International Training and Education Centre for Health (I-TECH)

RESULTS FROM A NEEDS ASSESSMENT OF SELECTED HEALTH TRAINING INSTITUTIONS AND PRACTICUM SITES FOR HOUSING THE DOCTOR OF MEDICINE DEGREE TRAINING PROGRAMME

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List of Abbreviations

AMO	Assistant medical officer
AMOTC	Assistant medical officer training center
CA	Clinical assistant
CDC	U.S. Centers for Disease Control and Prevention
CO	Clinical officer
COTC	Clinical officer training centre
FY	Fiscal year
FGD	Focus group discussion
HCW	Healthcare worker
IDI	In-depth interview
I-TECH	International Training and Education Center for Health
MD	Doctor of Medicine programmeme
M&E	Monitoring and evaluation
MOHSW	Ministry of Health and Social Welfare
NACTE	National Accreditation Council for Technical Education
HTI	Health Training Institutions

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Acknowledgements

Executive Summary

In February 2011, the Ministry of Health and Social Welfare (MOHSW) in collaboration with the International Training and Education Center for Health (I-TECH) began developing the Bachelor of Clinical Medicine (BCM) degree programme under the guidance of the National Council of Technical Education (NACTE). By June 2013, MOHSW had developed and approved a BCM curriculum, which after stakeholder consultation was renamed the Doctor of Medicine (MD) programme. The MOHSW requested I-TECH's assistance with a needs assessment focused on identifying the capacity of three health training institutions (HTIs), selected by the MOHSW, as potential sites to house the MD programme. In collaboration with the MOHSW, I-TECH conducted an assessment at Mbeya Assistant Medical Officer's Training Centre (AMOTC), Tanga Assistant Medical Officer's Training Centre (AMOTC) and Mtwara Clinical Officers Training Centre (COTC) in February 2015.

This formative assessment used qualitative and quantitative methods of data collection to gather descriptive data used to make recommendations to the MOHSW to aid them in choosing an institution to house the inaugural MD programme. Qualitative methods included semi-structured interviews and focus group discussions. Study respondents for the semi-structured interviews and the focus group discussions were selected from each of the three training institutions and their respective practicum sites. Quantitative data was collected using an observation checklist which included visual inspection of HTI infrastructure including dormitories, classrooms, clinical skills labs, library, computer labs and other facilities. In addition, a NACTE accreditation checklist was completed to assess each institution's progress towards accreditation and to identify areas for improvement.

Of the three institutions assessed, two have strong, collaborative relationships with their practicum sites; Mbeya AMOTC and Tanga AMOTC. Both HTIs have fostered a positive and supportive collaboration with their associated practicum site which could be conducive for teaching medical students. A critical component of medical student learning will be their access to patients and their ability to learn from practical rotations, therefore this strong collaboration at a well-established

and active practical site is paramount. Mtwara COTC's relationship with their practicum site was challenging for a variety of reasons. Tanga AMOTC was slightly more advantageous than Mbeya AMOTC in available human resources but Mbeya was constructing the infrastructure necessary to support a new cadre of students.

None of the three institutions assessed possessed all the requirements necessary to start the MD programme. Significant investments at each institution will be necessary in order to begin teaching medical students. At present, these investments should focus on the establishment of an anatomy laboratory, furnishing of equipment for both anatomy and basic science laboratories and upgrading of tutors to teach the basic science disciplines. This assessment generated findings to aid the MOHSW to determine what investment will be necessary for improving the selected facility to meet the standards needed for the effective implementation of the MD programme.

SECTION 1.0: BACKGROUND OF THE ASSESSMENT

In Tanzania, the then Dar es Salaam School of Medicine at the Muhimbili Hospital started teaching medical students in 1963 post-independence. At that time, the curriculum used to teach this programme was knowledge-based and entry requirements were limited to students who finished form four studies and passed chemistry and biology. Since the facility was not fully prepared to train physicians by then, students that enrolled into this programme were designated to be awarded a diploma in medicine and surgery and qualify as Assistant Medical Officers (AMO). In 1968, the then University of East Africa (with constituent colleges in Makerere, Nairobi and Dar es Salaam) improved the diploma curriculum into a degree of Bachelor of Medicine and Bachelor of Surgery (MBChB), with higher entry qualifications and a more intensive training followed by one year of internship. When the University of Dar es Salaam was inaugurated in 1970, the medical degree programme was further revised with addition of more courses and became the Doctor of Medicine (MD) degree programme of the University of Dar es Salaam. In addition to the medical degree programme at the University of Dar es Salaam (using Muhimbili as the teaching hospital), the training of AMOs and other auxiliary medical cadres in the country continued in other health training institutions. The educational system at the time provided very limited opportunities for these auxiliary cadres to upgrade their skills to a level of a medical degree.

In 1997 the National Council for Technical Education (NACTE) was established and defined a range of National Technical Awards (NTA) to be granted to successful students finishing their studies in fields of technical education and training. The national technical awards are competence-based and each person that qualifies for the award has shown that they have the knowledge necessary to apply competencies in the relevant occupational sector. Following the establishment of the NTA system, the Ministry of Health and Social Welfare (MOHSW) was interested in expanding opportunities for a Medical Degree Programme for the lower-level medical cadres, Clinical Assistants (CA) and Clinical Officers (COs), in the interest of creating a career ladder for these cadres in the country.

Revisions to Tanzania's clinical medicine curricula in 2005 by the MOHSW were implemented in response to the government's decision to replace knowledge-based training approaches with competency-based training approaches for the auxiliary medical cadres. The MOHSW embarked on the process of developing a competency-based Bachelor of Clinical Medicine (BCM) in line with standards and guidelines set by NACTE in order to develop its health care staff. Following a wide stakeholder consultation on the BCM curriculum, the MOHSW decided to adopt the name Doctor of Medicine (MD) because all MD competencies were incorporated in the BCM.

The MD, which includes National Technical Awards (NTA) Levels 7 and 8 (Appendix A) will enable holders of a diploma in clinical medicine (Clinical Officers) or an advanced diploma in clinical medicine (Assistant Medical Officers) to advance to higher levels in their career, enabling

them to provide a wider range of clinical services within the Tanzanian health system and obtain a bachelor-level degree in clinical medicine. The Ministry's initiative to develop the MD programme was in line with their efforts to phase out awarding advanced diplomas. NACTE standards also recognize and advocate for career advancement from diploma and advanced diploma-level designations to Bachelor's degree in all professions which they regulate, as displayed in the NTA awarding system (Appendix A). The system was adopted in order to take advantage of the vast experiences and skills of diploma and advanced diploma cadres, and enable them to gain additional knowledge and skills in the higher level of learning.

In February 2011, MOHSW, in collaboration with the International Training and Education Center for Health (I-TECH) under the guidance of NACTE, conducted a situational analysis workshop to solicit stakeholders' inputs towards developing the envisioned Doctor or Medicine degree. Stakeholders[1] from the meeting identified four key steps to design the programme: developing a curriculum for the programme, approving the curriculum, obtaining validation from NACTE, and identifying the institutions to house the programme. By June 2013, MOHSW had developed and approved a MD curriculum, and obtained necessary validation from NACTE.

Currently, the MOHSW technical training system does not offer a competency-based degree-level training programme in clinical medicine through any of the tertiary HTIs in the country, public or private. The MOHSW is eager to identify one public, government-operated HTI, to implement the inaugural in-service MD training programme. To this end, the needs assessment focused on identifying the capacity of three health training institutions (HTIs) selected by the MOHSW as potential sites to house the MD programme, and will inform the final selection of one institution. The assessment has generated findings to help the MOHSW have a starting point in improving the selected facility to meet the standards needed for effective implementation of the MD programme. The institutions assessed were Mbeya Assistant Medical Officer's Training Centre, Tanga Assistant Medical Officer's Training Centre and Mtwara Clinical Officers Training Centre.

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[1] *Stakeholders involved in the situational analysis and development of the MD curriculum included MOHSW officials; NACTE representatives; principals and faculty of public and private tertiary, non-university health training institutions; representatives from public and private health-sector NGOs and agencies in Tanzania; and, I-TECH staff. The process used to conduct the situational analysis and curriculum development process was participatory, and the work was conducted through a series of technical working group and task force meetings.*

SECTION 2.0: OVERALL STUDY PURPOSE AND OBJECTIVES

2.1 Goal of the Assessment

The purpose of this assessment was to recommend an institution to launch the MD programme with minimal additional investment. Three public institutions, under the purview of the MOHSW, were identified by the MOHSW as possible candidates. The findings of the assessment provide information to aid the MOHSW in determining which of these three schools is best positioned to meet the requirements for housing the MD programme. Although this assessment recommends the institution that needs the least amount of initial investment, it is assumed that whichever institution is selected will require some support in order to be adequately prepared to effectively implement the inaugural MD training programme.

2.2 Specific Objectives of the Assessment

1. To assess the capacity of the three MOHSW identified health training institutions and their respective practicum site(s) to accommodate the MD programme.
2. To identify barriers for the HTIs and their practicum sites to offer the MD programme according to NACTE standards.
3. To inform interventions needed for the selected health training institution to meet the NACTE standards and requirements to house the MD programme.

2.3 Assessment Questions

1. What is the current institutional capacity at the three selected health training institutions and their respective practicum sites in relation to NACTE standards for establishing the MD programme?
2. What gaps exist at each of the three health training institutions and their respective practicum sites in meeting the NACTE criteria to establish the MD programme?
3. What interventions are necessary for each of the health training institutions to meet the NACTE and international criteria to house the MD programme?

2.4 Potential Use of Study Findings

The MOHSW and I-TECH will use the results of the assessment collaboratively to identify one health training institution that best meets the criteria and NACTE requirements for implementing the MD programme. The Ministry of health will further design the improvement plans for the institute chosen for the MD programme.

2.5 Study Locations

Three health training institutions were assessed based on current capacity to house the MD programme. These schools were selected because they are the only vocational training institutions under the MOHSW jurisdiction that could be considered for the MD course (Table 1).

Table 1: Health Training Institutions Assessed

	Health Training Institution	Location
1.	Mbeya Assistant Medical Officer Training School	Mbeya
2.	Mtwara Clinical Officers Training School	Mtwara
3.	Tanga Assistant Medical Officer Training School	Tanga

SECTION 3.0: METHODS OF THE ASSESSMENT

3.1 General Approach

This formative assessment used qualitative and quantitative methods of data collection to gather descriptive data used to select the most appropriate institution. Qualitative methods included semi-structured interviews and focus group discussions using qualitative interview guides (Appendices B & C). Study respondents for the semi-structured interviews and the focus group discussions were selected from each of the three training institutions and their respective practicum sites. Purposeful and convenience sampling methods were used to identify the primary respondents. Interviewees included principals, vice-principals, administrators, and full-time tutors from the three training institutions. Additional participants included hospital in-charges, heads of departments from practicum hospitals and laboratory facilities (part-time tutors).

Quantitative data was collected using an observation checklist (Appendix C) which included visual inspection of HTI infrastructure including dormitories, classrooms, clinical skills labs, library, computer labs and other facilities. This tool served to establish institutional capacity in terms of planning, infrastructure, and qualifications of teaching staff. Administrators were also interviewed using a NACTE accreditation checklist (Appendix D) to assess each institution's progress towards accreditation and to identify areas for improvement.

3.2 Study Population and Sample Size

3.2.1 In-Depth Interviews

At each HTI, seven in-depth interviews were conducted among key stakeholders. Key stakeholders included principals and vice-principals of the HTIs, administrators at both the HTI and practicum sites, and full and part time tutors. In addition, efforts were made to interview the leads of Obstetrics and Genecology, Paediatrics, Surgery, and Laboratory as these disciplines would be taught to medical students. Details on the specific interviewees for each HTI can be found in Table 2.

Table 2: In-Depth Interview Participant Summary

Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
HTI Administrator	HTI Administrator	HTI Administrator
Head of Surgery	HTI Administrator	Practicum Administrator
Head of Paediatrics	Head of Internal Medicine	Practicum Nurse Administrator
Head of Laboratory	Laboratory Technologist (practicum)	Head of Paediatrics
Head of Ob/gyn	Medical Doctor in Charge	Head of Laboratory Studies
Patron	AMO Surgical Department	Head of Ob/Gyn
Dermatologist (filling in for Internal Medicine)	Head of Paediatrics	Head of Radiology

3.2.2 Focus Group Discussions

One focus group discussion (FGD) was conducted at each HTI among full and part time tutors. Every effort was made to include equal representation of participants from the HTI and practicum site during these discussions. The Mbeya FGD had eight participants, Mtwara had four participants and Tanga had six participants.

3.3 Inclusion and Exclusion Criteria

Respondents who consented to participate in the study and those who were conversant with the operations of HTIs in Tanzania were included in the assessment. The eligibility criteria for selection of study participants for the semi-structured interviews and tutor focus group discussions were based on familiarity and work experience in clinical settings and medical education in Tanzania at least for the last two years. In addition, participants had affiliations with the selected health training institutions and consented to enrol in the study.

3.4 Data Collection and Analysis

All data was collected by a member of I-TECH's Monitoring and Evaluation team and two members of MOHSW appointed by the principals of each training institution. Data collectors were comprised of two team members at each location. Both team members at each location actively participated in alternating roles as interviewers and note takers. Originally it was anticipated that the tools would be pre-tested and revised after a visit to MUHAS. However, upon visiting MUHAS it was apparent that the tools could not be pretested at MUHAS as this institution was not an AMOTC or COTC and many of the questions in the in-depth interview and focus group discussion specifically pertained to AMOTC and COTC institutions. Due to constrained resources, the I-

TECH team pre-tested the tools at the first institution and revised them on site for use at that HTI as well as the subsequent institutions assessed.

Data collection started in Mbeya AMOTC where two I-TECH M & E staff visited the HTI and administered the tools. The tools were revised according to the feedback gathered in Mbeya. The revised tools were then used to collect data in Tanga and Mtwara. The two I-TECH staff who went to Mbeya divided for the subsequent trip; one went to Tanga and the other went to Mtwara. The purpose was to make the data collection as consistent as possible especially after making some revisions to the tools in Mbeya. In addition to I-TECH M&E staff, two MOHSW representatives were assigned to the team at each institution: one clinician and one laboratory representative. The purpose of these individuals was to accompany the data collection team and facilitate the logistics and coordination of data collection and answer any clinical or laboratory questions that arose during the process of data collection.

All semi-structured interviews and focus groups were recorded for the purpose of referencing when summarising the discussion findings. Each evening following data collection, the team would sit together and review each of the day's interviewed and focus-group discussions and expand upon the notes often referring to audio recordings to ensure all major discussion points were captured in the notes.

Data from interview and focus-group discussions was loaded into the Qualitative data analysis software, Atlas.ti. A basic coding structure was established and agreed upon prior to the start of the coding process. The qualitative data was analysed using an emergent coding process, and clustered along themes and sub-themes according to the objectives of the assessment. All data was analysed by I-TECH's M&E staff.

Data from the institutional checklist was analysed manually. In some instances data to populate the checklist was obtained by visual observation from a tour of the HTI campus. Other components of the checklist were populated by a procurement inventory and extracted by I-TECH's M&E staff to populate the tool.

3.5 Ethical Considerations

3.5.1 Informed Consent

All methods and tools addressed ethical considerations including informed consent and confidentiality issues. I-TECH sought permission from relevant authorities to carry out the assessment, including the NIMR ethical review board. Participants were presented with an informed consent document and given an opportunity to read it prior to the start of any data collection activities. For semi-structured interviews and focus groups the primary interviewer reviewed the main elements of the consent form with interviewees, explaining to them all issues pertaining to the study including benefits, and other ethical issues. A signed informed consent was

collected from all respondents before participating in the study. Copies of the consent forms were made available for anyone who needed and the signed copies were kept in the office for future reference.

3.5.2 Confidentiality and Privacy Protections

All respondents were informed about the assessment and their voluntary participation was requested. Confidentiality was maintained at all times and written consent was obtained before the assessment began. Data collection proceeded after the respondents had given informed consent stating that they understood all the ethical issues in the assessment and that they were participating in the assessment voluntarily.

SECTION 4.0: RESULTS OF THE ASSESSMENT

4.1 Qualitative Results

4.1.1 Mbeya AMOTC

Mbeya AMOTC Strengths
- *Capacity of the practicum site*
  Mbeya AMOTC is supported by Mbeya Referral Hospital, a large and busy referral hospital that offers a wide range of learning opportunities for medical students. Many of the Mbeya study participants cited the capacity of the practicum site as a significant advantage in their capacity to teach medical students. One participant in the focus group discussion noted, "*For Mbeya – it is the best place to have teaching – not much competition where there is a private medical university – in terms of a learning environment*" (FGD, tutors). Many of the interviewees also noted similar advantages of the practicum site. An administrator from the HTI noted, "*If students need to learn clinical they will get a better education because of the proximity of the hospital* (IDI)." In addition, respondents described the practicum as being both competent and well-equipped to teach medical students. They also noted that Mbeya Referral Hospital is experienced in teaching clinical medicine. *"The practicum is well equipped. They also receive intern doctors so they are used to teaching clinical medicine"* (IDI, practicum administrator).

- *Strong relationship between the Mbeya AMOTC and the practicum site*
  In addition to abundant learning opportunities described at the practicum site, respondents noted a strong and collaborative relationship between Mbeya AMOTC and Mbeya Referral Hospital that could be advantageous when teaching medical students. Several tutors from the practicum site noted that their jobs are easier when medical students are assisting them.

"*When you have students everything goes more smoothly*" (IDI, part-time tutor). A supportive environment for teaching students was echoed from one practicum administrator, "*The management encourages staff to fully participate in teaching*" (IDI, practicum administrator). In the FGD one tutor explained that he feels the current support for AMO students is collaborative, "*Teaching AMOs is going well, smoothly, with lots of collaboration –we as teachers cooperate to deliver quality education*" (FGD, tutor).

- ***Support for MD programme at the practicum site***
  Administrators and tutors from the practicum site indicated that there is strong support from the hospital in assisting the AMOTC to become a medical degree teaching institution. An administrator from the practicum said, "*The hospital wants to help the AMO upgrade to a degree programme. We wanted to help remove barriers to this including consulting other investors, especially universities*" (IDI, practicum administrator). A part-time tutor at the practicum stated that "*Students will have 100% access to the hospital as a practicum teaching site*" (IDI, part-time tutor). An administrator at the hospital felt that if Mbeya AMOTC begins to offer a medical degree programme it will also benefit the hospital. "*It is high time for the school to offer a degree level for MDs but also the hospital needs to. To be a true consultant hospital you need a medical schoo*l" (IDI, practicum administrator).

  Other less common themes emerged as strengths including the acknowledgement that Mbeya AMOTC has ample expanding infrastructure that could be dedicated to housing and teaching medical students. This finding specifically refers to the extensive expansion of student dormitories, teaching classrooms, and a new basic science laboratory. This finding is further expanded upon and discussed in the quantitative findings from the facility observation checklist.

Mbeya AMOTC Challenges
- ***Inadequate human resources***
  The most common challenge cited at Mbeya AMOTC was inadequate human resources. In particular, the part-time tutors explained there is a lack of clinical staff specifically dedicated to teaching. The part-time tutors commonly explained that by practicing clinical medicine at Mbeya Referral Hospital they are obligated to be part-time tutors to the students learning at the AMOTC which may lead to them feeling overburdened. In addition, key stakeholders described Mbeya AMOTC lacking the type of tutors that would be needed to specifically teach medical disciplines. "*Currently there are not enough tutors to cover for everything – if we have the MD programme – more subjects need more human resources – it is CBET now, which needs more than KBET*" (FGD, tutor). Another stakeholder echoed this sentiment, "*There is a very obvious challenge in personnel – need to add in different fields*" (IDI, tutor). Another interviewee also mentioned that additional

support staff would also be necessary at the HTI to support the addition of the Doctor of Medicine programme.

- **Financial challenges**
  Another challenge noted by the staff was an inability of Mbeya AMOTC to adequately finance their current programmes. In the FGD co-financing was mentioned as a potential solution. One stakeholder also mentioned logistics and finances as two major challenges due to the slow process of the MOHSW in approving and allocating resources to the HTI. "*Logistics and finances - Lack of funding, funding not coming from the MOHSW, flow of funding needs to be improved*" (IDI, HTI administrator).

Mbeya AMOTC Current Needs

- **Equipment and Supplies**
  Mbeya AMOTC is currently undergoing a significant infrastructure expansion with the addition of eight new classrooms and two large new dormitories. It addition, they have recently built a new basic science laboratory. There is no equipment and/or furnishing for any of this new infrastructure. Stakeholders cited manikins and models, furniture, boards and projectors as equipment that would be necessary to teach medical students. In addition, they also commonly identified the need to establish an anatomy laboratory and equip the newly built basic science laboratory.

  Although key stakeholders at the HTI recognized that one of the new classrooms could be used to establish the anatomy laboratory, they recognized that this space will have special requirements. "*The anatomy lab space should be special for accommodating cadavers*" (IDI, tutor). Other interviewees cited the need for dissecting tables and that the cadavers should be kept in a separate room.

  Although a new basic science laboratory has recently been built, there is currently no equipment and no funding which has been identified to equip it. This resonated in several interviews including one with a key HTI administrator, "*We have one big problem – we will need a basic science lab for biochemistry, physiology and pharmacology*" (IDI, HTI administrator). Other key stakeholders similarly identified that there is no current equipment for teaching students, including teaching microscopes.

- **Human resources**
  Another commonly identified need was adding human resources. Key stakeholders identified both the quantity of tutors and the types of teaching disciplines as a current need. "*There is a very obvious challenge in personnel – we will need to add in different fields*" (IDI, tutor). Another tutor added, "*Human resources should be our first priority*" (IDI, tutor).

- ***Tutor training***

  A third predominant need for Mbeya AMOTC was upgrading existing tutors. This was seen as both a need for Mbeya AMOTC and an opportunity for its existing tutors. "*There will be more chances for tutors to have training opportunities on the job*" (IDI, tutor). There was a recognition that tutors would have to be trained up to each subject that they are not yet trained in. "*The tutors will need to be upgraded in the basic sciences*" (IDI, tutor). There was also the acknowledgment that this training will need to start soon to not delay in the implementation of the MD programme. "*In preparation to start the MD programme it is good for the tutors to be trained, they need to start training now to be ready for the start of the programme*" (FGD, tutor).

4.1.2 Mtwara COTC

Mtwara COTC Strengths

- ***Use of the available buildings at HTI***

  A significant advantage of Mtwara COTC was a recent infrastructure expansion. They have new, well-constructed infrastructure including new teaching classrooms, laboratories, conference halls, a new administrative block and a new library. Currently, these new buildings are underutilized given the limited cadres taught there and the few staff who manage the course for clinical assistants and clinical officers. This was cited by one of the tutors in the in-depth interview who said "*Buildings are in place so it is easy to expand the institution to a higher level of training*" (IDI, Tutor). One of the respondents in the focus group discussions emphasized the advantages that the HTI has in accommodating higher degree courses by saying that "*Of course there are various advantages such as; utilization of buildings*" (FGD, Tutors). Another participant in the focus group noted the underutilization of buildings, he said "*Classrooms at our institution are enough currently are not fully utilised*" (FGD, Tutors).

- ***Infrastructural capacity***

  The capacity of infrastructure in Mtwara HTI is yet another area of strength that emerged in the data analysis. One of the administrators said "*Currently there are buildings that can accommodate 100 AMOs and there is another building being built which will accommodate over 700 students*" (IDI, Administrator). The element of underutilization of the capacity of the infrastructure was emphasized by one of the administrators acknowledging the fact that the infrastructure was meant to accommodate more students of higher calibre. He said: "*The expansion of the HTI that was made in terms of buildings were intended to be for AMO course. There is one dormitory with the capacity of accommodating 100 students*" (IDI, Administrator).

Mtwara COTC Challlenges

- **Lack of qualified human resources**
  Qualitative findings from Mtwara HTI revealed a deficiency of qualified human resources to form a team of teaching staff. One of the administrators said; *"Not enough qualified teaching staff at the HTI. Even the staffing level is far from the proposed, for instance there is no laboratory person, no Pharmacist, no Assistant Nursing Officer and (no) the warden"* (IDI, Administrators). Another administrator in the in-depth Interview said there would be a need to, "*Increase the number of staff at the HTI especially tutors*" (IDI, Tutors). Although the Mtwara HTI currently has three full time tutors only two may be readily available for teaching. One of the administrators asserted by saying that, *"The principal has so many responsibilities making difficult for him to be actively attending class for teaching"* (IDI, Administrator).

- **Low capacity of practicum site**
  It was revealed to stakeholders that the practicum site had a significant low capacity to handle the MD course. For instance, one of the administrators said, *"Currently there are not enough patients because there are no specialists. There are a lot of referrals to other hospitals such as Ndanda Hospital"* (IDI, Administrator). A tutor in the focus group discussion reiterated this sentiment by saying *"Specialists are not there; these are the people who are supposed to be training medical degree students"* (IDI, Tutor). Another tutor reiterated the lack of specialists, with the exception of Gynaecology by saying, *"The challenges I can see currently is that at the hospital there are no specialists who would be training students. The one in place is for Obstetric and Gynaecologist only we need others of the same calibre from other disciplines too"* (IDI, Tutor).

- **Poor coordination between HTI and practicum**
  Stakeholders reported that coordination between the HTI and the practicum sites was inadequate. No schedule is currently used for students to learn in the hospital. While conducting interviews in the practicum site, respondents pointed out a lack of oversight of the students and that there was no tutor responsible for student supervision. As a result students may have little to do. One of the respondents said; *"Guidance provided to the students when on clinical teaching at the practicum site is not adequate, it should be improved*" (FGD, Tutors). Tutors cite poor coordination and organization of students from the HTI as an issue that hinders the relationship between the two institutions. One tutor in the FGD explained that there was *"no roster from COTC demanding training or orientation from laboratory at the referral hospital."* The Tutors in the FGDs felt that if the COTC does not guide the practicum site on required learning for the students, it will be difficult for the practicum sites to support learning among students.

Mtwara COTC Current Needs

- *Human resources (quantity and quality)*
  All participants in the focus group discussion and in-depth interviews felt that the quality and quantity of human resources at Mtwara COTC was deficient. The current ratio of students to full time tutors is 3:190, far lower than any other institutions assessed. One of the administrators in a focus group discussion said: "*There should be specialists who will be supporting in the provision of the clinical training*" (IDI, Administrator*).*

- *Anatomy laboratory*
  Similar to the other HTI's in this assessment, Mtwara COTC would need an anatomy laboratory in order to treat medical students. One of the administrators in the focus group discussion said; *"There should be cadaver room be it at the hospital or at the HTI with enough physical space to allow effective learning"* (IDI, Tutor).

- *Specialists at the practicum*
  In the in-depth interviews, administrators emphasized the need for specialists at Mtwara COTC. One respondent said; "*There should be specialists who will be supporting in the provision of the clinical training*" (IDI. Administrator). Another administrator reiterated the shortage of specialists at the practicum site by saying; *"(There are) No specialists in different learning departments at the practicum sites, currently there is only one specialist in Obstetrics and Gynecology"* (IDI, Administrator). In the focus group discussion there was a general emphasis of adding staff as well as providing them with incentives so that they will be retained. One tutor said; *"Inadequacy of manpower at the hospital is a serious challenge which needs to be addressed"* (FGD, Tutors).

4.1.3 Tanga AMOTC

Tanga AMOTC Strengths
- *Strong relationship between the HTI and practicum site*
  Qualitative findings revealed that Tanga AMOTC has a strong, positive relationship with Bombo Regional Hospital, it's proximally located practicum site. Key stakeholders from both the HTI and Hospital reiterated a positive and collaborative relationship. "*All challenges can be sorted out because there is good cooperation between the hospital and college*" (IDI, HTI administrator). Another interviewee noted, "*There is a very friendly working environment between the AMO and hospital*" (IDI, tutor). Other respondents said the hospital would be happy to host students and that it is even difficult to separate part-time tutors from the hospital and full-time tutors from the HTI institution as a result of this strong and positive collaboration.

- *Land for HTI expansion*

Although Tanya AMOTC currently lacks infrastructure to expand to an additional degree programme, several key stakeholders remarked that there is plenty of land both at the HTI site and the practicum that could be used for infrastructure expansion. *"Currently we have all the land for all of this (the MD programme) but not the buildings,"* (IDI, HTI administrator).

- *Capacity of the practicum site*
  Similar to the findings in Mbeya Referral Hospital, Bombo Regional Hospital is a well-equipped practicum site with abundant learning opportunities for medical students. One practicum administrator noted, *"The hospital has a capacity of 500 beds, 412 of which are currently in use,"* (IDI, practicum administrator). Another tutor said, *"There are no challenges from the practicum site. The facility is well equipped,"* (IDI, tutors). In addition, one tutor noted Bombo Hospital already having experience with teaching medical studies, *"Bombo already certifies MDs through their internships,"* (IDI, tutor). Therefore, the general feeling portrayed in the interviews is that Bombo would provide adequate and plentiful learning opportunities for medical students.

- *Ample human resources*
  Some key stakeholders at Tanga AMOTC expressed that the existing human resources are adequate to teach an MD programme. *"Human resources are usually the biggest problem, but we have that here,"* (IDI, tutor). Another tutor noted there are already specialists at Bombo that have the capacity to teach medical students. *"At least there are currently some people who can teach MD students,"* (IDI, tutor). One HTI administrator expressed that some of the full time tutors are complaining because they are teaching below their expertise.

Tanga AMOTC Challenges
- *Financial challenges*
  One of the most predominant challenges cited by key stakeholders at both Tanga AMOTC and Bombo Hospital was that Tanya AMOTC was currently experiencing financial challenges. In fact, one HTI administrator explained this as, *"We are currently in a financial crisis,"* (HTI administrator). The biggest issues that the administrator cited were ensuring water, electricity and meals (for students). He also noted that paying the tutors for examinations was also a challenge. This sentiment was echoed by a number of interviewees at the practicum site. A tutor from the practicum explained, *"(Tanga AMOTC) has financial challenges. If they sort that one out they will be having additional money to hire more tutors because the part-time tutors do not receive their wages on time,"* (IDI, tutor). Another tutor echoed this challenge by saying, *"Financial issues are a huge deal."*

- *Infrastructure challenges*

    Tanga AMOTC *currently* faces challenges of having inadequate infrastructure, especially if the school were to expand its degree programmes. One tutor explained, "*Infrastructure is currently enough for what they have now but if a new course comes it will not be enough,*" (IDI, tutor). Several structures would be necessary if the school were to expand to offer the MD programme. Key stakeholders cited classrooms and lecture halls, staff housing and a need to improve theatres as three major areas of concern.

Tanga AMOTC Current Needs

- *Infrastructure expansion*

    There is a clear need to expand the infrastructure at Tanga AMOTC if it were to offer the MD degree. One *tutor* noted, "*Infrastructure will need to be improved if they will accommodate the course,*" (IDI, tutors).

- *Tutors for basic sciences*

    Key stakeholders acknowledged the need to increase tutors capacity to teach basic science disciplines. An *HTI* administrator noted, "*Tutors will need to be trained in basic sciences,*" (IDI, HTI administrator). Tutors also reiterated this need, "*Tanga AMOTC will need manpower for the basic sciences,*" (IDI, tutor).

    Stakeholders identified that tutors will be needed that are skilled in teaching physiology, biochemistry, *anatomy*, and pharmacology.

- *Anatomy Laboratory*

    A third pressing current need for Tanga AMOTC would be constructing and equipping the AMOTC with an Anatomy Laboratory. One tutor recognized this as a major first step, "*If we receive support to build a cadaver room – that is the biggest missing piece – it is very important to begin with,*" (IDI, tutor). In the focus group a tutor noted, "*We will need an anatomy lab – we have to have a cadaver room,*" (FGD, tutors).

4.2 Quantitative findings

Quantitative findings were drawn from two main sources: information from the institutional checklist (Appendix C) data findings and the NACTE accreditation checklist (Appendix D).

4.2.1 Institutional Checklist

An institutional checklist was completed at each HTI and findings included visual infrastructure checks and the collection and compilation of requested inventories, including human resource inventories, electronic and learning supplies and equipment, and laboratory and teaching supply inventories.

Infrastructure

Two of the three HTIs were currently undergoing or had recently undergone major infrastructure expansion. At the time of the visit, Mbeya AMOTC was vastly expanding its campus infrastructure. They had recently completed construction on a new basic science laboratory that has the capacity for 50 students. However, the laboratory currently has no equipment or supplies. In addition, a sizable construction project was underway to build two new dormitories, each having the capacity to hold approximately 400 new students segregated by gender. Lastly, they were finishing up the construction of a large building of eight new classrooms. Most of the existing campus infrastructure is summarized in Table 3.

Table 3: Existing and new infrastructure at Mbeya AMOTC

	Number of Structures		Total Capacity	
	Existing	**Upcoming**	**Existing**	**Upcoming**
Classrooms	2	8	150	800
Basic Laboratory	1 (Not equipped)	-	50	-
Skill Laboratory	-	-	-	-
Libraries	2	-	24	-
Student dormitories	Multiple small buildings	2	65	756

Mtwara COTC had also recently undergone an infrastructure expansion. This expansion included the construction of 21 new classrooms with an increased total teaching capacity of 840 students. Two new skills laboratory rooms were constructed, although neither were set up with any models nor teaching equipment at the time of the visit. In addition, a new library was added as well as 50 new dormitory rooms (Table 4).

Table 4: Existing and New Infrastructure at Mtwara COTC

	Number of Structures		Total Capacity	
	Existing	**New**	**Existing**	**New**
Classrooms	-	21	-	840
Basic Laboratory	1	-	40	-
Skill Laboratory	1	2	40	100
Libraries	1	1	60	70
Student dormitories	60 rooms	50 rooms	240	100

Tanga AMOTC had no recent or new construction or expansion and its available infrastructure is described in Table 5.

Table 5: Existing Infrastructure at Tanga AMOTC

	Number of Structures	**Total Capacity**
Classrooms	3	150
Basic Laboratory	1	42
Skill Laboratory	-	-
Libraries	1	24
Student dormitories	30 rooms	60*

*this number is based on 2 students/room but sometimes there are 3 or 4 due to need

Human Resources

Mbeya AMOTC and Tanga AMOTC have the greatest total number of tutors and over twice as many tutors as Mtwara COTC. However, is important to take into account the difference in the human resources necessary to train AMOs vs. COs.

There are several notable differences between the human resources available at Mbeya AMOTC and Tanga AMOTC. Tanga AMOTC has more than twice the number of full-time tutors than at Mbeya AMOTC. Conversely, Mbeya Zonal Referral Hospital has many more part-time tutors compared to Bombo Hospital. Our qualitative finding showed human resources as one of the challenges at Mbeya and this is largely due to the lack of full-time dedicated tutors at Mbeya AMOTC. The qualitative findings at Tanga AMOTC showed abundant human resources as one of its strengths. This is largely a result of the high number of full-time dedicated tutors to the HTI and its lower student tutor ratio. Mtwara has fewer numbers of both full time and part time tutors with only one specialist. The tutor student's ratio at Mtwara is the highest (1:11) among the three HTI. Full tutor inventories for all schools can be found in Appendices E-G.

Table 6: Summary of Human Resources at Mbeya AMOTC, Mtwara COTC, and Tanga AMOTC

	Mbeya AMOTC		**Mtwara COTC**		**Tanga AMOTC**	
Full-time (HTI)	10		3		24	
Part-time (HTI and practicum)	37		15		17	
Total tutors	47		18		41	
Current student to FT tutor ratio	1:8		1:11		1:6	
Specialists	**FT**	**PT**	**FT**	**PT**	**FT**	**PT**

Obstetrics and Gynecology	1	5	0	1	0	6
Pediatrics	2	8	0	0	3	5
Surgery	0	3	0	0	1	5
Internal medicine	0	11	0	0	2	5

Information and Electronic Resources

Each HTI had a space designated as a library. Both Mtwara COTC and Tanga AMOTC had a trained librarian on staff. Mbeya AMOTC did not have a trained librarian, however, there was a procurement officer assuming that duty at the time of the visit. Mtwara's newly constructed library has the capacity for 50 students to occupy the library during their studies. Tanga AMOTC has 24 study desks and chairs in their library. Mbeya AMOTC did not have any room for students to sit and study and the library there only serves as a means for students to check out books or journals. None of the HTIs provided internet for their students and reported that the most common way students access the internet is through their personal internet modems. Tanga AMOTC currently provides internet for faculty only. Information and electronic resources are summarized in Table 7.

Table 7: Summary of Information and Electronic Resources at Mbeya AMOTC, Mtwara COTC, and Tanga AMOTC

	Mbeya AMOTC	**Mtwara COTC**	**Tanga AMOTC**
Total holding	1308	>100	500
Trained librarians	0	1	1
Study desks and chair	0	50	24
Computer (student use)	9	30	0
Internet (faculty)	No	No	Yes
Internet (students)	No	No	No
TV compatible with AV equipment	2	2	1
Photocopy machines	3	3	2
Printing machines	9	11	3
Scanner	0	3	2

Laboratory Capacity

- ***Basic science laboratory capacity***

  The MD curriculum requires that students learn the basic sciences. In order to teach these disciplines an HTI needs to have a functioning basic science laboratory. Although the exact equipment need to equip a basic science laboratory is currently unknown, all three HTIs would need assistance to have a fully functional basic laboratory to teach medical students.

Mbeya AMOTC has recently completed the construction of a new basic science laboratory. The laboratory has the capacity for 50 students. There is currently no equipment or furniture in the laboratory aside from sinks and gas outlets. The HTI administrator reported that Mbeya AMOTC has thus far not received any funding to equip this laboratory to teach the basic sciences.

Mtwara COTC has an older building with a basic science laboratory that is not currently in use and is in need of renovation. They currently have 5 functional light microscopes but have no additional basic science laboratory equipment.

Tanga AMOTC has a basic science laboratory that is actively used to teach the students in their Diploma in Laboratory programme. This laboratory has the capacity for 42 Students and has limited laboratory equipment. Currently, they have four functional light microscopes. They also have 2 incubators, neither of which is working. The head of this laboratory identified automated equipment, reagents, a colorimeter, centrifuge, hot air over and a water bath, and an incubator as current pressing needs.

- *Anatomy Laboratory Capacity*
  None of the HTIs assessed have an anatomy laboratory. All institutions recognized that constructing and equipping an anatomy laboratory is a crucial first step towards teaching medical students. Mbeya AMOTC offered to use the space of one of its newly constructed classrooms as an anatomy laboratory but recognized that it will need to be specially equipped to house cadavers and will need to include cadaver tables and other instruments. Neither Mtwara COTC nor Tanga AMOTC currently have a space they can designate for an anatomy laboratory so these buildings would need to be constructed.

- *Clinical Skills Laboratory Capacity*
  None of the HTIs visited had a clinical skill laboratory set up and functioning at the time of the visit. However, they each had some equipment and supplies that could be used in a clinical skills laboratory. All of the HTIs reported that when they teach clinical skills to AMOs or COs, they take clinical skills teaching equipment from a storage space and set up teaching stations in one of their available rooms. After the lessons are complete they dismantle the equipment and take it back to storage, therefore, no room is permanently set up for a clinical skills laboratory and none of the HTIs had tables for the models. Mbeya AMOTC and Tanga AMOTC both used their regular classrooms for temporary clinical skills teaching. Mtwara COTC had two classroom specifically designated for a clinical skills laboratory although they were not set up with equipment at the time of the visit.

  The institutional checklist completed at each HTI provided detailed information on what equipment and supplies were available at the HTI that could be used in a clinical skills

laboratory. This included inventories of charts and models (Table 8) as well as equipment and supplies (full inventories made available upon request). Overall, Mtwara COTC was best equipped with manikins, models and charts, although Mbeya AMOTC and Tanga AMOTC had a few functional manikins and models. Mtwara COTC and Tanga AMOTC had quite a few anatomy charts whereas Mbeya AMOTC had none.

Table 8: Summary of Models and Charts at Mbeya AMOTC, Mtwara COTC, and Tanga AMOTC

	Mbeya AMOTC	**Mtwara COTC**	**Tanga AMOTC**
Manikins and Models			
Adult manikins	3	10	2
Infant manikins	4	5	6
Pediatric manikins	0	5	8
Lung model	0	-	2
Heart model	1	5	3
Brain model	1	5	2
Skull with cervical vertebrae	0	5	1
Human skeleton	1	5	1 (incomplete)
Female pelvic bone	2	5	2
Pelvic model	1	-	2
Charts			
Fetus Development	0	0	1
Anatomy - Fetal circulation	0	0	1
Anatomy - HEENT	0	15	1
Anatomy - Skeletal	0	5	2
Anatomy - Integumentary	0	5	0
Anatomy - Reproductive Organs	0	10	1
Anatomy - Respiratory	0	5	1
Anatomy - Cardiovascular	0	0	2
Anatomy - Peripheral vascular	0	5	2
Anatomy - Endocrine	0	5	2
Anatomy - Musculoskeletal	0	5	1
Anatomy - Gastrointestinal	0	5	2
Anatomy - Genitourinary	0	5	2
Anatomy - Neurological	0	0	0

A variety of equipment was also available at the HTIs that could be used in clinical skill teaching. It is important to note that these inventories were only taken at the HTI and not their accompanying practicum sites.

Inventories were also completed at the HTIs (only) to determine the available equipment that may be useful in teaching medical students, including obstetric and gynaecological care equipment and equipment to care for surgical patients. Both Mbeya AMOTC and Tanga AMOTC have significant

equipment both for obstetrics and gynaecological care. Mtwara COTC had none of this equipment which could be a reflection of the cadre that is being taught at a COTC versus an AMOTC. In addition, both Mbeya AMOTC and Tanga AMOTC received a donation of surgical equipment from the same non-profit organization where as Mtwara COTC did not receive a similar donation. Details of the available equipment at each HTI can be made available upon request.

4.2.2 NACTE Accreditation Findings

An objective of this assessment was to document each institution's NACTE accreditation status and determine areas that need to be strengthened in order for an institution to achieve accreditation approval if it incorporates the MD programme. It is important to note that each of the three institutions have fully completed and complied with NACTE accreditation standards for the training programme they currently teach. However, each HTI is undergoing some level of transition to a larger institution with multiple degree programmes. Therefore, each HTI will need to reapply for NACTE accreditation if their school is the recipient of the new MD programme.

NACTE has required standards for Degree Programmes and in the NACTE accreditation checklist (Appendix D), HTIs are assessed on 4 main criteria: accreditation, capacity of department for recognition, QC/QA systems and their practicum area.

In each of these areas there are sub-categories for which the HTIs are assessed. For accreditation, for example, one of the sub-categories is checking to see if the HTI has a stated vision and mission statement. In similar form, there are a total of 35 sub-categories examining the status of accreditation. For capacity of department for recognition there are 19 sub-categories, 9 for QC/QA, and 7 for Practicum. A full report on each of these subcategories for each HTI in the degree program it currently teaches is contained in Appendix H, however this data is inconsistent and irrelevant for their application that will be necessary to teach the MD programme (see limitations).

SECTION 5.0: LIMITATION OF THE STUDY, DISCUSSIONS AND RECOMMENDATIONS

5.1 Limitation of the Assessment

This assessment encountered several limitations which had implications on the intended results as follows:

i) The tools were unable to be pre-tested due to budgetary and time constraints, therefore they were tested during the assessment at the initial HTI. Originally, the tools were intended to be pre-tested at MUHAS, however, given that the questions were specifically tailored to lower-level institutions it was not feasible to do a proper pre-test at MUHAS. Our budget and timetable for the assessment did not allow for us to travel to an additional region. In addition, there were concerns about unduly raising expectations of an institution that was only being included for pre-testing purposes.

ii) The availability of key stakeholders and tutors for interviews and focus group discussions was difficult given their daily responsibilities. Although most intended respondents were located, it cannot be guaranteed that these respondents spent as much time as needed to fully answer all of the questions due to competing priorities. At two of the three HTIs, additional members of the staff were needed to ensure the minimum respondents necessary for the focus group discussions.

iii) There was difficultly obtaining meaningful results from the NACTE accreditation data portion of the assessment. All three HTIs had obtained NACTE accreditation for their AMOTC or COTC institution; however, all were in a transition period of applying for accreditation for expanding their institutions. Through the course of data analysis it was determined there was a mix of responses related to the pre-existing accreditation and the accreditation the HTI was currently applying for in their expansion, therefore, these finding are not appearing in the main body of the report. In addition, each institution would need to reapply for accreditation once again if the MD programme was implemented at their institution.

5.2 Discussion

This comprehensive assessment characterized the current capacity of Mbeya AMOTC, Mtwara COTC and Tanga AMOTC to teach medical students. It identified the strengths, challenges and current needs when considering the implementation of the new MD programme. In addition, the assessment defined existing infrastructure and resources that could be leveraged if the MD programme is implemented at each institution. Lastly, it identified gaps in resources, both physical and human resources, that would need additional support to ensure the success of the MD programme.

Staff at Mbeya AMOTC and Mbeya Regional Referral Hospital personified an exemplary relationship between the HTI and accompanying practicum site. Mbeya Regional Referral Hospital is known to be a well-equipped hospital with ample learning opportunities for medical students. There is a strong and amicable relationship between the Mbeya AMOTC and Mbeya Regional Referral Hospital and a strong will among both institutions for Mbeya AMOTC to expand its degree programmes to teaching medical students. Mbeya AMOTC experiences financial challenges and human resource constraints. The administration at Mbeya AMOTC is actively pursuing fundraising efforts to alleviate this issue. Although part-time tutors at the practicum accept and honor the teaching of students, they are not offered additional compensation for these efforts and therefore feel their time and energy for both teaching students and providing clinical medicine is limited. One particularly favorable quality of Mbeya AMOTC is its extensive infrastructure expansion which allows for plenty of room to house and teach medical students. In order adequately prepare Mbeya AMOTC to teach medical students, resources will need to be allocated to equipping the dorm rooms, classrooms and laboratories with equipment as well as constructing and equipping an anatomy laboratory. In addition, tutors that are currently at Mbeya AMOTC will need to be trained and upgraded to teach medical disciplines.

Mtwara COTC also has the advantage of recently undergoing an infrastructure expansion. They have new, well-constructed infrastructure including new teaching classrooms, laboratories, conference halls, a new administrative block and a new library that are currently underutilized. One significant consideration for Mtwara COTC is a deficiency of human resources and a lack of specialists at the practicum site. Additionally, Mtwara COTC has a strained and challenging relationship with its practicum site, Ligula Regional Hospital. Coordination is lacking between Mtwara COTC and the practicum site and often students are present with little supervision or direction and can often be found idle. The practicum site is also limited in the number and range of patients that might be available to teach medical students. Mtwara COTC mostly requires investments in human resources (specialists) and the construction of an anatomy laboratory in order to be prepared to teach medical students.

Similar to Mbeya AMOTC, Tanga AMOTC has a strong, collaborative relationship with Bombo Regional Hospital, its practicum site. There are ample opportunities for medical students to learn at Bombo and sufficient exposure to specialists. Unlike the other HTIs, Tanga AMOTC has an abundance of human resources. Their tutor to student ratio is quite low and some tutors are currently teaching below their skill level. Tanga AMOTC is currently undergoing a "financial crisis" according to its administrators and is struggling to ensure water, electricity and meals for the current cadres of students. Additionally, its infrastructure for teaching and student housing is quite outdated and insufficient for its current enrollment. One advantage of Tanga AMOTC over the other institutions is it currently has a functional basic science lab and laboratory diploma programme, however, equipment is limited. Most key pieces of equipment will have to be purchased or refurnished. In order to accommodate the MD programme, Tanga AMOTC would

need an infrastructure expansion of classrooms and dormitories and the addition of an anatomy laboratory. Additionally, it would need tutors who were trained in the basic sciences.

There are a wide array of strengths, challenges and current needs for each of these three HTIs in consideration of which one is best positioned to house the inaugural MD programme. The MOHSW will need to consider the relative weight and investment necessary to build each HTI's infrastructure, human resource and equipment needs in order determine the best candidate to house this programme.

5.3 Recommendations

Basing on the findings, this assessment has the following recommendations to the MOHSW to consider when selecting an HTI to start the MD programme:

1. None of the three institutions possesses all the requirements necessary to start the MD programme. Significant investments at each institution will need to be made in order to begin teaching medical students. At present, these investments should focus on the establishment of an anatomy laboratory, full furnishing of equipment for both anatomy and basic science laboratories and upgrading of tutors to teach the basic science disciplines.

2. Efforts will need to be undertaken to develop the inventory and supplies necessary to teach medical students the MD curriculum. At present, the curriculum exists and is approved; however, an inventory of supplies to equip the laboratories needs to be developed.

3. A key consideration for the MOHSW should be the relationship between the HTI and the practicum. Of the three institutions assessed, two have strong, collaborative relationships between the HTI and practicum site: Mbeya AMOTC and Tanga AMOTC. Both HTIs have fostered a positive and supportive relationship for teaching students. A critical component of medical student training will be their access to patients and their ability to learn from practical rotations, therefore this strong collaboration at a well-established and busy practical site is paramount.

4. Of the two institutions exhibiting strong, collaborative relationships with their practical site, there are varying degrees of investments that will need to be made at each one to enable their HTI to teach medical students. For Mbeya AMOTC, there is extensive new infrastructure advantageous to absorbing a new degree cadre but almost all of this infrastructure will need furnishing and equipment. In addition, immediate investments in human resources will be necessary. At Tanga AMOTC, there is no infrastructure to absorb a new cadre, but there is land for expansion. Tanga AMOTC is relatively rich in human resources although some of the tutors will need to be upgraded to have the capacity for teaching basic sciences.

List of Appendices

APPENDIX A: NATIONAL TECHNICAL AWARDS (NTA) LEVELS

NTA LEVEL	TITLE OF AWARD	COMPETENCE LEVEL DESCRIPTORS
Level 1 to 3	Vocational Training	Less than form four
Level 4	Pre- Technician Certificate	Apply skills and knowledge at a routine level
Level 5	Technician Certificate	Apply skills and knowledge in a range of activities, some of which are non-routine and be able to assume operational responsibilities.
Level 6	Ordinary Diploma	Apply skills and knowledge in a broad range of work activities, most of which are non-routine
Level 7	Higher Diploma	Apply knowledge, skills and understanding in a broad range of complex technical activities, a high degree of personal responsibility and some responsibility for the work of others.
Level 8	Bachelors Degree	Apply knowledge, skills and understanding in a wide and unpredictable in a wide and unpredictable variety of contexts with substantial personal responsibility, responsibility with the work of others and responsibility of allocation of resources, policy, planning, execution and evaluation.
Level 9	Masters Degree	Display mastery of a complex and specialized area of knowledge and skills, employing knowledge and understanding to conduct research or advanced technical or professional activity, able to work autonomously and in complex and unpredictable situations.
Level 10	Doctorate Degree	Apply knowledge and understanding and do advanced research resulting into significant and original contributions to a specialized field, demonstrate a command of methodological issues and engaging in critical dialogue with peers, able to work autonomously and in complex and unpredictable situations.

Appendix B: Key Informant Interview Guide

Assessment of Training Institutions and their Practicum Sites in Tanzania

<u>Key Informant Interview Guide for Administrators</u>

Name of the Person Interviewed: _____

Position: _____

Name of the Interviewer: _____

Institution Name: _____

Date: _____

A. General Questions
1. As a CO/AMO institution, what plans do you have to expand this institution?
    Probe: Increase programs offered, infrastructure, offer degree
2. If this institution were to offer a degree program, what would be the advantages and disadvantages for this institution?
    Probe for all levels of the institution; for students, tutors and the institution itself
3. Are there any challenges you foresee for this institution when the new degree program starts?
    Note: Challenges may not necessarily be disadvantages mentioned above
4. What are the current challenges/barriers you face in running this institution as a CO/AMO school that will make it difficult to run a degree program?
5. What resources do you think are required at this institution in order to start a new degree program in Medicine?
    Probe: Infrastructure, Equipment, Human resources (also probe for what currently exists vs. what would be needed
6. In your opinion, do you think this institution, as it is, has the capacity to implement a degree program? Please give reasons for your answer.
    Probe for specific reasons why the institute may or may not teach a degree program
7. What recommendations/suggestions do you have for improving the conditions of the institution to be able to offer a Degree in Medicine?

B. Specific Questions:

Faculty:

1. Who are the faculty/tutors (types, categories, cadres, specialties)?
2. How many full time faculty/tutors are there?
3. How many part time faculty/tutors are there?
4. What is the tutor/student ratio?

Equipment:

1. Are there computers for student learning? How many? Are they adequate?
2. Is there internet access for tutors and students?
3. How many classrooms are there?
4. Is there a skills lab/demonstration room? If not, where do students learn clinical skills?
5. Is there a school library?
6. How many students can it accommodate?
7. Does it have adequate resources for each student?

Practicum Site:

1. How many departments are there at the practicum site?
2. Is the clinical practice experience limited to observation or do students actually engage in hands-on practice?
3. How many tutors are designated for clinical practice?
4. How many Clinical Staff are designated for clinical teaching?

Appendix C: Focus Group Discussion Guide

Assessment of Training Institutions and their Practicum Sites in Tanzania

Focus Group Discussion Guide for Tutors

Name of Moderator: _____

Name of Recorder: _____

Institution Name: _____

Date: _____

1. If this institution were to offer a degree program, what would be the advantages and disadvantages for this institution?
    Probe for advantages and then disadvantages for the student, tutors, institution and practicum site
2. Are there any challenges you foresee for this institution in implementing a new degree program?
    Note: Challenges may not necessarily be disadvantages mentioned above
3. In your opinion, do you think this school and practicum site have enough Faculty/tutors to implement a degree program? Please give reasons for your answer
    a. *Probe for types, categories, cadres, specialties, part/full time, tutor student ratio*
4. Based on your experience here we would like you opinion on the equipment at this school in relation to plans to offer a degree course.
    Get details on:
    -       computers for student learning
    -       internet access for tutors and students
    -       classrooms
    -       skills lab/demonstration room
    -       school library
5. An important part of medical education is having a functional Practicum Site. Based on your own experience with the practicum site used by this school, what comments do you have on the ability of the school to house a degree program?
    Probe:
    -       departments that are at the practicum site
    -       time allocated clinical practice for students to get hands-on experience
    -       tutors are designated for clinical practice
    -       clinical staff designated for clinical teaching
6. In your opinion, do you think this institution, as it is, has the capacity to implement a degree program? Please give reasons for your answer.
    Probe for specific reasons why the institute may or may not teach a degree program
7. What additional resources do you think are required at this institution in order to start a new degree program ?
    Probe: Infrastructure, Equipment
8. What recommendations/suggestions do you have for improving the conditions of the institution or practicum site to be able to offer a degree programme in medicine?

Appendix D: Institutional Checklist – Supplies and Infrastructure

Assessment of Training Institutions and their Practicum Sites in Tanzania

Institutional Checklist- Supplies and Infrastructure

1. Physical Facilities:

	# Available	Total Capacity
Classrooms		
Skills Laboratories		
Libraries		
Administrative Offices		
Faculty Housing		
Student Housing		
Break/common Rooms		
Conference Rooms		
Chalk for each classroom	Yes / No (circle one)	
Whiteboard markers for each classroom	Yes / No (circle one)	
Cabinets with locks for supplies	Yes / No (circle one)	
Potable water sites	Yes / No (circle one)	
Lavatories		
Generator(s)		
Dormitories		
# Students/dorm rooms		
Are physical facilities adequate? *(mark 'x' if a through e below as well as items above are adequate in quantity)*		

	a. Potable water adequate throughout the college campus?
	b. Electricity adequate throughout the college campus?
	c. Each student can have a desk and chair?
	d. Each classroom (including laboratory and any other teaching facilities) has a chalkboard or whiteboard?
	e. Dormitories for all who need/want them?
	f. Dormitories are equipped with adequate sleeping facilities (1bed or cot per student, linens, etc.)?
	g. Dormitories are equipped with adequate number of lavatories and showering facilities for male AND female students?
	h. Dormitories are equipped with 1 desk, chair and lamp per student?
(2) Policy on how the institution reviews the adequacy of the educational resources is documented and available?	
(3) Policy includes what mechanisms exist for gathering feedback from students and staff on the facilities as well as what authority the institution has to direct resources to respond to deficiencies?	
(4) Effective management of physical resources available?	
(5) Are there physical counts of all inventories?	

2. **Information and Learning Resources**

(1) Updated procurement list available? (a) Last updated: _____	
(2) Avg # of patrons per day in 2010?	
(3) List main types of patrons *(e.g. students, tutors, community members, other?)*:	
(4) What hours is the library open for students?	
(5) Catalogue of library resources that students can use to find materials?	

	# Available	Adequate	# Needed
Total holdings			
Trained Librarians			
Staff workspace			
Issue desk			
Shelves (*for newspapers, books, journals, etc.)*			
Study desks or tables			
Chairs			
Computer desks			
Bookends			
Audiovisual (AV) rooms			

Library resources and equipment are adequate?

3. Electronic Resources

(1) Electronic catalogue of library resources that students can use to find materials?				
(2) Internet accessible by faculty from school facilities?				
(3) Internet accessible by students from school facilities?				
(4) Basic computer skills training available to students at the library or on campus?				
	No. Available	Adequate	No. Needed	NOT working
Online journals or databases				
Computers for faculty use				
Computers for student use				
Computer towers				
Keyboards				
Mouse				
Computer screens				

DVD Player				
TV compatible with existing AV equipment				
UPS (uninterrupted power supply/battery)				
Headphones				
IT Staff for Troubleshooting and Technical Assistance				
Photocopiers and Printers				
	No. Available	Adequate	No. Needed	NOT working
Photocopy machines				
Photocopy machines for student use				
Printing machines				
Printing machines for student use				
Paper student use				
Scanner				
Scanner for student use				

(1) Do students pay for photocopies?				
(a) If yes, how much?				
(2) Do students pay for paper?				
(a) If yes, how much?				
Electronic equipment and resources are adequate?				

4. Skills Laboratories

Laboratory Facilities	
(1) What hours is the lab open for students?	
(2) Laboratory capacity?	
(3) Laboratory space adequate?	
(4) Number of trained staff to teach skills labs?	
(5) Student access to laboratory equipment during off hours?	
Laboratory Maintenance	
(1) Date of last lab inventory?	
(2) How often is an inventory of lab equipment and supplies taken?	
(3) Policy and Procedures for equipment care?	
(4) Policy and procedures for equipment maintenance?	

	# Available	Adequate	# Needed
Physical Examination, Assessment, & Care (equipment/supplies)			
Tables for models			
Receptacles for waste			
Receptacles for soiled linens			
Patient Beds			
Bed linens			
Stethoscope			
Thermometer			
BP machine or Sphygomamanometer			
Opthalmoscope			
Otoscope			
Nasal speculum			
Percussion (reflex) hammer			

Pen light			
Tuning fork			
Tape measure			
Weighing scale			
Tongue depressor			
Unsterile exam gloves			
Sterile exam gloves			
Cotton balls			
Nasal cannula			
Urinary catheter and collection system			
Face masks			
Ambut bag			
Endotrachea tube			

Oxygen			
Urine dipsticks			
Watch			
Models			
Adult manikins (male & female)			
Infant manikin (male & female)			
Pediatric manikin (male & female)			
Lung model with larynx & diaphragm			
Heart model			
Brain model			
Skull with cervical vertebrae			
Human skeleton			
Female pelvic bone			

Pelvic model (male & female) with internal organs			
Charts			
Fetus Development			
Anatomy - Fetal circulation			
Anatomy - HEENT			
Anatomy - Skeletal			
Anatomy - Integumentary			
Anatomy - Reproductive Organs			
Anatomy - Respiratory			
Anatomy - Cardiovascular			
Anatomy - Peripheralvascular			
Anatomy - Endocrine			
Anatomy - Musculoskeletal			
Anatomy - Gastrointestinal			

Anatomy - Genitourinary			
Anatomy - Neurological			
Blood transfusion checklist			
Intake and Output chart			
Tanner's Stages of Development (male & female)			
Standard Operational Procedures			
Disease stages			
Algorithm of certain diseases			
Administration of Medication (equipment/supplies in addition to items already listed)			
Syringes			
Needles			
Cotton wool swabs			
Razor			

Bowl or kidney dish			
Galipot			
Disposable gastric tubes			
Vomiting bowl and tissue paper			
Measuring cups for liquid medication			
Practice medications (*fake pills, normal saline for practice injections*)			
Obstetric and Gynecological Care (equipment/supplies in addition to items already listed)			
Bulb syringe (for newborn)			
Sterile Speculum			
Sterile galipot for antiseptic solution			
Equipment to take specimen			
Fetoscope			
Partograph (Labor Chart)			

Sterile hand towel, cotton swabs, green towels			
Scissors: lister, mayo and blunt			
Artery forceps			
Towels			
Sucker or suction machine			
Measuring jug			
Resuscitation tray			
Baby's cot			
Cord clamps			
Polythene paper			
Care of the Pediatric Patient (equipment/supplies in addition to items already listed)			
Nasal cannula (pediatric size)			
Warm resuscitative/heater			
Mucus extractor and suction tubes			

Ambu bag (pediatric size)			
Laryngoscope with small blade			
Endotrachea tube (pediatric size)			
Care of the Surgical Patient (equipment/supplies in addition to items already listed)			
Surgical blade			
Towel clips			
Sponge holding forceps			
Towel and tissue forceps			
Scalpel handle			
Scissors curved and straight			
Toothed and plain dissecting forceps			
Self- retaining and Langenbecks' retractor			
Curved haemostats			
Sterile mackintosh			

Suture and needles for repairs			
Cotton wool draping			
Examination of the Patient with Wounds, Disease, etc. (equipment/supplies)			
Bandages			
Fleets enema kits			
Sterile gauze			
Microscopes			
Slides			
Laboratory equipment and resources are adequate?			

Appendix E: Institutional Checklist – NACTE accreditation

Assessment of Training Institutions and their Practicum Sites in Tanzania

B-2: Institutional Checklist – NACTE Requirements

Institution	
Zone:	
Region:	
Name of Institution:	
Respondent (name and title):	
Date of assessment:	
Interviewer:	

Criterion 1: Compliance with the NACTE Accreditation Standards

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
(i)	Vision and Mission	(a) Is your institution's Vision stated?		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
		(b) Is your institution's Vision documented?		
		(c) Is the institutional mission stated?		
		(d) Is the institutional mission documented?		
(ii)	Governance and Administration	(a) Is there a Governing/ Advisory Board available and tenure of office valid?		
		(b) Are minutes of Board Meetings documented?		
		(c) Is there an organization chart available?		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
		(d) Are key positions manned by qualified personnel?		
(iii)	Institutional Integrity	(a) Is there printed material about the institution for public disclosure?		
		(b) Is there printed material portraying the true image of the institution?		
(iv)	Institutional effectiveness	(a) Is there a strategic plan available?		
		(b) Are there monitoring and evaluation systems		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
		available and implemented?		
(v)	Educational Programmes	(a) Are there general education and rationale specified in training programmes?		
		(b) Are there committees for academic matters?		
		(c) Are the committees for academic matters functioning?		
		(d) Are there documents showing how training is managed?		
		(e) Are the documents showing how training is		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
		managed operational?		
(vi)	Student Support and Development	(a) Are student support services available and adequate?		
		(b) Is the student body available and functional?		
(vii)	Information and Learning resources	(a) Are there relevant and up-to-date books available?		
		(b) Are the relevant and up-to-date books adequate?		
		(c) Are there computers for		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
		training available and adequate?		
		(d) Is internet access available?		
(viii)	Academic staff and Support staff	(a) Are the teaching staff adequate in number and qualifications?		
		(b) Is the support staff adequate in number and qualifications?		
		(c) Are there transparent staff recruitment procedures available and implemented?		
		(d) Are transparent staff development procedures		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
		available and implemented?		
(ix)	Physical resources	(a) Is a master plan for campus development available?		
		(b) Are physical facilities and equipment available?		
		(c) Are the physical facilities and equipment adequate?		
		(d) Is there effective management of physical resources available?		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe: challenges, status, support needed)
(x)	Financial Resource	(a) Is there an institutional budget available?		
		(b) Is there a financial plan, including fees justification?		
		(c) Are the financial resources adequate to support student learning?		
		(d) Are external audits conducted and are reports available?		

Criterion 2:   Capacity of Departments for Recognition

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe on: challenges, status, support needed)
(i)	Educational programme and education leadership	(a) Do the name(s) of department(s) reflect programmes offered?		
		(b) Does the title of educational programmes reflect the content?		
		(c) Is the education leadership is adequate?		
(ii)	Physical and information resources	(a) Are the physical resources are adequate?		
		(b) Are information resources, systems and services adequate?		
(iii)	Departmental Staff	(a) Are the academic staff adequate in number and qualifications?		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe on: challenges, status, support needed)
		(b) Are the supporting staff adequate?		
(iv)	Academic programmes and staff evaluation	(a) Are programme evaluation procedures available and appropriate?		
		(b) Are staff evaluation procedures available and appropriate?		
(v)	Student Admission	(a) Are student admission criteria documented?		
		(b) Are student admission procedures adequate?		
(vi)	Academic Programmes	(a) Is duration of academic programme(s) sufficient?		
		(b) Are the contents of the academic programme(s) adequate?		
		(c) Are the methods of delivery of the programme(s) adequate?		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe on: challenges, status, support needed)
		(d) Are the assessment procedures of the programme(s) adequate?		
(vii)	Student advisory and support	(a) Are student advisory services appropriate?		
		(b) Are student support services appropriate?		
		(c) Is the field work adequate?		
		(d) Is the field supervision adequate?		

Tutor Availability

	Number		# of Students	
Full-time tutors		vs.		
Part-time tutors				
Volunteer tutors				
Tutor Name		Job Title	Qualifications	PT/FT?

example: Dr. [first name] [last name]	Medical Doctor	Medical Officer	FT

Criterion 3: Effectiveness of Quality Control (QC) and Quality Assurance (QA) Systems

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe on: challenges, status, support needed)
(i)	Quality Policy and Quality Management Plan	(a) Does an institutional quality management plan exist?		
		(b) Does an institutional quality policy exist?		
(ii)	Quality Management Structure	(a) Is there a quality management committee available and functional?		
		(b) Are the responsibilities of quality shared among staff and Governing Body?		
(iii)	Involvement of Stakeholders in Quality Assurance	(a) Are the NACTE academic quality standards observed?		
		(b) Are stakeholders involved to enhance quality of training?		
(iv)	Evidence of Quality	(a) Are there quality monitoring and evaluation procedures?		

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe on: challenges, status, support needed)
	Assurance System	(b) Is there a motivation system to encourage quality enhancement?		
		(c) Is there evidence of an effective Quality Assurance System?		

Criterion 4:   Practicum Area

S/N	Description of Items	Sub-Items	Yes/No	Comments (probe on: challenges, status, support needed)
(i)	Administration	(a) Are there institutional guidelines available describing students?		
		(b) Do the name(s) of department(s) reflect the clinical program available?		
		(c) Are the clinical staff adequate in number and qualification?		

(ii)	Resources	(a) Is there enough space to accommodate learning students?		
		(b) Is there enough patients available at the major sites of the practicum?		
		(c) Is there equipment available to support students learning?		
		(d) Are there supplies available for students to conduct all tasks?		

Appendix E: Tutor Inventory – Mbeya AMOTC

SN	Staff by cadre	Required	Available	Gap
1	Medical Officers with MBA/MPH	2	1	1
2	Medical/Nursing Officers with Masters in Health system Management	2	2	0
3	Accountants with Masters in finance	1	0	1
4	Medical Officer with a Masters in Medical Education	1	0	1
5	Nursing Officers with Masters Degree	10	6	4
6	Nursing officers with Masters in Nursing education	1	0	1
7	Nursing Officers	9	2	7
8	Assisting Nursing Officer	3	1	2
9	Medical Officers	15	10	5
10	Medical Specialists	5	1	4
11	Dental Specialists	6	1	5
12	Dental Officers	6	2	4
13	Laboratory Technologist	2	0	2
14	Laboratory Technician	2	0	2
15	Physiotherapists	2	2	0
16	Administrator	1	0	1
17	Assistant Accountant	3	3	0
18	Secretary	10	1	9
19	Procurement Officer	2	1	1

20	Librarian	1	0	1
21	Assistant Librarian	2	1	1
22	Driver	7	2	5
23	Registry Officer	2	0	2
24	IT technician	1	0	1
25	Office attendant	9	9	0
26	Warden	1	0	1
27	Skills lab attendant	3	0	3

Appendix F: Tutor Inventory – Mtwara COTC

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF HEALTH AND SOCIAL WELFARE
MTWARA CLINICAL OFFICERS TRAINING CENTRE
LIST OF TUTORS FOR THE 2014/2015 ACADEMIC YEAR

NTA LEVEL 4; FIRST YEAR

Module code	Module name	Module tutors	Designation	Station
CMT 04101	Communication and Counselling Skills	Sr. Magdalena Pilla	RN	MRRH
CMT 04102	Anatomy and Physiology I	Dr. Dickson Sahin	DDS	MRRH
CMT 04103	Environmental Health	Said Chibwana		RAS
CMT 04104	Microbiology, Parasitology and Medical Entomology	Dr. Gabriel Tarimo	MD	MRRH
CMT 04105	Pathology	Dr. Joseph Mwiru	ADO	MRRH
		Dr. Christopher Genge	MD	MRRH
CMT 04207	Communicable Diseases	Dr. Joseph Mwiru	ADO	MRRH
CMT 04208	Anatomy and Physiology II	Dr. Dickson Sahini	DDS	MRRH
CMT 04209	Basic Clinical Laboratory	Zena Binamu	Lab Certificate	MRRH
CMT 04210	Basic Patient care	Magdalena Pilla	RN	MRRH

NTA LEVEL 5: SECOND YEAR

Module Code	Module title	Module tutors	Designation	Station
CMT05101	Epidemiology and Biostatistics	Mrs. Flora Makenya	MPH	MRRH
		Mr. Mathew Ndomondo	BSc. Nursing	NTC
CMT05103	Paediatrics and Child Health I	Dr. Janeth Mandepu	MD	MRRH
		Dr. Joyce Njila	AMO	MRRH
CMT05104	Obstetrics and Gynaecology	Dr. Christopher Genge	MD	MRRH
		Dr. Kevin Nandonde	MMed	MRRH
CMT05105	Health Promotion	Ms. Magdalena Pilla	RN	MRRH
CMT05106	Nutrition	Mrs. Illuminata Kakiziba	Bsc. Nutrition	TPDF Naliendele
CMT05107	Applied Clinical Laboratory	Ms. Zena Binamu	Lab Certificate	MRRH
CMT05108	Pharmacology and pharmacy practices	Ms. Flora Makenya	MPH	MRRH
CMT 05209	Surgery	Dr. Frank Sudai	MD	MRRH
CMT 05210	Internal Medicine II	Dr. Gabriel Tarimo	MD	MRRH
CMT 05211	Paediatrics and Child Health II	Dr. Janeth Mandepu	MD	MRRH
		Dr. Joyce Njila	AMO	MRRH
CMT 05212	Obstetrics and Gynaecology II	Dr. Christopher Genge	MD	MRRH
		Dr. Kevin Nandonde	MMed	MRRH
CMT05213	Counselling	Ms. Magdalena Pilla	RN	MRRH
CMT 05214	Reproductive and Child Health	Mr. Mathew Ndomondo	Bsc. Nursing	NTC
		Sr. Yusta Chale	RN	MRRH

Module Code	Module title	Module tutors	Designation	Station
		Mr. Saidi Chibwana	Diploma Env. Health	RAS

NTA LEVEL 6; THIRD YEARS

Module Code	Module title	Module tutors	Designation	Station
CMT 06102	Management	Mr. Doto Mhangwa	Bachelor of Law	Mtwara
CMT 06105	Surgical Specialities	Dr. Joseph Mwiru	ADO	MRRH
		Dr. Gabriel Tarimo	MD	MRRH
		Dr. Frank Sudai	MD	MRRH
CMT 06107	Entrepreneurship in Health	Mathew Ndomondo	Bsc. Nursing	NTC

Total = 15

CLINICAL INSTRUCTORS:

Practicum site: Mtwara regional hospital

S/No.	Department	Name of clinical instructor	Designation	Station
1.	Internal Medicine	Dr. Adam Lituli	MBBS	MRRH
		Dr. Sadik Katias	MBBS	MRRH
		Dr. Gabriel Tarimo	MD	MRRH
2.	Paediatrics and Child health	Dr. Janeth Mandepu	MD	MRRH
		Dr. Joyce Njila	AMO	MRRH
		Dr. Zawadi Bwanali	MBBS	MRRH
3.	Obstetrics and Gynaecology	Dr. Kevin Nandonde	MMed.	MRRH
		Dr. Christopher Genge	MD	MRRH
4.	Surgery	Dr. Frank Sudai	MD	MRRH
5	Reproductive and Child health	Sr. Yusta Chale	RN	MRRH

Appendix G: Tutor Inventory – Tanga AMOTC

	Number			
Full-time tutors	24	vs.	# of Students	
Part-time tutors	17			
Volunteer tutors	Nil			

Tutor Name	Job Title	Qualifications	PT/FT?
example: Dr. [first name] [last name]	Medical Doctor	Medical Officer	FT
Dr Lucheri Kweka	Medical Doctor	Dept of internal medicine (Physician)	FT
Dr Jumanne Karia	Medical Doctor	Dept of internal medicine (Physician)	PT
Dr Shabir M	Medical Doctor	Dept of internal medicine (Physician)	PT
Dr Simon Gregory	Medical Doctor	Dept of internal medicine (Physician)	PT
Dr Nicholaus Tarimo	Medical Doctor	Dept of internal medicine (Physician)	FT
Dr Zalha Nuhu	Medical Doctor	Dept of internal medicine (Physician)	PT
Dr Yasin Lohai	Medical Doctor	Dept of internal medicine (Physician)	PT
Dr Ignatus Mosten	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	FT
Dr Rose Chengo	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	FT (on study leave)
Dr Maria Maro	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	FT (on study leave)
Dr Rasheed Murtaza	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	PT
Dr Bernard Seme	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	FT
Dr Mark Waziri	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	PT
Dr Gladys Yona	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	PT
Dr Justice Mwambashi	Medical Doctor	Dept of Paediatric and Child health (Pediatricians)	PT
Dr Ferdinand Mtatifikoro	Medical Doctor	Dept of Obstetrics and Gynecology (Obs / Gynecologist)	PT
Dr Joseph Mbelesero	Medical Doctor	Dept of Obstetrics and Gynecology (Obs / Gynecologist)	PT
Dr Damian Marube	Medical Doctor	Dept of Obstetrics and Gynecology (Obs / Gynecologist)	PT
Dr Mwanahamis Jafari	Medical Doctor	Dept of Obstetrics and Gynecology (Obs / Gynecologist)	FT
Dr George Mayalla	Medical Doctor	Dept of Obstetrics and Gynecology (Obs / Gynecologist)	FT
Dr Abdi Msangi	Medical Doctor	Dept of Obstetrics and Gynecology (Obs / Gynecologist)	PT
Dr Hamis Isaka	Medical Doctor	Dept of Surgery (Surgeon)	FT
Dr Charles Tunuku	Medical Doctor	Dept of Surgery (Surgeon)	PT
Dr Said Nondo	Medical Doctor	Dept of Surgery (Surgeon)	PT(on study leave)
Dr Rashid Said	Medical Doctor	Dept of Surgery (Surgeon)	FT
Dr Salum Msangi	Medical Doctor	Dept of Surgery (Surgeon)	FT
Dr Shaban Amir	Medical Doctor	Dept of Surgery (Surgeon)	PT

Dr Julia Wangari	Medical Doctor	Dermatologist	FT
Dr Badria Mushi	Medical Doctor	Ophthalmologist	FT(on study leave)
Dr Said Abeid	Medical Doctor	Radiologist	FT (on study leave)
Dr James Mfuko	Medical Doctor	Radiologist	FT
Mr John G. Mrema	M.Sc Clinical research & BMLS	Microbiology and Parasitology &epidemiology and Research	FT
Mr Innocent Chengula	BMLS	Med Laboratory Sciences	FT
Ms Josephine Mapunda	M.Sc. Microbiology and BMLS	Med Laboratory Sciences, Microbiology	FT
Stephen S. Simchimba	MDLS	Medical Lab scientist	FT
Emmanuel Mwita	Laboratory technologist	Medical Lab scientist	FT
Iddy Semagang'o	MDLS	Medical Lab scientist	FT
Sinde Ntobu	MDLS	Clinical Chemistry, haematology and Logistics	FT
Mr Bwire	BSc IT	Computer Scientist	FT
Dominick Shauri	MDLS Lab management & epidemiology	Field Lab scientist	FT
Rashid Madebe	MDLS	Immunology, microbiology& molecular biology	FT

Appendix H: NACTE Accreditation Findings – All HTIs

Criterion 1: Compliance with the NACTE Accreditation Standards

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
(i)	Vision and Mission	(a) Institution Vision stated	Yes	No Institution merging with the zone	Yes
		(b) Institution Vision documented	Yes	No	Yes
		(c) Institutional Mission stated	Yes	No	Yes
		(d) Institutional Mission documented	Yes	Yes Existing institution accredited, but now will start over	Yes
(ii)		(a) Governing/ Advisory Board	No	No	No

	Governance and Administration	available and tenure of office valid	Principal directly accountable to the HRD	MOH leads	MOH leads
		(b) Minutes of Board Meeting documented	None	No	N/A
		(c) Organization Chart available	No	No Institution transitioning	Yes
		(d) Key positions manned by qualified personnel	Yes Principle Vice Principle Academic Officer Qualified medical doctors	Yes NACTE observes and recommends	Yes Missing procurement officer
(iii)	Institutional Integrity	(a) Printed material for public	No – unsure of the future of the AMO program	No	No

		information disclosure available			
		(b) Printed material portray true image of the institution	No	No	No
(iv)	Institutional effectiveness	(a) Strategic Plan available	Yes	No Merged with the zone	Yes Difficult to implement due to financial constraints
		(b) Implementation, monitoring and evaluation systems available	No Currently no M&E personnel	Yes Available at the programme level	Yes There is checklist for different Departments
(v)	Educational Programmes	(a) General education and rationale specified in training programmes	Yes	Yes	Yes
		(b) Committees for academic matters available	Yes – challenge the director is the chair and plays multiple roles, cannot always attend meetings	Yes	Yes

		(c) Committees for academic matters functioning	Yes – meeting every 6 weeks and on demand if necessary	Yes	Yes The committee meets quarterly
		(d) Documents showing how training is managed available	Yes Teaching plans are available (i.e. Syllabi)	Yes There is a book where tutors sign and shows the topic taught including signatures of students attended	Yes Yes the document is available, they have stipulated at the wall, its shows what students supposed to be trained in the class and what to be trained at the practicum site
		(e) Documents showing how training is managed operational	Yes – documented in a register that tutors sign	Yes	Yes
(vi)	Student Support and Development	(a) Student support services available and adequate	Yes Tutorials, study groups, warden, mentors	Yes	Yes The support to student are available but there is no documented system
		(b) Student body available and functional	Yes Active government with a president and a prime minister	Yes	Yes Active government

					Body has its own law that every student has to follow
(vii)	Information and Learning resources	(a) Relevant and up-to-date books available	Yes	Yes	Yes
		(b) Relevant and up-to-date books adequate	Yes	No Need to add the number of books	Yes (For the existing courses)
		(c) Computers for training available and adequate	No	Yes	No Computers for the faculty only Students use their personal computers
		(d) Internet access available	No	No	Yes The internet is available but access to staff only due to budget constrains they limited access to students
(viii)	Academic staff and Support staff	(a) Teaching staff adequate in number and qualifications	Yes (for now)	No	Yes They are available and qualified, but they lack medical science tutors

		(b) Support staff adequate in number and qualifications	No No Admin, no librarian, no ICT	No	No Need librarian, procurement officer, office attendants and security guard
		(c) Transparent staff recruitment procedures available and implemented	No All recruited at the central level	Yes Through MOHSW	Yes/No It hard to tell at the institution level, Staff recruitment is under MoHSW level
		(d) Transparent staff development procedures available and implemented	Yes HTI develops the plan but it is the MOHSW discretion who get funded	Yes Through MOHSW	Yes The staff development issues are being discussed during monthly staff meeting for staff to use those opportunities
(ix)	Physical resources	(a) Master plan for campus development available	No Waiting to hear about the expansion proposal	Yes	Yes
		(b) Physical facilities and equipment available	Yes for old No for new (no plan for furnishing or equipment for expansion)	Yes	Yes

		(c) Physical facilities and equipment adequate	Yes for old No for new	No	Yes for old No for new Need renovations, additional tables and chairs, skill building lab
		(d) Effective management of physical resources available	Yes But with financial challenges	No Funding issue	Failed to ask
(x)	Financial Resource	(a) Institutional budget available	No Moral low from failed attempts to secure funding	No	Yes But not resources are awarded funding by the MOHSW
		(b) Financial plan, including fees justification available	Yes Follows MOHSW guideline; fees are not enough to cover operational costs	No Through MOHSW	Yes
		(c) Financial resources to support student learning adequate	No Fees are not enough to cater for operational costs. Fees structures should be reviewed and the new fee should be charged to students	No Some students are supported by global fund through the Ministry.	No Financial constraints is a main challenge, student are well educated but are limited to some

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
					services due to financial challenges
		(d) Reports of external auditors available	Yes Internal and external	Yes Internal and external	Yes Internal and external

Criterion 2: Capacity of Departments for Recognition

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
(i)	Educational programme and education leadership	(a) Name(s) of department(s) reflect programmes offered	n/a Only offer one program	Yes	Yes Reflecting the current courses offered
		(b) Title of educational programmes reflects content	n/a	Yes	Yes Diploma in Medical Laboratory and Assistant medical Officer

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
		(c) Education leadership is adequate	n/a	No	Yes Some are par time tutors
(ii)	Physical and information resources	(a) Physical resources are adequate	n/a	Yes 3 Hostels under construction.	No The reagents and medical equipment are inadequate
		(b) Information resources, systems and services are adequate	n/a	Yes But no internet connectivity	No They have only small library, there is no computer lab for students as well as students do not have access to internet
(iii)	Departmental Staff	(a) Academic staff adequate in number and qualifications	n/a	No	Yes Although many are part time tutors, only three tutors are full time

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
		(b) Supporting staff adequate	n/a	No	No The Institution doesn't have a procurement officer and needs a librarian
(iv)	Academic programmes and staff evaluation	(a) Programme evaluation procedures available and appropriate	No	Yes Internal – Local External- Tanganyika Medical Council	Yes Available but not implemented
		(b) Staff evaluation procedures available and appropriate	No (not formal)	Yes Through OPRASS	Yes Yes, they use to give student forms to evaluate the tutors at the end of semester, if they understand tutors and his/her teaching capacity and class management. The evaluation also include performance of the students in his /her subject

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
(v)	Student Admission	(a) Student admission criteria documented	n/a Mandated by MOHSW	No NACTE and MOHSW	Yes In curriculum
		(b) Student admission procedures adequate	n/a	Yes Fraud especially on the certificates Pass mark not realistic	Yes This academic year 2014/2015 NACTE did not follow the stated criteria due to low number of applicants led them to select the applicants will low performance to cover the required number
(vi)	Academic Programmes	(a) Duration of academic programme(s) is sufficient	No The AMO program is only 2 years which is very tight according the HTI and the students	No Content is too much but the time is less (3 years).	Yes

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
		(b) Contents of the academic programme(s) are adequate	Yes	Yes	Yes
		(c) Methods of delivery of the programme(s) are adequate	Yes	Yes Time factor	Yes All the methods has been analyzed in the curriculum, this include theory period and practicum period
		(d) Assessment procedures of the programme(s) are adequate	Yes This is clearly stated in the curriculum and implemented	Yes Written, practical and oral (clinicals)	Yes
(vii)	Student advisory and support	(a) Student advisory services are appropriate	Yes By tutors	No	Yes During orientation students are briefed on these services

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
		(b) Student support services appropriate	Already answered	No Few staff members to provide.	Yes Students are well supported by tutors according to their needs either academically or socially advised
		(c) Field work is adequate	Yes	Yes 2nd year they do community medicine and third year district level clinical learning.	Yes
		(d) Field supervision is adequate	No funds	No Logistically difficult no funds to follow-up	Yes But financial challanges

Criterion 3: Effectiveness of Quality Control (QC) and Quality Assurance (QA) Systems

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
(ii)	Quality Management Structure	(a) Quality management committee available and functional	No	No	No
		(b) Responsibilities of quality shared among staff and Governing Body	No	No	Yes But at the institution level they need to adapt from MoHSW and create their own according to the institution environment
(iii)	Involvement of Stakeholders in Quality Assurance	(a) NACTE academic quality standards observed	No	Yes	Yes
		(b) Stakeholders are involved to enhance quality of training	No Involve hospital management but no other stakeholders	Yes Zonal Meeting Faith based organization R/CHMT	Yes NIMR staff from Tanga Regional Referral Hospital

(iv)	Evidence of Quality Assurance System	(a) Quality monitoring and evaluation procedures exist	No	Yes	No
		(b) Motivation system to encourage quality enhancement exists	No	No	Yes Every year they select best student and best tutor based on performance and good behavior and give prize
		(c) Evidence of an effective Quality Assurance System available	No	Yes	No

Criterion 4: Practicum Area

S/N	Description of Items	Sub-Items	Mbeya AMOTC	Mtwara COTC	Tanga AMOTC
(i)	Administration	(a) Institutional guidelines available describing students	Yes Each department has developed guidelines for students to be advised and evaluated	Respondent did not know	Yes There is a procedure book for students to use as a guidance at the practicum site during clinical rotation

		(b) Name(s) of department(s) available reflect the clinical program	Not sure	Respondent did not know	Yes
		(c) Clinical staff adequate in number and qualification	Yes - 2-3 specialists per department to supervise	Respondent did not know	Yes
(ii)	Resources	(a) Enough space to accommodate learning students	Yes	Respondent did not know	Yes
		(b) Enough patients available at major sites	Yes Outpatients >500/day Inpatients >300/day Receive referrals from other hospitals in the zone META has >30 deliveries a day And 8-10 c sections	Respondent did not know	Yes

(c) Equipment available to support students learning	Yes ICE's Incubators ABG monitors In Theater – new operating lights Neonatal machines Laparoscopic Tower The lab – The only ref lab second to the national lab Capacity for TB MDR screening Heavy equipment investment over the past few years Special features – 5S teaching for other countries Fully fledged EMR system Building oxygen plant Modern mortuary Piping all the wards	Respondent did not know	Yes

			Creating a new maternity ward with privacy		
		(d) Supplies available for students to conduct all tasks	No – Sometime runs short of supplies	Respondent did not know	Yes