership intends to continue this collaboration by inviting relevant stakeholders to take part in meetings and other activities. An overview of projects and partners is listed in Annex 2.

4.2 Outreach for lessons learned

Outcome 3 in the concept note for BSUIII underlines the need for strengthening research and outreach practices and networks. To ensure that lessons learned will be shared with relevant stakeholders a number of activities are planned within each of the prioritized research areas. Relevant researchers from KCMC and other universities, politicians, Ministry of Health, COSTECH, and representatives from the communities will be invited.

On research outputs, the scientific discoveries found in the PhD study on Pelvic floor disorders in BSU II will through translational research be transformed into ways to diagnosis and treat Pelvic floor disorders in the community. Cost-effectiveness of the scale up will be an important part of this research activity.

4.3 Management KCMUCo.

BSUII is led by Elton Kisanga, Director of Research & Consultancies at KCMUCo, and assisted by a Coordination Team (CT), work package leaders and persons responsible for respective outputs. This set-up has proven to secure a lean and effective administration of the programme as well as a smooth implementation of the proposed activities, and will be continued in BSUIII.

4.4 South-South cooperation

An assessment of PhD administrative practices was completed in BSUII in collaboration between four Tanzanian universities, among them KCMUCo. An evaluation of this ongoing in dialogue with Tanzanian Commission for Universities and other Tanzanian universities.

Laboratory activities, faculty exchange and courses, in collaboration with BSU Zanzibar and FFU-projects. Networking activities with Gulu on specific health activities and e-learning in BSUIII. Telemedicine (e-health activities) will be promoted as an outreach and research activities through involvement of other hospitals (north and south) with inter-department links.

5.0 Governance of partnership

BSUIII activities were led and monitored by the Coordination Team (CT). This team is led by *Elton Kisanga*, Director of Research & Consultancies, KCMUCo and assisted by: *Declare Mushi*, (both from KCMUCo), *Dorte Johansen*, and *Thor Theander*, (both from UCPH). The CT has scheduled quarterly meetings in person or by Skype, plus ad hoc meetings when possible.

Elton Kisanga and *Dorte Johansen* are responsible for budgets in Tanzania and Denmark, respectively. This set-up has worked well in BSUII and will be continued in BSUIII.

5.1 The Danish consortium.

The main partners in BSUII were University of Copenhagen and University of Southern Denmark, and other partners have been involved in specific activities. This set-up has proven effective and will be continued in BSUIII with a Danish co-ordination team consisting of Thor Theander, Vibeke Rasch and Dorte Holler Johansen. Other Danish partners in BSUIII include individuals from the Danish Technological University (DTU) and Danish Technological Institute (DTI).

6.0. ASSUMPTIONS, RISKS AND MITIGATING FACTORS

North collaborators and KCMC/KCMUCo staff have a clear interest in improving systems and have a generally positive response to BSU II. We hope expect the same spirit and commitment to continue in BSU-III

KCMUCo management will continue to ensure that BSUIII results are up-scaled when relevant. This is the expected result/outcome and not an assumption or a risk.

With regard to the Danish universities, the level of commitment and support during BSU-II and their continued availability in BSU-III is a clear testimony this programme will achieve intended outcomes smoothly.

The use of thematic foci to anchor programme activities makes the programme more attractive in the sense that Danish researchers can continue to align their own research agendas to the themes selected and assist their counterparts at KCMC/KCMUCo to strengthen their research processes. The consortium is composed of the collaborators from BSU-II, and we therefore expect minimal execution hiccups in BSU-III.

Assumptions:

- Careful planning will ensure that key North and South researchers are available for active participation in the collaboration and continue to have incentives for participation.

Risks:

- Timely approval by National regulators (TCU, COSTECH)
- Procurement improvements cannot be made in so far as there are national level regulations; that neither KCMUCo nor the north collaborators will be able to squeeze BSU recommendations in.
- Time constraints between north and south collaborators

Mitigating Factors:

- Engage agents of change
- Consultative meetings to highlight challenges and best way forward. Linking to scientific agendas/themes of importance
- Early planning and linking of activities with calendars in both institutions

6.1 Exit and sustainability of BSU3:

Sustainability building undertake a wide range of activities, many of which will be used in combination with each other. These activities often involve coordination with the KCMUCo management, other basic and clinical science departments, human resource unit, infrastructure and planning, as well as working in partnership with other organisations (hospitals, donors, research groups, government).

Emphasis will be vested to improve outputs and their outcomes through continuous evaluation of both the process and outcomes including, reflection on what was more or less effective or successful – especially during the implementation stage – as a basis for adaptive management (amending and improving) of the program.

In summary, the following are important milestones:

- a) Human resource: Training of PhDs and postdocs and their retention, improvement of related remuneration packages
- b) Capacity building: Skills and competencies developed to strengthen our curricula, hence increase College's attractiveness as an institution of higher learning.
- c) Management support: Policies and guidelines endorsed and developed courses are offered by the College sustainably.
- d) Train more Masters, Ph.ds and Postdocs, increase the pool for postgraduate training and hence increase College's research and education capacity (mentor/supervise)

7.0 Framework Budget ³

Outcome 1: Strengthening administrative and research infrastructure				
Outputs		South	North	Total
1.1,a-c	Management systems for research administration (WP1)	270,000	600,000	870,000
1.2a-e	Key research facilities and infrastructure (WP2)	1,558,000	1,241,000	2,799,000
Outcome 1 Sub-total		1,828,000	1,841,000	3,669,000
Outcome 2: Strengthening of Institutional Research Education and Research Processes				
Outputs		South	North	Total
2.1,a-c	Support to researchers and research education (WP1)	420,000	500,000	920,000
2.3,a	Strengthening research group (Rep. Health) (WP3)	472,500	433,333	905,833
2.4,a	Strengthening research group (Malaria) (WP4)	472,500	433,333	905,833
2.5,a	Strengthening research group (HIV) (WP5)	472,500	433,333	905,833
2.3,b	Courses and Research Output (WP3)	150,000	233,333	383,333
2.4,b	Courses and Research Output (WP4)	150,000	233,333	383,333
2.5,b	Courses and Research Output (WP5)	150,000	233,333	383,333
Outcome 2 Sub-total		2,287,500	2,499,998	4,787,498
Outcome 3: Strengthening Individual Research and Outreach Practices				
Outputs		South	North	Total
3.3,a-b	Research group WP3	216,667	216,667	433,334
3.4,a-b	Research group WP4	216,667	216,667	433,334
3.5,a-b	Research group WP5	216,667	216,667	433,334
3.3-5,c	Community Outreach (WP3, WP4, WP5)	150,000	200,001	350,001
3.3-5,d	Outreach Research Symposium (WP3, WP4, WP5)	450,000	200,001	650,001
Outcome 3 Sub-total		1,250,001	1,050,003	2,300,004
Outcome 1- 3 TOTAL		5,365,501	5,391,001	10,756,502
Coordinati	KCMC 8%	429,240	-	429,240
Overhead	KCMC 12%, UCPH 20%	643,860	1,078,200	1,722,060
External audit		60,000	30,000	90,000
GRAND TOTAL		6,498,601	6,499,201	12,997,802

³ Outputs are coded as in the text. E.G. output 1.1.a contributes to outcome 1; work is done in WP1; a defines to the text. Thus 1.1.a is 1 (outcome level). 1 (WP). a (text) ,