CHALMERS
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How the Role of Trust can Affect the Collaboration in a Temporary Organization

A Case Study of the Mkula Hospital Project in Tanzania

Master's thesis in Design and Construction Project Management

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Department of Architecture and Civil Engineering
CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2019

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Cover: Main pathway between the wards at Mkula Hospital, Tanzania.
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Abstract

The purpose of this thesis was to investigate the importance of trust within a temporary organization. This has been done by studying the subjects of temporary organizations, knowledge sharing as well as trust. The main part of this thesis consist of a case study in the village of Mkula, Tanzania, where a foreign aid project took place.

An inductive approach was chosen as a research methodology that started with the case study followed by a literature review. The literature study started its focus on the challenges of working in a temporary organization and was followed by the barriers of sharing knowledge in the same context. Finally, trust within temporary organizations is brought up crucial for the collaboration to be efficient. Throughout the study, the methods for collecting information were participant observations, documentation and an interview with a focus group.

The case study was conducted during a period of eight weeks within a team that formed a temporary organization with an aim towards improving infrastructural challenges at the hospital in Mkula. The actors within the collaboration consisted of us as researchers, the hospital management team, local actors, as well as founders of the project - the Healthy Hospital Project Group, which is a part of the non-governmental organization: Engineers Without Borders. This thesis focuses on the collaboration between us and the hospital management team as we formed a temporary organization for the duration of the case study.

During the analysis, the main conclusion was the aspect of time needed in temporary organizations due to the difficulties of creating a trustful relationship between involved actors in a limited amount of time. In addition to this, the importance of informal relationships within groups was emphasized as it facilitates the willingness to share knowledge which is a foundation for trust to develop.

Keywords: Temporary Organizations, Trust, Knowledge Management, Case Study, Foreign Aid, Tanzania, International Collaboration.

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Sammanfattning

Syftet med denna uppsats är att undersöka betydelsen av tillit inom en tillfällig organisation genom att studera tillfälliga organisationer med avseende på kunskapshantering. Huvuddelen av arbetet genomfördes som en fallstudie av ett biståndsprojekt av ett sjukhus i Mkula, Tanzania.

Uppsatsen är strukturerad på ett induktivt sätt vilket innebär att fallstudien presenteras före litteraturstudien. Uppsatsen fokuserar på utmaningarna med att arbeta i en tillfällig organisation och de hinder som kan uppstå vid delning av information. Tillit i tillfälliga organisationer tas upp som avgörande för att sammarbetet inom gruppen ska bli effektivt. För att samla information i fallstudien användes deltagande observationer, dokumentation och en intervju med en fokusgrupp.

Fallstudien varade i åtta veckor och syftade till att förbättra sjukhusets infrastrukturella utmaningar. De involverade aktörerna i fallstudien bestod av oss studenter som skrivit uppsatsen, sjukhusledningen, lokala aktörer samt grundarna av biståndsarbetet - Healthy Hospital Project Group, som är en del av den icke-statliga organisationen Ingenjörer Utan Gränser. Denna studie fokuserar på samarbetet mellan studenterna och sjukhusledningen eftersom de bildade en tillfällig organisation under tiden för fallstudien.

Slutsatsen av arbetet var att tidsaspekten i tillfälliga organisationer kan ge upphov till svårigheter i att skapa pålitliga relationer mellan berörda aktörer på grund av brist på tid. Utöver detta betonades vikten av informella relationer inom den tillfälliga organisationen, då det ökar viljan att dela med sig av kunskap.

Nyckelord: Tillfälliga Organisationer, Tillit, Kunskapshantering, Fallstudie, Biståndsarbete, Tanzania, Internationellt Samarbete.

Acknowledgements

This master thesis included a case study with an aim towards studying how trust affects the collaboration within a temporary organization. The case study was conducted at an aid project in Tanzania, a project initiated by the Healthy Hospital Project Group. It was performed during March and April 2019, at Mkula Hospital in Tanzania. Several organizations supported the project, such as: Engineers Without Borders, Architects Without Borders, WSP, RISE, ARQ, Chalmers Mastercard, as well as Sida and Åforsk who provided scholarships for us students.

We would like to thank the Healthy Hospital Project Group for the possibility to conduct this case study by initiating the project. Additionally, we thank you for the technical support and supervision during our stay.

Our next thank you is to the Hospital Management Team for their hospitality and collaboration throughout our stay. This has been crucial for our study and we appreciate all the help you provided us with.

Finally, we would like to thank our supervisor, Martine Buser. Thank you for all your support during our stay in Tanzania as well as supervising us and helping us conduct a thesis out of our experience.

Ellen Brandt & Annika Sjöberg, Gothenburg, June 2019

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Abbreviations

AICT	African Inland Church Tanzania
EWB	Engineers Without Borders
HHPG	Healthy Hospital Project Group
HMT	Mkula Hospital Management Team
NGO	Non-Governmental Organization
RCH	Reproductive & Child Health
Sida	Swedish International Development Cooperation Agency
UPS	Uninterrupted Power Supply

1
Introduction

The concept of foreign aid consists of resources given by one country to another in order to improve the living standards in the receiving country. Today there are a large number of countries that are dependent on this contribution, just as there are many organizations and nations who are involved in providing foreign aid (Lancaster, 2008). To coordinate aid between countries, there are several international organizations, where the United Nations is the most known. When they were established they stated that one of their purposes is:

> *"To achieve international co-operation in solving international problems of an economic, social, cultural, or humanitarian character."*
> - United Nations (1945)

Providing foreign aid is nowadays expected from developed countries and most states have well-established agencies that focus solely on foreign aid (Apodaca, 2017). In addition to this, there are several Non-governmental Organizations (NGOs) with a focus on foreign aid of different kinds. Due to the dependency of this support by the receiving countries, the donor countries can make demands on a country's government to ensure that the aid is used towards improving the living standards in the developing countries (Lancaster, 2008).

Aid work often takes the form of a project and, according to PMI (2004), a project can be defined as a temporary aspiration to create a unique product or service. A project has a definitive start and end, which makes the duration of the project limited just as in temporary organizations. Lundin and Söderholm (1995) mean that temporary organizations usually have the purpose to fulfill a specific goal within a time-limited period. These organizations, as well as other forms of organizations, create a situation in which development of trust between individuals is important (Munns, 1995). The difference with a temporary organization, however, is the lack of time for the development of long-term trust in interpersonal relationships. In temporary organizations, knowledge management has a great impact especially in the way tacit and explicit knowledge is transferred (Zmarly and Languilaire, 2013). According to Keshteh Gar et al. (2014), trust affects to what extent individuals choose to share both tacit and explicit knowledge.

For this master thesis, a case study at a hospital in Mkula, Tanzania, was conducted with the main purpose of improving the most crucial infrastructural challenges to enhance the health care at the hospital. The project is called Mkula Hospital Project and our involvement lasted for eight weeks during which we collaborated with a

number of actors from different cultures and backgrounds. Throughout the case study, we observed and conducted information for this thesis with the focus on investigating the role of trust in temporary organizations.

1.1 Background

Tanzania is one of the countries in Sub-Saharan Africa who has received most aid and approximately one-third of the expenses of the government is financed by foreign aid (Development Partners Group Tanzania, 2019). Of the 57 million people living in Tanzania, most are living in poverty (The World Bank, 2019). In addition to this, half of the inhabitants lack clean water and even less have access to a decent toilet (WaterAid, 2019). During recent years, however, the human development outcome and living conditions have improved.

Sida, a public agency in Sweden, aims their work towards reducing poverty and they have been cooperating with Tanzania since their independence in 1964. Sweden is one of the larger bilateral donors to the country and one of the goals within the cooperation is to contribute to reducing Tanzania's dependence on aid (Sida, 2019). The Mkula Hospital Project was initiated by the Swedish Healthy Hospital Project Group (HHPG) with an aim to improve health care in hospitals located in the rural land in Tanzania.

1.1.1 Health Care in Tanzania

In order to favor a country's economic and social growth as well as development, the population must have access to adequate health care services and facilities. Since only half of Tanzania's population has access to drinkable water and even fewer have access to functional sanitation facilities, the country is challenged with issues as malaria, AIDS/HIV, maternal mortality and child mortality. Drinkable water and decent sanitation prevents a lot of the exposure to common diseases (World Health Organization, 2014). Depending of the type of area the access to drinkable water varies. In the urban areas of Tanzania, drinkable water is available to 80% of the population while in the rural areas the percentage is only 45%.

1.1.2 The Mkula Hospital Project

The Mkula Hospital Project started in 2017 by the HHPG, which will be further introduced in chapter 3. The case study was a part of the second phase of the project where we, as students, lived in the village of Mkula for eight weeks and worked together with the Hospital Management Team (HMT), also further presented in chapter 3. The wastewater system was the initial focus and, in addition to this, the collection of rainwater was investigated as well as the possibility of a new building to expand the hospital area.

1.2 Aim

The aim of this thesis was to study what impact trust has on temporary organizations through means of knowledge sharing. By investigating this subject, the goal was to evaluate what key aspects to focus on in order to further develop future collaborations.

1.3 Specification of Issues Under Investigation

The thesis will strive towards answering the following research questions:

- What are the main challenges while working in a temporary organization such as the Mkula Hospital Project?
- What can be identified as barriers of sharing knowledge in the Mkula Hospital Project?
- How does the role of trust affect the collaboration in the Mkula Hospital project?

1.4 Limitations

Several limitations have been identified for this research. They are the following:

- One project has been studied which means that the conclusions drawn in this thesis may not be applicable to other projects.
- Because the HMT is dependent on our collaboration some answers received during interactions may have been untruthful due to their wish to please us.
- Due to lack of time within the HMT, only one interview was held where not everyone was participating. Therefore, not everyone's opinion was represented in the interview.
- During the case study there was not an interpreter present. This may have led to misunderstandings during interaction with locals.
- The methods used for this thesis was mainly participant observations which means that the findings during the case study are reflected by our own perceptions.
- Since there were many events taking place during the case study, this thesis consists of a selection of events that may not demonstrate the entire study.

1.5 Thesis Outline

The thesis is divided into several chapters where the method, the case study and the supporting theories are presented. Because of the inductive approach chosen for this thesis, the case study will be presented before the theory. The analysis is followed by a discussion that is based on the research questions. Finally, the conclusions, including recommendations, are presented. The outline of the thesis is the following:

- Methodology: The second chapter includes the specifications of the methodology used for this thesis which consisted of a case study and a literature review.

- Case Study: In the third chapter the case study at the Mkula Hospital Project will be presented. The purpose of this chapter is to give information about important actors and situations as well as explore the process of the study.

- Theory: In the fourth chapter, the literature study will present theories on how trust can affect the collaboration in temporary organizations. It covers trust in temporary organizations as well as the impact of knowledge sharing.

- Analysis: The fifth chapter will connect the findings of the case study with the chosen theory in order to further analyze and reflect on the outcome of the study.

- Discussion: In the sixth chapter the discussion of the most important findings will be presented.

- Conclusions and Recommendations: The final chapter will show the conclusions from the study as well as recommendations and thoughts for future research.

2
Methodology

For this thesis, data was collected during our work at the Mkula Hospital Project in Tanzania. Since the main focus of the field visit was to find improvements for the hospital, the collection of data came secondly by observing during the daily work (see section 2.1.1). After concluding the findings for the case study a literature review and analysis was conducted, hence, an inductive approach was chosen for this thesis. According to Thomas (2006), the primary reason for an inductive approach is to allow the research to evolve without the restraining of a pre-decided theory. In order to not have any preconceived thoughts on the findings during the case study, the inductive approach was viewed as the most suitable. This approach is commonly used in qualitative research as it allows researchers to search for literature that goes in line with the patterns found during the data collection and the process of analyzing. This gives the research a simple, straightforward path towards answering the initial questions (Thomas, 2006).

2.1 Case Study: Mkula Hospital Project

In qualitative studies, data collection is commonly done through a case study in order for the researcher to come closer to the environment being studied (Yin, 2013). The focus during the case study needs to be high in order to observe and analyze, since the goal of a case study is to explain the case being investigated (Gerring, 2017). Accordingly, the case study at Mkula Hospital took place in order to answer the research questions in this thesis. During the study, the main method for gathering information was participant observations, which will be further investigated in the following section. In addition to this, daily documentations took place and an interview with a focus group was held.

2.1.1 Participant Observations

The participant observation method was chosen as the main method for collecting data in this case study due to our active role as participants in the Mkula Hospital Project. This method is a common data collection method for qualitative research which allows the researcher to get a deeper understanding of human behavior and see the cultural differences that might exist (Kawulich, 2005). Since this case study was done in a context unfamiliar to us, this was chosen as an applicable method.

Participant observations is a method that has been used for over a century and there are multiple stages for the researcher to choose between depending on the

level of involvement in the project in relation to the observation taking place. One categorization of these roles forms the following four groups: *complete participant, participant as observer, observer as participant* and *complete observer* (Kawulich, 2005). For the participant as observer the researcher is included in the group being studied and the interest of the researcher goes beyond the observations taking place. The remaining part of the group is also aware of the researcher's role throughout the study (Emerald, 2019). During our case study in Mkula, the main focus was to improve the conditions for the hospital and therefore we had an interest other than collecting data when interacting with the studied group. The HMT was fully aware of the two agendas for our stay, hence, this role was chosen suitable for our study.

While the participant observation method allows the researcher to gain a deeper understanding and gives the study more validity, it also contains challenges that need to be taken into consideration. It may become more difficult to stay objective due to the participation in the group being studied which may change the outcome of the study (Emerald, 2019). It is also time consuming and the information collected is dependent on what key persons the researcher has access to (Kawulich, 2005).

In the Mkula Hospital Project, we collaborated closely with the HMT which gave us access to those who were in charge at the hospital. The collaboration involved daily interactions in formal and informal settings. The formal contexts were in the form of meetings, site visits and investigations. The informal activities were the situations such as small talks before a meeting, in walkways of the hospital and when we met members of the HMT in the village. We also interacted with one of the doctors during shared dinners. Through all meetings, we acted as participants and could observe the studied group, which was the main way we gathered information and data in the case study. Working close with the HMT gave us a lot of opportunities but it could also influence our view of the HMT depending on what they chose to let us observe. Our study was limited to eight weeks, which could affect the interactions since there was not much time to settle in before the observations took place.

Like most research methods, the participant observation method has limitations such as the difficulty to become a full member of the studied group due to differences like ethnicity or lack of trust between the parties (Kawulich, 2005). Since we could be discerned due to our ethnic background and because of the limited time mentioned above, these limitations became a crucial aspect of our study.

2.1.2 Interview

In qualitative research, interviews is one of the most applied methods (Bell et al., 2018). In this thesis the interview was semi-structured which, according to Bell et al. (2018), means that the interviewer follows an interview guide that includes certain topics. The interviewer can also ask other questions that provide deeper and more detailed answers.

Group interviews can be done with people in the form of a focus group (Flick, 2006). This group consists of a small group of people and concerns a specific topic.

This is used in situations where individual interviews will not be as beneficial as a group interview and this is a highly effective qualitative data-collection technique. In addition, Flick (2006) means that it is beneficial to work as a pair when interviewing a focus group. One can collect notes, while the other one can moderate and lead the interview.

Interviews can be held as a complement to the participant observations method. The With qualitative interviews there are some advantages that participant observations does not include, for example, the possibility to reconstruct an event (Bell et al., 2018). The interviewee can reflect on how certain series of events turned out in relation to a current situation. Another advantage of having qualitative interviews is that it enlightens issues that are undetectable to other data collecting methods since some things can not be found through observations (Bell et al., 2018).

In order to collect information, we interviewed a focus group consisting of people from the HMT, who played an important role in the studied temporary organization. This participants for this interview was the *Senior Medical Officer*, the *Medical Doctor*, *Matros* and the *Health Secretary*, who will be further explained in chapter 3. The interview was held in English and recorded with the interviewees' consent. As a complementary to the recording, notes were conducted. After the interview, a transcription was made and compared with the notes from the interview. The questions for the interview can be found in Appendix A. Since the interview contained questions regarding the collaboration within the temporary organization, the interview with the HMT was held at the end of the case study period. By doing this, the HMT could reflect over the whole time period of the collaboration. The interview was semi-structured and constructed in a way that led the interviewees to openly answer the question and make reflections (Flick, 2006). By using a focus group the participants complemented each other answers and elaborated their reflections together.

2.1.3 Documentation

Regarding collection of data through documentation in qualitative studies, one of the most important things, according to Yin (2013), is to keep a journal of everyday events. Flick (2006) agrees and says that a research diary is needed for documentation and reflection on the ongoing process. Another documentation method is field notes, which can be used out in the field and in interviews. However, according to Yin (2013), there is a challenge in keeping notes at the same time as being active, listening and observing. It is also suggested that documentation is performed as a routine. After a interview, it is necessary to document it by transcription.

During the visit at Mkula, a daily journal was written every evening in order to document events, reflections, and impressions. By writing a journal over eight weeks, it became easier to follow the process of the project as well as connect events to each other. Since the journal included thoughts and feelings, it gave an indication of how the study was experienced, not only how the project proceeded. During the stay,

field notes were taken during meetings in order to document decisions, but also the behaviour of involved actors. Since we were two students in the field, one held the meetings and the other took notes. As explained in section 2.1.2, the interview was documented by taking notes and later transcribed.

2.2 Literature Study

In qualitative research, the use of existing literature is relevant and there are several points in the research process where the use of literature can be helpful and relevant (Flick, 2006). According to Eriksson and Kovalainen (2015), literature research has the purpose of explore, summarize, compare, and critically analyze what other researches have been written about the studied subject. In the process of writing, the purpose is to examine what approaches and viewpoints have been adopted and what their strengths and weaknesses are. The literature should also be defined and guided by the research questions.

Since this thesis has an inductive approach, the literary study was performed after the case study. The literature was adapted to the collected data in order to explain activities and events during the case study. It also helps to answer the research questions and bridges theories with findings. The analysis and discussion are partly based on theories from the literature.

2.3 Analytical Process

According to Yin (2013), qualitative data analysis is performed in five different steps: compile a database, disassemble data, recompose data, interpret data and conclude. This method allows for playing around with the collected material in order to find a pattern among the gathered information. While interpreting the data, it is possible to go back and forth between disassemble data and recompose data in order to gain as much out of the research as possible (Yin, 2013). Since the duration of this case study at the Mkula Hospital Project was eight weeks, there was a lot of data collected and therefore this method was suitable. Due to the length of the study the analytic process started before the case study was finished which enabled the possibility to investigate certain interesting areas further through specific interview questions and observations.

2.4 Ethics

While doing a qualitative research, it is important to take ethical concerns into consideration. Qualitative research allows the researcher to come close to the participants personal lives which puts them in a vulnerable position (Hammersley and Traianou, 2012). All participants in a study should have given their consent to the research taking place voluntarily and the researcher needs to verify that no harm is done to those involved in the study (Flick, 2006). As mentioned above, the

HMT was aware of the research taking place and the students had their consent for collecting information. During parts of the research, especially the interview, the participants were reminded of the research taking place in order to make sure that all involved parties had received the information. However, to protect them and prevent any unforeseen risks no names will be mentioned throughout this thesis and no personal information will be revealed.

Research ethics can vary between different cultures and as researches it is important to be aware of how to conduct the research in a respectful way according to the culture in which the study is taking place (Silverman, 2016). Therefore, before the beginning of the case study, research about the culture in Tanzania was done in order to adapt quicker.

During the analytical part of the research, it is important to to treat the participants with justice and not base any findings on personal judgments about the participants of the study (Flick, 2006). Because of the close collaboration with the HMT during this study, this was seen as one of the most important aspects to consider and the findings will be analyzed as fair as possible.

3

Case Study at Mkula Hospital

This chapter will present the case study at Mkula Hospital in Tanzania, which is the main part of this master thesis. This case study was a part of an ongoing project which will be further explained in the following sections. Additionally, the preparations before departure and the project process for this phase will be presented.

Apart from conducting information for this thesis, an collaboration with the HMT regarding the hospitals infrastructural issues took place. During our eight weeks in Mkula, this collaboration consisted of daily meetings, formal and informal, with the HMT as well as other involved parties. The focus for these meetings was on the project and the collection of information for the thesis came secondly.

3.1 Mkula Hospital

The village of Mkula can be found in the northern part of Tanzania with an area of about 160 km^2 and a population of 17 000 inhabitants (City-population, 2017). It is located in the Busega district which borders to Lake Victoria, as shown in figure 3.1, and it is a part of the Simiya Region.

Mkula Hospital is the only hospital in the district and it has a catchment area for about 204 000 people. The hospital started with a 65-bed capacity in 1968 which today has increased to somewhere around 100. It was established by the African Inland Church of Tanzania (AICT) with support from donors from Germany and Holland. They have recently had 100 inpatients/day but the national government has started working on increasing available health care centers to release the pressure of hospitals around the country. This action has made a difference for Mkula Hospital and today they have approximately 45-50 inpatients/day. The number of outpatients/day is around a 100 and the number of deaths/week is 4-5 (Cronemyr et al., 2017).

The hospital provides several services including the curative: *Inpatient department, Outpatient department, Surgery, Dental & Oral care, Tuberculosis & Leprosy* and *Care & Treatment clinic for HIV/Aids*, as well as the preventative services: *Reproductive & Child Health, (RCH)* and *School Health program* (AICT Mkula Hospital, nd). They have 68 staff members including 3 doctors and around 15 nurses. Next to the hospital there is a nursing school who's students work and live at the hospital. According to the HMT, they are very dependent on the assistance they receive from the nursing students.

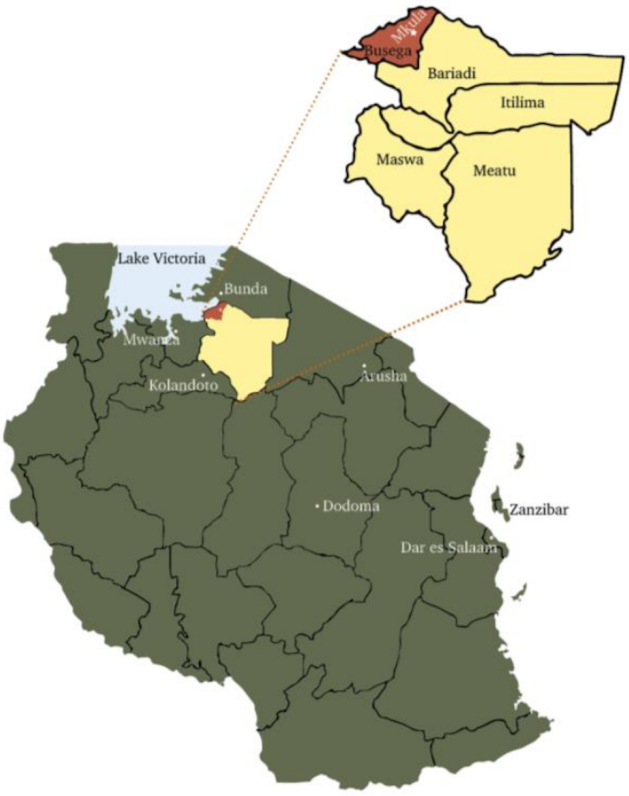

Figure 3.1: Map of Tanzania showing the location of Busega District and Mkula Village. The Simiya Region is shown by the red and yellow areas (Kullberg, 2018).

In 2017, the HMT requested assistance to solve issues mainly regarding the water supply, sanitation, waste management, and electricity to improve their infrastructural problems. The project started the same year and a relationship with the HMT was established. In the spring of 2018, the hospital was visited by students for the first time. They went to Mkula Hospital to install a new water pump to manage the most crucial issue regarding the water supply, and an evaluation of future improvements was made.

3.2 Mkula Hospital Project

This year's phase of the project is a part of an ongoing collaboration between the HHPG and the HMT. As stated above, the collaboration started in the fall in 2017 with a visit from a few members of the HHPG with the purpose to examine the improvements needed at Mkula Hospital and to establish a relation between the them and HMT.

Table 3.1 shows an overview of the main actors involved in this year's phase of the Mkula Hospital Project together with a description of their role in the project. During this Case study, all of these actors were observed at different times and they

all participated in the outcome of the study, however, some had a greater impact than others.

Table 3.1: Involved actors in the case study.

Actor	Description
First group of students	Two engineering students and one architect student who worked at the project before and in the beginning of our visit
Second group of students	We, two engineering students who conducted this thesis
Healthy Hospital Project Group	Project group in Sweden consisting of two engineers and two architects who started this collaboration
Project Coordinator	Person from the HHPG who coordinated the project
Hospital Management Team	Management of Mkula Hospital which includes the doctors, hospital engineer, matros, health secretary and hospital accountant
Senior Medical Officer	Doctor who is leaving the position of Medical Officer
Junior Medical Officer	Doctor who is taken over the position of Medical Officer
Medical Doctor	A doctor working at the hospital
Hospital Engineer	Person in charge of the infrastructure at Mkula Hospital
Hospital Accountant	Person in charge of everything regarding the budget
Health Secretary	Person who took notes during meetings
Matros	Chief of all nurses
Local Contractor	Contractor hired to renovate the toilets and sewage system
Local Engineer	Local engineer contacted for the construction of the RCH and investigation of rainwater management
UPS-installer	Electrician who installed the UPS-system at the hospital

3.2.1 Project Structure

After the HHPG first visited Mkula Hospital, the students, the HMT, and the HHPG have worked together to help improve Mkula Hospital after their requests and needs. For the spring of 2019, the students were represented in two groups. Two engineering students and one architect student formed the first group of students. The second group included us, two engineering students. The first group arrived at Mkula in January and stayed for eight weeks and we arrived when the first group had two weeks left. After their departure, we stayed for another six weeks.

Before the project, the HHPG as well as the HMT laid the foundation and the goals and aims of the project. The HHPG then prepared the students for the visit by

providing a project plan (see Appendix B) and shared their experiences. They also applied for donor-ships and funding with help from the students. During the case study, students served as the connection between the HHPG and the HMT. Students could make smaller decisions with the HMT, but in decisions regarding larger sums of money, the HHPG was involved as well.

The main actors involved in the project were the HMT, the HHPG, and the students. Besides the three main actors, donors and local actors were involved as well. This year was structured differently from previous years due to the two groups of students traveling to Mkula, but apart from that, the set up was familiar to HHPG and the HMT who had been involved in the previous phase of the project. The contact with donors was held by the HHPG and the students. We also had contact with the local actors together with the HMT. The structure of the project with all the involved actors can be seen in figure 3.2 which also shows who was located in Tanzania and who was located in Sweden.

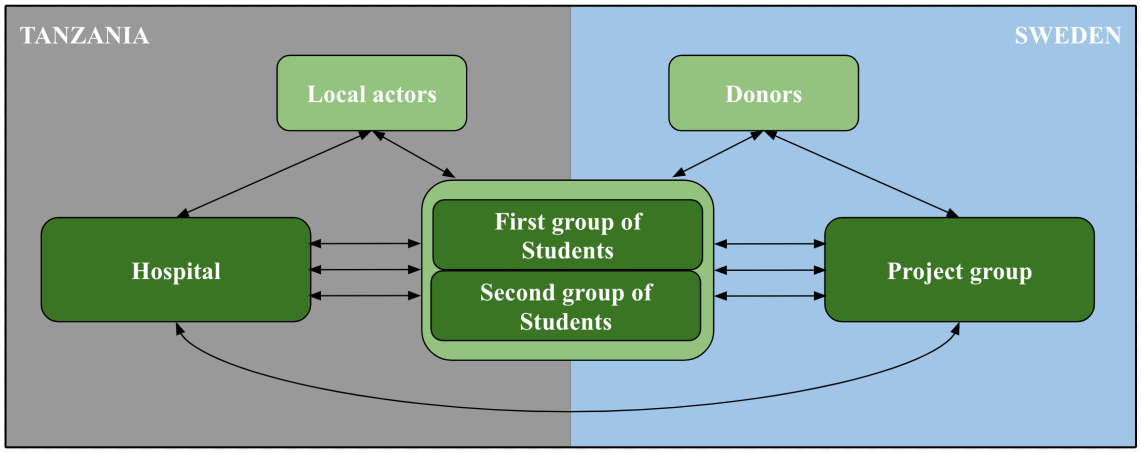

Figure 3.2: Project structure of the Mkula Hospital Project.

Local Actors

In this project, all actors hired for construction work or installations were local actors. This was chosen due to three reasons: the benefit of working with people familiar to the local context, the willingness to support local workers and the need of collaborating with actors who could communicate well with the HMT. During this phase of the project, three local actors were involved. These included the *Local Contractor*, who was hired to repair the sewage system and toilets, the *Local Engineer*, who was contacted for the construction of a new RCH building, and the *UPS-installer*.

Donors

The Mkula Hospital Project would not have been possible without the donors and partners who are supporting the work. In table 3.2 there is a list of the involved donors for this years phase of the project with their type of support listed. Since the establishment of the HHPG it has been a part of the NGO called Engineers

Without Borders (EWB). The HHPG is an independently operating group within EWB and it has no obligations other than giving updates on the ongoing project.

In addition to donors who funded the project, the students received scholarships to pay for the travel and accommodations in Mkula. One of these also included a preparation course during which the students gained knowledge for the case study taking place.

Table 3.2: Donors in the Mkula Hospital Project.

Donor	**Form of support**
ARQ	Project funding
Chalmers MarsterCard	Project funding
Engineers Without Borders	Partners
MFS - Sida	Personal Scholarships for students
RISE	Project funding
WSP	Project funding
Åforsk	Personal Scholarships for students

3.2.2 Hospital Management Team

The HMT at Mkula Hospital is involved in every major decision regarding the hospital and all work at the hospital went through them. The team consists of seven members including three doctors, one hospital engineer, the chief of the nurses, one hospital accountant and a health secretary. During the project, the health secretary resigned and a new health secretary joined the management team at the end of our visit.

When we arrived, a new medical officer, further referred to as the *Junior Medical Officer*, had recently been assigned. During our stay, the hand over process with the former medical officer, further referred to as the *Senior Medical Officer*, took place. The *Junior Medical Officer* was one of the doctors that had been working in the hospital previously. Since they were in the hand over process, the *Senior Medical Officer* was available to us and the one we had the most contact with during our stay. He had greater influence regarding decisions and prioritizations than the rest of the group. However, when signing contracts and official documents, it was the *Junior Medical Officers* responsibility. The *Senior Medical Officer* represented the team in almost every meeting with the HMT and he was also involved while working with local actors. Hence, the *Senior Medical Officer* played an important role in the project. In addition to these two doctors, there was an additional doctor at the hospital who further will be referred to as the *Medical Doctor*.

The *Hospital Engineer* was responsible for any technical issues at the hospital and therefore a lot of information about technical aspects came from him. He was present in most of the meetings we had with the HMT. The *Hospital Engineer* has

been employed at the hospital since the beginning and possessed a lot of knowledge about the technical systems at Mkula Hospital. It was harder to communicate with him because of his limited knowledge of English. However, the information we received from him was valuable for the project.

3.2.3 Healthy Hospital Project Group

The HHPG was founded by two engineers. The group has coordinated project at hospitals in Tanzania since 2015 and started with Mkula Hospital project after finishing its previous work at Kolandoto Hospital, another hospital within the AICT. Currently, the group includes two engineers and two architects. We, the students, are not part of the main group in the HHPG. Instead, we form our own student group within the project. The structure of the HHPG at the Mkula Hospital Project as well as the connection with the HMT can be found in figure 3.3. The two engineers in the management group participated in the aid work at Kolandoto Hospital in 2015 as a part of their master thesis. One of the architects was doing her master thesis at Mkula Hospital in 2018 and the other architect has a similar experience, but in another project in Tanzania. The HHPG is informally led by one of the engineers, the *Project Coordinator*, who is in charge of the contact with the HMT.

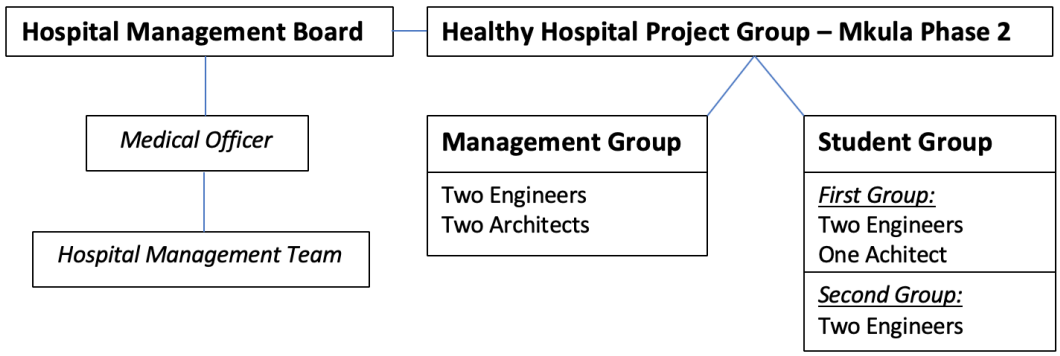

Figure 3.3: Structure within the HHPG during the Mkula Project phase two and its connection with the HMT.

Before departure, we met the HHPG in formal meetings to get information about the project. We also met in informal meetings to get to know each other and strengthen the group. The communication during the case study was held through phone calls. In larger decisions all of the members in the HHPG was included, but when we needed advice on technical solutions we only contacted the *Project Coordinator* or the two engineers. Documentations, drawings, and contracts were, however, sent to the whole group to get their input. The communication was ongoing throughout this phase of the project and it was mostly on the students' suggestions the meetings took place.

3.2.4 Students

The purpose of having two groups of student overlapping each other this year was to extend the time of the project from eight to 14 weeks. In that way, students would be present at the project, not only during the startup but also during the construction phase. As the second group of students, our job was to supervise the ongoing sub-project which was started by the first group of students. Our motivation was to increase the living standard in the area and contribute to a hospital with improved facilities.

Before the departure from Sweden we mostly applied for scholarships to fund the project and had contact with Chalmers University of Technology regarding the research. Since none of us had been in a similar project before we also had a lot of contact with the first group of students at this time. They gave us information about the living situation in Mkula as well as their experience from working in the project which helped us to prepare for the visit.

3.3 Information Before the Start of the Project

In October 2018, we were introduced to the HHPG and the project at Mkula Hospital. This was also when we started preparing for the fieldwork. These preparations consisted of, as stated above, meetings with the HHPG as well as reading through the previous master thesis. Most information about the conditions at the hospital was found in a survey report conducted by the students who went to Mkula in the spring of 2018 as well as in the project plan, see Appendix B, for the entire phase two made by the HHPG. With the last two as sources, we also made a project plan for our stay and applied for different scholarships.

In addition to having contact with the HHPG, we also meet frequently with the students going to Mkula before us to discuss the time plan for the project. During the last month before our departure, when the other students had arrived in Mkula, we had meetings over the telephone where they told us about the current situation in Mkula in order for us to make some adjustments in our preparation work. We also attended a preparation course held by Sida which had the purpose of preparing students for minor field studies in developing countries. For this course we prepared with general information about Tanzania which we found could be useful for us during our stay in the country. We also learned a few phrases in Swahili since many people in Tanzania do not speak English.

Before our arrival in Tanzania, no direct contact with the HMT was made and all information we received about the hospital was from the HHPG or previous students. For the first months of preparations, the HHPG was in contact with the hospital but once the first group of students arrived, the communication went through them.

3.4 Project Process

The project process of the case study consisted of various activities. For this thesis, six main phases were identified and evaluated which were:

- Introduction
- Procurement of toilets and sewage system
- Construction of toilets and sewage system
- Decision of additional sub-project
- Offer collection for RCH building
- Investigation of rainwater management

In figure 3.4 the duration for each phase can be found together with their place in the process. The phases were overlapping to some extent since each of them did not always require our full attention. The following sections in this chapter will describe each activity as well as explaining the effect a certain activity had on the process. Since we, as the second group of students, arrived at an ongoing project, our timeline was dependent on the outcome of the first group of students' progress and some events occurred due to previous work by them.

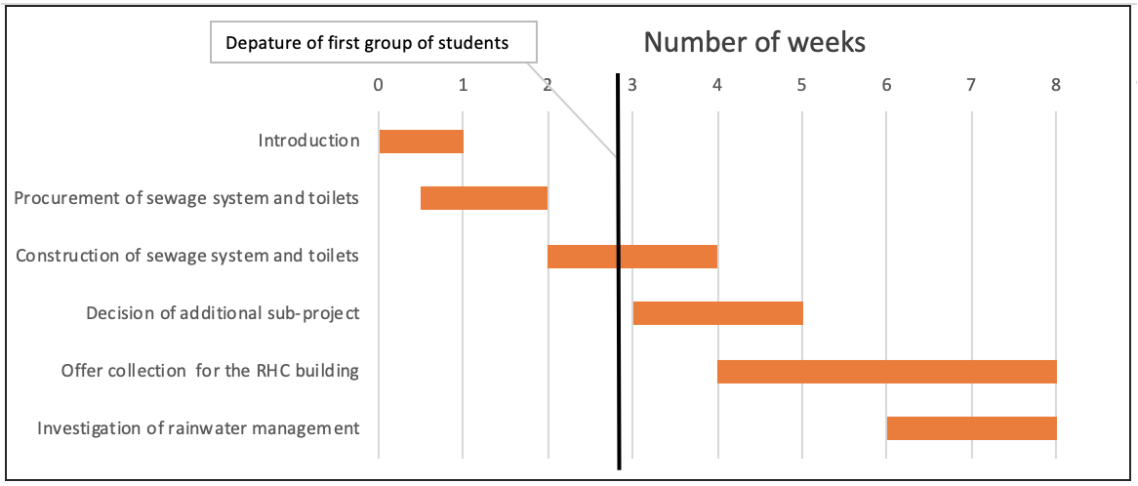

Figure 3.4: Overview of the timeline during the case study in Mkula.

3.4.1 Introduction

The first step for us was to be introduced to the HMT, the hospital and the village. In addition to this, time was invested in understanding as well as becoming a part of the project that was taking place.

To do this without interrupting the progress in the project our participation in meetings during the first two weeks was only as observers. As such, we could observe how the HMT acted in the group, how the first group of students handled unforeseen events, and how they communicated with each other. One thing we immediately noticed in the meetings was the level of English spoken by the HMT. The *Medical*

Doctor's English was good and he was easy to understand. It was also possible to have a good conversation with the *Senior Medical Officer*. However, the rest of the group's knowledge of English was limited. The people from the HMT that we interacted with during the first two weeks were the *Senior Medical Officer*, *Junior Medical Officer, Medical Doctor, the Hospital Engineer* and *the Matros*.

At our first meeting with the HMT, they changed their prioritization regarding the sub-project which was an unforeseen event. The first group of students had prepared for a meeting about a new building to be constructed, but it turned out that the HMT rather wanted them to focus on the renovation of the sewage system and toilets. After this meeting, the first group of students shared their feelings of frustrations that came from feeling stuck and not moving on in the project. They also shared that this was not the first time the HMT changed their minds.

By having two weeks of introduction with the first group of students still at the site, we felt like we adjusted to the project quicker than expected. It was helpful to have two weeks together to ensure that we had necessary information and had time to establish a relationship with the HMT. During this time we also were invited to the *Medical Doctor's* home in another village, as he was interested in getting to know us and learn about Sweden. This visit helped us form a ground to an informal relationship with one member of the HMT which was helpful for the rest of our stay when we had questions that did not concern the hospital.

Besides observing meetings, we studied the first draft of the survey report for 2019, which the first group of students had begun to write prior to our arrival. The survey report contained information about what they had been working on during their stay and it was a way to gather the information in one place. One important thing in the survey report was their investigation of a UPS-system at the hospital. They had been in contact with the *UPS-installer* and were only waiting for money to be transferred from Sweden before starting the installation. After the HMT had received the money, however, it still took a few weeks before the installation was performed. This became a standing point for our meetings with the HMT and the lack of information given to us made us curious about what was going on.

3.4.2 Procurement of the Sewage System and Toilets

During the procurement phase, most of the time was spent consulting the HMT on what to prioritize. Since the HMT knew the functions of the buildings better than we did and because they will continue working at the site when our project is completed, they had the final decision in this matter.

Once we got settled in at the site for our study we took part in the procurement phase for the reparations of the sewage system and toilets since this was what the HMT chose as their highest priority. The first group of students had collected offers from contractors, which we evaluated together. To decide which parts were most crucial we went over the site together with members of the HMT.

Most of the investigations of the site were done by us students alone. It was sometimes hard to make a fair investigation because the hospital had patients present that were sick or injured. This made us uncomfortable and we felt like intruders. This resulted in us leaving the site before we could make a proper judgment since we did not want to disturb anyone. When we were not alone, we were joined by the *Senior Medical Officer* or the *Hospital Engineer* who had a lot of knowledge about the hospital and its sewage system. It was, however, hard to understand the *Hospital Engineer* due to his limiting skills in English, but he was always willing to help us and tried his best to explain.

To help the HMT with their prioritizing we discussed with the HMT and initially it was decided that focus should be on the sewage system. During our next meeting with the HMT, however, they stated that reparations of the toilets were a priority as well. Once we had reached an agreement, we conducted contracts for each of the sub-projects. One for the renovation of the sewage system (Appendix C) and one for the toilets (Appendix D). These contracts were elaborated by us and the first group of students since the HMT was occupied with their daily commitments. We were unsure on how to design the contract for a project like this and therefore we consulted with the HHPG. They gave us advice and went through the contracts before we sent them to the HMT. This was more time consuming than expected since we had never written a contract before and we needed to make sure that we included everything necessary for a contract in Tanzania. To make it easier for the HMT, and minimize the risk for misunderstanding, we used a contract from the collaboration in 2018 as a base so they would recognize the formulation.

The contracts were signed by the HMT and the *Local Contractor* chosen to perform the work. However, before this took place, the contracts were approved by the HMT since we conducted them on their behalf. This was appreciated by the *Senior Medical Officer*, who was worried that we sent the contracts to the HMT and *Local Contractor* at the same time because he wanted to prepared for possible questions. Once he knew that we sent them to the HMT first, he seemed relieved and his approach towards us changed as well. Waiting on approval of the contracts by the HMT before sending them to the *Local Contractor* added a few days to our process.

During this phase, we handled the contact with the *Local Contractor* and coordinated meetings regarding site visits, economy, and contracts. The *Local Contractor* was represented by their manager, who spoke English very well and was easy to communicate with. It also seemed like he understood our situation as students, and that we had no prior experience in this sub-project. The *Local Contractor's* manager was often available and answered us quickly if we sent him a message. Sometimes we even had conversations regarding other things than the sub-project which made us having both a professional and an informal relationship with him.

3.4.3 Construction Phase of Toilets and Sewage System

Because our time in the project was limited, the construction phase of the reparations started right after the contracts had been signed. During this phase, the first group

of students had finished their part of the project and gone back to Sweden. In collaboration with the *Hospital Engineer*, the *Local Contractor* was introduced to the hospital area and the site so that the construction could start. The project was estimated to be done in one month.

As a task assigned to us from the HHPG, we acted as supervisors in the sub-project and as a link between the HMT and the *Local Contractor*. When we visited the site we talked to one of the representatives from the *Local Contractor*, who constantly said that there were no problems with the sub-project. His English was not as good as their manager's so when we needed more information, we contacted the manager instead.

After only two weeks, the *Local Contractor* contacted us with the purpose to hand over the sub-project. They were prepared to hand over their work the same day as they reached out to us which did not give us any time to prepare the HMT. Almost everyone from the HMT and the *Local Contractor* was present for the hand over meeting.

For this meeting, we visited the site and inspected how everything was functioning. The meeting was held in Swahili, so we did not understand the discussion taking place. To give an attempt to participate we occasionally asked the *Senior Medical Officer* what they were discussing and sometimes the manager from the *Local Contractor* explained to us. These explanations were brief and did not give us any details of the discussion. Our role during this site visit became unclear due to the lack of information and it seemed like they did not need us there. After walking around for two hours, the *Junior Medical Officer* told us that they intended to continue the meeting the next day due to the late time and the meeting ended. When the meeting was resumed the next day an agreement was made regarding subsequent work required for the project to be completed. We understood it as an agreement which made everyone satisfied.

During the following week, we did not receive any information from the HMT regarding the sub-project of repairing the sewage system and toilets. This happened even though we had been told by the *Senior Medical Officer* that we would be contacted once the *Local Contractor* arrived to perform the additional work. At the end of the week, we decided to go to the hospital and talk to the *Senior Medical Officer* to find out what had happened. Once we reached the hospital we met the *Local Contractor* at the site and found out that they were in direct contact with the HMT and had been visiting the site several times without our knowledge. The feeling of not moving forward and being excluded from the sub-project made us frustrated and confused. However, after a few days, we were summoned to a meeting with the *Senior Medical Officer* and the *Hospital Engineer* who walked us through the site. They told us that the *Local Contractor* had made some mistakes which had damaged parts of the sewage system that was working prior to their work at the site. They asked questions regarding the contract and how the payment should be performed since the sub-project was not completed. We also found out that their expectations on us as supervisors were different than we had understood and it seemed like they

did not think that we had done the job as supervisors properly. After this meeting, we were not further involved in the work of the sewage system and toilets, and therefore the continued work was not considered a part of our project process.

3.4.4 Decision of Additional Sub-Project

Apart from supervising the ongoing construction, we aimed at starting an additional sub-project at the hospital. Therefore we had meetings with the HMT intending to agree on what this new project should be. The construction of the sewage system and toilets only required a little involvement from the HMT, so they could focus on decisions for additional sub-projects.

During this phase, there were several suggestions on the table, which needed to be investigated further before a decision could be made. One option was to build water tanks outside every ward because, according to the HMT, sometimes the wards did not have enough water for the patients to flush the toilets and wash their hands. As we investigated the possibility to build water tanks, we consulted with the *Project Coordinator* who questioned the hospital's need for water tanks. During the consultation, we concluded that we needed to investigate the hospital's water consumption and water flow. This investigation was done in collaboration with the *Hospital Engineer*, who answered questions about the water flow, and the *Matros* who gave us statistics about the consumption. Our results showed that the hospital did not need water tanks to cover the demand. While sharing our findings with the HMT they changed their minds saying that they no longer wanted new water tanks. Instead, they wanted us to focus on a new building for the RCH service to be able to expand the hospital. This process was time consuming and since we had limited time this made us frustrated.

As stated above, when deciding on what should be the additional sub-project a discussion was held with the HMT, but we also discussed this with the HHPG. Occasionally during the investigations of possible sub-projects, the HMT seemed in doubt of our competence and relied a lot more on information from the HHPG. Several times during the discussions, the *Senior Medical Officer* asked about the *Project Coordinator's* opinion and would only accept a proposal once he knew that it was advised by the *Project Coordinator*. Sometimes we therefore referred to him to strengthen our proposals and try to avoid getting questioned.

3.4.5 Offer Collection for Reproductive & Child Health Building

Once the decision of building a new RCH was made, the collection of offers for this building begun. The construction would most likely take place after our departure so it was important to find a project delivery method the HMT was comfortable with supervising themselves.

To decide on a suitable project delivery method we had a meeting with most members of the HMT, during which the *Medical Doctor* did most of the talking. He

told us that the HMT was concerned about using a contractor for the RCH building and, for the first time, we took part in their thoughts and internal discussions regarding the sub-project. This made it easier for us to give a fair response to their opinions and cooperate with them. The *Medical Doctor* also told us that they would not have preferred a contractor for the sub-project of the sewage system and toilets either, but since it was suggested by the first group of students they assumed that it was our preference and agreed to move forward in that direction. However, when agreeing to a use contractor they believed that we, the second group of students, would be more controlling as supervisors since that is needed in Tanzania.

This explanation helped us understand why they excluded us from the sub-project, which was because we did not meet their expectations regarding the responsibility of being supervisors. They were forced to take on the role themselves and therefore did not see any need for involving us. We had not understood what was expected of us and no one, not us nor the HMT, had specified our task in the sub-project.

The *Medical Doctor* continued by explaining that the HMT had a suggestion for another method including someone they referred to as a *Local Engineer* that would be responsible for the entire project. The HMT would be purchasing and restoring all materials but the *Local Engineer* would be coordinating and supervising the construction. Our response was supportive and we told them that whatever they felt more comfortable with, should be the method chosen. They seemed relieved and decided to go with the *Local Engineer* as a delivery method.

This method was unfamiliar to us before coming to Tanzania and therefore implied a lot of effort to be put on understanding the system. We asked the HMT details about the contract regarding payment, time plan and purchasing material which they discussed in Swahili before answering us. We observed a distinct difference when the *Medical Doctor* was present since he took the time to explain what they had been talking about in Swahili and helped us to be part of the conversation. When we had other meetings, without the *Medical Doctor*, it was not common that they translated or explained the situation to us. At the end of the meeting, we all agreed that the HMT was needed to make sense of the system in Tanzania, since this was unfamiliar to us. We also highlighted how difficult it was for the HMT to act as experts in a field they did not have any experience in.

When collecting an offer from the *Local Engineer* it was the *Senior Medical Officer* who was handling the communication and we only forwarded drawings and information through a one-way email. Therefore, we did not know what information the *Local Engineer* had received and we were unsure of how much the *Senior Medical Officer* had told him. However, after the decision regarding the delivery method, the HMT had realized our need for this information and we started to get updates about the process.

At this time, we had developed an informal relationship with the *Medical Doctor* outside the project and we could speak to each other in a friendly way. So during the end of this phase, we had an informal meeting with him where we discussed both

personal matters, topics regarding the project and collaboration. He explained the conversation between the members in the HMT regarding the sewage system and that he had suggested that they should talk to us, which resulted in the meeting about the new project delivery method. We then understood the position of the HMT and why they excluded us while having discussions. According to *Medical Doctor*, they did not want us to take offense since we were helping them a lot. We also realized that there were so many things at the hospital that need to be developed or repaired, which explained why it was hard for the HMT to decide what to prioritize. After the meeting, we had a positive feeling as we were able to understand the HMT and got the opportunity to share our view of the situation.

3.4.6 Investigation of Rainwater Management

At the beginning of phase two of the project, the HMT mentioned that they had issues regarding the rainwater management at the hospital, such as overflows and destruction of buildings. During the end of our stay, we therefore investigated this further by walking around the hospital area and took part of documents from the first group of students. We found that the hospital required new gutters, back-filling around some buildings and drainage around the hospital area. When taking measurements of the gutters, the *Hospital Engineer* joined us and showed how much was needed. He was very specific and knew exactly what was needed to be done.

At the end of our stay, we had a meeting with the HMT to discuss the details in the contract for the RCH building. We presented drawings of the building that the architect student had provided us with and we expected to go through the new information with the HMT. The meeting, that was supposed to take approximately one hour, turned into a site visit regarding the back-filling and drainage. This was done together with the *Local Engineer* and everyone from the HMT. Again, the conversation was held in Swahili, but we had made sketches of the site with markings where the back-filling and drainage should be placed. This forced the HMT to speak English with us and include us in the discussion to receive information about the sketches. This time, they seemed to be speaking Swahili solely to make sure that everyone in the HMT as well as the *Local Engineer* understood was what going on.

During the site visit there was a discussion regarding the flow of the drainage around the hospital, which took about one hour to solve. We asked them several times about the outflow of water so that it would not affect another field outside the hospital area. We tried to always have a focus on sustainable solutions that would function even after the end of the project and not cause any additional issues.

When we had decided on how to solve the drainage problem, we met up once again in the office of the *Junior Medical Officer*. We thought we were done for the day, but the *UPS-installer* had arrived with the purpose to install the UPS-system. We were pleasantly surprised by this due to the many times we asked about it. They could not performed the installation without a contract so the *Senior Medical Officer* assigned us to conduct a contract quickly. We used the same base for this contract as

before to speed up the process and again provide the HMT with something familiar. We misunderstood the *Senior Medical Officer* regarding specifics two times when conducting the contract, but after a while, we succeed and the installation of the UPS-system could finally start.

3.4.7 Summary of Project Process

Since the case study's duration was eight weeks, a lot of data was collected. In order to summarize the study, an overview of the main activities of the different phases is presented in figure 3.5. The phases contains more activities than those presented in the figure, however, a selection has been made in order to highlight the activities that entailed the most impact on the study and its aim towards trust in temporary organizations.

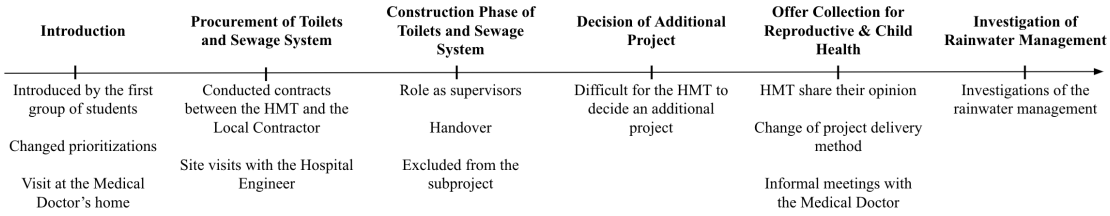

Figure 3.5: Overview of the main activities in the different phases of the project process.

4

Theory

In the following chapter, the theory used for this thesis to analyze the findings of the case study will be presented. The first section explains the characteristics of temporary organizations which is followed by an introduction to knowledge management and the differences between tacit and explicit knowledge. A model for movements of knowledge is presented as well as explanations of what different challenges that entails. The end of this chapter lands on trust and what barriers that can bring to a temporary organization. The gathered theory aims towards answering the research questions stated in chapter 1.

4.1 Temporary Organizations

According to PMI (2004), a project can be defined as a temporary aspiration to create a unique product or service. A project has a definitive start and end, which makes the duration of the project limited and therefore it is comparable to temporary organizations as stated by Winch (2014). Temporary organizations are, according to Lindner and Wald (2011), usually created with the purpose to fulfill a specific goal within a limited time period.

Temporary organizations differs from other forms of organizations and they all have a couple of features in common (Lundin and Söderholm, 1995). This can be explained by four key concepts: *time, task, team* and *transitions*, presented by Lundin and Söderholm (1995) and explained further in Section 4.1.1. These four concepts can explain human actions in a temporary organization (Rämö, 2002).

4.1.1 Four Parameters of Temporary Organizations

The first parameter, *time*, can be viewed as a core concept of temporary organizations since it is the main thing that distinguish it from a permanent organization (Lundin and Söderholm, 1995). Time is usually considered in all organizations, but in temporary organizations, it is more complicated due to the fact that the project eventually will end. Because of limited or no margins in the schedule, it is crucial for temporary organizations to be able to deal with unforeseen events that could be time consuming without causing major changes in the schedule. This is agreed upon by Rämö (2002), who means that project organizations have to rely on the ability to handle unexpected incidents through improvisation.

A *task*, the second parameter, is crucial in order for an organization to have a purpose. A purpose leads participants in temporary organizations to get more involved in the project compared to permanent organizations. Lundin and Söderholm (1995) state that the task in a project is where the action takes place, while the goal for a project is when decisions are being made. A task can be unique or repetitive. The preparations for a repetitive task are done with full knowledge on what to expect, while preparations for a unique task are done without knowing what awaits which requires a more flexible attitude.

The third parameter stated by Lundin and Söderholm (1995) is *team*, which can be any group of people working together. The need for commitment from the participants increases in temporary organizations since this type of organization cannot exist without the team gather around the task. However, actors within a team might have different expectations and ways of working within a project (Lundin and Söderholm, 1995).

Transition is the last parameter to explain temporary organizations since these organizations are created for some sort of change or accomplishment (Lundin and Söderholm, 1995). This can be actions that create a "before" and "after" feeling when the project has ended, or it can refer to an accomplishment among the members within the group where they, for instance, learn something new. The transition of the team is often used as a signal, both internally and externally, in order to set common expectations for the project (Lundin and Söderholm, 1995).

It is stated by Arvidsson (2009) that the four parameters come together with transition since it is the initial meaning behind a temporary organization. The transition should be done over a specific time period by teams that are formed around a task. However, to explain temporary organizations the most important parameter to consider is time since it lays the ground for this type of organization to be just temporary (Lundin and Söderholm, 1995). With this said it is important to remember that all four parameters affect each other. The time limit may define what task to perform just as well as the task can decide in what period of time this transition should take place. A team can be created in order to influence the outcome of a task but it can also be gathered in order to perform an already defined task (Lundin and Söderholm, 1995).

4.2 Knowledge Management

Knowledge management is a broad subject and it has many definitions. It is hard to find one definition that includes all fields of knowledge management since knowledge management is multidisciplinary and covers a lot of ground (Dalkir et al., 2011). In a study of knowledge management definitions, Girard and Girard (2015) presented a short general definition of knowledge management:

> *"Knowledge management (KM) is the process of capturing, developing, sharing, and effectively using organizational knowledge."*
> - (Girard and Girard, 2015)

To be able to implement knowledge management, some would describe it as different processes through which people create, transfer and adopt knowledge resources (Okere, 2017). Furthermore, knowledge can be tacit or explicit and can be held by an individual or a collective (Wang, 2007).

4.2.1 Tacit Knowledge & Explicit Knowledge

The most common way to categorize knowledge is to divide it into tacit and explicit knowledge (Mislan et al., 2016). Tacit knowledge has been defined as knowledge that is non-verbalized, intuitive, and without articulation (Becerra et al., 2008). However, as well as for many knowledge concepts, tacit knowledge is widely defined in many various ways (Dampney et al., 2002). Explicit knowledge is the knowledge that can be articulated in a formal language and is easily transmitted between individuals (Olomolaiye et al., 2005).

Another definition of tacit knowledge is that it deals with the personal knowledge that is resident within the mind, behavior, and perceptions of individuals (Dampney et al., 2002). Skills, experiences, insight, intuition, and judgment are all included in tacit knowledge and it is typically shared through social contexts such as interactions via personal meetings. This is why tacit knowledge is difficult to store and to present in explicit form.

In explicit knowledge, factual statements exist about matters as material properties, technical information and tool characteristics and therefore explicit knowledge can be captured and summarized into written words or symbols. Explicit knowledge is capable of being captured and distributed widely throughout the whole organization (Olomolaiye et al., 2005).

Table 4.1: Comparison of the property of tacit knowledge versus explicit knowledge (Dalkir et al., 2011).

Properties of tacit knowledge	**Properties of explicit knowledge**
Ability to adapt, to deal with new and exceptional situations	Ability to disseminate, to reproduce to access and re-apply throughout the organization
Expertise, know-how, know-why, and care-why	Ability to teach, to train
Ability to collaborate, to share a vision, to transmit a culture	Ability to organize, to systematize, to translate a vision into a mission statement, into operational guidelines
Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis	Transfer knowledge via products, services, and documented processes

When comparing tacit and explicit knowledge, it is easy to see the differences in its natures (Olomolaiye et al., 2005). Dalkir et al. (2011) presents a model that shows a comparison of the properties of tacit and explicit knowledge (table 4.1).

Accordingly, tacit knowledge is difficult to articulate and put into words or text while explicit knowledge contains content captured in forms of words, recordings or drawings.

When comparing tacit and explicit knowledge, it is easy to see the differences in its natures (Olomolaiye et al., 2005). Dalkir et al. (2011) presents a model that shows a comparison of the properties of tacit and explicit knowledge (table 4.1). Accordingly, tacit knowledge is difficult to articulate and put into words or text while explicit knowledge contains content captured in forms of words, recordings or drawings.

4.2.2 SECI-Model

How tacit and explicit knowledge act together can be explained by the SECI-model. This model shows the movement of tacit to explicit knowledge and back, and it contains four different movements of knowledge which can be identified as *Socialization*, *Externalization*, *Combination* and *Internalization* (figure 4.1), (Laukemann et al., 2018).

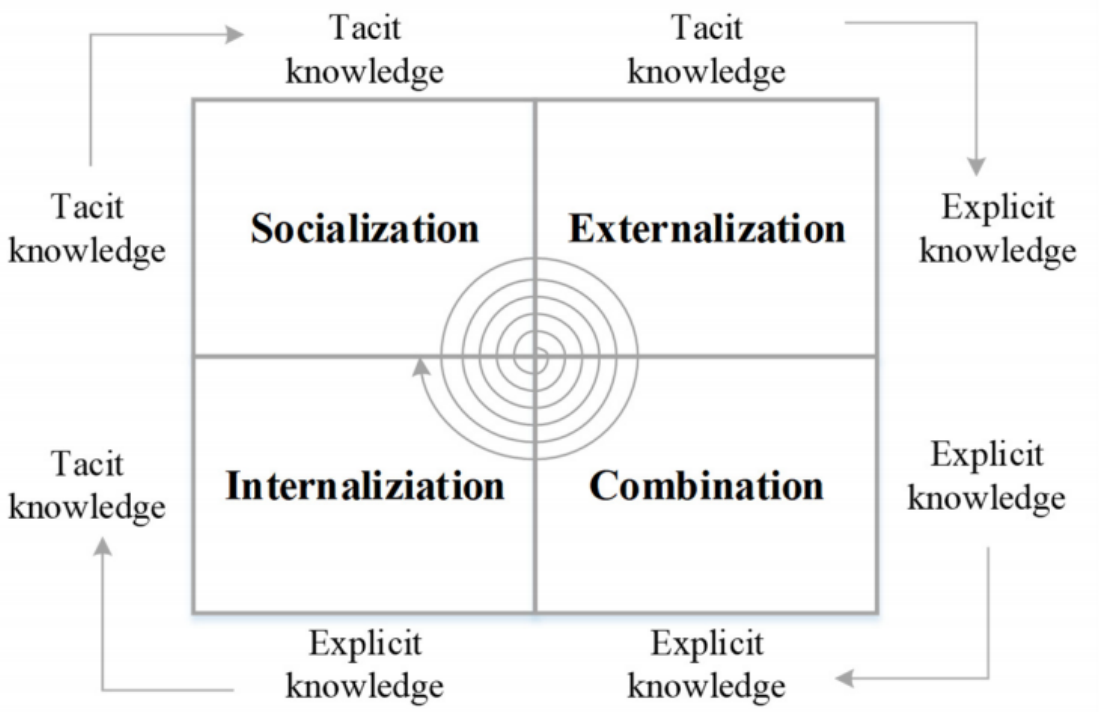

Figure 4.1: The SECI-model (Takeuchi and Nonaka, 1986).

Socialization is the move from tacit to tacit knowledge and it refers to knowledge that is transmitted by observations and imitations of others and the focus is on sharing skills and rules of behavior. This knowledge is usually not questioned or discussed further unless experienced within a new context or culture (Clegg et al., 2016). Socialization will be further explained in section 4.2.3.

The movement of knowledge from tacit to explicit is called *Externalization*, a complex movement where personal knowledge needs to be converted into a form that can be received and stored by others (Laukemann et al., 2018). In this movement there is a risk of losing parts of the knowledge because of the difficulty of changing tacit knowledge to explicit arrangements (Clegg et al., 2016).

Combination is the flow of knowledge from explicit to explicit. This implicates knowledge that is already available to others through informational platforms such as documents (Clegg et al., 2016). By transferring and analyzing explicit knowledge, the possibility of creating new explicit knowledge opens up (Laukemann et al., 2018).

The last movement, called *Internalization*, is that of explicit to tacit knowledge and it is when knowledge becomes a part of the unconscious actions. When new members enter a group, the internalization can be used as their explicit knowledge can influence the tacit knowledge of the group (Clegg et al., 2016).

4.2.3 Socialization

Due to the complexity of sharing tacit knowledge, socialization needs to be further explained. One important characteristic of socialization is that it, as mentioned, only concerns the tacit knowledge. This means that the knowledge included only is transferred through interaction between people and no impersonal channels can be used (Hoe, 2006). This means that the relationship between the giver and the receiver is needed to be taken into consideration while studying this part of the SECI-model.

This movement also requires more effort and trust from those involved since this knowledge is highly personal (Holste and Fields, 2010). The socialization is dependent on peoples willingness to share and use tacit knowledge which in turn is dependent on the level of trust between parties, hence trust is crucial for socialization (Holste and Fields, 2010). Trust will be further explored in the following section.

4.3 Trust

In order to reach the full potential of collaboration within groups, trust needs to be recognized as an important factor (Sabel, 1993). Trust is often referred to as a key element for the success of knowledge management as it is important for knowledge exchange as well as knowledge creation to take place (Ford, 2004). With this in mind, trust can be defined as:

> *"The mutual confidence that no party to exchange will exploit another's vulnerabilities."*
> - Sabel (1993)

meaning that trust within the relationship between parties establishes the way of working together. The level of trust can, however, change over time as well as differ depending on the context (Hajidimitriou et al., 2012). Therefore, once trust

has been established, it is important to maintain the relationship in order not to experience a lack of trust during the next collaboration taking place (Zmarly and Languilaire, 2013).

Furthermore, trust can never be forced by anyone and it is dependent on involved actors' willingness to trust one another (Ford, 2004). This means that even if the manager of an organization is dependent on trust from individuals, this is out of the manager's control. With this said, there are actions to implement in order to improve one's trustworthiness (Ford, 2004).

4.3.1 Trust in Temporary Organizations

Projects, especially those in the form of temporary organizations, create a situation in which trust between individuals is important (Munns, 1995). However, since the organization is temporary, there is no time to develop long-term trust in interpersonal relationships. According to Zmarly and Languilaire (2013), trust does not come in the pre-made package which can be used in any project. Instead, each individual project needs to find a special solution for creating trust within that organization which can be difficult due to the lack of time (Zmarly and Languilaire, 2013).

When trust is founded, it is usually based on sources such as familiarity, shared experience, and full-filled promises (Meyerson et al., 1996). In most cases of temporary organizations, these criteria can not be accomplished and trust needs to be established without them. This means that within temporary organizations, there is a need for finding other criteria for creating trust (Meyerson et al., 1996). These criteria can involve a collective vision of what the collaboration within the team should result in.

As stated in section 4.1, temporary organizations are created in order to perform a specific task. Costa et al. (2001) argues that there is a positive connection between trust and the outcome of that task as well as the satisfaction of the team members performing the task. The effectiveness within team-work increases when the team members share mutual trust for each other and this can also increase the knowledge creation within the team (Baldé et al., 2018).

4.3.2 Trust in Tacit & Explicit knowledge

Trust has a positive impact on to what extent individuals choose to share both tacit and explicit knowledge (Keshteh Gar et al., 2014). Hajidimitriou et al. (2012) state that the level of trust between two parties can affect the amount of knowledge being transferred since trust is connected to the willingness of making knowledge available to others. If there is a lack of trust, the process of sharing knowledge will be interfered due to less effort of distributing information. Thus, to have a trustful relationship between partners is highly valued in order to reach a stage with effective collaborations (Sklavounos et al., 2015).

According to Becerra et al. (2008) the importance of trust mostly apply in tacit knowledge since it is knowledge transferred from individual to individual while explicit knowledge can be transferred through impersonal channels. This means that the importance of close relationships is higher within tacit knowledge which in turn requires a higher degree of trust. Furthermore, tacit knowledge is harder to recognize and therefore requires more involvement from those participating in the transferring taking place (Becerra et al., 2008). With this said, there are researchers that would argue that explicit knowledge is more dependent on trust between partners because of the direct impact explicit knowledge can have within a process due to the ability to easily identify it (Hajidimitriou et al., 2012).

It is important to remember that an increased level of trust might not always be beneficial for sharing knowledge (Hajidimitriou et al., 2012). Yli-Renko et al. (2001) means that a relationship between parties that entails a high level of trust can hinder the knowledge from being transferred due to the diminished stage of control. With less supervision, some of the knowledge can get lost in translation rather than be passed on to the next person (Yli-Renko et al., 2001). This mainly applies to tacit knowledge.

When exploring the tacit knowledge within socialization, creating a trustful environment among participators in a group decreases the risks that sharing and using tacit knowledge entails. When there is a lack of trust, the individuals face risks such as losing competitive advantages or receiving incomplete information (Holste and Fields, 2010). Interacting with co-workers outside of the meeting room can increase the tacit knowledge being transferred as the level of trust develops (Baldé et al., 2018). Since the socialization is a first step of the SECI-model spiral, the first step will also ease the sharing of knowledge in other forms due to the level of trust that has been established.

5
Analysis

This analysis will be presented with a focus on trust within temporary organizations. The findings during events in the case study will be evaluated together with the theory which is done with an aim towards answering the research questions stated in chapter 1. The findings from the case study is mainly conducted through participant observations and documentation as well as an interview held with a focus group consisting members from the HMT.

5.1 Introduction

Having another group of students already in Mkula helped us speed up the process of settling in at the hospital as well as in the village. Since they had been in the same position one month earlier they also understood what information was relevant for us to learn in the beginning in order to proceed with the project. There was a lot of explicit knowledge shared at this stage in forms of conversations and shared documents which included information regarding their work with the HMT before our arrival. However, tacit knowledge was shared as well as through experience from visits at the hospital and interactions with staff from the HMT.

In the beginning, we could focus on observing rather than participating in meetings and other interactions. This meant that we could be more effective in the process of acquiring tacit knowledge since we could focus solely on the behavior of the HMT and the first group of students in the meeting and through that learn how to act in this setting. According to Holste and Fields (2010) there is a risk of receiving tacit knowledge because it is difficult to know if all information have been received. This could have been an issue if we were to learn everything from the HMT during our first week, but since we had people who we knew prior to the case study this was not an issue at this stage as trust had been established beforehand. This was also something the HMT could benefit from. In the interview, the *Senior Medical Officer* talked about the advantages of having Swedish groups visiting them before us. He said:

> *"It was easy to learn from the groups before you, how to handle you."*
> - Senior Medical Officer

One of the main things we learned during the introduction was the differences in perception of time. In Tanzania, it is not rude or inconvenient to be late, as it is in Sweden. This attitude could come from a culture where it is difficult to travel

between villages and delays are a part of the everyday life. In addition to this we also experienced the helpfulness of the society, from both the people in the village to the HMT.

Before our arrival to Mkula, we had never been in contact with the HMT ourselves and relied on the relationship formed by the first group of students. Our relationship with the HMT was therefore influenced by their experiences before our arrival. This meant that after the first meeting we expected the HMT to be a bit indecisive regarding their prioritization, thus, this did not affect our trust towards the HMT further on in the project. We also learned who in the HMT we should address with questions and who was most likely to give us a trustworthy answer. This helped us to create a ground for trust towards them which was much needed due to the time limit of our stay and the difficulty to establish trust within a short period of time, as stated by Zmarly and Languilaire (2013).

Additionally, the visit to the *Medical Doctor's* home had an impact on the creation of trust within the project since it helped us develop a relationship with him outside of the meeting room. This because he initiated the visit and showed us that he wanted to create a relationship with us as well which we interpreted as a sign of trust from him. Aligned with the explanation by Ford (2004), trust can never be forced on anyone. Therefore it was important for us to create trustworthy relationships with members of the HMT, not just to facilitate our creation of confidence in them, but to make it easier for them to trust us as well.

5.2 Procurement of Sewage System and Toilets

During the procurement phase, we consulted the HMT about what to prioritize and let them make the final decision. By doing this, we showed the HMT that we valued their competence and believed they could make reasonable decisions. However, the decisions were partially based on our investigations, which required them to have confidence in us as well.

The contracts drawn up for the sub-project was a way for us to show the outcome of the decisions and calculations before the HMT agreed to it officially. Therefore, the HMT appreciated that we handed them the contracts before including the *Local Contractor*. When asked about if the HMT felt confident with our role in the project, the *Medical Doctor* answered he felt very comfortable with our contract writing and calculations. A contract is a form of exposing explicit knowledge and a simple way to display information in an accessible way. After the contracts were conducted the HMT could inspect them and make changes before signing if they wanted, however, they did not doubt our ability to conduct the contracts.

As stated in chapter 3, the HMT received the contracts in order to approve them, before giving them to the *Local Contractor*. This gave the HMT an advantage due to the timing of the received information. If the *Local Contractor* would have any remarks or complaints, the HMT could easier give an accurate response since they were given the time to go through the contracts thoroughly. If both parties instead

would have received the contracts at the same time, it would be harder for the HMT to argue for changes since they both had access to the same information.

The first group of students included us in the collaboration with the HMT which made it easier for us to receive both explicit and tacit knowledge. However, by being included in the middle of the process, there was still information that got lost in the transfer. According to Clegg et al. (2016), it is easy to share explicit knowledge. Therefore, the only way for us not receiving information was if the first group had forgotten to mention something or if we did not ask when something was unclear.

In socialization, as stated by Holste and Fields (2010), it is important for the involved members to be willing to share tacit knowledge, which in turn is dependent on the level of trust. During the investigations, the *Hospital Engineer* was always willing to help us, however, as stated in section 3.4.2, his English skills were limited. What we noticed from this was that it could mean more to have a person who was willing to share information but was limited in the language, rather than a person speaking good English but not willing to share. When something really mattered, the *Hospital Engineer* could always be translated by one of his colleagues or use body signs to manage to share information.

During this phase, we worked as a link between the HMT and the HHPG when conducting the contracts. Sometimes it was difficult to pass on information received from the HMT to the HHPG since we were not always sure we understood them correctly, even though we could tell that they made an effort to share information. When talking to the HHPG, we had to forward the information without making mistakes, which sometimes were time consuming and required a lot of effort from us. Even though the members from the HHPG had visited the hospital several times before our arrival, they stayed for one week and their perception of the HMT was not deep. The difficulties from this situation could be noticed when the HHPG asked why the HMT acted in a certain way, or changed their prioritization and we honestly did not know why. We could only make assumptions that we presented to the HHPG and our assumptions were based on information collected in the form of tacit knowledge. According to Clegg et al. (2016), transferring tacit knowledge into explicit knowledge is a complex movement and contains a risk of losing parts of knowledge, which we could agree with.

As stated in the case study (chapter 3), we used a contract from the previous phase in 2018 in order to have a format that the HMT was familiar with. Since the contract consisted of many pages, we thought this would be an advantage for the HMT when going through the contract. As it turned out they recognized some parts of the contract, which they appreciated, but were still not fully aware of all the details. Comparing to a whole new contract, it was preferable to have a form they recognize so that at least some information was familiar and easier to receive. It was also a way for us to make sure that we had included the most crucial information, something we valued because of our lack of knowledge in conducting contracts in this setting.

5.3 Construction of Sewage System and Toilets

At this point in the process, we felt that we had reached an agreement with the HMT and the *Local Contractor* which made everyone satisfied. We had no reason not to believe that the work was done properly since they told us everything was fine and the site was open for us to visit at any time. Meyerson et al. (1996) talk about temporary organizations and how there is a need for other criteria for creating trust in this context which can be a collective vision of a result. That applied to this part of the process since we were all aiming for a better sewage system and cleaner toilets. Since the *Hospital Engineer* had been with us during the start-up of the construction, we also assumed that they would ask him if anything was unclear since they spoke the same language and could understand each other better.

We were a bit hesitant to visit the site too much since there were many sick patients and we did not want them to be more disturbed then necessary. Even though we had been at the hospital for two weeks at this point, we had not been able to understand what was appropriate behavior for us while working close to the patients. This is aligned with the difficulties of Socialization. If we asked the HMT, we were allowed inside wards and other areas of the hospital, but because of the complexity of sharing tacit knowledge, we did not know if we handled those situations correctly. Transferring tacit knowledge to tacit knowledge is, as explained by Clegg et al. (2016), usually not questioned unless experienced within a new context or culture. For us, both the culture and the context were never before visited territories so there was a lot of insecurity regarding this.

Once the *Local Contractor* was ready for the hand over we were pleasantly surprised. Both because of the limited time we had at the hospital and because of the ongoing activity at the hospital where the patients could be disturbed by the construction workers. Even though we had not specifically said to the *Local Contractor* that the later was an issue, we felt like they had picked up on this, which made our trust in them grow as they surpassed our expectations. This can be viewed as an action from the *Local Contractor* in order to increase their trustworthiness as explained by Zmarly and Languilaire (2013). Not only towards us but also the HMT, since they also benefited from this change of schedule. This also improved the relationship between us and the HMT.

We did not have any time to prepare the HMT for the hand over, and therefore we had not discussed how the hand over meeting should be held and who should be leading the meeting. Therefore, at the beginning of the hand over visit, we assumed that the meeting was held in Swahili because parts of the group did not understand English. We received explanations, accepted the situation and agreed that it was more important for those who worked at the hospital to understand the discussion. However, as the visit moved along, we could tell that something was wrong and that the HMT did not want to share the details of the discussion with us. Nor did the *Local Contractor* and the explanations we got were brief and not thorough. In line with what Sklavounos et al. (2015) said, that if there is a lack of trust there will be less effort of sharing knowledge, the effort they put on making sure we knew what

was going on decreased. This had a negative impact on the collaboration between us and the HMT and we felt that our trust towards them decreased as well.

Although we did not know what had happened at this point, this situation affected our relationship with the HMT to the extent that we were excluded from meetings regarding the project. We did not know why we were excluded nor what to do about it and therefore we became suspicious towards why they acted in that way. The lack of information shared made our level of trust towards both the HMT and the *Local Contractor* decrease even more and we became less willing to share information about the progress of other sub-projects with them.

5.4 Decision of Additional Sub-Project

The discussions regarding an additional project started right before the hand over of the ongoing construction which affected the progress of these discussions. In the beginning, the HMT seemed to have a hard time deciding on what they wanted to prioritize but, as time went on, they instead acted as if they did not trust us. This was shown by not putting any effort on collaborating with us since only one or two members from the HMT would participate in the meetings and the meeting were very brief. Because of this, we started to doubt them as well. The change happened at the same time as the day of the hand over visit which supports our assumption that the HMT had decreased faith in us.

Sklavounos et al. (2015) mention that in order to achieve effective collaborations, a trustful relationship is highly valued. At this point, we felt that due to the circumstances with the sewage system and toilets, it was difficult to proceed with other parts of the project since there was less trust between us and the HMT.

Since the HMT said that they wanted water tanks to ensure that the wards for inpatients would have water at all times, we followed the *Project Coordinator's* advise making calculations about the water demand at the hospital. This was because we had a doubt about the water shortage, and therefore did not believe that the HMT had enough knowledge in the matter. We were also questioning the answers we had received earlier regarding the water demand which shows our lack of trust towards the HMT. This process took a lot of additional time and the effectiveness decreased. Aligned with what Baldé et al. (2018) said regarding the mutual trust needed in the team in order to be efficient, this occurred due to lack of trust between involved parties. Since the HMT, especially the *Senior Medical Officer*, had more faith in the *Project Coordinator*, using him as a reference helped us move the process forward. We believe that this can be explained by the fact that they have had time to develop trust founded on shared experience in previous phases of the project. This is stated by Meyerson et al. (1996) to be the most common way to establish a trustful relationship.

Once we showed the HMT calculations of the water demand at the hospital they changed their priorities directly, as if they had known all along that there was not an actual need for water tanks. This made us confused on why they would want us to

put time on this investigation since we had a shortage of time as it was. According to Zmarly and Languilaire (2013) how to develop trust differ between each individual project. Having us investigating in the water demand of the hospital could be the HMT's way of testing our competences in order to see if they could trust in our knowledge or not. Whatever their intentions were, this change of action was stressful for us due to the time limitation of our stay.

When we had reached a decision regarding the RCH building we were happy that we had been able to come to a conclusion with the HMT. However, due to the current relationship with the HMT, we were unsure of how the collaboration would be for this part of the project.

5.5 Offer Collection for Reproductive & Child Health Building

Before the collection of offers, we had spent time together with the *Medical Doctor* in both formal and informal meetings and our relationship was closer with him than to members of the HMT. According to Baldé et al. (2018), interactions outside the formal settings can increase the transfer of tacit knowledge as the level of trust increases. This was also the case for us as we felt like we could talk to the *Medical Officer* without doubting his intentions.

When we had the meeting with the HMT where they shared their opinions and thoughts, it was probably a good choice to have the *Medical Doctor* as the spokesman since we had come further in our relationship with him. This meant that we trusted him more than the rest of the group and could receive and accept the information quicker. According to Hoe (2006), the relationship between the giver and receiver is needed to take into consideration in the movement of knowledge, which this is an example of.

According to Hajidimitriou et al. (2012), an increased level of trust is not always favorable. We experienced this problematic aspect of trust in the form of relying too much on each other in the beginning of the project. As the *Medical Doctor* said, they went with a contractor as a project delivery method since the first group of students had suggested it. They trusted our opinions and did not want to question us since we had the role as experts in the situation. However, when it became clear that we were not familiar with their way of working with contractors, their trust decreased. During this meeting we discussed the national differences and it became clear to both us and them that the systems in Tanzania and Sweden differ from each other. The problems with the sewage system could probably have been prevented if we and the HMT had trusted each other earlier in the process and dared to speak our minds. What should have been a sign of trust became misleading and resulted in misunderstandings and dysfunctions in the sewage project.

Another thing that was unclear during the construction of the sewage system was our role as supervisors. Apparently, as stated in the chapter 3, we should have

participated more and taken more responsibility in the project than we did. This confusion led to a decreased feeling of trust from the HMT towards us, and a possible explanation could be that they thought we were aware of the role but chose to act in a different way. However, again we all realized that there was differences between the countries and during the interview the *Senior Medical Officer* stated that we always communicated with them when something happened. The mistrust could, therefore, result from the situation for them, as dependent on us and not being able to speak their minds. However, after the meeting where these issues were resolved, and as the trust improved we finally understood each other's actions.

As stated in chapter 3, the HMT shared their opinions for the first time during this phase. Something that also was brought up was the different backgrounds we had as students and hospital staff. To be able to understand the needs and demands of the hospital and the HMT, we needed to receive information from them in order to have the most suitable outcome from the collaboration. The importance of the HMT involvement was something we both agreed upon, as the *Medical Doctor* said:

> *"You can not avoid the fact that we are doctors, but we have to make efforts and come with inputs about how things work in the hospital. Otherwise, if it should only be engineers in the project, it would have been difficult to continue the offer collection if you want to build the RCH."*
>
> - Medical Doctor

This statement shows that the HMT values our involvement in the project and rely on our competence to build an RCH building. However, they also stressed that their own involvement is equally important and meant that it would have become difficult to construct an RCH building without their input. Therefore, it is important for them to be involved in the project, not only to help us but to ensure the best outcome of the project. Regarding this matter, it would have been difficult to collaborate with the HMT if they would not have recognized our competence, and their trust in our work made it easier for us to perform. By understanding their own importance, the HMT engaged in the process, which in turn created a feeling of trust towards them.

Due to the HMT's other occupations, there was a limited amount of time they could put on the project and it became, as stated in chapter 3, their second priority. However, as students, we had no other task to perform than the ones in the project and could manage our time around these tasks. In order to be more effective in the process we therefore included the HMT as much as we could, which the HMT noticed. The *Medical Doctor* stated:

> *"You have communicated with us; you have been involving us in whatever is going on in the project so we have been well connected. It has been useful for how we have spent the time. "*
>
> - Medical Doctor

Sometimes during the collection of offers, we were stuck and needed input from the HMT to be able to move on. This led us to be in situations where we had to rely on them and their work with the project apart from their other occupations. When being in a situation where we were dependent on actions of the HMT, it became clear that sharing information was important. The kind of information needed to be shared was explicit knowledge, such as documentations, emails, texts or meetings with updates about their part of the project. By keeping us out of the meetings, the HMT was not being transparent with their explicit knowledge which made us suspect something to be wrong and we felt a lack trust towards the them. However, we also noticed how our feelings of trust increased when we actually got an update.

Explicit knowledge is, according to Dampney et al. (2002), articulated in language and easy transmitted between individuals. However, as stated above, since it is so easily to transmit it seems suspicious to not transfer important knowledge, which in addition could lead to lack of trust. This is agreed upon by Hajidimitriou et al. (2012), who say that explicit knowledge could be seen as more dependent of trust between partners than tacit knowledge due to the fact that explicit knowledge can have a direct impact within a process because of the ability to easily identify it.

5.6 Investigation of Rainwater Management

As stated above, we had worked together with the *Hospital Engineer* in the previous phases, so when he joined us for another site visit we were comfortable with each other. We believed in his competence and trusted him in his work. This happened even though his skills in English were poor, which agrees with the statement that willingness could be more effective when creating trust than being able to share explicit knowledge.

During the meeting that we thought was going to be about the RCH building, we found ourselves being more flexible and reliable than at the beginning of the collaboration. The cause of this was probably the growing relationship and the shared knowledge with the *Medical Doctor*. When we entered the meeting with preparations for another issue, we therefore did not feel mistrust towards the HMT since we believed they could decide what was important for them. This would probably not have been happening in the beginning of the collaboration, or even before the discussions of project delivery methods.

At the end of the Mkula Hospital Project, we tried to collect and share as much information as possible, since we knew it could be more difficult to communicate after our departure. Our concerns were most regarding the amount of information and the availability of the HMT rather than the means of communication. During the visit, we had been communicating through texts and emails, which we planned to continue with after our departure. So, in order to prepare for limited contact, we handed them drawings for the rainwater management, such as drainage and back-fillings, prepared contracts of the RCH building and made sure that the USP-installation had been performed without any trouble.

6
Discussion

In this chapter, the most crucial findings from the case study and analysis will be further discussed in form of the four parameters of temporary organizations, as presented in section 4.1: *time, task, team,* and *transition.* The events in this chapter are the key events for changes within the collaboration during the case study, and this discussion will entail how different approaches could have changed the outcome.

6.1 Time

As discussed in section 4.1, one of the main challenges with temporary organizations is the time limit of the project. In our case, the project only lasted for eight weeks, which is a relatively short time for making changes that has an impact on the hospital, its staff and patients.

When working in a project, there is a time limit and therefore hard to establish long term interpersonal relationships with the involved members of the organization. This was experienced in the Mkula Hospital Project as one of the expected difficulties of our collaboration. As stated in chapter 4, relationships can create social contexts, such as discussions, stories, and interactions where tacit knowledge is transferred and therefore relationships are important to consider when sharing knowledge in a temporary organization. Because of the different context of our case study, the tacit knowledge transferred included, among other things, the location, culture, habits and values.

During our stay, we had continuous contact with the *Medical Doctor* outside the project. Throughout the whole project, our trust increased due to the amount of shared knowledge and his willingness to share. In the first week of our stay, we visited him at his home, which was an informal setting. This was due to the contact made by the first group of students and if they had not been there, the relationship with the *Medical Doctor* would not have been established so early in the process. Thanks to this contact, as time went we could also invite him for dinners or having small talks in the walkways of the hospital. This process shows the importance of time when developing a trustful relationship as stated by Zmarly and Languilaire (2013). We embraced the opportunity presented by the first group of students as well as the willingness of the *Medical Doctor* to get to know us, which laid the ground for the relationship established with the him.

The relation with the *Medical Doctor* resulted in a positive outcome, which was shown in the meeting with the HMT as they wanted to discuss another project delivery method for the RCH building. Because of our progress in creating a trustful relationship by sharing information with each other in informal settings, the *Medical Doctor* could bring up issues without wondering how it would affect us since we had already past that stage in our relationship. This made it easier for us to give a fair response to their opinions and cooperate with them as well as it made us understand why they had excluded us from some meetings. After this, our mutual understanding increased and hence also the trust within the group. Therefore, time is an important aspect when developing trust in a temporary organization.

What we noticed during the case study was the value of spending time and effort in developing relationships early in the process. This because, even though it is time consuming in the beginning, it can ease the process later. With that, the time spent in an early stage can be regained in the end when it often is needed the most.

6.2 Task

It is crucial for an organization to have a task since it gives the organization a purpose (Lundin and Söderholm, 1995). In temporary organizations, the participants tend to get more involved in tasks than in permanent organizations and if the task is unclear it becomes hard for the participants to know what to focus on which can lead to decreased commitment.

During our visit, the HMT changed their prioritization several times throughout the process of the project without telling us the reason behind the changes. When not receiving information we felt mistrust towards the HMT due to the lack of explanations. In the phase of additional sub-projects, we gathered information and calculations about water tanks which the HMT had requested. However, after we presented our calculations and preparations, they changed their minds and wanted to build an RCH building instead. After spending time on gathering data, we got a feeling that they wanted to test our competence and ability and therefore assigned us to make investigations about the water tanks. This led to a decreased effectiveness due to the lack of trust from the HMT towards us. In addition this also led to us not trusting the HMT's ability to fulfill a task. However, when a task was completed, the trust could once again be restored as they proved their willingness of moving forward with the project.

When we did not know what to focus on and when multiple options were in question it was hard to be completely committed to one task. As mentioned in section 4.1, a task is important for the team to have something to gather around. Therefore the investigations we preformed were not as thorough as they could have been. A reason behind this was that we knew that the efforts we put in could be for nothing. To not have a specific task also made it difficult to structure the work and as a result, tasks might have been performed inefficiently.

6.3 Team

In temporary organizations, trust can not be built on shared experiences or full-filled criteria Meyerson et al. (1996). Instead, something else is needed to develop trust within a team, such as a collective vision of what the collaboration should result in. In the offer collection phase, once the HMT kept us outside of the meeting room, the shared vision within our team was affected. At that point we did not know for sure what the HMT was aiming at regarding their collaboration with the *Local Contractor*. Even if we wanted to trust the HMT it was a bit strange not to know what the money they received was used for. At the same time, when we asked the HMT about the UPS-installation to find out if had been completed, they did not give us a clear answer.

According to Hajidimitriou et al. (2012) explicit knowledge is easy to identify, which means that once information is kept from team members it quickly becomes noticeable to them. We knew that we received incomplete information about the sub-project, which affected our trust towards the HMT. When this occurred, it could create a vicious cycle due to less willingness from us to share information with the HMT, which then could lead to them having even less faith in us.

When there is no mutual trust between team members, the effectiveness within the collaboration decreases. This became clear to us since the issues with the sewage system occurred at the same time as an ongoing discussion about the next sub-project during our stay. Due to the lack of trust at this time, it was hard to move forward with the decision and the collaboration was damaged. As the trust was restored later on in the process, the collective vision returned and we once again felt like a team with the HMT. Afterward, while discussing this issue with the *Medical Doctor*, we understood their view of the problem but if they had felt like they could talk to us directly, the collaboration would have been better and a lot of time could have been saved.

We also found that once the *Medical Doctor* was involved in our collaboration with the HMT, the team feeling was present. Based on the scientific theory this can be explained by the informal relationship we had established together. If the same effort had been made between us and the other members of the HMT, the collaboration possibly would have been improved even when the *Medical Doctor* was absent.

6.4 Transition

The transition can be explained by the accomplishment done by a temporary organization that creates the "before" and "after" feeling for those involved (Lundin and Söderholm, 1995). The first phase of the project in 2018 created this feeling for the HMT. They were lacking tap water before that phase started and they had received tap water after that year's student's departure. Because of this, they had expectations that we would perform something similar to improve the standard of the hospital further. They also had a high level of trust in our abilities to do so

as we came with the same prerequisites as the students did the year before. The difference was the task we were assigned which we nor the previous students had any experience in within this national context.

An increased level of trust is not always beneficial for a project as it can harm the knowledge being shared. At the beginning of our collaboration, the HMT believed that we had all the necessary information regarding our role as supervisors due to the trust created between them and the previous group of students. This meant that they did not feel the need to control our knowledge in the matter which in turn concluded in information not being shared.

From our side, we did not know that we were missing out of some of the information. Therefore, without knowing, we failed to perform our task as supervisors the way the HMT intended us to. This led to a diminished level of trust from the HMT towards us which affected the collaboration between us. Sabel (1993) mentions that the collaboration within teams is dependent on the level of trust developed. Regarding the concept of an "after"-feeling for the HMT, this was postponed until the construction of the sub-project could be finished which happened after our departure.

This concept shows why the Mkula Hospital Project is complex and difficult for the involved participants. As students, our role was to assist the HMT and at the same time doing research. Our stay was a visit with a very clear beginning, as of our arrival, and end, our departure, creating a overview of the time aspect of the project. Once finished, the transition from leaving Mkula to arriving in Sweden gave us a change in environment and culture. However, for the HMT, the transition was not so clear because they stay in the same environment and have little alterations in their everyday work as before we arrived.

Furthermore, the second phase of the collaboration with the Mkula Hospital Project did not have a clear task as the first phase did. We had several meetings regarding what to be prioritized, which meant that the aim of the project was unclear at times. Due to the unclearness, the transition was affected and we did not know beforehand what changes could create the "after"-feeling. Since this affected the transition and task, it also affected the team involved, which can be viewed as an additional matter regarding the level of trust within the team. When the team could not form around a specific task, the development of trust was affected as well.

6.5 Impact of Methodology

For this thesis, the main methodology was participant observations. When considering the topic of trust, the results are highly influenced by personal experience and feelings. This had an impact on the information gathered since we, as authors, were involved in the project and experienced all the situations ourselves. Therefore, the outcome of the thesis is deeply affected by our interpretations and feelings throughout the project.

Our aim while conducting information for this thesis was to remain impartial regarding events during our stay to compile a fair picture of the situation. However, due to the connection between trust and our personal thoughts, this was a difficult task and this thesis is based on our view of the story.

Because participant observations only include our view of the Mkula Hospital Project, we complemented the case study with an interview with the HMT. Even though that gave their view on the project, it was still affected by their emotions and perceptions. Gathering information, however, gave another insight into the impressions and reflections we had conducted.

The thesis was performed with an inductive approach which means that we were limited by our findings during our case study when doing our literature research. Even though we could make preparations before leaving for our case study, the situation on site made us change both our focus and the way of collecting information. The inductive approach was chosen for this reason, but it still resulted in some aspects not being considered due to the lack of investigations during our case study.

7
Conclusion and Recommendations

This thesis concludes that our first two research questions are connected to the last one as well as to each other. The challenges of temporary organizations and sharing knowledge within the Mkula Hospital Project are closely dependent on the role of trust between the involved actors. This has been supported by the collected data and theory which proved the importance of trust within temporary organizations, such as the Mkula Hospital Project. This chapter comprises a section about our reflections during this research as well as some recommendations for future temporary projects. The following answers have been found to our questions.

What are the main challenges while working in a temporary organization such as the Mkula Hospital Project?

One of the main challenges experienced in the Mkula Hospital Project was the aspect of time. This was something we were aware of beforehand, but it was proven during the case study. It affected the way of working throughout the collaboration in the matter of creating a relationship and the stress of finishing the tasks. According to the theory, time should be considered as a core concept in a temporary organization which we agree with. Another important challenge is the creation of team feeling within the project. This is connected to the time limit of the project but also to the difficulties of creating trust within temporary organizations, which in turn affect the team feeling.

What can be identified as main barriers of sharing knowledge in the Mkula Hospital Project?

For sharing knowledge, there is a need of establishing a trustful relationship since it lays the ground for sharing knowledge. Having an informal relationship with members from the HMT outside the office created social contexts such as discussions and storytelling, that increased tacit knowledge transfer which in turn increased trust. It is also difficult to share information while not knowing what is prioritized since that makes it difficult to understand what knowledge is needed in a certain situation. In the Mkula Hospital Project, this was also clearly connected to the trust within the team since it was unclear why the prioritizations changed.

How did the role of trust affect the collaboration in the Mkula Hospital project?

Effectiveness decreases due to a lack of trust when team members keep information to themselves. The HMT was hesitant towards sharing knowledge with us, which we noticed and therefore we felt the need to double-check the information we received due to a lack of trust towards them. This created a vicious circle which decreased the

effectiveness within the project. Another thing identified was that tacit knowledge requires a higher level of trust due to difficulties to identify such knowledge and the increased effort necessary for sharing it. The lack of tacit knowledge shared, in turn, affected the trust since team members become unsure of how to act among each other.

We also found that a high level of trust is not always beneficial because it contains the risk of information not being shared due to a diminished stage of control. This can cause unnecessary problems that can affect the collaboration further and is therefore important to consider while working in teams.

7.1 Reflection about our experience

The main thing we learned while conducting this thesis is the difficulties to find suitable limitations for our subject. There are many situations and topics that are connected to trust, and that is also the case when looking at the success factors of temporary projects. Adding the cultural aspects of our case study, the conclusions are that a lot of limitations need to be made to make sense of our subject.

There has also been a lot of learning regarding the case study at Mkula Hospital. Even though we tried to prepare our selves for the project as well as for the local context, we could never have been fully prepared for a stay in an unfamiliar context. We needed to be open minded and flexible of the tasks at all times, and it was important to not lose focus due to the limited time. Furthermore, aside from performing a task and collecting data for this thesis, we needed to learn how to live in a village that was different from what we are used to. This included finding our way around town as well as learning a new language to communicate with the locals.

These challenges has bound to broaden our experience but also influenced our findings due to the state of mind for us as researchers and regarding the limitations, there are many more subjects to be studied in the future.

7.2 Recommendations for Future Projects

Here we have conducted some recommendations for future collaboration in temporary organizations. These are especially suggested for temporary projects such as aid projects for a limited period of time.

- Establish an informal relationship between members of the group early in the process to increase the trust as this will increase the tacit knowledge being shared.
- Make sure to share all knowledge that could be of interest for the project within the group to decrease the risk of misunderstandings as this will improve the collaboration. This will also improve the usage of time which is positive considering the time limit in temporary organizations.

- Preparations are important when working in projects within a different context. To improve the collaboration when working in temporary organizations, we therefore recommend that there are preparations made for those prerequisites as well as for the context in which the organization will take place, in order to improve the development of trust for the project.

- To have a shared vision with the involved parties, a time plan for the project could be beneficial. The plan should be conducted together by all parties involved in the temporary organization to adapt it to possible conditions.

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A

Appendix - Interview Questions

Introduction

- What was the main reason for the hospital to start working with the Healthy Hospital project group?
- How did you get in contact with the Swedish project group?
- What is your role in the project?
- What do you expect from the project?
- What do you think about the continuity regarding the student coming in and out of the project for two months?
- How has the hospital received information from the Project Group?
- How much information regarding time and tasks did you receive from the project group before the students arrived?
- How do you experience the students' role in the project?
- Are there any differences between the different groups of students that have been part of the project?
- How is it to adapt to new students coming here? Do you see any difficulties?
- What do you think about the communication between the hospital and students?
- Have you felt involvement in economic aspects?
- What were your expectations on the students and the tasks that they were going to preform in the project?
- When taking decisions, who has the main responsibility regarding risks?
- How have you experienced the collaboration with the contractor?

Multicultural

- Have you experienced any cultural differences between the students and the hospital? In what way can this be shown?
- Have you experienced any misunderstandings regarding behaviour?
- Can you think of a situation where cultural differences have been challenging or limiting for the project?
- Do you find it hard to communicate with the students because of the language differences?

Temporary organisation

- Were you aware of the time frame of the project?
- Do you think that the time the students were here has been well spent?
- Would you wish the time of the project to be shorter/longer?
- What impact do you think that the time frame has had on the project?

- Do you think that the coordination between the groups. Sweden and the project is well organised?
- Do you miss certain type of information?

Trust

- Have you been comfortable in the role of the student?
- When something has been wrong with the project, have you felt that you can bring this up with the students?
- What type of challenges do you find in creating a well functioning relationship in this time-limited project?
- Has the students delivered a performance that fulfils your expectations?

Summary

- Do you see an improvement between the different groups participating to the project?
- Is there anything that has not worked as well as it used to?
- Do you feel like the collaboration between the project group and hospital has been beneficial for you?
- Would you like further collaboration?

B

Appendix - Project Plan

Mkula Healthy Hospitals
Project Plan
Phase 2

TABLE OF CONTENT

Purpose

On a large scale, the ultimate purpose of the Healthy hospital projects series is, and has always been, to help and cooperate with the current hospital to decrease mortality and morbidity in the area. To do this, the main purpose of this phase, Healthy Hospitals Mkula Phase 2, is to assist Mkula Hospital to address their most important infrastructural challenges to provide a good base for safe healthcare. This will be done by helping with necessary investments, technical and architectural advice, and further planning and investigations.

Background

Healthy hospitals is an architectural and engineering aid project which started in 2015 as a collaboration between Kolandoto Hospital (Shinyanga region, Tanzania), and the Swedish NGO:s (Non Governmental Organisations) Architects Without Borders, Engineers Without Borders and Involve Aid. The project at Kolandoto Hospital was completed in 2017. The most important outcomes during the three years included:

- Total examination of the hospital infrastructural status
- Architectural masterplan for the hospital's development
- New groundwater pump and water treatment for increased and safer water supply
- Solar powered backup system
- Construction and equipment of a new casualty unit

During the latter stages of the project at Kolandoto Hospital, Mkula hospital made an enquiry regarding assistance with infrastructural issues. Since then, a new Healthy Hospital Project has been set up as a collaboration between Mkula Hospital, Architects Without Borders and Engineers Without Borders in similar way as the previous project at Kolandoto Hospital.

In 2018, the first phase of the Healthy Hospital Mkula took place. During the first phase, a new groundwater pump with new TANESCO power supply was installed and the work with a new architectural master plan for the hospital's development was initiated. Additionally, an examination of the current status of the hospital general infrastructure was produced from in-field examinations and interviews. The findings were summarized in a Survey Report. The report concluded the hospital's most important infrastructural areas in need of improvements and further investigation. The needed improvements and investigations are stated in this Project Plan.

Project goals

The overall project narrative is to find a strategic way for Mkula hospital to proceed providing healthcare in a safe and efficient way. The goal is to decrease mortality and morbidity in the the hospitals catchment area by creating a clean, safe and healing environment for both staff and patients at the hospital. This includes setting a future plan for development of the infrastructure surrounding the hospital as well as developing the buildings that makes up the hospital.

Infrastructure

Water supply

During the first phase, the water supply was increased for the hospital. An evaluation should be conducted during the second phase, where additional needs and the condition of the system is analyzed. For example, problems with taps has been expressed by the hospital during the first phase and should therefore be further investigated, and possibly renovated. Also, only one water tank is being used, and the need of additional tanks should be analyzed.

Furthermore, water quality tests should be made from the existing borehole, in order to secure a safe water source.

Wastewater

Since the water supply was increased during the first phase, with more water in the wastewater system as a consequence. The condition of the system was briefly investigated in phase one, including the status of existing toilets and the infiltration bed. During the second phase, a more thorough investigation of the wastewater system will be conducted. Also, if suitable, improvements could be made in the second phase. For example, renovation of existing piping system or/and a new wastewater treatment process could be installed.

Uninterruptible power supply (UPS)-system

The hospital’s main power supply is the national power grid (TANESCO), with a diesel powered generator as the only power backup system. However, the diesel generator can not be started automatically or by remote. An investigation of the most suitable UPS and backup power system for the hospital, especially the theatres, should be carried out and installed. If a long-term solution can’t be implemented during phase 2, a short-term solution could be made, together with preparations for a complete solution in phase 3.

Laundry

The hospital has a large room for laundry, which due to malfunctioning, old equipment and lack of water is not being used to its full capacity. A small-size laundry machine was recently

installed, but the hospital still needs increased laundry capacity to fulfill hygienic demands. An industrial-size laundry machine should be bought and installed.

Incinerator

The hospital incinerates its solid waste in a concrete incinerator at the hospital premises. The incinerator and its roof is however severely damaged which complicates the solid waste management process. Some of the hospital's waste is dangerous, and a malfunctioning solid waste management entails great risks for the waste management staff and for the surroundings. Detailed plans for sufficient rehabilitation of the incinerator and solid waste area should be made and carried through.

Mortuary

The current hospital mortuary is not big enough to satisfy the hospital's demands and it lack a power supply and can therefore not refrigerate. The possibility to install a power supply to the mortuary should be investigated. Most suitable power source, such as TANESCO, solar-PV or generator, should also be investigated. The field survey should also check if a refrigerator could be sourced locally.

Buildings

In the first phase there was a master plan created for the future expansion and meeting the long term goals of the hospital. In phase two and three, the realization of this masterplan, by expanding the hospital and defining existing buildings, starts.

Outpatient department

Today, the outpatient department is not completely well suited for the hospitals needs. The flows of patient are not ideal, some rooms are unused while at the same time, the hospital needs more space for examination. With some minor changes, the outpatient department could be working much more efficiently. In phase one there was a sketch made for optimize the rooms within the existing shell, which should be defined and carried out during phase two.

Operating space

One of the biggest issue with the buildings of the hospital is the lack of operating space. There is a big need for a new operation theater by the maternity ward for performing caesarean sections. There is also not enough space for preparation and post-op. In phase one there was a proposal made, how to remodel and expand the existing spaces to create space for two operation theaters and a patient post operation space. In phase two this proposal will be finalized and detailed to be able to be built in phase three.

Emergency building

Close to the operating space there is a need for a casualty unit to provide a place to admit emergency patients. The flow of these patients also need to be defined to not cause dangerous delays in providing patients with help. While designing the new operating theater phase two will include looking at how to define this new emergency entrance and building, taking flows, current use and the rebuilding of the operation theater in phase three into consideration.

Summary of project goals

Infrastructure

In the Survey Report conducted in the first phase of the project, the following areas was listed as areas in need of improvements or further investigation:

Areas in need of improvements

- Hospital laundry
    - Buy and install large size washing machine
- Renovate incinerator
- Improvements and rehabilitation of the wastewater system
    - Possible wastewater treatment
    - Renovation of piping system
    - Rehabilitation of infiltration bed
- Renovate existing water taps
- UPS-system or automatic diesel generator start

Areas in need of further investigation

- Evaluate the need of an (UPS)-system
    - UPS with solar cells compared with UPS from diesel generator
        - Life cycle analysis
        - Cost-benefit analysis
- Further investigation of the water supply system
    - Should the adjacent college be involved in the water supply plan?
    - Locate a suitable place for potential new borehole
    - Conduct water quality tests
        - Need for water treatment?
- Functionality of wastewater management system
    - Condition of toilets and infiltration bed
    - Investigate the need of wastewater treatment
    - Status of piping system
- Mortuary - electricity, water, fridge
    - Cost-benefit analysis regarding electricity for fridge, and water supply

Buildings

According to the master plan, this is what should to be done for the future expansion of the hospital.

To be done in phase two

- Defining and carrying out the rebuilding of the outpatient department, including finding and aiding local contractors in their work.
- Finalizing drawings of the surgery department, including creating all necessary drawings for the future construction.
- Designing emergency building and entrance, taking patient flows into consideration.

To be done in phase three

- Carrying out the rebuilding of the surgery department, including finding and aiding local contractors in their work.

Method and structure

The Healthy Hospitals Mkula project consists of the Survey Team and the Mkula hospital management board. The Survey Team includes: management (experienced architects and engineers) and students (architectural and engineering students)

The Healthy Hospitals Mkula project group		
Hospital Management Board	Survey Team	
[redacted] (MO I/C)	Management group	Student group
	[redacted] (eng.) [redacted] (eng.) [redacted] (arch.)	[redacted] (eng.) [redacted] (eng.) [redacted] (arch.) Annika Sjöberg (eng.) Ellen Brandt (eng.)

The engineering students are divided into two sub-groups, the first with Rebecca and Hanna, and the second with Annika and Ellen. The first sub-group will arrive at the start of the field study together with the architect student, and the second sub-group will arrive 4-6 weeks after the start of the field study to prolong the field study and enable the project to achieve more during this phase.

Most work will be done by the students in the Survey Team, with guidance from the Survey Team's management. The work will be done within the framework set by this project plan. Decisions or actions taken that does not comply with this project plan has to first be sanctioned by the whole Healthy Hospitals Mkula project group.

Timeframe

Infrastructural implementations and investigations

Spring 2018: End of phase 1
Fall 2018: Start of phase 2

- Recruitment of new master students
- Applications for funds and scholarships
- Finish Project Plan

Spring 2019: Start of phase 1 field study (february-april)

- Preparations for students with desk studies etc
- Field study start
    - Survey team management group present 1 week
    - First engineer group present 8 weeks (feb-march), second engineer group present 8 weeks (march-april)
        - Obtain overview of hospital planning and infrastructure
            - Verify hospital's needs and challenges stated in Project Plan
        - Initiate investigations
        - Acquire tenders for implementations
            - Advice hospital to order implementations
        - Supervise work with implementations, and involve suitable hospital staff
        - Prepare for leaving hospital

Summer 2019: End of phase 2

- Finish reports

Architectural part

Spring 2018: End of phase 1
Fall 2018: Start of phase 2

- Recruitment of new master students
- Applications for funds and scholarships
- Finish Project Plan

Spring 2019: Start of phase 1 field study (february-april)

- Preparation for student, desk studies, good examples
- Field study start
    - Survey team management group present 1 week
    - Architect student field study 8-10 weeks:
        - Strategies for rebuild outpatient department
        - Finnish proposal for operating theater through participatory methods
        - Workshops, design strategies, working in an iterative process to create design proposal of emergency unit

Summer 2019: End of phase 2

- Finish the architectural report

Budget

The specified budget below is not yet fully determined and is only as to be seen as a approximation.

Project funding

From	Amount
Healthy Hospital (Mkula Phase 1)	[redacted]
Engineers Without Borders	[redacted]
Chalmers MasterCard	[redacted]
ARQ	[redacted]
Liljewall	[redacted]
In total SEK	[redacted]
In total TZS (2018-11-21)	[redacted]

Project costs

Before all investments, a budget with both short and long term costs should be made and accepted by the Healthy Hospitals Mkula group.

The projected cost of the project is stated in the following table.

Object	Cost
Rehabilitation of water supply system	[redacted]
Investigation and rehabilitation of wastewater system	[redacted]
Electrification of mortuary	[redacted]
UPS-system	[redacted]
Rebuilding outpatient department	[redacted]
Laundry rehabilitation	[redacted]

Appendix 1: Guidelines

The Healthy Hospitals Mkula Project is carried out according to some elementary guidelines in order to be a successful and sustainable aid project. To achieve this, the project should:

- Aim to reduce long term aid dependency.
- Focus on the recipients main and most relevant issues and challenges.
- Pursue recipient involvement and ownership at all stages of the project.

Aid dependency is a problem following all aid work. The Healthy Hospital Mkula Project should therefore **aim to reduce long term aid dependency** by implementing economical and social sustainable solutions and systems. Implemented solutions should not result in unnecessary costs or maintenance which the hospital cannot bear.

To **pursue recipient involvement and ownership at all stages of the project**, the Mkula hospital management or relevant hospital staff should be involved in the project from its beginning to the end. The chosen aims, goals and priorities should be decided by the hospital management and architectural and engineering group together. However, the hospital management will have final say in all major decisions in the project and the architectural and engineering group should only offer its professional advice. Future responsibility for implemented solutions, systems, buildings and so on lies with the Mkula Hospital management.

Focus on recipients main and most relevant issues and challenges means that the Healthy Hospital project priorities should be done with the aim to increase the hospital's possibility to, now and in the future, provide better and safer healthcare to more people. When possible, the project should also be performed so that it is beneficial to the hospital staff, hospital students and the surrounding community in the short and long term. This also includes sourcing local materials and using local building techniques

Appendix 2: Partners

African Inland Church Tanzania (AICT)
The AICT is a Faith Based Organisation (FBO) whose goal is to support individuals, families and communities, both physically and spiritually. The organization is working to try to achieve quality health care for all individuals, regardless of economic status. AICT has several medical facilities and also conducts field activities. The organizations headquarter are based in Mwanza, Tanzania.

Involve Aid (IA), formerly known as I Aid Africa (IAA), is a Swedish NGO that has been working with Kolandoto Hospital and in the region since 2008. A small-scale NGO that works with sustainable and health related developments projects through locally identified needs and long term partnerships.

AICT Mkula Hospital is located in the Busega district, in the eastern part of the Mwanza-region in northern Tanzania. The hospital was established in 1986 and has a current bed capacity of 105 beds.

AICT Kolandoto hospital is located in the north-western region of Shinyanga. The hospital has cooperated with IAA since 2008.

Engineers without borders (EWB) is a Swedish NGO and they are a part of a international network which supports development projects based on engineering, often is cooperation with local organizations and their goal is to find technical solutions adapted to and with respect to local capacity, culture and values.

Architects without borders (ASF-Sweden) are a NGO, which is a part of the network ASF-International that works for sustainable and socially equitable architecture. They aim to create better opportunities for people in difficult living situations and disasters as well as solve financial and knowledge based obstacles in the way of a safe, fair and sustainable environment. Their projects are in cooperation with local organizations and seek to involve the community.

Appendix 3: Risk analysis and mitigation

Risk: That we construct buildings or infrastructure not actually needed.
Mitigation: Make sure all suggestions are deeply rooted in the hospital and their actual needs. Be sensitive in dialogue with the hospital and spend time in the hospital to assess what works and what does not work to ask the right questions.

Risk: That we implement systems not actually needed.
Mitigation: Make sure all suggestions are deeply rooted in the hospital and their actual needs. Be sensitive in dialogue with the hospital and spend time in the hospital to assess what works and what does not work to ask the right questions.

Risk: Losing money and possibly breaking the budget because of big changes in local currency.
Mitigation: Be aware when making the budget. Have buffer if possible.

Risk: Not granted building permits or problems with other permissions
Mitigation: Be prepared and informed. Find out early what permissions are needed for the tasks we plan, make sure to apply in good time. Be ready to be flexible in timeline.

Risk: Issues in collaboration with Mkula Hospital officials
Mitigation: Consult the work group and project management team if such issues seems to arise.

Risk: Master students not able to complete the task due to sickness or other personal events
Mitigation: None.

Risk: Master thesis students become short of time to finish the whole project
Mitigation: Be ready to downsize if it happens.

Risk: Changes in master thesis focus
Mitigation: Not to be mitigated, this could rather be an opportunity for the hospital in case something else is more relevant.

C

Appendix - Contract Agreement Sewage System

Contract Agreement

- *Emptying and Repairing the sewage system at Mkula Hospital*

Africa Inland Church Tanzania

TABLE OF CONTENT

1. Contract Agreement

This agreement was made on: 2019-03-04

between AICT Mkula Hospital P.O. Box 213, Magu, Tanzania (hence known as the Employer) and [redacted] (hence known as the Contractor).

The Employer gives the Contractor the mission to execute construction of EMPTYING AND REPAIRING THE SEWAGE SYSTEM AT MKULA HOSPITAL (known as the Construction).

The Employer has accepted the tender by the Contractor for the execution and completion of such works and the remedying of any defects therein the sum of:

[redacted] TZS.

The project should start on: …../..…- 2019

The due completion date shall be 1 month after starting date.

SIGNED ON BEHALF OF THE EMPLOYER:……..

Clarification of signature:…….

Place and Date:…….

SINGED ON BEHALF OF THE CONTRACTOR:……

Clarification of signature:…….

Place and Date:……..

2. Attachments to the contract

The Scope of Work, which includes clarifications and drawings, establishes what the Contractor is to construct and what quality and quantity is required.

The Bill of Quantities provided by the Contractor and agreed upon by the Employer specifies amounts and costs calculated by the Contractor for the work to be conducted.

The Contractor will prepare a schedule, which shows how the work will progress, so that all the work will be completed by the due completion date.

3. Duration of work

The Employer promises to give the Contractor access to the site starting from the commencement date stated in the contract. If the Employer does not give sufficient access by the commencement date, and the Contractor will be delayed or will suffer additional costs, they may claim for reimbursement of such additional costs.

Completion is reached when the Construction stands according to drawings and clarifications, and is approved by the Employer. The Construction is to be handed over to the Employer, being cleaned and cleared of all excess material, equipment and tools used by the Contractor. This cleaning is to be performed by the Contractor before completion is reached.

3.1 Delays

In the case of delays, two cases apply:

- Delays which are the fault of the Contractor, will result in deductions of payment in the event that the Construction is not completed by the due completion date.
- Delays which are not the fault of the Contractor.

The following causes of delay are not the fault of the Contractor;

- compliance with the Employer's instruction arising from an ambiguity or discrepancy between documents;
- failure by the Employer to give possession of the site in accordance with the provisions of the contract;
- failure by the Employer to timeously comply with the Contractor´s request to provide information required for the execution of the work;
- failure by the Employer to examine the work within a reasonable period after being given notice by the Contractor to do so;
- the ordering of the suspension of the work by the Employer which is unrelated to the proper execution of the contract, for reasons of weather conditions, the safety of the works, or the safety of the public;
- non-compliance with the terms of the contract by the Employer, their agents, employees or other contractors;
- adverse physical conditions which an experienced contractor could not have reasonably foreseen at the time of submitting a tender;
- outbreaks of war, armed hostilities or the imposition of economic sanctions and the contract is not cancelled.

3.2 Extensions of time

In the case that the Contractor is not at fault for the delay, they may claim for an extension of time. The extension of time may make the due completion date later so that they will not incur deductions of payments. This claim of extension has to be submitted in writing to the Employer no later than 7 days after the cause of delay occurred. The extension of time will be valid when it is agreed upon by both Contractor and Employer

4. Control and Responsibility

When the Contractor takes over the site, they are responsible for any loss or damage on the site, including materials brought onto site for the work to be done.

The Contractor is responsible for not causing unnecessary disturbances to the routines and functions of Mkula Hospital. The supply of electricity and water to nearby buildings needs to be functioning at all times during construction. If there is a need to temporarily disrupt either the electricity or water supply, the Contractor need to inform the Employer in writing 2 days before the disruptive work begins. The electricity or water supply to nearby buildings cannot be compromised without the approval of the Employer. All now existing electric and water systems must be functioning at completion of the Construction.

The Employer can order the Contractor to remove and redo any work which has not been properly done according to the specifications, drawings and instructions. If this happens, the Contractor must obey the order, and will receive no additional payment for doing so. If the Contractor does not obey the order, the Employer may employ someone else to do as the Employer has ordered, and the Contractor will be responsible to pay the costs of that other person.
Where any work is to be covered up, the Contractor must notify the Employer to inspect the work before it is covered up. If the Contractor does not notify the Employer before covering up work, the Employer may order the Contractor to open it up again to check that it has been properly done, and the Contractor will not be paid for doing so.

4.1 Alterations

An alteration to the nature or extent of construction work, or the conditions under which they will be carried out may be ordered by the Employer, however it may not be ordered after completion. The order of an alteration must be given in writing. If the alteration results in additional payments to the Contractor, the Employer will value the alteration by using the rates or prices in the Bill of Quantities. If that is not possible, the Employer and the Contractor must agree on the cost of the alteration. If there is no agreement of the price of the alteration, the Employer may hire a Subcontractor to conduct the alteration. In this case, the chapter of Subcontracting, seen below, still applies.

Employer:…….
Contractor: …….

5. Subcontracting

A Contractor subcontracts when they hire someone else, a subcontractor, to do some of the work that the Contractor are contracted to do for the Employer. The Contractor must get written permission from the Employer to hire a subcontractor. The Contractor do not need permission when;

- they employ or hire labour;
- they buy materials which are required by the contract;
- they buy or hire construction equipment.

The Contractor is still responsible for all of the work required by the contract with the Employer, even if a subcontractor does some parts of it. This means that if the Employer rejects work done by a subcontractor, then;

- the Contractor must ensure that it is redone properly, by that subcontractor or someone else and that;
- the Construction is not completed until the work is redone to the approval of the Employer.

If the Contractor does not reach completion by the due completion date because a subcontractor is late, the Contractor will receive deductions of payment.

6. Payment

The Contractor are to receive payment from the Employer of shares of the total amount specified in the contract. The payment will be performed;

- 20% of the total contracted amount will be transferred from Sweden at the start of the construction. The transferred will take around a week and the Contractor will need to stand for the costs during this period.
- 80% of the total contracted amount will be paid at completion of work, the payment must be received by the Contractor at latest 28 days after completion.

6.2. Deduction of Payment due to Delays

If a delay past the due completion date is the fault of the Contractor, the payment will be deducted with 1% of the total contracted amount for each day past the due completion date. This deduction may not exceed 10%.

6.3. Deduction of Payment due to Lack of Quality

If the work done be the Contractor does not match the drawings and clarifications attached to the contract, the Employer can:

- Order the work to be removed and redone or;
- Make deductions of payment.

The deduction of payment due to lack of quality in the work will be parallel to the consequences on the completed Construction. This deduction is decided by the Employer, and may not exceed 10% of the total contracted amount.

Employer:……
Contractor: ……

7. Cancellation of contract

A cancellation of contract needs to be handled with the supervision of a neutral, third party. The contract may be cancelled for one of the 3 following reasons:

1) Due to war or emergency in which case the cancellation takes place after agreement between Employer and Contractor.
2) Due to the Contractor's fault in which case the Employer may cancel the contract. The Employer may cancel the contract if the Contractor;
    - has abandoned the contract; is not working or performing their duties as required by the contract;
    - has not commenced work in 14 days after the commencement day;
    - has suspended work for a period of 14 days;
    - has not removed defective materials or has not redone defective work within 7 days after being told by the Employer to do so;
    - had subcontracted part of the work without the Employer's consent.

    The Employer gives a written notice to the Contractor that they are cancelling the contract, and 7 days later, the contract will be cancelled. Thereafter:
    The Employer may expel the Contractor from site.
    - The Employer may employ other Contractors to complete the Construction.
    - The Employer may use any material, equipment or temporary work brought onto site by the Contractor to complete the Construction.
    - The Employer may sell any material, equipment or temporary work brought onto site by the Contractor.
    - The Contractor will not be entitled to receive any further payments from the Employer.
    - If the Employer has to pay more to complete the work than it would have cost them if the Contractor had completed the work, then the Contractor must pay the Employer the additional cost.
3) Due to the Employer's fault in which case the Contractor may cancel the contract. The Contractor may cancel the contract if the Employer;
    - Fails to pay the amount stated in the Contractor within 28 days after stated date of payment;
    - Passes the rights and duties of the Contractor to someone else without the permission of the Contractor.

    The Contractor gives a notice in writing to the Employer that they have cancelled the contract. Thereafter:
    - All unused materials, which have not been paid for by the Employer, and all construction equipment and temporary work brought to site by the Contractor must be removed by the Contractor;
    - The Employer must pay the Contractor;
        - for all the work done and not yet paid for;
        - for all materials or good which the Contractor has ordered for the work, and of which they have to accept delivery. These materials and goods then become the property of the Employer;
        - for the costs of removing construction equipment and temporary work which are on site at the time of cancellation;
        - for additional costs suffered by the Contractor due to the cancellation.

Employer:…….
Contractor: …….

Attachment 1: Sewage system at Mkula hospital

Drawing

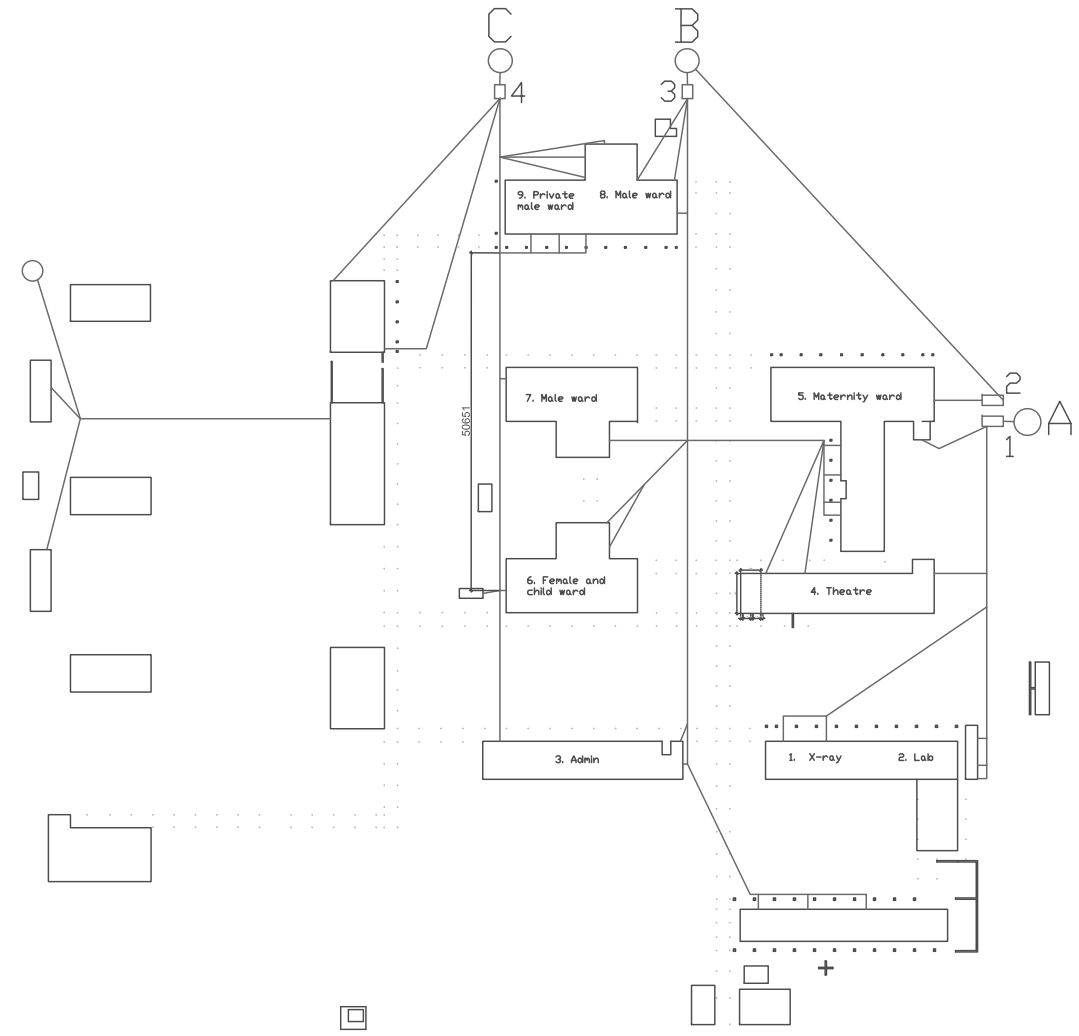

Figure 1. The soak pits are named A-C. The septic tanks are named as 1-4.

Attachment 2: Reparation of the sewage system

Clarifications

We want to prioritize reparations before building new things. Therefore,

1. Start by carefully empty and flush the tanks and soak pits to avoid collapse
2. Reparation of the septic tanks and soak pits as well as new lids will be needed. This should be done in consensus with the onsite engineers

Septic tank 1

- In the third chamber on the wall facing the soak pit, a hole of approximately 30 cm in diameter can be seen in the construction.
- 3 lids are missing

Soak pit A

- Vegetation inside the soak pit

Septic tank 2

- What we have seen there is no hole in this septic tank and it works good.

Septic tank 3

- The second chamber has a close by tree that grows into the chamber with its roots.

Soak pit B

- In the soak pit there are two large holes, which makes it easy for the surface water to reach into the chamber
- One lid is missing

Septic tank 4

- The flow between chamber one and two is broken, needs to be repaired.
- The holes on the walls needs to be repaired as well
- 3 lids are missing

Soak pit C

- Have not been able to investigate due to large vegetation around

Replacement of wastewater pipe

- The pipe that goes from the female and child ward towards Septic tank 4 needs to be investigated and replaced if needed.
    - If possible, we would like a new pipe from the private male ward to septic tank 4 in order to avoid overload the connecting pipe, or another solution that would prevent the clogging from the private male ward
- The pipe from male ward to septic tank 3 needs to be replaced and the tree removed.

D

Appendix - Contract Agreement Reparation of Restrooms

Contract Agreement

- *Rehabilitation of Restrooms inside wards*

Africa Inland Church Tanzania

TABLE OF CONTENT

1. Contract Agreement

This agreement was made on: 2019-03-05

between AICT Mkula Hospital P.O. Box 213, Magu, Tanzania (hence known as the Employer) and [redacted] (hence known as the Contractor).

The Employer gives the Contractor the mission to execute construction of REHABILITATION OF RESTROOMS INSIDE WARDS (known as the Construction).

The Employer has accepted the tender by the Contractor for the execution and completion of such works and the remedying of any defects therein the sum of:

[redacted] TZS.

The project should start on: …../.….- 2019

The due completion date shall be …… after starting date.

SIGNED ON BEHALF OF THE EMPLOYER:……..

Clarification of signature:…….

Place and Date:…….

SINGED ON BEHALF OF THE CONTRACTOR:……

Clarification of signature:…….

Place and Date:……..

2. Attachments to the contract

The Scope of Work, which includes clarifications and drawings, establishes what the Contractor is to construct and what quality and quantity is required.

The Bill of Quantities provided by the Contractor and agreed upon by the Employer specifies amounts and costs calculated by the Contractor for the work to be conducted.

The Contractor will prepare a schedule, which shows how the work will progress, so that all the work will be completed by the due completion date.

3. Duration of work

The Employer promises to give the Contractor access to the site starting from the commencement date stated in the contract. If the Employer does not give sufficient access by the commencement date, and the Contractor will be delayed or will suffer additional costs, they may claim for reimbursement of such additional costs.

Completion is reached when the Construction stands according to drawings and clarifications, and is approved by the Employer. The Construction is to be handed over to the Employer, being cleaned and cleared of all excess material, equipment and tools used by the Contractor. This cleaning is to be performed by the Contractor before completion is reached.

3.1 Delays

In the case of delays, two cases apply:

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- Delays which are not the fault of the Contractor.

The following causes of delay are not the fault of the Contractor;

- compliance with the Employer's instruction arising from an ambiguity or discrepancy between documents;
- failure by the Employer to give possession of the site in accordance with the provisions of the contract;
- failure by the Employer to timeously comply with the Contractor´s request to provide information required for the execution of the work;
- failure by the Employer to examine the work within a reasonable period after being given notice by the Contractor to do so;
- the ordering of the suspension of the work by the Employer which is unrelated to the proper execution of the contract, for reasons of weather conditions, the safety of the works, or the safety of the public;
- non-compliance with the terms of the contract by the Employer, their agents, employees or other contractors;
- adverse physical conditions which an experienced contractor could not have reasonably foreseen at the time of submitting a tender;
- outbreaks of war, armed hostilities or the imposition of economic sanctions and the contract is not cancelled.

3.2 Extensions of time

In the case that the Contractor is not at fault for the delay, they may claim for an extension of time. The extension of time may make the due completion date later so that they will not incur deductions of payments. This claim of extension has to be submitted in writing to the Employer no later than 7 days after the cause of delay occurred. The extension of time will be valid when it is agreed upon by both Contractor and Employer

4. Control and Responsibility

When the Contractor takes over the site, they are responsible for any loss or damage on the site, including materials brought onto site for the work to be done.

The Contractor is responsible for not causing unnecessary disturbances to the routines and functions of Mkula Hospital. The supply of electricity and water to nearby buildings needs to be functioning at all times during construction. If there is a need to temporarily disrupt either the electricity or water supply, the Contractor need to inform the Employer in writing 2 days before the disruptive work begins. The electricity or water supply to nearby buildings cannot be compromised without the approval of the Employer. All now existing electric and water systems must be functioning at completion of the Construction.

The Employer can order the Contractor to remove and redo any work which has not been properly done according to the specifications, drawings and instructions. If this happens, the Contractor must obey the order, and will receive no additional payment for doing so. If the Contractor does not obey the order, the Employer may employ someone else to do as the Employer has ordered, and the Contractor will be responsible to pay the costs of that other person.
Where any work is to be covered up, the Contractor must notify the Employer to inspect the work before it is covered up. If the Contractor does not notify the Employer before covering up work, the Employer may order the Contractor to open it up again to check that it has been properly done, and the Contractor will not be paid for doing so.

4.1 Alterations

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Employer:…….
Contractor: …….

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- they buy materials which are required by the contract;
- they buy or hire construction equipment.

The Contractor is still responsible for all of the work required by the contract with the Employer, even if a subcontractor does some parts of it. This means that if the Employer rejects work done by a subcontractor, then;

- the Contractor must ensure that it is redone properly, by that subcontractor or someone else and that;
- the Construction is not completed until the work is redone to the approval of the Employer.

If the Contractor does not reach completion by the due completion date because a subcontractor is late, the Contractor will receive deductions of payment.

6. Payment

The Contractor are to receive payment from the Employer of shares of the total amount specified in the contract. The payment will be performed;

- 20% of the total contracted amount will be transferred from Sweden at the start of the construction. The transferred will take around a week and the Contractor will need to stand for the costs during this period.
- 80% of the total contracted amount will be paid at completion of work, the payment must be received by the Contractor at latest 28 days after completion.

6.2. Deduction of Payment due to Delays

If a delay past the due completion date is the fault of the Contractor, the payment will be deducted with 1% of the total contracted amount for each day past the due completion date. This deduction may not exceed 10%.

6.3. Deduction of Payment due to Lack of Quality

If the work done be the Contractor does not match the drawings and clarifications attached to the contract, the Employer can:

- Order the work to be removed and redone or;
- Make deductions of payment.

The deduction of payment due to lack of quality in the work will be parallel to the consequences on the completed Construction. This deduction is decided by the Employer, and may not exceed 10% of the total contracted amount.

7. Cancellation of contract

A cancellation of contract needs to be handled with the supervision of a neutral, third party. The contract may be cancelled for one of the 3 following reasons:

1) Due to war or emergency in which case the cancellation takes place after agreement between Employer and Contractor.
2) Due to the Contractor's fault in which case the Employer may cancel the contract. The Employer may cancel the contract if the Contractor;
    - has abandoned the contract; is not working or performing their duties as required by the contract;
    - has not commenced work in 14 days after the commencement day;
    - has suspended work for a period of 14 days;
    - has not removed defective materials or has not redone defective work within 7 days after being told by the Employer to do so;
    - had subcontracted part of the work without the Employer's consent.

    The Employer gives a written notice to the Contractor that they are cancelling the contract, and 7 days later, the contract will be cancelled. Thereafter:
    The Employer may expel the Contractor from site.
    - The Employer may employ other Contractors to complete the Construction.
    - The Employer may use any material, equipment or temporary work brought onto site by the Contractor to complete the Construction.
    - The Employer may sell any material, equipment or temporary work brought onto site by the Contractor.
    - The Contractor will not be entitled to receive any further payments from the Employer.
    - If the Employer has to pay more to complete the work than it would have cost them if the Contractor had completed the work, then the Contractor must pay the Employer the additional cost.
3) Due to the Employer's fault in which case the Contractor may cancel the contract. The Contractor may cancel the contract if the Employer;
    - Fails to pay the amount stated in the Contractor within 28 days after stated date of payment;
    - Passes the rights and duties of the Contractor to someone else without the permission of the Contractor.

    The Contractor gives a notice in writing to the Employer that they have cancelled the contract. Thereafter:
    - All unused materials, which have not been paid for by the Employer, and all construction equipment and temporary work brought to site by the Contractor must be removed by the Contractor;
    - The Employer must pay the Contractor;
        - for all the work done and not yet paid for;
        - for all materials or good which the Contractor has ordered for the work, and of which they have to accept delivery. These materials and goods then become the property of the Employer;
        - for the costs of removing construction equipment and temporary work which are on site at the time of cancellation;
        - for additional costs suffered by the Contractor due to the cancellation.

Employer:…….
Contractor: …….

ATTACHMENT 1: CLARIFICATIONS

Quantities of the restrooms:

- The tiles should be placed on the floor in the restrooms
- The porcelain toilets should be removed and replaced with new ones
- The sinks are clogged so the pipes need to be cleansed or exchanged if needed
- Investigate if the drainage in the showers are working. If not, repair and unclog.

Private male ward		Unit
Tiles	12	m^2
New squat toilets	2	No
Showers	2	No
Male ward (with private)		
Tiles	22	m^2
New squat toilets	3	No
Showers	2	No
Sinks	3	No
Male ward		
Tiles	22	m^2
New squat toilets	3	No
Showers	2	No
Sinks	3	No
Female ward		
Tiles	22	m^2
New squat toilets	3	No
Showers	2	No
Sinks	3	No
Maternity		
Sinks	3	No
Total		
Toilets	11	No
Sinks	12	No
Tiles	78	m^2

Employer:……
Contractor: ……