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How Organisational Learning is created in an aid project

A case study of the Healthy Hospital Project in Kolandoto, Tanzania

Master's thesis in Learning and Leadership Programme

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Cover: Construction of Emergency Department at Kolandoto Hospital, Tanzania.
Captured by Elimeleki Katani.

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ABSTRACT

Projects in an aid context are often lined with complications and misunderstandings, which are commonly blamed on cultural differences. In this thesis, we chose to develop on other aspects that can have an impact on aid projects and their success. These aspects include organisational structures, namely hierarchical and flat organisations, and the impact that they can have on organisational learning.

This thesis is based on a nine week long case study within the Healthy Hospital project. The project has for the last three years been focused on improving the standards and facilities of Kolandoto Hospital in Tanzania, by technical and architectural solutions. As part of the selected Participatory Action Research-methodology, we were involved in a procurement process as well as conducting evaluations through interviews. The interviews were focused on the project and learning outcomes of installations and subprojects, done within the Healthy Hospital project.

Three parties were identified within the Healthy Hospital project; The hospital, the project group and the master thesis students. Out of these three, the organisational structure was investigated for the hospital and the project group. In the end, learning outcomes and processes were analysed as well as the impact on these from the different organisational structures. Consequences on organisational learning could often be linked to either the hierarchical structure of the hospital or the nonhierarchical structure of the project group. To conclude the thesis, recommendations for the project group were provided to enable further organisational learning within the Healthy Hospital project. The main recommendation for the project group is to further formalize the communication with the students as well as creating safe spaces for the hospital to enable feedback.

Keywords: Organisational Learning, Organisational Structure, Aid projects, Case Study, Tanzania, Participatory Action Research

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

AICT- African Inland Church of Tanzania

IAA - I Aid Africa

NGO - Non Governmental Organisation

OL - Organisational Learning

OT - Operating Theatre

UPS - Uninterrupted Power Supply

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INTRODUCTION

We live in a culture in which those who are better off subscribe - both mentally and financially to the notion that giving alms to the poor is the right thing to do.
(Moyo, 2009)

Aid projects are considered by wealthy western countries as a way to lessen the difference in living standards between themselves and people living in poorer environments. It is argued by many, for example Moyo (2009), that giving aid has the risk of simply resulting in aid dependency for the receiver. The circumstances for giving aid are complex. Yet, the goal of giving aid is synonymous with doing something good for someone who needs it. This was also the case when the idea for this thesis was developed, to contribute with something more than just answers to abstract research questions.

Aid projects are not always success stories without complications (Moyo, 2009). One issue in global aid projects is the difference in culture between the different countries providing and receiving aid (Hofstede, 1987). However, to blame culture and language differences for complications that emerges within aid projects might be true in some cases, but its not true in every case. In order to move towards better aid projects and ensure the prosperity of the aid receivers, other aspects need to be considered.

One aspect that is interesting to consider is how learning, or the lack of learning within and between involved organisations in an aid project can impact the project. We find this topic suitable because of our somewhat different backgrounds from construction management and learning and leadership respectively. Our different competences will be put to use in the master thesis study, since learning aspects will be evaluated within construction and practical engineering projects at Kolandoto Hospital.

The Healthy Hospital project at Kolandoto Hospital in Tanzania is an aid project that will be investigated and evaluated in this thesis to see how it can be further improved. From a first glance at the project, it is revealed that it is not reaching its full potential. One aspect that can be enhanced is the utilization of knowledge gained within the project. It is therefore interesting to further examine how the project has developed and why, and how the knowledge gained in the project can be distributed in and between the organisations involved.

Learning is defined as:

> *The acquisition of knowledge or skills through study, experience, or being taught.*
> - (Oxford University Press, 2017)

When working in a project, the knowledge is typically gained from experience. (Swan et al., 2010) This is also assumed to be the case for the Healthy Hospital project. The experiences can be the result of what has worked well and not in the collaboration between the involved parties, or how one organisation was different from the other. Since different organisations have different routines and standards for working, the importance of being open to learning new things from each other as well as using what is already known is evident. According to March (1991) the relation between these two aspects are very important within organisational learning.

1.1 PURPOSE

This master thesis will focus on the relationship between a foreign aid organisation and a local aid recipient, through a case study conducted within the Healthy Hospital project at Kolandoto Hospital. The aim of the thesis is to find out how the project has developed over the years, and examine what the two organisations have learned from working within the project and from working with master thesis students that have been involved during the past three years. To evaluate the knowledge gained in the project is believed to help Kolandoto Hospital with their continuous prosperity, without the dependency of aid. It is also believed to help the aid organisation in their future work within this, and other similar projects.

1.2 SPECIFICATION OF ISSUE UNDER INVESTIGATION

The research will aim towards answering the following questions:

- How has knowledge been created within the Healthy Hospital project through organisational learning?

- In what way has the organisational structures of Kolandoto Hospital and the project group effected the learning within the project?

1.3 LIMITATIONS

The Healthy Hospital project has shaped the focus of this thesis, since an inductive approach has been chosen. The work that we have done for the hospital during our time in Kolandoto has been a primary source of information. The work has also been our main focus for the duration of our case study.

Within the Healthy Hospital project, three separate stakeholders can be identified; the project group, the hospital staff and the master thesis students. While the students hold a specific role within the project, they are not viewed as an organisation in this report. This is due to the fact that the individual students, or pair of students, lack connection and collaboration between each other.

This study considers the organisational structures of the project group and Kolandoto Hospital. The impact of these organisational structures are evaluated, on the topic of learning within the organisations. All other impacts on the project from these structures are disregarded.

1.4 THESIS OUTLINE

Due to the inductive approach chosen for this thesis, the method and results will be presented before the theory chapter. This order is chosen since it reflects the way of working within the project when gathering data and choosing the theory based on the results. Due to this, the results in themselves will not provide answers to the research questions. The questions will be answered in the discussion and conclusion. Below is a presentation of the chapters included in the report and a short summary of their content.

1.4.1 INTRODUCTION

In this first chapter, the topic of the thesis in introduced. The chapter includes a presentation of the aim of the study, the chosen research questions and presents the limitations of the work.

1.4.2 BACKGROUND

This chapter explores the context of our case study. It begins with a brief description of aid history, then moves on to develop on the environment in Tanzania and the aid given to the nation. The chapter then continues by giving an overview of the health care system in Tanzania, Kolandoto Hospital and the Healthy Hospital project.

1.4.3 METHOD

This chapter starts with an explanation of what Participatory Action Research is and why it was chosen as the main method for the study. The chapter also brings up the selection of projects to evaluate as well as an explanation of how the interviews were conducted and the validity of them.

1.4.4 RESULTS

The results will be presented in two sections; starting with an introduction to the organisations and projects and then elaborating on reoccurring themes within the Healthy Hospital project.

1.4.5 THEORY

This empirical chapter begins by explaining the basic concept of organisational learning, and how it can be measured by different levels and frameworks. The impact of organisational structure on organisational learning is finally adressed.

1.4.6 DISCUSSION

In this chapter, the results and theory will be connected and analysed, to provide a basis for the answers of the research questions. An explanation to why the learning has or has not taken place will be provided as well. How learning is connected to the ways of working within the organisations as well as how they are structured will also be analyzed.

1.4.7 CONCLUSIONS AND RECOMMENDATIONS

In this chapter the conclusions and recommendations for the thesis are presented. We present our conclusions regarding the learning within the hospital organisation and project group respectively. Thereafter, we look at their common work and how their different structures have effected the learning within the project.

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BACKGROUND

This chapter explores the context of our case study. It begins with a brief description of aid history, then moves on to develop on the environment in Tanzania and the aid given to the nation. This contributes to the understanding of why aid is given to Tanzania, and the aid dependency that it can bring. This information is necessary to understand the complexity of the project. The chapter then continues by giving an overview of the health care system in Tanzania, Kolandoto Hospital and the Healthy Hospital project. This is done to clarify the circumstances under which the Healthy Hospital project is developed.

2.1 AID HISTORY

Aid as it is known today began as a response to the damage by WWII on Europe (Moyo, 2009). The Bretton Woods gathering, with representatives from all Allied nations, recognized the need to fund the reconstruction of Europe, so the continent could once again reach political, social and economic stability. Europe continued to receive aid in the early 50s through the Marshall Plan.

Another consequence of the ending of WWII was the beginning of the decolonization in Africa. It had one of its peaks in 1960 when 17 African countries joined the UN (Birmingham, 1995). Although their independence was official, many countries became continuously dependent on the aid provided by wealthy, western countries. As the 1950s came to an end, the Marshall Plan had proven to be successful in its aim to restore Western Europe. The attention in the context of aid was then directed towards Africa (Moyo, 2009).

Over the following decades, aid continued to be given to Africa under various forms. The focus on larger, industrial projects during the 1960s gave way for the focus on relieving poverty that characterized aid during the 1970s. As oil prices rose and caused disorder in the global economy, food prices escalated in Africa, and the aid was redirected from industrial projects to agricultural and rural development. The continent continued to struggle financially during the 1980s. Aid shifted during this decade from poverty reduction to assisting governments to implement free-market strategies (Moyo, 2009).

2.2 TANZANIA

One of the countries that was decolonized in the 1960:s was The United Republic of Tanzania. It was founded in 1964, when the islands of Zanzibar was merged with the mainland Tanganyika. Tanganyika and Zanzibar had gained their independence from the British Empire in 1961 and 1963, respectively. Tanzania is located just south of the equator in eastern Africa, as seen in figure 2.1. The country has tropical climate mainly along the coast while a temperate climate can be found in the highlands. As the seasons vary between rain and dry, southern areas have one rain season while the northern areas have two (ICID, 2012).

Figure 2.1: Map developed from figure by Joelsson (2017).

Tanzania has the lowest population density in East Africa, yet they have the largest population. The country is one of the poorest economies in the world, in terms of income per capita. The last years has shown high growth rate due to mining for natural resources and tourism (CIA, 2017). The percentage of people in Tanzania living on less than 1.25 dollars has decreased from 57 % in 1990, to 41 % in 2015 (Stewart, 2013).

2.3   AID IN TANZANIA

Almost two thirds of the population in Tanzania are Christian and slightly over one third are Muslim (CIA, 2017). The large christian population, together with the socialist government, have resulted in a country that is an ideal aid recipient. This appeals to both socialist governments in other counties as well as many churches and Christian organisations that give a lot of aid to Tanzania (Moyo, 2009). Tanzania is today one of the countries in the world that receives the most aid, and has thereby become very dependent on it. Stewart (2013) describes the nation as a donor darling. After Ethiopia, Tanzania is the country that receives the most aid in Sub-Saharan Africa.

One of the goals with the aid given to Tanzania is to improve the maternal health and reduce the child mortality (UN, 2016). Reducing child mortality is absolutely necessary from a humanitarian perspective (Rosling, 2011). In Tanzania, the child mortality rate decreased from over 1,5% to about 0,5% from 2005-2012 (UNHCR, 2013). The maternal mortality rate is decreasing in Tanzania as well, however it is still rather high, due to lack of skilled personnel at hospitals as well as young ages for first pregnancies among women (CIA, 2017). One important aspect of accomplishing these goals is to have governments, companies, organisations and private persons working together and cooperating towards the goals (UNHCR, 2013). Such a partnership can be defined on many levels; between countries and major companies, from one person to another or between organisations working with aid work and aid recipients.

2.4   HEALTH CARE IN TANZANIA

During discussions with an experienced doctor at the hospital, who is our closest contact person, we are told about the health care system in Tanzania. To keep him anonymous, he is coded as H:director.

The health care facilities in Tanzania are divided in different levels depending on the amount and extent of services provided at the facility. This can be seen in figure 2.2. At the lower levels are the dispensaries and health centres, which can be found on many locations in the country. They provide the first meeting with a nurse or doctor, that will if needed refer the patient to a district, regional or national hospital depending on their condition. There are about 5-6 district hospitals in every region of Tanzania which are held to a certain standard. Usually they also have a specialty area with more advanced care within this subject. The regional and national hospitals are more advanced. There are a total of five regional hospitals in the country and one national (H:director, 2017).
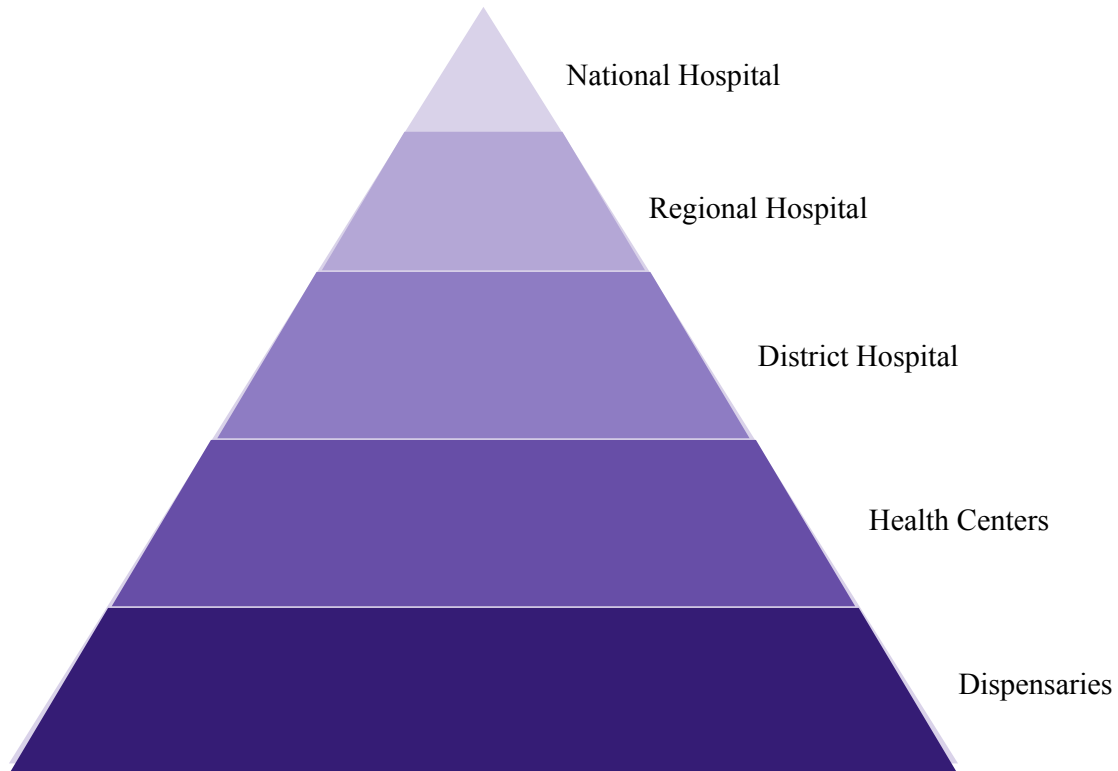
Figure 2.2: Different levels of Health Care in Tanzania

The healthcare sector in Tanzania is suffering from limited funds, making it dependent on financial support from aid organisations to complement the governmental incomes (USAID, 1995). One example of this regards the development of hospital activity. The government will contribute with a share of the staff salaries och finance some of the needed medicine. They will however not help finance the construction of new facilities. Since almost no hospitals have the finances to make such an investment, they have no choice but to turn to NGO:s to help them with these investments (H:director, 2017).

2.5 KOLANDOTO HOSPITAL

Kolandoto Hospital is a District Hospital in the Shinyanga region. The hospital was established by the African Inland Church of Tanzania, AICT in 1913. The hospital has 186 beds, and is specialized in eye treatment. They have a total of 16 wards, including maternity ward, lepra, eye- and outpatient departments. There are three operating theatres, dedicated to general surgery, eye surgeries and maternity related surgeries (Berg & Kallus, 2015). An organisational chart can be seen in Appendix B.

Figure 2.3: Map describing the location of Kolandoto. From Google maps (2017)

The hospital is located in Kolandoto. Kolandoto is a village located about 17 km north of the city of Shinyanga, which in turn is the capital of the region with the same name, see figure 2.3. Kolandoto village has a population of approximately 10000 people, working mainly with agriculture and farming. The majority of the staff is also living in the village, since it is built around the hospital facilities. Neighbouring to the hospital is a college with programmes for nurses and medical attendants, that has approximately 500 students (Hansson & Svard, 2016). Some pictures from the area are presented in figure 2.4 below.

Figure 2.4: Pictures of Kolandoto Hospital and Village.

2.6 THE HEALTHY HOSPITAL PROJECT

Kolandoto Hospital has collaborated with several aid organisations. One of them is the Swedish organisation I Aid Africa (IAA). They have developed The Healthy Hospital project together with the non-governmental organisations (NGO:s) Engineers without Borders and Architects without Borders. The project aim towards improving Kolandoto Hospital based on their needs and requests, in a sustainable way. To conduct the project, master thesis students from Chalmers University of Technology has been involved in several subprojects. The project is divided into three different phases, seen in figure 2.5 below.
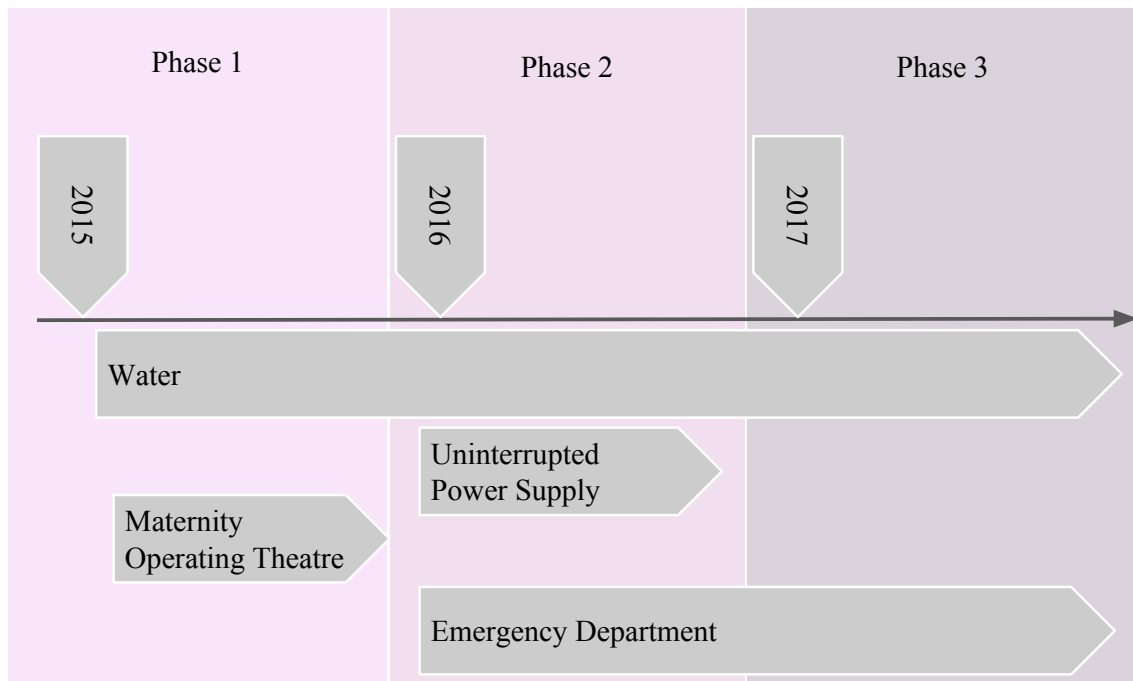
Figure 2.5: Timeline describing for the Healthy Hospital project.

The first Phase of the Healthy Hospital project was carried out in the spring of 2015. During this initiating phase, a master plan was developed for the hospitals continuous growth. The water supply to the hospital and nearby facilities was improved by the installation of a new pump for the hospital. An extension of the Maternity Ward was constructed, that works as an operating theatre for maternity related operations. Apart from these implementations, a thorough survey was conducted to identify improvement areas for the upcoming phases (Berg & Kallus, 2015).

The needed improvements identified in Phase 1 were mainly concerning the water quality and the electricity supply. Therefore, these were the two areas with the main focus in Phase 2 during the spring of 2016. The water quality was elevated by the installation of a Dosatron, which ads chlorine to the water. The chlorine kills germs such as *E.coli* that was found in the water during Phase 1 (Hansson & Svard, 2016). The electricity supply was found to be insufficient, due to many shortages from the national network, TANESCO. The hospital has a generator that takes about 15 minutes to start, and during this time an intermediate system is needed. To fulfill this need, sun cells were installed on the roofs of the most vulnerable buildings like operation theatres and the maternity ward. The system is called UPS; Uninterrupted Power Supply (Rohlén & Skillbred, 2016). The technical installations in Phase 2 were conducted at the same time as the design of the Emergency Department.

Phase 3 marked the start of the construction of the new Emergency Department, that was designed in Phase 2. Apart from constructing the new building, Phase 3 also includes an evaluation of previous implementations done within the project as well as the design of new Private and Maternity Wards.

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3

METHOD

This chapter starts with an explanation of what Participatory Action Research is and why it was chosen as the main method for the study. The conducted activities during the case study are also stated. This is done in order to get a better overview of how the process was done. The chapter also brings up the selection of projects to evaluate as well as an explanation of how the interviews were conducted and the validity of them.

For this master thesis, the data was collected by participating in the Healthy Hospital project in Kolandoto, Tanzania. Our aim was to participate in the procurement process and initiation of the construction process for their Emergency Department, while simultaneously conducting an evaluation of three sub-projects previously implemented at the hospital. This evaluation was asked for by the Healthy Hospital project group. When deciding the method for this study, our participation in the procurement process was the main area of interest. To fully utilize all the different aspects during our stay in Kolandoto, a case study with an inductive approach was decided to be the most suitable research method. According to Yin (2014), a case study is preferred when investigating an ongoing process as well as when doing an evaluation.

3.1 PARTICIPATORY ACTION RESEARCH

Since our primary task during the first three weeks in Kolandoto was to facilitate the procurement process of the Emergency Department, the PAR-methodology became a suitable choice of method. Participatory action research, or PAR, is a methodology that is used in research cases that are supposed to have an effect on the real world (Walter, 1993). It is most commonly used within social science studies. An important aspect of PAR is that the research is based on a problem that is asked for by the community studied. Since the hospital management is asking for the Emergency Department to be built, it can be interpreted as us helping them to solve their problem. This inductive methodology is suitable in this thesis as the data was gathered during a 9 week long case study in Tanzania. By playing an active role in

a project affecting the real world, and concurrently conducting research, our work fits within the scope of PAR.

PAR can be illustrated using a Venn-diagram as in figure 3.1 below. It is important to include all three aspects when using the methodology. The diagram explains how each part has been accounted for in the work we conducted.
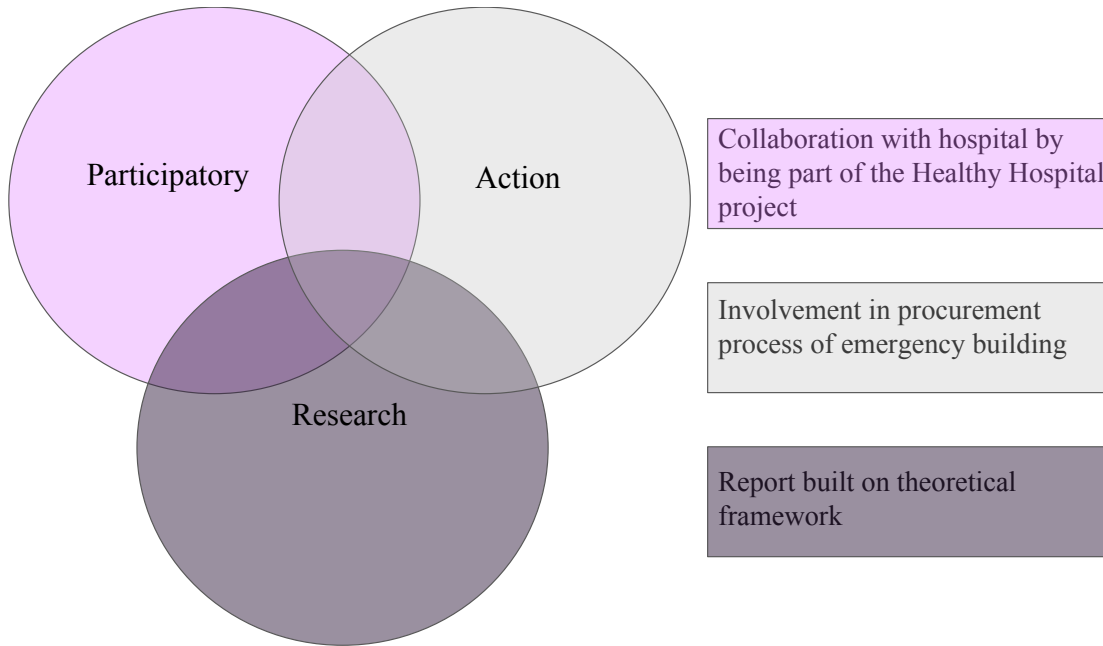
Figure 3.1: Illustration describing the use of PAR. Developed from figure by Chevalier and Buckles (2013).

During our time at Kolandoto, we were staying just outside the hospital area. This allowed us to keep a close contact with the hospital staff and to follow their routines. The hospital lacked suitable rooms for us to conduct our thesis, so we wrote in our guest house. However, we made an effort to be at the hospital premises on a daily basis. During the first three weeks, while participating in the procurement process, meetings were held almost daily with the hospital management and/or contractors. After the procurement process was finished, the time was spent on thorough documentation of the process. During this time, we also formulated the interview questions for the evaluation. The interview phase was conducted in the end of the case study in order to be adapted to our observations and further enhance our findings. During this time, the construction of the Emergency Department had started. Part of our daily routine was then to visit the construction site. The disposition of our activities is illustrated in figure 3.2. In addition, discussions and self-evaluation were an important part of our routines during the whole case study.
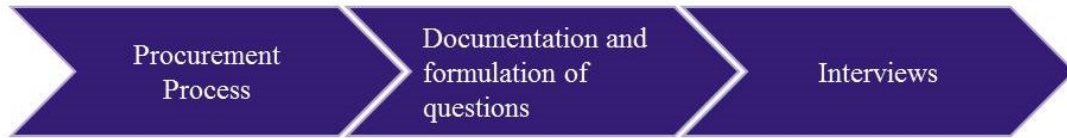
Figure 3.2: Illustration of our activities during the case study in Kolandoto.

As explained by Walter (1993), the active role is one aspect that is needed for a complete PAR methodology. It is also important to evaluate one's own behaviour parallel to the process. By doing so, it is possible to improve one's own behaviour within the process and to find a solution to the original problem in the end. The PAR methodology is applicable in this case since the procurement process of the emergency building started simultaneously as the research period. Therefore, the case study started with taking action and then evaluating rather than starting with a theory and thereafter trying to apply it to the problem.

3.2   SELECTING THE SUBPROJECTS

Within the Healthy Hospital project, we selected 4 different subprojects to be reviewed; the Emergency Department, the Water System, the Uninterrupted Power Supply (UPS) and the Maternity Operating Theatre (OT). All selected subprojects are various in extent of time and finances. For example, the Maternity OT was completed during 2015, while the Water System was started the same year and is yet to be concluded. The choice of subprojects was done with the intention of creating a broad spectrum of projects as well as outcomes. The selection consists of both installations and buildings, concluded and ongoing projects as well as projects deemed successful and less successful. In this context, successful is defined as projects that are utilized by the hospital and working as they were intended to.

The study and analysis of these subprojects was conducted in order to answer our research questions. Depending on when and how the selected subprojects were implemented, different methods have been used to gather data. The selected methods are qualitative, since the wanted output is not measurable but rather an explanation of events and behaviours (Bell & Bryman, 2003). The needed information for the analysis was gathered by participating in the initiating processes of the Emergency Department (Walter, 1993), and by evaluating the conducted subprojects. To evaluate the already completed projects, we made our own observations as well as held semi-structured interviews, which are further explained in section 3.4. An evaluation of the previous work done within the Healthy Hospital project was also requested by the project group, to be done by us.

3.3   PARTICIPATION AND ACTION

Our active role was evident in several projects, but most clear within the procurement process of the Emergency Department. Within the process, our role was mainly that of technical consultants for the hospital. Our job consisted primarily of leading meetings with the three potential contractors for the construction and facilitating the communication between the contractors and the hospital management. We were also the main communication channel between the project group and the Hospital Management Team. All communication with and between involved actors is illustrated in figure 3.3.
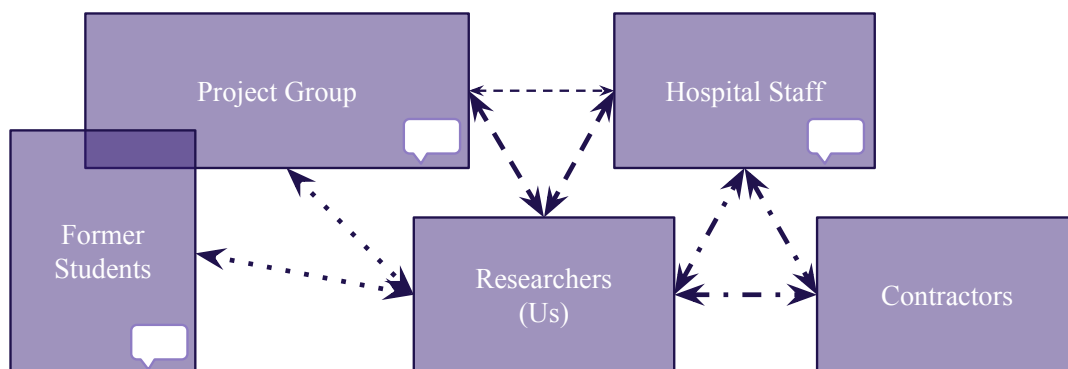
Figure 3.3: Involved actors and the communication between them. Actors marked with bubbles have been interviewed by us.

With each potential contractor, we held at least two meetings during which a running protocol was used to document the process. We participated in meetings with the hospital management regarding budget and choice of contractor. Before the choice of contractor we had compared and compiled all tenders to simplify the decision for the Hospital Management Team. We also wrote the contract for the Emergency Department, seen in Appendix D. The whole process was documented with important events and meetings noted in a logbook, see Appendix C. During some meetings, when the focus was needed on participation, the dialogue was recorded and later transcribed. The running protocols for the procurement process were evaluated after each meeting and complemented by subjective notes. After the procurement was finished, a first analysis was made using the protocols as a data source. The analysis aimed at finding questions for the interviews in the next step of the case study.

Apart from the formal meetings, more informal observations were conducted con-

tinuously during the case study. Our daily visits to the hospital were treated as observations. The visits include conversations with hospital staff and management as well as project group members, and are therefore part of our gathering of data. Observations of the work process and communication with the hired contractor are also used as a source of data. In order to utilize this data in the report, field notes were taken after an event of interest had occurred and documented in the logbook to keep track of it.

Informal observations were conducted when we participated in the water subproject. Some aspects of the installations done previous years were not working properly, which we tried to fix by contacting a technician who would come to solve the problem. We were present to answer questions when he came and tried to make sure everything was done properly. During the work with this practical project, we had a good opportunity to talk to the staff working by the water pump, and participate in their working methods.

3.4 INTERVIEWS

Interviews were conducted during the case study to gather the views and opinions about the different subprojects from some of the persons involved in the project. The purpose of conducting the interviews in the later stages of the case study was to see if findings from the observations had been correctly interpreted and to further develop them. Since the method used for the study is qualitative, interviews were conducted in fewer numbers but with a deeper focus.

3.4.1 SELECTING THE INTERVIEWEES

In total, 11 interviews were conducted with a total of 14 respondents. Five interviews were done with representatives from the students, both architectural and engineering. All engineers worked in pairs and were therefore interviewed in pairs. All student interviewees are coded with an *S*. One interview was with a representative for the Swedish project group, coded as *PG:member* and five were with representatives from the hospital, coded with *H*.

At the hospital, all but one selected respondent were connected to mainly one of the researched subprojects respectively. The fifth respondent, *H:director*, was the Director of Health Services of AICT, who has an overview of all foreign aid work in several hospitals. This doctor was therefore able to complement the information from the other interviewees from Kolandoto Hospital. *H:nurse* and *H:accountant* are coded based on their professions and are both part of the hospital management team. The last two respondents from the hospital are technical staff in charge of water and electricity, respectively. The respondents and their connected projects are illustrated in table 3.1.

Table 3.1: Projects and topics covered by the different interviewees.

Interviewees	Emergency Department	Maternity OT	UPS	Water	Overall Perspective
S:Eng15				X	X
S:Eng16a				X	
S:Eng16b			X		X
S:Arch15		X			X
S:Arch16	X				X
PG:member					X
H:director	X		X	X	X
H:accountant	X	X			
H:nurse		X			
H:electricity			X	X	
H:water				X	

The Chalmers students that have been part of the project previous years, and written their thesis in Kolandoto, have all been interviewed and therefore no selection has been made amongst the former students. The students working in pairs have been interviewed in their pairs. This choice was made both to simplify the interview process and also to enable the pairs to complement each other's answers rather than receiving the same answers from both persons in different interviews. A downside to this could however be that opinions from the different persons might not be fully expressed if the pairs do not agree with each other. This risk is considered to be low since the pairs have worked together for a long time and are likely to know each other well enough to dare to express other opinions.

Two of the interviews with former thesis students included questions about their work within the Healthy Hospital project group, which they became part of after completing their thesis. One additional interview has been conducted with a member of the project group to broaden the project group perspective on the project. Since this project group member has not conducted his master thesis in Kolandoto, he has another viewpoint of the project. Besides this, contact has been established with most members of the project group when conducting the case study. This communication and collaboration with the project group has resulted in some observations that contributes to the result of the study.

3.4.2 CONDUCTING THE INTERVIEWS

The interviews followed the form of semi-structured interviews as described by Yin (2014). A general script was written and followed as a loose guide during the interviews with additional follow up-questions that were used when needed. The interview guide is included in Appendix E. The set of questions were mainly open-ended to

give the respondent the possibility to elaborate the answer as much as s/he wanted. In total, the interviews took about 30-60 minutes, depending on the elaboration of the answers from the interviewee.

All interviewees were introduced to the purpose of the interview at the beginning, and informed about how the collected data would be used, according to research ethics. They were also told that their names would not be used, but would rather be identified by their role in the projects. Sound recordings of the interviews were done when possible and all respondents agreed to being recorded in the interviews. Two interviews were not recorded due to the location of the interview not being suitable for this. Extensive notes about what was being said were taken in all interviews, and extra carefully in the interviews that were not recorded, by the person not asking the questions. At the end of each interview, the respondent was given the opportunity to add additional information or ask us any questions they might have.

3.5 VALIDITY OF INTERVIEWS

All interviews were planned to be conducted while we remained in Tanzania. This was done to have all interviews concluded within a limited timeframe and to be able to use an abductive approach. For example, if an aspect about an installation was mentioned in an interview with one of the students, it could be looked up or asked about from the hospital before we left Kolandoto. The interview question script was used as a support during the semi-structured interviews. The questions were revised continuously during the interview period while most changes were made after the first few interviews. The first scripts were very detailed with several follow-up questions, which were removed as they proved excessive due to the extensive answers from the respondents. Some questions also had to be rephrased since the respondents did not interpret them in the intended way. In appendix E, the questions used throughout the process can be found.

3.5.1 SETTING OF THE INTERVIEWS

The interviews with the hospital staff were, when possible, held in the hospital conference room. One interview was conducted in the living room of our guest house, since the conference room was unavailable at that time. The unrecorded interviews were conducted with the technical staff outdoors, in the hospital area. This setting was chosen due to the lack of time from the respondents and to create a more informal setting, thus making them more comfortable in the situation. These outdoor interviews could not be recorded due to some disruptive sounds from the surrounding environment. These disturbances are however not considered to have an impact on any other aspects of the interview.

Skype became an important tool to hold interviews with the former students, who are all based in Sweden. All interviews with former students, except for one, were done over Skype. Only audio communication was possible due to technical issues with bad internet connection. The final interview in this category was conducted after our return to Sweden, due to technical difficulties during attempts from Tanzania. A possible drawback of using Skype to interview could be that the communication between the interviewer and respondent might be affected by the lack of visual communication such as body language. This is something we have been aware of when looking at the data. However, it is not considered to be a major issue.

After the primary analysis of the interviews, additional information regarding the viewpoint of the Healthy Hospital project group was deemed necessary to complete the analysis. Additional questions were therefore sent to the students that are now part of the project group, and an interview was conducted with one of the project group members. These questions can be found in appendix E under the headline E.6-Project Group. Since this interview was done later than the previous ones, it might affect the result compared to if it would have been done at the same time as the other interviews.

3.5.2   LANGUAGE OF THE INTERVIEWS

The interviews with the technical staff were conducted mainly in Swahili using an interpreter. The interpreter is a hospital nurse, who has helped interpreting for several interviews by former students. Although he spoke both Swahili and English, interpreting was not his regular profession and the use of a professional interpreter would of course have been preferable, but was not possible in this context. The language barrier was not only a problem in these interviews but also in the other three hospital interviews, that were conducted in English. English is the third language for the people living in this area, after their first language, Sukuma, and Swahili being their second language spoken. Some questions had to be rephrased, repeated or changed from their original form during the interviews in order for the respondents to properly understand the meaning.

The interviews with the former students were all held in Swedish. This was a natural choice since this is the first language of both the respondents and the interviewers, and could thereby help create a more relaxed conversation. The questions in Swedish have later been translated to English for the appendix.

3.5.3   SENSITIVE QUESTIONS

A problematic aspect during the interviews with the hospital staff was the actual focus of the questions. The questions were formed to evaluate the projects and to find out what aspects had been working well and what aspects could be improved. The collaboration between Healthy Hospital project group and Kolandoto Hospital

has resulted in several donations and improvements on the facilities that have greatly benefited the hospital. The people at the hospital were not very keen to criticize anyone or anything related to the project, as to not risk any harm to the relation to the project group.

Since we, and all former students, were perceived by the hospital as a part of the project group organisation, receiving honest answers to our questions has been a major concern during the interviews. One way of attempting to mitigate this problem has been to ask if something could have been changed or done differently in the subprojects, rather than asking them to point out flaws. Also, we clarified in the beginning that in order to continue with the work and becoming even better, all input was needed, good and bad. But despite these measures, the lack of critique from the hospital is something we have kept in mind when analysing the results.

3.5.4   RELATIONSHIP WITH INTERVIEWEES

Almost all the respondents interviewed within this study, were people that we also had another relationship with. We have worked together with the staff at the hospital within the different subprojects and had therefore established a contact with them before conducting the interviews. A similar situation was evident for the respondents from the project group, since they have had a supervising role for us during the project. These previous relationships could have lead to questions being asked in different ways, as well as interpreting the answers to fit into the perception of the persons that we have from previous encounters and discussions (Yin, 2014). On the other hand, to have an already existing relationship could also lead to the respondents having increased the trust for us and having answered more honestly to the questions since they felt more relaxed.

3.6   ANALYTIC PROCESS

The analytic process started with *playing* with our data, which is explained by Yin (2014) as a good starting point for an analysis. The gathered data was sorted in key events from the four chosen subprojects that were arranged in different timelines. The input to creating these timelines came from observations, meetings and interviews. To use timelines is one of the manipulations mentioned by Yin (2014). The events in the timelines were then marked with various themes, indicated by coloured notes. Recurring themes throughout the subprojects could then easily be compiled and compared, when moving forward in the analytical process. This process was facilitated with visual representation that helped connecting events and find common themes in separated events. As a part of the chosen inductive method, the theory was searched for to help explain the findings from the data. A drawback of using such an inductive method is that much of the data collected might not be used. The

data we collected had clear themes, thus making it easy to find theory connected to it. If such themes had not been found, the analytical process would have been a lot harder to conduct and would have ended in less clear results.

4

RESULT

The results will be presented in two sections; starting with an introduction to the organisations and projects and then elaborating on reoccurring themes within the Healthy Hospital project. All referenced dates from 2017 can be seen in Appendix C.

4.1 INVOLVED ORGANISATIONS AND INVESTIGATED PROJECTS

4.1.1 ORGANISATIONS

Three stakeholders have been identified in the Healthy Hospital project. Apart from Kolandoto Hospital and the project group, the current and former master thesis students have been identified as a separate stakeholder. The master thesis students have been separated from the project group since they worked with their own objectives and goals.

4.1.1.1 KOLANDOTO HOSPITAL

Kolandoto hospital was briefly introduced in chapter 2. To further nuance the picture, this section will describe the organisation of the staff connected to the development of the hospital. In addition to the medical staff, the hospital has its own technical and administrative personnel as well. Out of these, we have talked to one accountant, the head of water and head of electricity, as described in table 3.1 in chapter 3.

The hospital is run by a management group consisting of doctors, nurses and administrative staff. The leader of the management group is according to our observations not the current Medical Officer in Charge, but the former holder of the title; H:director. He told us during a meeting with him on the 18:th of February 2017, that the title of Medical Officer in Charge was held by him from 2009 until the beginning of 2017. H:director asked to be relieved from this responsibility since he had

been appointed Medical Director of Health Services in 2015, a responsibility that spans over several hospital run by the AICT. The new Medical Officer in Charge was selected by H:director.

H:director is a key person at Kolandoto Hospital, and through interviews and observations it was found out that all major decisions at the hospital involve him. The decisions taken by the hospital management team, which he is an active part of, seems to be in agreement with the opinions of H:director himself. At a time when he was absent due to an emergency it became evident that the hospital did not function as it normally would, with disturbances in surgeries, administration and technical aspects.

4.1.1.2   HEALTHY HOSPITAL PROJECT GROUP

Kolandoto Hospital has cooperated with IAA since 2008, receiving containers with medical equipment several times, H:director told us during our interview with him. He went on by saying:

> *When this project was finished [Kolandoto Hospital recieving medical equipment] we had another project with Engineers Without Borders. They sent students who were engineers and architects to do their thesis.*
> - H:director

This quote relates to the first phase of the project in 2015. The project group was then formed by these students together with other representatives from the different organisations. Today it has eight active members, with five engineers, two architects and one nurse. During an interview with a member of the project group, the Healthy Hospital project group was described in the following way:

> *Formally it is informal. But this gives space for people to take on the power to make decisions.*
> - PG:member

This quote is in line with the experience we have from communicating with the members of the project group, where the tone is usually informal.

4.1.1.3   INVOLVED STUDENTS

Engineering and architectural master thesis students have been coming to Kolandoto for three years in a row, 2015-2017. During the first year, in Phase 1, three students went to Kolandoto, the two students S:Eng15 and S:Arch15. The engineering students were there to improve the water supply while the architect made a master plan for the hospital as well as built an extension of the maternity ward. These projects are described in section 4.1.2.

In 2016, the architect student S:Arch16 was designing the Emergency Department building as part of her master thesis. The two engineering students S:Eng16a, were in Kolandoto the same year to improve the water quality. Close to their departure, the two electrical engineering students S:Eng16b, came to install a solar cell system at the hospital. During 2017, four students have been in Kolandoto to write their theses. We were two of them, and two were architectural students designing a new Private ward and improved Maternity ward. Together, we were involved in the procurement process and started the construction of the Emergency Department.

4.1.2 PROJECTS

Four different subprojects have been investigated within the Healthy Hospital project. The subprojects and who has been interviewed within each of these projects is presented in table 4.1.

Table 4.1: Projects and topics covered by the different interviewees.

Interviewees	Emergency Department	Maternity OT	UPS	Water	Overall Perspective
S:Eng15				X	X
S:Eng16a				X	
S:Eng16b			X		X
S:Arch15		X			X
S:Arch16	X				X
PG:member					X
H:director	X		X	X	X
H:accountant	X	X			
H:nurse		X			
H:electricity			X	X	
H:water				X	

4.1.2.1 MATERNITY OPERATING THEATRE

The Maternity Operating Theatre was built in 2015, as an extension to the already existing building containing the maternity and private wards. The addition to the building was meant to hold surgeries and procedures related to the maternity ward, that were previously held in the general operating theatre (Danielsson, 2015). An illustration over the working process in the subproject is presented below in figure 4.1.
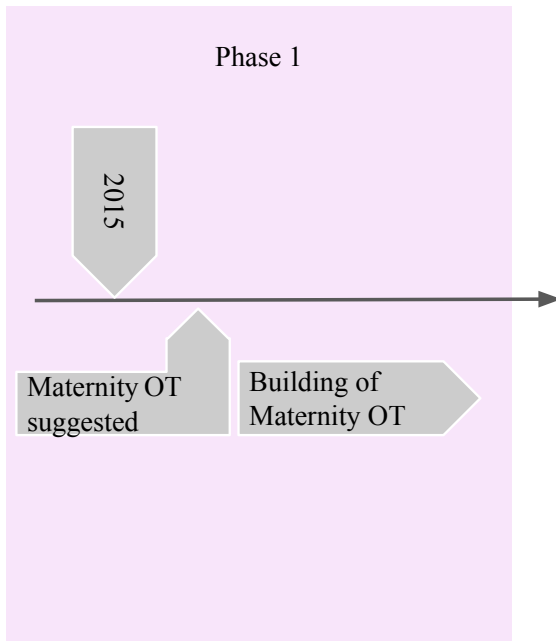
Figure 4.1: Processes in the Maternity Operating Theatre subproject

Both H:accountant and H:nurse stated during their interviews that the OT is being used today, with some discrepancy on how often it is used.

> *Since we have a shortage of staff, some operations are not moved. They operate where they are. According to statistics, the C-section is being used 5 times a week.*
> - H:accountant

> *The building is 75 % used. Generally used 2 times a day.*
> - H:nurse

The number of times the theatre is being used on a daily or weekly basis was still unclear to us after these interviews. Upon visiting the OT, we were told that the room is not being fully utilized due to lack of medical equipment. H:nurse further told us that the hospital does not have all the necessary equipment to perform general anaesthesia in this theatre, so only operations with spinal anaesthesia are currently being conducted. In the interviews, we were given different answers depending on who we were asking. These answers were contradicting to our observations. This is in line with our perception of how the hospital staff and management team were keen to please us. Here, our conclusion was that they simply gave us the answers that they thought we wanted. The following quotes could also be seen as examples of this.

> *In my opinion, the building is perfect.*
> - H:nurse

> *The C-section contributed to both hospital and patients. [I am] 80 %*
> *satisfied with the result.*
> - H:accountant

By looking at these quotes, one may conclude that the building is fully utilised. However, this contradicts our observations and the information about lack of medical equipment. Medical equipment is occasionally donated, for example second hand equipment from Swedish hospitals donated through the Healthy Hospital project. However, it is hard to provide all necessary equipment for the hospital. The hospital do not always have sufficient funds to buy the equipment they need, but have not received through donations.

4.1.2.2 EMERGENCY DEPARTMENT

The Emergency Department was designed in the spring of 2016 and the procurement and construction processes were started in 2017. The illustration in figure 4.2 shows the whole process.
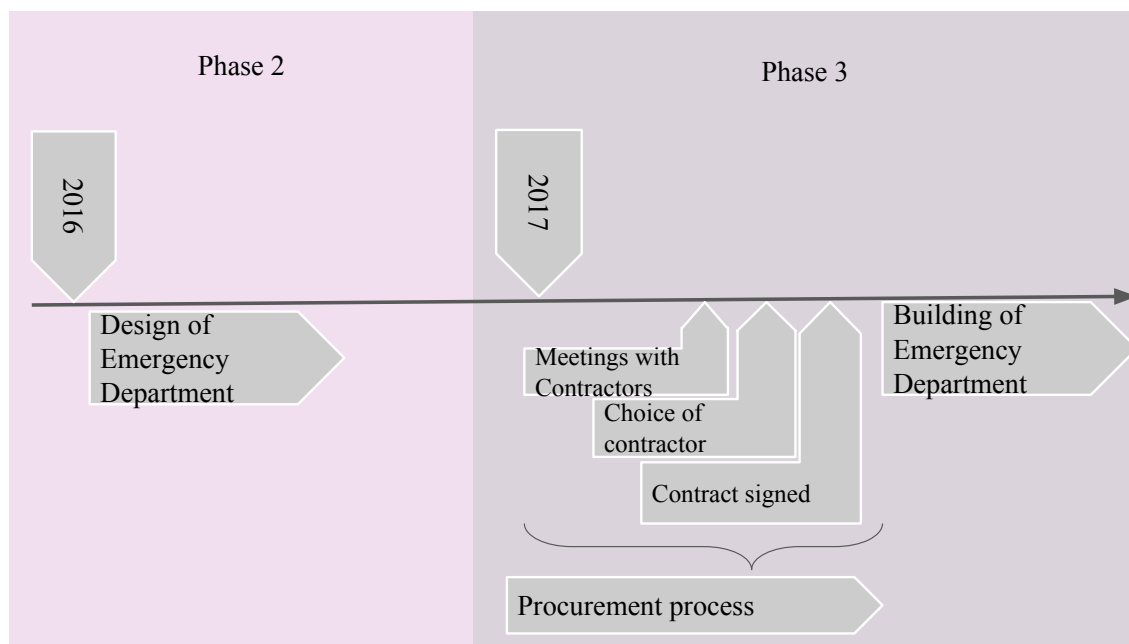
Figure 4.2: Processes in the Emergency Department subproject

The purpose of the building is to have a department for acute cases such as traffic accidents as explained by H:director:

> *We are close to the main road with many accidents, some patients were*
> *brought here. We had to send them directly to the different wards, which*
> *is not proper. We need to see the severity first.*
> - H:director

The Emergency Department will have its own reception and be located close to the entrance of the hospital. The plan is to always keep the reception open. In February 2017, construction companies were contacted by the hospital staff to leave tenders for the building. The building process started in March 2017 and is expected to be finished in July 2017. It is hard to tell the impact of the Emergency Department since it is not yet finished. However, in the interview with H:director, he said:

> *What I believe is that the presence of this building, if it will be in place, will minimize some inconvenience. [...] Patients won't have to be sent directly to the wards, we can judge the severity first.*
> - H:director

In this quote, it is clear that H:director sees a big potential for the building. To achieve its full potential, suitable education of staff to handle critical cases will be needed. This education is planned to take place during the fall, conducted by one of the project group members with medical knowledge.

4.1.2.3 WATER IMPROVEMENT

The issue of low water supply and insufficient water quality has been a major problem at Kolandoto Hospital for many years. Before the collaboration with Engineers Without Boarders and the Healthy Hospital project, this was one of the things that were brought up by the hospital manager as something that needed to be solved in order for the hospital to work properly. The Health Hospital Project has worked with water related questions during all three phases of the project, as illustrated in figure 4.3 below.
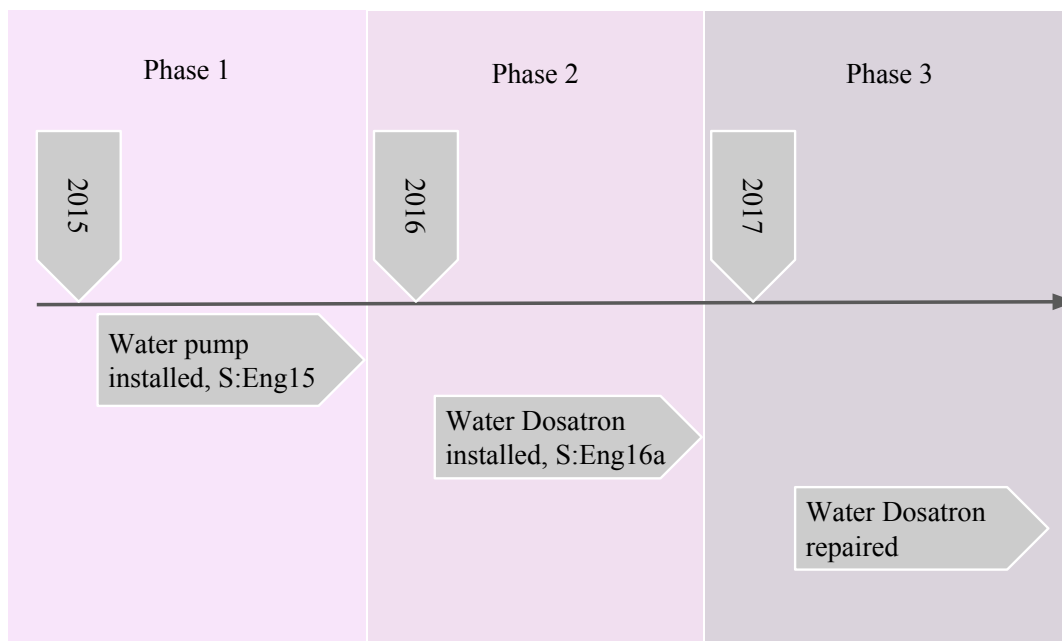
Figure 4.3: Processes in the Water subproject

During the spring of 2015, the issue of low pumping capacity was discovered, and a new pump was installed that raised the volume of water accessible with almost the triple.

> *The old pump managed to supply water once per day, the new pump can supply water three times per day.*
> - H:director

S:Eng15 who did the installation said that they found the hospital to be very grateful for the new pump. During the interview in March 2017, almost two years after the pump was installed, S:Eng15 said:

> *H:electricity wrote to me the other week that the water is good.*
> - S:Eng15

This quote could be percieved as H:electricity wanting to deliver good news to S:Eng15 in order to satisfy them. Since we were in Kolandoto during this period of time, we observed that the water was not functioning properly and it is therefore hard for us to believe that H:electricity was telling the whole truth to S:Eng15.

When the water pump was installed, tests of the water quality were conducted. These showed signs of *E.coli* in the water. *E.coli* is dangerous in drinking water since it indicates that sewage water has been infiltrated into the drinking water. This can in turn cause illness that is potentially lethal, especially for children and elderly people (PG:member, 2017). Since some of the inhabitants in Kolandoto only can afford to use this water and has no possibility to boil it before drinking it, cleaning solutions were discussed.

In the spring of 2016, a Dosatron was installed with the purpose to chlorinate the water and in that way eliminate any unwanted and dangerous bacteria (Hansson & Svard, 2016). Together with the installation of the Dosatron, a shed for storage of the chlorine was built as well. However, H:director told us that the Dosatron was turned off a few months later by the pumping staff due to low water levels, which made the Dosatron suck air instead of water. When S:Eng16a were told about this issue, they confirmed that it was known already during the installation, but was not solved at that time. In order to make it work properly, we made an attempt in the spring of 2017 to create an automatic shutdown in case of low water levels. Since it was not solved before our departure, the problem was brought up to H:director who said he would try to fix it as soon as possible. Upon the writing of this report, the problem has still not been solved as far as we know.

In order to improve the water quality in one of the hospitals rain water tanks, a first flush system was installed during the spring of 2017. This minor project was done by us and the person responsible for water systems at the hospital, H:water. After local workers had been hired to do the manual labour, it became evident that no definitive budget had been decided. Reasonable costs were decided by the hospital management, without any direct input from either us or the project group.

4.1.2.4 INSTALLATION OF UNINTERRUPTED POWER SUPPLY, UPS

In the spring of 2016, an uninterrupted power system was installed at Kolandoto Hospital, as shown in figure 4.4 below.
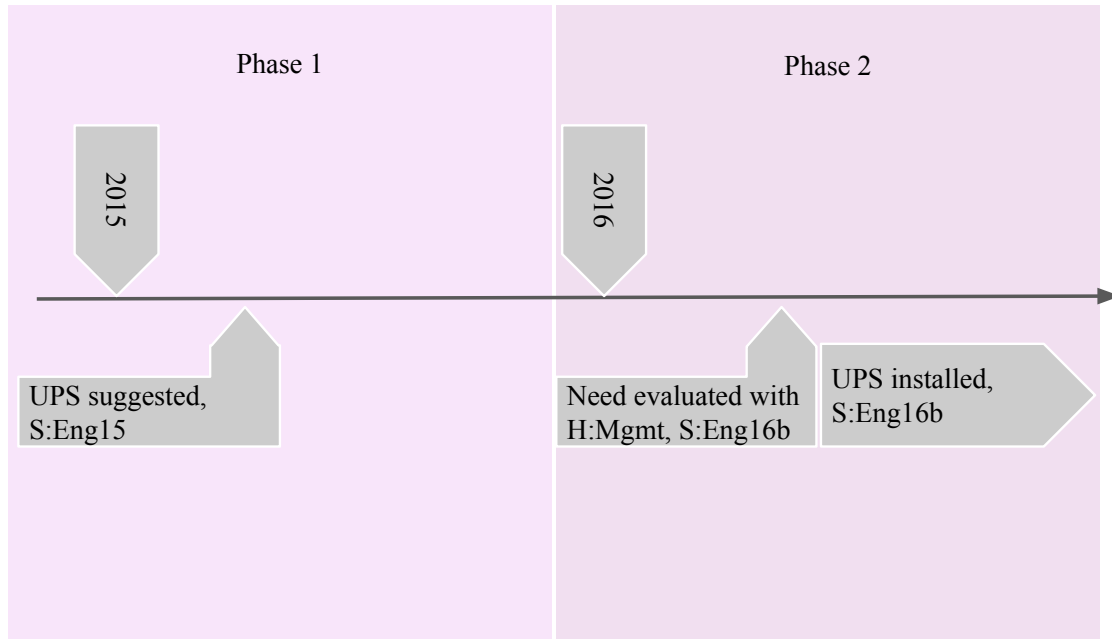
Figure 4.4: Processes in the Uninterrupted Power Supply subproject.

The UPS was installed by the electrical engineering students S:Eng16b in collaboration with the hospital and a technical company (Skillbred & Rohlén, 2016). The hospital communicated to I Aid Africa in 2010 that power cuts during surgeries were a major problem for them, that needed to be resolved somehow. Suncells had been recommended as a way to solve this problem by the students present at Kolandoto the year before, and the hospital management agreed that it was a good idea (Berg & Kallus, 2015).

> *We knew that solar systems were available in other places in Tanzania. We had that idea; that we could use solar panels, it could solve our problem.*
>
> *The system solved the problems during power loss in the theatres. Power loss used to mean disturbed operations, but not any more.*
> - H:director

From our observations, the system was assessed to work according to plan, and no major maintenance has been needed since the installation was finished last year according to H:electricity.

4.2 REOCCURING THEMES WITHIN THE HEALTHY HOSPITAL PROJECT

In this section, themes that have occurred in the subprojects connected to the work involving students, hospital and project group are presented. The themes are connected to the different phases of the project, and shows how the work has been functioning between the involved parties, but also how things that were first considered as a problem have been solved by cooperating.

4.2.1 INFORMATION BEFORE ARRIVAL

Upon arrival of the thesis students in Kolandoto, they have not always known exactly what the project will include. S:Eng15 who installed the water pump, said the following about the information they received before coming to Kolandoto:

> *We initially thought that our project would be about water cleansing. I was excited about that from before, to clean drinking water. This however turned out to be a minor problem.*
> - S:Eng15

S:Arch15 who was in Kolandoto at the same time, knew that she would fix something, but not exactly what. Her project would depend on the input from the hospital. S:Eng16b that were in Kolandoto the next year had more information than the students from the previous year. They stated that:

> *We were not misinformed, but a lot of information was received once we got there. There were a lot of question marks before we arrived.*
> - S:Eng16b

S:Eng16b knew about the problem statement, but not the exact solution or preconditions. The information received was partly about the condition of the network, which they evaluated, but also about where and when the backup was needed which was discussed with the hospital staff. S:Eng16a had a similar experience knowing about the solution with the Dosatron and how the water should be chlorinated, but not exactly how the implementation should be installed. They concluded their beforehand knowledge when they said:

> *We knew approximately as much as we needed to know.*
> - S:Eng16a

Before we arrived at Kolandoto, we believed that our main focus would be evaluating previous projects. However, when we arrived and talked to the hospital, we realised that our competence would also be needed in the initiation of the emergency department building process. Therefore, the focus of our work was somewhat changed, to also incorporate the Emergency Department.

4.2.2 ORIGIN AND DEVELOPMENT OF IDEAS

Most subprojects that have been conducted, were developments of ideas that the hospital came up with. For example, from interviews with S:Arch15 and hospital management representatives it was found that the idea for the Maternity Operating Theatre came from the hospital staff.

> *The idea came from the staff at the maternity ward. It is a headache to get a patient from maternity to the general theatre. Sometimes it was needed to perform a c-section, but then the general theatre can be occupied and the c-section have to wait for the other surgery to finish.*
> - H:nurse

The hospital management had been planning for this project for a few years, and had started to save money for the construction. S:Arch15 presented the budget to the hospital management after a few weeks. This delay was mostly due to insecurities about the cost of the water pump that was being installed simultaneously. S:Arch15 states that this was not ideal and that clearer boundaries regarding budget and frames would have been needed from the project group from the beginning of her stay in Kolandoto. After S:Arch15 presented the budget for the hospital management, it was decided to initiate the construction of the theatre rather than focusing on a smaller and cheaper project, which is what S:Arch15 thought she was going to do initially.

> *The hospital said that out of all the smaller projects we had discussed, they would help to get started on the construction of the OT at the maternity department.*
> - S:Arch15

In a similar way, the low water supply as well as electricity shortages was brought up by the hospital in early stages.

> *There was a water issue due to an old pump that needed to be replaced [...] We told them [the students] that we had a problem with the water.*

> *The no-backup issue was in our mind for a long time. There was a big problem with power losses. We need to always have power. If we could get another system , it would solve the problem. We knew that solar systems were available in other places in Tanzania. We had that idea; that we could use solar panels, it could solve our problem [...] S:Eng16b understood our problem. We had discussions together.*
> - H:director

The pump solution was proposed by PG:member during the first week of his visit in 2015, since he has specific water engineering knowledge. During this year, the solution with a UPS to solve the electrical issues was decided by the hospital together with the present engineering students. The issue of water cleansing due to the bacteria *E.coli* was not something that was brought up by the hospital, since it was discovered by the students and project group member in 2015.

> *PG:member and S:Eng15 found that the water needed to be cleansed. The water is now used without treatment. We didn't have the idea. They told us that we needed to add this to the pump.*
> - H:director

The hospital staff understood that there was a problem with contaminated water, and agreed that it was a good idea to clean it. However, they did not suggest the need for a cleaning system themselves. S:Eng16a described the event in the following way:

> *We were supposed to present the suggestion and ask the hospital if it [the Dosatron] was what they wanted. In the end we suggested and they didn't disagree. It was not an equal forum.*
> - S:Eng16a

It was suggested by S:Eng16a that the fact that the hospital management did not disagree was because of the unequal power distribution. They later went on by saying that this was due to the fact that the students are the ones with the money and thereby higher power.

Regarding the Emergency Department, the need for it had been stated from the hospital early on. It was part of the master plan that S:Arch15 did in 2015, and was then designed in 2016 as described in section 4.1.2.2.

> *I did an overview of the needs of the hospital when i was living in Nairobi. I spent approximately one week there, talking to people and making observations. This was later put into a survey report. My perception at the time was that I was going to design the Emergency Department [during the spring of 2015].*
> - S:Arch15

Upon arrival of the student group in 2017, the hospital was ready to start the construction process of the Emergency Department. A meeting was held with the Hospital Management group together with the students and the representative from the project group on the 14:th of February 2017. The construction plan as well as the budget for the building was presented and input was asked for by the hospital staff present.

4.2.3   STUDENTS' ROLES IN THE SUBPROJECTS

All students that have been interviewed about their role in practical implementations have defined themselves as project managers within the subprojects. This role is also something that is reflected by the interviews with the hospital staff, who said that the students were good at involving them and making sure that both sides agreed. Two of the interviewed students believe this has to do with the nature of an aid project, where everyone is involved voluntarily which means that all parties must take on a bigger responsibility.

The role of project managers was also fitting for the role that we took on within the procurement process of the Emergency Department. Meetings with potential contractors were held, and all tenders were collected. During the meeting on the 20:th of February 2017, a very informal and open discussion was held about the tender, with the hospital accountant present as well. The expectation was then that the meeting the next day would be similar, on the 21:th of February 2017 but that contractor did not want the tender document to be opened until H:director was present.

After the contractor was chosen for the Emergency Department, a contractual agreement needed to be made. The Hospital Management asked for help to write the contract, and it was therefore done by us. To facilitate this process and making sure that the contract covered all parts that needed to be covered, a standard contract was used as a basis. The contract was later signed by the contractor and the Hospital Management. This contract can be found in Appendix D.

Since most students took on a project manager role in the project, they also had contact with the companies that were involved in the process. To not leave the hospital without any necessary information after departure, S:Eng15 explained that they consciously took a more silent role during the execution phase. This was done to allow the water pump staff to communicate freely with the hired company, Davis & Shirtliff, D&S.

> *We weren't always in contact with D&S. It was better that the guys working with water were there, helping. We took a step back. We mostly asked them (D&S) to send their bills.*
> - S:Eng15

Correspondingly, during the construction phase of the Emergency Department, we decided to take a step back and leave the contact with the contractor to the hospital management, since the process would not be finished when we left. Furthermore, the hospital management had the responsibility to sign the contracts for all projects, something that was agreed by us and the hospital staff.

During the negotiations with contractors concerning the Emergency Department, the maximum cost of the subproject was decided by the project group and then communicated to us. We also discussed beforehand that the representatives from the hospital management should handle all price-negotiation, while we were to discuss technical aspects and solutions with the contractor. However, during the meeting on the 3:rd of March 2017, the hospital management representatives remained very silent. We finally had to ask the contractors to leave for a few minutes so we could remind the hospital management representatives of their agreed role in the negotiation. After agreeing with the management representatives on a post in the tender that could be removed, the contractor was called in. H:director then stated that the price needed to be lowered and asked the contractor to remove the post, to which they agreed.

4.2.4 THE TIME ASPECT

Since all subprojects have been conducted with students present in Kolandoto during a limited period, time is an important factor within the project. It is evident in both construction subprojects that the process was accelerated by the hospital, during the presence of the students. S:Arch15 told us that after deciding to build the Maternity OT, the processes of planning and constructing went really fast.

> *The process could have taken more time on certain aspects, it was too fast. Extremely fast from start to tenders, that process was only a few days. More time would have been needed to think everything through, sketch the building in 3D etc[...] I put everything else on the side to focus on this project, it was an intense process.*
> - S:Arch15

Within a few days both the budget for the project and the construction documents were established. Local workers known as *fundis* were contacted to conduct various parts of the construction. The building was almost entirely completed when S:Arch15 left Kolandoto. S:Arch15 herself reflects back at the process and says that it was too fast at times. While the hospital management has rushed processes and decisions, they are also grateful when projects progress. The hospital accountant said, in regards to the Maternity OT being almost completed before the students left Kolandoto:

> *We only expected it to be halfway done. It was thanks to S:Arch15 that*
> *the process was faster than expected.*
> - H:accountant

Similarly, it was evident already upon our arrival that the hospital was eager to start the process of constructing the Emergency Department. The hospital management had already begun to advertise to local construction companies, and a first meeting with a company was scheduled to the day after arrival, the 15:th of February 2017. After receiving all tenders from the possible contractors,the Hospital management asked us to evaluate them within only two days. When told that more time was needed, we got an extension of yet another day to look through them. All together, the process was three weeks long, from meeting with potential companies, to deciding, writing and signing the contract.

4.2.5   PERCEPTIONS OF KNOWLEDGE

In general, the hospital management representatives claimed to be very satisfied with all students who have done their master thesis in Kolandoto, within the Healthy Hospital project. H:director said that everyone has been working hard and always seemed busy. He also stated that he thinks it is good that the students try to involve the staff at the hospital in their projects, even though they are not always used to sharing their opinions or being asked to do so.

> *All of the groups who come here are working hard, always busy. Always*
> *eager to see me and discuss. You don't hesitate, you are not shy. You*
> *are so strong, you don't fear.*
> - H:director

Most students have felt that they have been highly valued by the hospital staff as well. S:Eng16b said that the hospital management trusted them and gave them high levels of responsibility. On the question of how their knowledge and qualifications were perceived by the hospital management, they answered:

> *They trusted us 100 %. Not because we were we, but just because they did.*
> *They had no opinions concerning us, no objections, which they should*
> *have had!*
> - S:Eng16b

S:Eng16b were using an inductive approach of trial and error during the installation that they did at the hospital. As they confessed to not always knowing for certain how to proceed, they felt that the hospital management should have questioned them more. S:Eng16a (women) said that the staff at the pumping station listened to them and followed their instructions properly. Something they noticed though was the fact that S:Eng16b (men) who were there at the same time, were treated with higher respect than they were due to their gender. S:Eng16a also felt like the hospital management thought that PG:member was their boss, and that they could

not decide anything by themselves.

> *We were not on the same level (as S:Eng16b). We were not included in all discussions [...]The pump staff listened to us[...] Hard to know how it would have been without PG:member, he was seen as our boss [...] It was not that hard for us, but there was a difference.*
> - S:Eng16a

We, as women, had a similar experience during a meeting with one of the potential contractors on the 21:th of February 2017. He did not agree with us at first on how to present his tender. After the arrival of a male doctor, he did agree to do it our way, although the doctor only said the same thing to the contractor as we had already told him.

In the process of conducting meetings with potential contractors, a meeting was held with H:director, us and PG:member on the 18:th of February 2017. We talked about the working process and the possibility to get a contact person from the hospital who would always be present at all meetings. H:director said that he should be the contact person, and if he was not there, the newly appointed Medical Officer in Charge should be contacted. However, he said that he did not want to give the responsibility to someone else at the hospital.

4.2.6 HANDOVER

Before the departure of the students, everyone has done some kind of handover of their work to the hospital management or staff involved in the subprojects. Apart from having different types of meetings or presentations in the end of their field work, all technical installations were conducted with hospital staff present as well as the students. In the water improvements, the staff working at the pump were present, and at the installation of the UPS, H:electricity was involved in every aspect. He said the following about his involvement, with pride:

> *I was doing everything and following the instructions from the students.*
> - H:electricity

S:Eng15 had very little time finishing the pump installation until the date of their departure, and said the following about their hand-over:

> *We planned to have a session with the staff that works at the water pump before we left, to make a pumping schedule together with them [...] We came up with a loose suggestion that we went through with them.They came up with their own schedule later.*
> - S:Eng15

S:Arch15 who left at the same time, did a handover with all documentation and budget calculations for the Maternity OT to the hospital management, as well as

discussing the purpose of the building and the importance of finishing it.

S:Eng16a who had been working on water cleansing, showed the water pumping staff how the water was supposed to be chlorinated by having a workshop. They chlorinated the water a few times with the staff watching, and then the staff tried it themselves. Although the pump staff did not speak English, and S:Eng16a did not speak Swahili, they managed to teach them quite well according to S:Eng16a. They said that:

> *It went very well. Our picture of it is that it worked well.*
> - S:Eng16a

When S:Eng16b left after finishing the installation of the solar panels system they instructed H:electricity about how to operate the system. During their last meeting they said, according to H:electricity:

> *They told me I was responsible for the UPS.*
> - H:electricity

This was said during our interview with H:electricity, when he showed the UPS to us. It was clear that it was not only his responsibility, but also something that he took pride in.

S:Arch16 had several workshops during her time in Kolandoto, and one final presentation before she left, showing the design of the Emergency Department in it's current state. She explained that:

> *It was very hard to get input on it during that time, and only a few of the male doctors and nurses spoke.*
>
> *It was not completely democratic with a strong hierarchy [...]Doctors have higher status than nurses.*
> - S:Arch16

The same pattern and behaviour was observed during the presentation we held before we left Kolandoto as well, on the 10:th of April. None of the female staff said anything, only the doctors with higher status shared their opinions. However, H:director said during his interview that the staff has started to tell him their opinions, even if they do not dare to say them in public.

5

THEORY

This empirical chapter begins by explaining the basic concept of organisational learning, and how it can be measured by different levels and frameworks. It is further explored what circumstances are necessary to enable organisational learning, and what reasons there can be for failing to distribute knowledge in the organisation. After dwelling in organisational learning, we describe short term projects and hierarchies, or lack thereof, as aspects of organisational structure. The impact of organisational structure on organisational learning is finally adressed.

5.1 FRAMEWORKS FOR ORGANISATIONAL LEARNING

According to Berends and Lammers (2010), Organisational Learning is essential for organisations to adapt and evolve. Organisational Learning, OL, involves a balance between gathering new knowledge and utilizing what has already been learnt (Crossan et al., 2011). OL can be viewed from several different perspectives, using various frameworks to describe the levels at which knowledge can be gained and distributed within the organisation. This chapter will present three different frameworks. The frameworks will in the discussion be used to measure the extent of the learning within the Healthy Hospital project, by reviewing selected events from the results.

5.1.1 LEVELS OF ORGANISATIONAL LEARNING

The first framework describes Organisational Learning not only as a process, but also a product, that exist on three levels - personal, group and organisational (Crossan et al., 2011). Apart from these three levels, Janowicz-Panjaitan and Noorderhaven (2009) defines yet another level; interorganisational learning. Efficient interorganisational learning is described as the process that allows organisations to share and utilize each other's knowledge-based resources. The importance of identifying critical levels is downplayed by Crossan et al. (2011), which states that OL is better

explained by the social processes that connects the levels. These social and psychological processes relate to each other in complex ways, and are better known as the 4I framework.

5.1.2 4I FRAMEWORK

Organisational Learning is closely linked to, and constituted by the 4I framework (Berends & Lammers, 2010; Crossan et al., 2011). According to Wiseman (2007), the 4I stands for:

1. Intuiting: The recognition of patterns in one's own experiences, and the potential use of these patterns in current work.

2. Interpreting: The insight and understanding of ideas put into action on an individual level. The interpretation process can move beyond the individual level, and becomes integrating when it is assimilated by the group.

3. Integrating: The interpreting becomes recognized and utilized by the group in a collective development.

4. Institutionalising: The deliberate effort of establishing routinized actions, to ensure that the knowledge is embedded at an organisational level.

5.1.3 CONNECTION BETWEEN LEVELS OF OL AND 4I FRAMEWORK

The 4I model was first presented by Crossan et al. (1999). These processes occur through feedback and feedforward flows, as shown in figure 5.1 below.
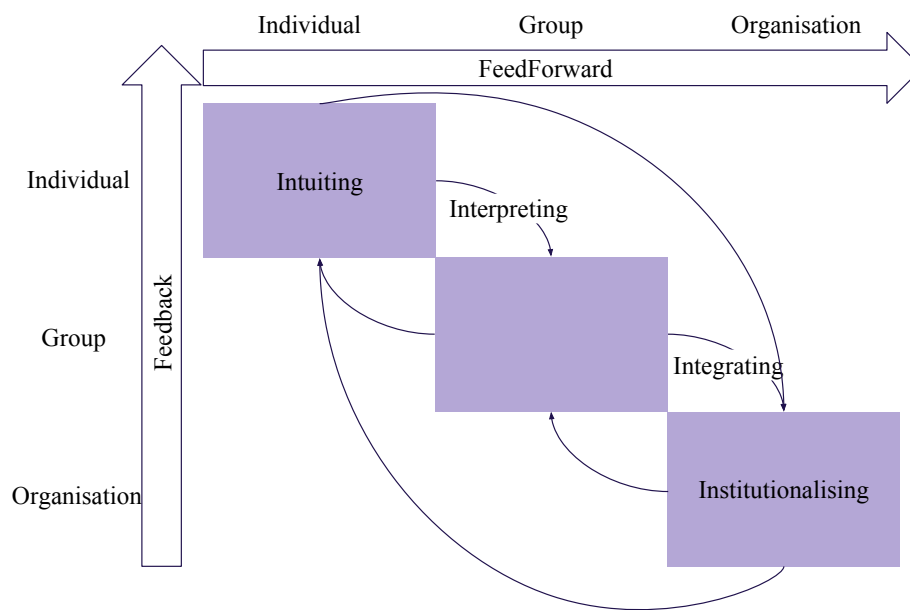
Figure 5.1: Illustration describing the relation between levels of OL and the 4I framework. Developed from figure by Wiseman (2007).

As the figure above illustrates, Intuiting occurs at an Individual level and Institutionalizing occurs on an Organisational level. Interpreting and Integrating both occurs on a Group level as well as on the Individual and Organisational level, respectively. According to Crossan et al.:

> *The three learning levels define the structure through which Organisational Learning takes place.*
> - (Crossan et al., 2011)

These three levels do provide the clear structure that Crossan et al. (2011) mentions, yet they fall short of providing any deeper meaning and understanding of the knowledge gained within the organisation. These levels will be used within the analysis to categorize selected events from the subprojects. However, in order to create a deeper analysis additional frameworks will be used, i.e. the 4I and the three levels of mechanism in OL, defined by Zollo and Winter (2002) and explained below.

5.1.4 LEVELS OF MECHANISM IN OL

Zollo and Winter (2002) identifies *experience accumulation*, *knowledge articulation* and *knowledge codification* as three levels of mechanism in OL. The *experience accumulation* refers to the assimilation of personal experience over time, as well as the use of that experience in practice. The next level of OL, *knowledge articulation*, is defined as the process where a team or a group make a conscious effort to create learning from organisational tasks. *Knowledge codification*, the highest level of OL,

is when the knowledge created on a group level can be utilized by others, regardless of time and personal connections (Swan et al., 2010). These three levels of mechanism, according to our perception, share several features with the 4I framework. As an example, *knowledge codification* is described similar to the concept of Institutionalisation. While there certainly are similarities, the three levels of mechanism by Zollo and Winter (2002) are disconnected from the three levels defined by Crossan et al. (2011), individual, group and organisational. This liberation from classifying the learning by person, group or organisation provides another, complementary perspective that will be developed further in the analysis.

5.2 CIRCUMSTANCES FOR ORGANISATIONAL LEARNING

The interest for OL has continued to grow in recent years, and the empirical research done within the field has started providing answers rather than asking questions (Bunderson & Reagans, 2011; Bapuji & Crossan, 2004). However, the question whether organisations actually are suited to learn from projects remains contradictory (Swan et al., 2010). While projects are applicable for learning, research also points to failure of learning within and from projects. Even when learning has been achieved within the project, it is challenging to transfer this to a group or organisational level.

By altering rules, routines and structures of the organisation, Institutionalisation of knowledge is made (Crossan et al., 2011). While institutionalised knowledge is the highest step of the 4I framework of OL, it is also in itself an obstacle for further learning processes. As previously mentioned, organisational learning involves both using the gained knowledge and gaining more knowledge. According to Berends and Lammers (2010), organisations with institutionalised learning can thereby hinder themselves from performing new learning processes, if they solely rely on what they already know. Both projects and the learning processes related to them can be seen as inconsistent, in the sense that they simultaneously can promote and hinder learning. Another ambivalent aspect of learning within projects is the definition of successful projects. There is a discrepancy between the so called false successes and hidden successes. A false success consists of high performance yet little or no learning is generated from the project, whereas a hidden success has low performance and a high level of learning (Berends & Lammers, 2010).

According to Bartsch et al. (2013), one highly overlooked aspect of transferring knowledge in project-based organisations is through social capital, i.e. using the social bonds within organisations to learn from projects and improve the organisational learning. This is in line with Swan et al. (2010), claiming that experience accumulation, in terms of learning from projects, is dependent on experienced individuals to bring their experience as they move from project to project. Lessons learned from a project will in many cases not be passed on beyond the project where it originated.

For many projects, the best case scenario is that the knowledge is transferred by individuals to another project or by personal connections (Swan et al., 2010). These personal connections will compensate for missing formal knowledge sharing to the organisation as a whole (Bratsch et al., 2013).

Creating competence networks and formally connecting individuals in the organisation is one way of accessing personal, previous experiences on a larger scale (Swan et al., 2010). While learning within projects are more cumulative, both knowledge articulation and codification are often lacking. Tools such as project reviews are common to use, yet the outcome is rarely used effectively or used altogether. In cases where these tools are ignored, the reason might be that the focus is on making fast progress on the current project rather than looking back at previous experiences. According to Berends and Lammers (2010), learning processes fail to be completed as a consequence of being fit into a predetermined schedule.

5.3 FAILURE TO CREATE ORGANISATIONAL LEARNING

A discontinuity of OL is defined by Berends and Lammers (2010) to occur when one of the 4I processes is disturbed or when the learning is not transferred between levels. It is stated by Swan et al. (2010) that the organisational context has a higher impact on project outcome than task characteristics and required learning. It is further explained that the organisational context influences the achieved learning as well as if and how this knowledge is transferred throughout the organisation. Factors that have an impact on the context, and thereby the learning outcome from the project, are; number of projects undertaken by project members, available tools and competences, project scope and the extent of commitment amongst project members.

Structures to support the project based learning have to be adapted to the organisational context (Swan et al., 2010). Some actions that could be beneficial for the learning in a project are the rewards and incentives to promote commitment to the project as well as the organisation. Other measures to be taken could be increasing the time pressure, by introducing project management methodologies, or reducing the time pressure, to encourage the view of the project as a tool for learning. This alteration of time pressure and providing a balance of rewards and incentives for projects and organisations will potentially increase the time spent and effort needed for both *knowledge articulation* and *knowledge codification.*

5.4 ORGANISATIONAL LEARNING IN SHORT TERM PROJECTS

In the article *International NGOs and primary health care in Mozambique: the need for a new model of collaboration*, Pfeiffer (2003) writes about the risk of reducing the empowerment of aid recipients in short term aid projects. The article, based on a three year long case study in Mozambique, argues that establishing long-term relationships between foreign and local workers is essential. To avoid failure in aid projects, respect and trust are said to be key elements. Between aid donors and receivers, power structures are easily emerged and can inhibit trust and honest communication. The unequal power might result in the receivers tendency to give more positive responses to evaluations from donors. The aspect of increased trust, established communication as well as reducing differences in status are some of the main reasons for why Pfeiffer (2003) promotes longer spans for aid projects in general. However, to have prolonged aid projects is not always possible.

Temporary organisations are described by Bakker et al. (2016) as organisations involved in temporary projects. Temporary projects are either defined by their given time frame, or by their purpose of giving aid to a cause. Aid projects are by their nature and context implied as temporary projects, even if there is no stated date of completion. This description of a temporary project is fitting for Healthy Hospital, as the project has no definitive closure date. The project will however not last indefinitely, as the need for urgent projects at the hospital has been handled.

Within the project group of Healthy Hospital, different members have different roles depending on their academic background and tasks in the project. In their study about the Panama Canal construction, Van Marrewijk et. al (2016) writes about the effects of members with different roles collaborating in projects. The output of the study showed that factors such as hierarchical relationships as well as the changing work tasks was a source of conflict in the project. In the multi-organisational construction project, organisational traditions and intercultural aspects caused conflict of interest between the organisations. Uncertainty and hierarchical relations resulted in confusion regarding roles and expectations.

An issue that might not be as explicit in inter-organisational projects, is how the learning tends to decrease as the collaboration prolongs between the involved actors (Ligthart et. al., 2016). This is not in line with Pfeiffer (2003), who argues that one of the advantages of established relationships in aid projects is the transfer of skills. However, Ligthart et. al (2016) is in line with Berends and Lammers (2010) stating that organisations might hinder themselves from learning if they already have Institutionalized learning within the organisation. Ligthart et. al. (2016) goes on by promoting the bennefits of including new actors in projects to enhance creation of knowledge.

Something that is mentioned by both Ligthart et. al., (2013) and Pfeiffer (2003) is that longer collaborations with established relationship tend to work better since the level of trust in increased. However, if there has been previous work conducted between the actors involved where the trust has been broken for some reason, the risk of failure in future projects is increased (Ligthart et. al., 2016). The reason for this can be that the mistreated actor wants to 'get back' on the person or actor causing the conflict or breaking the trust.

5.5   ORGANISATIONAL STRUCTURES

When working with the project group and the hospital management, it became clear that there were distinct differences related to responsibilities and power distribution. A few of the observations we made during our case study thereby concerns the organisational structures of these parties. Hence, it is of interest to examine flat and hierarchical organisations as two counterparts.

Magee and Galinsky (2008) defines hierarchy as the ranking, spoken or not, of social and influential value. Hierarchies are generally run by a strong and charismatic leader. Hierarchies are claimed to derive spontaneously and swift from social interactions, thereby being omnipresent. The hierarchical differentiation has the power to impact both influence and control, and is thereby considered to be self-reinforcing. It is suggested by Halevy et al. (2011) that hierarchy is a prevalent organisational structure. This approach is based on the claim that the structure is adaptive and encourages survival and success for the group. In contrast, flat organisations are defined by the members ultimate control over the direction of the organisation (Iannello, 1992).

Flat organisations, or non-hierarchical, are common in several industries and contexts (Thurtle, 2009). They are however more common in smaller businesses, or divisions of large scaled organisations. The informal setting encourages teamwork and collaboration. Through collective decision-making, the members of the organisation becomes empowered (Burford, 2012). Non-hierarchical organisations are claimed to have higher chances of success, in today's globalisation, as the flat organisational structure promotes both creativity and efficiency (Thurtle, 2009).

While non-hierarchical organisations place their dependence on each member performing their assignments (Burford, 2012), hierarchy in itself can function as an incentive system (Halevy et al., 2011). Magee and Galinsky (2008) promotes evidence that the incentive system, due to hierarchy, can enhance the performance of an organisation. Increasing status; by titles, financial compensation or other means, is a useful tool to encourage individual actions that is of the interest of the entire organisation. The organisational success becomes accelerated by people bestowing power upon those who benefit the organisation, which motivates people to excel (Halevy et al., 2011). Whilst incentives are used to ensure the success of a hierarchical organisation, the performance of a flat organisation is maintained by its

flexibility. The informality, open dialogue and focus on teamwork provides the flat organisations with a good basis for adapting to changes (Burford, 2012).

Communication is an example within flat organisations, that provide benefits, yet also causes disadvantages. The informal communication is quick and easily accessed, which results in high flexibility both in communicating and for the progress of the organisation. These forms of communication does however leave room for miscommunications and forgotten tasks and decisions. A non-hierarchical organisation often struggles with finding the right balance between informal and formal communication (Burford, 2012).

Halevy et al. (2011) states that coordination is the key to success, a trait that is often found in hierarchical organisations. The aversion towards hierarchies that is common in many contexts has emerged from the oppressive nature of some organisations. This exploitation does in turn originate from corruptive use of power. While hierarchical organisations in many cases have bad reputation, Halevy et al. (2011) maintains that hierarchical organisations are highly beneficial in interdependent settings.

5.6   OL IN DIFFERENT ORGANISATIONAL CONTEXTS

According to Bunderson and Reagans (2011), one major factor of the learning outcomes of a project is the overlooked impact of social hierarchy. An establishment of OL involves both power and politics and has the influence to hinder or enable the processes and practices of learning (Berends & Lammers, 2010). An area of concern is that those with a higher status are unwilling to share the knowledge they have, in fear of losing some of their power. A common premise for knowledge sharing is thereby an equal treatment of everyone. Another aspect that complicates knowledge sharing in a hierarchical setting, is that people are more inclined to share information with people of the same or higher status as themselves. This can be a tool to either maintain or increase one's own status (Bunderson & Reagans, 2011). The silence of people within the organisation is evidently closely related to power relations, and thereby needs to be accounted for when considering organisational learning (Crossan et al., 2011).

Bunderson and Reagans (2011) states that risk taking and experimentation often is discouraged by hierarchical contexts. This contexts is also said to hinder the establishment of shared goals from a ground level of the organisation. These aspects are important to enable organisational learning. In contrast to a hierarchical setting, creativity and flexibility are traits of flat organisations (Burford, 2012). Enabling risk taking in a flat organisation is therefore made possible by the setting. A common theme on research of hierarchy in the context of organisational learning is that differences in status and influence should be kept to a minimum, or if possible

eliminated, in order to promote learning (Bunderson & Reagans, 2011).

Swan et al. (2010) emphasises the importance of shared goals, mutual trust and psychological safety, amongst others, as important factors to enable organisational learning. Swan et al. (2010) goes on by contradicting Bunderson and Reagans (2011) when stating that shared goals can in fact be considered encouraged by hierarchy. This can be concluded as status and power becomes incentives to work towards the greater good of the organisation, i.e. the shared goals. In an hierarchical setting OL can still be promoted, which is also agreed upon by Bunderson and Reagans (2011). They state that low status individuals in hierarchical organisations tend to comply with the expectations of people with higher power and status.

Psychological safety is, according to Halevy et al. (2011), one beneficial aspect of hierarchical organisations. Feeling safe is essential for learning, according to (Bunderson & Reagans, 2011). Low ranked persons often have difficulties feeling safe to engage in activities, such as reflection on mistakes, that facilitate learning. Learning processes can thereby be encouraged in a context with psychological safety, an environment that a high-status member of the organisation can create by using their position.

One beneficial aspect of flat organisations when it comes to learning is the utilization of social capital, described by Bartsch et al. (2013). Since the communication is generally informal (Burford, 2012), it could increase the transfer of knowledge through social interactions in these organisations.

5.7   SUMMARY

From the reviewed literature in this section, it is evident that the organisational structure can impact the organisational learning, or lack thereof. Whether an organisation has equal or unequal power distribution, the structure can provide both advantages and disadvantages on learning processes. This is evident for both single organisational as well as interorganisational projects, where the unequal power distribution can exist between the organisations. It is also clear that a temporary project in itself provides conditions for the learning processes, as it is limited in time.

The difference in organisation between the project group and the hospital management will be further analysed in the discussion. The impact of each organisational structure will then be questioned on selected events from the subprojects. The organisational learning will be compared to the levels and framework from this chapter, presented in the figure 5.2 below. All three frameworks are found to be useful when analysing the findings from the study. The levels of OL answers the question of *where?* in the organisation the knowledge has been gained. The 4I framework helps to understand *what* type of learning process has created the knowledge. Finally, the levels of mechanism are important when analysing *how* learning is created as a

product. A difference between the 4I framework and the levels of mechanism is that the latter are less bound to the levels of OL.
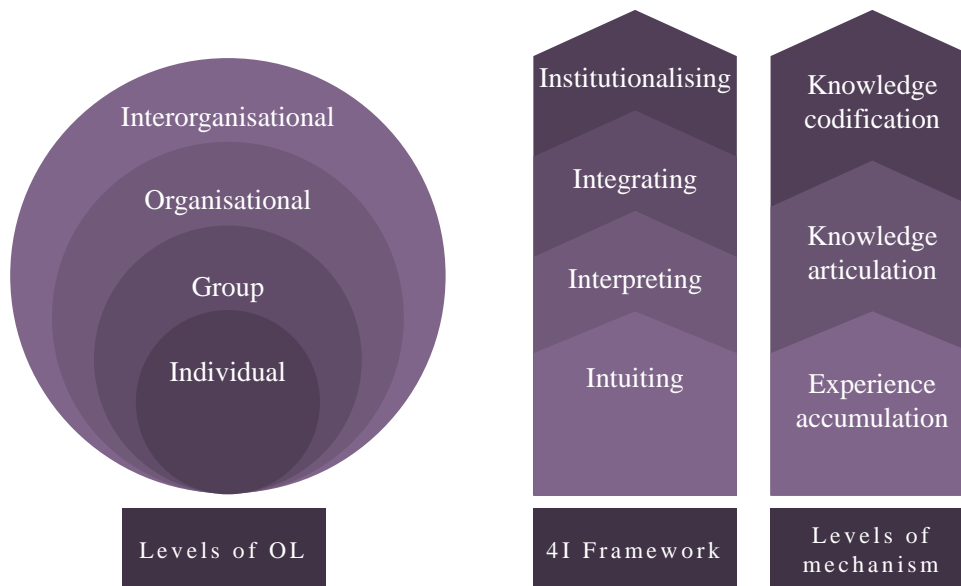
Figure 5.2: Illustration of levels and frameworks of OL. Interpretations of Crossan et al. (2011), Zollo and Winter (2002) and Wiseman (2007).

6

DISCUSSION

In this chapter, the results and theory will be connected and analysed, to provide a basis for the answers of the research questions that will be presented in the conclusion. To analyse how the hospital organisation as well as the project group and the students have worked to learn from each other, the identified learning will be categorized into the different levels and frameworks presented in chapter 5, figure 5.2. An explanation to why the learning has or has not taken place will be provided as well. A discussion will be held about how the frameworks interlink with each other and relate to the results. How this is connected to the ways of working within the organisations as well as how they are structured will also be analyzed.

6.1 MAPPING KNOWLEDGE AND LEARNING

The highest level of learning within organisations is *knowledge codification*, according to the framework by Zollo and Winter (2002). Since this knowledge is accessible to anyone at any time, it can be seen as an important aspect in achieving *interorganisational learning*. In the light of our results however, *interorganisational learning* is identified to be present when for example the hospital organisation as a whole has learned from the project group or all students.

6.1.1 THE HOSPITAL'S LEARNING

One example of knowledge that the hospital has gained from collaborating with the students is the impact and importance of inclusion. As described in the results, many of the students have conducted workshops and meetings where they have tried to get opinions from the hospital staff. Although not everyone has voiced their opinion, H:director has told us that the staff have started to contact him after meetings to share their thoughts and opinions. H:director has thereafter shared this input with the students. He also says that this is something they have started

doing more recently. The development can therefore be seen as a successful learning process of working with the students.

Promoting the sharing of opinions and thoughts is important in order to increase the *interorganisational learning.* As described in the theory chapter, Janowicz-Panjaitan and Noorderhaven (2009) tells us that a high level of collaboration is needed in order to create efficient *interorganisational learning.* In several of the subprojects, high levels of collaboration has been identified. One example is the collaboration between the students S:Eng16b and H:electricity with the UPS. S:Eng16b made sure to include H:electricity in the entire process in order to make sure that he had all the necessary knowledge to use and retain the system. S:Eng16a had a session with the pumping staff when they were teaching them how to chlorinate the water. This session is deemed successful, since the chlorination worked well until the Dosatron stopped working some months later due to low water levels. Similar handovers were also done by S:Eng15 when establishing a pumping schedule as well as by S:Arch15, when she gave the collected documentation to the hospital management and discussed the purpose of the Maternity OT building with them once again.

These above mentioned events are identified as *interorganisational learning,* since the hospital organisation has learned from the students. However, they can not be viewed as examples of *knowledge codification.* The definition is that the knowledge needs to be accessible by anyone, regardless of personal connection to the group that acquired the knowledge in the beginning. Since H:electricity and the pumping staff are the only ones working with the UPS and the pump, respectively, there are no incentives to document their knowledge. Therefore it is not accessible by people without a connection to them. *Knowledge articulation* is however reached, since the students together with the hospital staff have created knowledge regarding the technical installations. These events can also be seen as *integrating*, according to the 4I framework, since ideas are utilized by a group of people.

6.1.2 THE PROJECT GROUP'S LEARNING

Another example of *integrating* knowledge, is how the project group learned from the hospital how they should communicate the budget for the subprojects in the best way. During the first year of the project, the budget was presented rather late, resulting in little time to work on the extension of the maternity ward. This issue was identified by S:Arch15 who brought it up with the project group, once she became part of it. The project group then realized the need to be clear and open with the budget from the beginning. The two following years, a presentation of the budget was done for the hospital management group right after arrival of the students, to not repeat the same mistake.

The project group have also partly learned how they should organise internally over the years. The second year, a total of seven students were present in Kolandoto during the spring. The communication between them and the project group was

not very clear, as described by both S:Arch15 and S:Eng16a in the result chapter. This year, only four students were involved in the project. Before arriving, it was clear to us who in the project group we should turn to with questions, depending on the nature of the question. It was also clear that different people were responsible for different subprojects. However, improvements of the formal communication can still be done.

One example where the communication could have been handled in a better way is the unclear budget for the first flush system, described in section 4.1.2.3. A similar event had occurred the year before when building the chlorine shed. Some knowledge had been gained from that event within the project group, but was not shared with the students that needed to know it. Therefore, only *knowledge accumulation* was reached in that case. These changes, implemented by the project group, improved the communication with the students. We rarely experienced confusion with our purpose in regards to the project group. This learning process can be mapped as *institutionalising* knowledge, since the group have changed their routines to make sure the knowledge stays within the organisation. At the same time, it can be viewed as either *group* or *organisational learning*. Since the project group only consists of eight people, it is questionable if they can be considered to be an organisation or just a group, thus making it uncertain if their learning is on group or organisational level.

An area where the project group have gained knowledge, but still have more to learn, regards how the students are informed about the project before they arrive in Kolandoto. As mentioned in the results, the students who came to Kolandoto the first year did not really know what they were supposed to do. At the same time, they knew to expect uncertainties. The next year, the information about the subprojects was sufficient according to the students interviewed. This is probably due to the fact that the project group had more information from being at the hospital the year before, but also because they had established better routines.

However, information about how the working process is conducted within aid projects and that it can be very intense in the beginning, was not communicated enough. To have students that are prepared to work very hard from day one, and understands why, is considered to be crucial for everyone to have a positive experience of the project. In this case, only *experience accumulation* has been achieved. This experience would have to be spread to new students in a structured way, by *articulating* it, or even establishing routines so *knowledge codification* is reached.

6.1.3 THE STUDENTS' LEARNING

It should first be established that although the students are viewed as one group, they do not have a formal connection to each other, but are rather seen as a group since they have had similar roles in Kolandoto when working with the different subprojects. It also needs to be considered that each subproject has only had one

or two thesis students connected to it, with the exception of the water subproject. Therefore, most focus will be on what we have learned from the collaborating with the hospital, and how this could be transferred to future students.

Firstly, when collecting the tenders for the Emergency Department, the meetings with the first and second company was very different, as described in the result. This chain of events can be viewed as though we believed that we had learnt how such a meeting should be conducted. This knowledge was gained after the first meeting by *intuiting*, and when encountering it for the second time, our previous knowledge was questioned by the new situation. After that we learned that these type of meetings could be conducted in several different ways. We therefore had to change our expectations and preparations for meetings, and by doing so we were *interpreting* our new knowledge.

To further use this knowledge, it would be needed to *integrate* it with the help of either the hospital organisation or the project group. This would also benefit both parties since they would get new knowledge by cooperating with new partners, in line with Ligthart et. al (2016). Since this example came from the collaboration between students and hospital, the hospital should be involved. One way to involve the hospital could be by establishing a contact person for the students who is always present at meetings like this. This person can then help, by telling when the routines go wrong or something should be changed. This is also in line with Swan et al. (2010), saying that establishing personal relationships is important for enabling learning processes. However, as mentioned in the results, when H:director was asked to give us a contact person he did not want to give the responsibility to someone else. H:director himself was not optimal as a contact person since he holds a high management position at the hospital and often busy with other meetings, trips, or operations. This can therefore be seen as an example of a high status individual, wanting to keep their power by not sharing their knowledge, thereby hindering the learning within the organisation as described by Bunderson and Reagans (2011).

6.2 EFFECTS OF POWER AND RESOURCES ON LEARNING

One aspect that has affected the cooperation and learning is the division of power between the organisations. This observation is in line with the findings of Van Marrewijk et. al (2016) and Pfeiffer (2003). Our observation of power structures is mainly based on the fact that the project group and students are coming to Kolandoto to give money and knowledge in different projects, and the hospital is the receiver. When looking at financial situations and resources, the students and project group have in abundance what the hospital and their staff often are missing.

A good example of how the power differences affect the communication is when H:electricity helps us with the evaluation of the UPS. He tells us that everything

is working perfectly, and that no maintenance has been needed. However, when entering one of the UPS battery storage rooms, we see that the system is turned off. We find out that one of the components has broken, for the second time. However, he has not told us about this before, probably as to not upset or worry us, see Pfeiffer (2003). The broken component has been repaired before by the hospital staff. Since this information was not shared with us initially, we had no possibility to investigate the matter further thus hindering learning from this event.

An example of when the lack of resources by the hospital has affected the project outcomes was when the hospital lacked funds to pay their electricity bill. As a result of this vital technical areas such as the water pump were not working. This is an evident example of what is described by Swan et al. (2010) as when the organisational context has an impact on the project outcomes. This specific example has not changed the result of the learning outcomes in itself. However, for the hospital to spend time dealing with problems caused by lack of resources, might result in less time for reflection and thus risk of hindering the learning aspects of the project.

Time is a resource that is lacking for everyone involved in the project. Apart from the limited time due to other work tasks for the project members, the project is in itself time limited. Students are present during a very limited time as representatives for the project group. However, some of the project group members have an established relationship with the hospital management since several years ago. This has resulted in well considered investments at the hospital, in line with the recommendations from Pfeiffer (2003).

Swan et. al. (2010) mentions several factors that have an impact on learning, all fitting to this project. Most prominent of the factors are perhaps available tools and the extent of commitment amongst project members. The available tools in Kolandoto are limited due to the location and its lack of both finances and resources, while the commitment can be considered constrained by the main occupation of the participants in the Healthy Hospital project. The students are obliged to work on their theses, which may not always be closely connected to the practical work conducted. The other participants are full time employed either in Kolandoto at the hospital, or working full time with their respective profession in Sweden. The master thesis students also have limited time in Kolandoto. Since all case studies are conducted during eight to ten weeks, the pressure is high from both the project group and the hospital to achieve as much as possible.

6.3 IMPACT ON LEARNING FROM A FLAT ORGANISATIONAL STRUCTURE

There is a difference in how the project group and the hospital organisation distributes responsibility. From the project groups perspective, it was clear for us as students that certain people were responsible for different projects. The complete group took more comprehensive decisions regarding budget and overall direction of the project. The project group can by this way of working be seen as a rather flat and project driven organisation. The lack of clear communication can somewhat be explained by the fact that the organisation is flat. As Burford (2012) explains, the informal communication in these types of groups is easy, but vital aspects can be overlooked since there is a lack of formal communication. An example of when the communication within the project group worked well was when S:Arch15 brought with her the issue of unclear budget information when she joined the project group. However, S:Eng16a takes up an example that shows how the communication sometimes fails, when telling us how one of their subprojects went over the expected budget. This was due to the fact that they were not informed about the actual budget expectation.

The lack of formal communication and frameworks within flat organisation can potentially lead to decreased use of the *accumulated* learning, since no formal structure is used to *institutionalize* the learning from individuals or the groups. A clear example is of the project group, when they learned that they needed to be clearer about the budget in the event described above. They later failed to communicate this to us, when we were involved in the installation of a first flush system. The learning itself has taken place, thanks to the social bonds created in the informal setting as explained by Bartsch et. al. (2013). However, it is not fully utilized due to the missing formal communication tools.

6.4 IMPACT ON LEARNING FROM A HIERARCHICAL ORGANISATIONAL STRUCTURE

The hospital's organisation in general is evidently important to consider for the learning outcomes of the project. The hospital is deemed to have a very hierarchical organisation, where a few persons in the hospital management group makes almost all decisions. As presented in the results, H:director runs the hospital with full control over all activities. This is in line with hierarchical organisations tending to have a strong and charismatic leader. (Bunderson & Reagans, 2011) S:Eng16b even refers to H:director as:

[...] The old Man himself!
- S:Eng16b

Further on, the staff that are not part of the management group tend to not share their opinions in public, corresponding to the theory by Bapuji and Crossan, (2004) claiming that silence of people in an organisation are related to the power-distribution within the organisation.

Bunderson and Reagans, (2011) state that hierarchical organisations generally does not share their learning since people with a higher status tend to keep information to themselves in order to maintain their high status. Such an example is described in section 6.1.3 when stating that H:director does not want to give us another contact person apart from himself. However, some aspects of organisational learning are also enhanced in hierarchical organisations, such as establishment of shared goals (Swan et al., 2010). A shared goal for the hospital is to keep the cooperation with the project group. This goal was promoted by H:director, but since other staff have seen the benefits of it and want to follow the leader, they will too do their best to keep the relationship, and hence try to learn from the project.

6.5 IMPACT ON LEARNING FROM AN INTERORGANISATIONAL PROJECT

Several observations have been made during the case study that can conclude that almost all staff at the hospital want the project group and students to keep coming back to Kolandoto. Since the staff knows that the project group is connected to the hospital management, who are considered to have high status, the project group and students are treated as high status individuals as well when present at the hospital. This is not something these groups are used to, since they are normally working in a very flat organisation. The outcome of this clash is evident in many of the events described in this chapter, and are in some cases a source of learning, but in other cases the reason why no learning has occurred. See for example section 6.1.1 describing how the hospital staff is starting to voice their opinions and how H:electricity was given responsibility by the students. It is not the clash in itself that is decisive for whether learning occurs or not, but rather how it is handled by the organisations involved.

A common aspect for both the hospital and the project group is that they have individuals that are committed to driving the project further, which is important in this context of projects. It does however create dependency within the organisation, to these individuals. If someone of the individuals would suddenly leave the organisation, a lot of knowledge would probably leave with that person as well. Within the project group, this is evident for all members, since they all play an important role in the flat organisation. For the hospital, the loss of knowledge would be fatal only if one of the key persons with high status went missing, which also happened during

the case study as described in section 4.1.1.1 when H:director was not present for a few days. To avoid this potential loss of knowledge, documentation is essential but lacking within both organisations.

Neither of these organisations are companies with big databases with all their work documented. Both of them suffer in different ways from limited resources that prevent the use of such databases. The hospital does not have enough physical equipment such as computers, leading to documentation being stored in lockers with limited access from the other members of the organisation. In the case of the project group, the time is the most lacking resource, since they work voluntarily on the project. The time available therefore needs to be focused on the most crucial tasks, which is also evident for the hospital staff.

Due to the fact that the documentation is insufficient within both organisations, the mapping of the different learning processes and outcomes are somewhat distorted. Examples of this are the workshops within the water subproject held by both S:Eng15 and S:Eng16a. These workshops are valued 'lower' in the 4I framework and Zollo and Winter's three levels of mechanism, but higher in the organisational learning framework. This case is mapped as *interorganisational learning*, *knowledge articulation* and *integrating*. It is valued at these levels because of inadequate documentation from the organisations. Such documentation would be needed to reach the classification of *institutionalizing* and *knowledge codification*. Despite the fact that the highest step of the 4I framework and levels of mechanism are seldom reached within the mapping, *organisational* and *interorganisational learning* is evident within the project.

7

CONCLUSIONS AND RECOMMENDATIONS

In this chapter the conclusions and recommendations for the thesis are presented. After repeating the research questions from chapter 1, we present our conclusions regarding the learning within the hospital organisation and project group respectively. Thereafter, we look at their common work and how their different structures have effected the learning within the project. We end by proposing recommendations for the project group that are based on the conclusions.

7.1   CONCLUSIONS

The conclusion aims to answer our research questions, which are as follows:

- *How has knowledge been created within the Healthy Hospital project through organisational learning?*

- *In what way has the organisational structures of Kolandoto Hospital and the project group effected the learning within the project?*

Within the hospital organisation, many aspects of the Healthy Hospital project have resulted in learning. The person who has learned the most is H:director, who collaborates most closely with the students and project group. The knowledge that he has gained has partly been distributed to the rest of the organisation, but could have been shared even more. The main reason why the knowledge is not evident throughout the organisation is due to the hierarchical structure of the hospital. In such a hierarchical organisation, high status persons tend to not share information with those of lower status. However, one advantage for the hospital in terms of learning is that the common goal for the organisation, established by the high status H:director, is likely to be achieved by the whole organisation. Since their main goal is to keep up the collaboration with the project group, the whole organisation will thereby work towards that goal.

The project group has gained a lot of knowledge from working within the project. The most important learning outcome is how to communicate with the students and establishing routines for that. However, since the project group is categorized as a flat organisation, their main issue emerges from the informal communication. This results in events where the project group think that the students have knowledge, which they actually do not have. This is because all the members of the project group believes someone else has informed the students about this, when in fact no one has informed the students. This issue has decreased by the division of responsibility within the project group, but can still be improved even further.

An unequal power distribution exists between the project group and the hospital. The project group have both knowledge, money and resources, and therefore more power. This leads to issues in receiving feedback from the hospital since the staff deem the students or project group members present as high status, and they therefore do not dare to criticize them. This lack of feedback makes it hard to find out what the hospital thinks could be improved within the collaboration. This hinders the learning since no mistakes are pointed out that can be reflected upon. Despite this, learning has taken place within the project. The hospital organisation have improved their feedback to the project group, even if there is still room for improvements. The project group have also tried to improve their communication with both the hospital and students, resulting in less misunderstandings and ultimately in better projects in the future.

7.2 RECOMMENDATIONS FOR THE PROJECT GROUP

Overall, the project group has a good organisation to facilitate learning. However, some areas that can be improved further are:

- Since the project group and students are considered to have high status, they can themselves try to establish a safe psychological environment. By establishing this in their workshops and interviews, they should get more feedback and input from the hospital staff. This will contribute to achieve more learning within the project. Creating a safe environment can possibly be done by proving that everyone is working towards the same goal; which is to improve the hospital.

- When conducting an internal evaluation within the project group, the students that have been involved in the project the same year should be part of the evaluation. In that way their knowledge and input can be used for future projects as well.

- The need for students within the Healthy Hospital project should be properly advertised by the project group, with the expectations clearly stated. Formal interviews should be held with students that are interested of going before deciding if they should be part of the project or not.

- When it is decided which students are going to participate, the project group should provide them with additional written documentation and information about the project. This information should include the guidelines for the project and expectations on the students. Some information about the context and culture should also be provided, to prepare the students. By having this information from the start, the uncertainties are reduced. Therefore, the students can focus on their work for the project during the case study and achieve higher learning.

REFERENCES

Bapuji, H. & Crossan, M. (2004) From Questions to Answers: Reviewing Organizational Learning Research *Management Learning,* vol. 35, no. 4, pp. 397-417.

Bakker, R. M., De Fillippi, R. J., Schwab, A. and Sydow, J. (2016) Temporary Organizing: Promises, Processes, Problems *Organization Studies,* vol. 37, no. 12, pp. 1703-1719.

Bartsch, V., Ebers, M. & Maurer, I. (2013) Learning in project-based organizations: The role of project teams' social capital for overcoming barriers to learning. *International Journal of Project Management,* vol. 31, no. 2, pp. 239-251.

Bell, E. & Bryman, A. (2003) *Business Research Methods,* Oxford: Oxford University Press.

Berends, J.H. & Lammers, I.I. (2010) Explaining Discontinuity in Organizational Learning: A Process Analysis. *Organization Studies,* vol. 31, no. 8, pp. 1045-1068.

Berg, A. & Kallus, D. (2015) *Engineering Aid in Practice and its Challanges: A case study on improvements of water and power systems at a hospital in Tanzania* M.Sc.Eng Chalmers University.

Birmingham, D., (1995) *The decolonization of Africa.* London: Routledge.

Bunderson, J.S. & Reagans, R.E. (2011) Power, Status and Learning in Organizations. *Organization Science,* vol. 22, no. 5, pp. 1182-1194.

Burford, L. (2012) *Project management for flat organizations,* Ft. Lauderdale: J. Ross Pub.

Chevalier, Jacques M. & Buckles, Daniel J. (2013) [Diagram] in: *Handbook for Participatory Action Research, Planning and Evaluation.* Ottawa: SAS2 Dialogue.

Central Intelligence Agency, CIA, (2017). *The World Factbook: Tanzania* [online] Available at:
`https://www.cia.gov/library/publications/the-world-factbook/geos/tz.html#` [Accessed 15 May 2017].

Crossan, M.M., Maurer, C.C. & White R.E. (2011) Reflections on the 2009 AMR Decade Award: Do we have a theory of Organizational Learning? *The Academy of Management Review,* vol. 36, no. 3, pp. 446-460.

H:director, (2017) *Interview with Medical Director of Health Services* [Interview 18 Feb. 2017].

Halevy, N., Chou, E.Y. & Galinsky, A.D. (2011) A functional model of hierarchy: Why, how and when vertical differentiation enhances group performance. *Organizational Psychology Review,* vol. 1, no. 1, pp. 32-52.

Hansson, N. & Svard, S. (2016) *The Significance of Trust in a Change Process: Case Study of Kolandoto Hospital becoming a council designated hospital* M.Sc.Eng Chalmers University.

Hofstede, G. (1983) National Cultures in Four Dimensions: A Research Based Theory of Cultural Differences among Nations. *International Studies of Management and Organization,* vol. 13, no. 1-2, pp. 46-74.

Iannello, K.P. (1992) *Decisions without hierarchy: Feminist interventions in organization theory and practice.* New York and London: Routledge.

International Commission on Irrigation and Drainage, ICID (2012) *Country Profile Tanzania.* [online] Available at: `http://icid.org/cp_country.php?CID=94#cp` [Accessed 15 May 2017].

Janowicz-Panjaitan, M.K. & Noorderhaven, N.G. (2009) Trust, Calculation, and Interorganizational Learning of Tacit Knowledge: An Organizational Roles Perspective. *Organization Studies,* vol. 30, no. 10, pp. 1021-1044.

Ligthart, R., Oerlemans, L. and Noorderhaven, N. (2016) In the shadows of time: A Case Study of Flexibility Behaviors in an Interorganizational Project *Organization Studies,* vol. 37, no. 12, pp. 1721-1743.

Magee, J.C. & Galinsky, A.D. (2008) Social hierarchy: The self-reinforcing nature of power and status. *Academy of Management Annals,* vol. 2, pp. 351-398.

March, J.G. (1991) *Exploration and Exploitation in Organizational Learning* [online] Stanford, California: Graduate School of Business, Stanford University, pp. 71-87. Available at:`http://dx.doi.org/10.1287/orsc.2.1.71` [Accessed 15 May 2017].

Moyo, D. (2009) *Dead Aid.* London: Penguin.

Oxford University Press (2017) Learning. In: *Oxford Living Dictionaries,* [online]. Oxford: Oxford University Press Available at: `https://en.oxforddictionaries.com/definition/learning` [Accessed 23 May. 2017].

Pfeiffer, J., (2003) International NGOs and primary health care in Mozambique: the need for a new model of collaboration. *Social Science & Medicine* vol: 56 pp. 725-738

PG:member, (2017) *Interview with project group member/ Water engineer* [Interview 21 Feb. 2017].

Rohlen, S. & Skillbred, M., (2016) *Strategy for designing solar powered UPS systems in East Africa* M.Sc.Eng Chalmers University.

Rosling, H., (2011) *Child mortality, family planning and the environment | Hans Rosling | TEDxChange* Available at: `https://www.youtube.com/watch?v=GWXvTgjsPFE` [Accessed 31 May. 2017]

Stewart, J. (2013). Unintended Consequences: Foreign Aid in Tanzania. *WIDER Angle newsletter*[online] vol. 2012, no. 37, Available at: `https://unu.edu/publications/articles/unintended-consequences -of-foreign-aid-tanzania.html` [Accessed 15 May 2017].

Swan, J., Scarbrough, H. & Newell, S. (2010) Why don't (or do) organizations learn from projects? *Management Learning,* vol. 41, no. 3, pp. 325-344.

Thurtle, M.C. (2009) *Difference Can make a Change: A Literature Review of Heterogeneity in Non-hierarchical Organizational Systems,* M.A. Prescott College.

United Nations, UN (2016) *News on Millennium Development Goals.* [online] Available at: `http://www.un.org/millenniumgoals/` [Accessed 23 May 2017].

Unicef (2013) *United Republic of Tanzania Statistics* [online] Available at: `https://www.unicef.org/infobycountry/tanzania_statistics.html` [Accessed 23 May 2017].

USAID (1995) *Policy guidance: USAID-US PVO partnership.* Washington D.C. USAID

Van Marrewijk A. H., Ybema S., Smits K., Clegg S., and Pitsis T. S. (2016). Clash of the Titans: Temporal organizing and collaborative dynamics in the Panama Canal Megaproject. *Organization Studies,* no. 37, pp. 1745–1769.

Walter, M. (1993) Participatory action research. In: *Rehabilitation Counseling Bulletin,* vol. 37, no. 2-2.

Wiseman, E. (2007) The Institutionalization of Organizational Learning: A Neoinstitutional Perspective. In: *Proceedings of OLKC 2007 - Learning Fusion,* Warwick: OLKC, pp. 1112-1136.

Yin, R. K. (2014) *Case Study Research: design and methods.* 5th ed. London: Sage Publication.

Zollo, M. & Winter, S.G. (2002) Deliberate Learning and the Evolution of Dynamic Capabilities *Organization Science,* vol. 13, no. 3, pp. 339-351.

A

MASTER PLAN OF HOSPITAL AREA

Site plan in the future 1:1000

OUTPATIENT ENTRANCE

OUTPATIENT DEPARTMENT

LAB

CARE TREATMENT CLINIC

DISPENSARY

EYE WARD

EYE THEATRE

WORKSHOP

ADMINISTRATION

N

REPRODUCTIVE CHILD HEALTH

DENTAL

PHYSIO.

EYE CLINIC

IMAGING

LAUNDRY

SOCIAL HALL

RESOURCE CENTER

VISITOR ENTRANCE
EMERGENCY ENTRANCE
DELIVERY ENTRANCE

SHOPS

PARKING

CASUALITY UNIT

GENERAL THEATRE

STERIL.

SUPPLY STORE

INFUSION

PHARMACY

SHOPS

PUBLIC SQUARE

SHORT STAY WARD

FAMILY PLANNING

STAFF ENTRANCE
GOODS ENTRANCE

MORTUARY

INTENSIVE CARE UNIT

DELIVERY

MATERNITY WARD

WASTE ZONE

GENERAL SURGICAL WARD

PAEDIATRIC WARD

PRIVATE WARD

KITCHEN

GENERAL MEDICAL WARD

50m

10

SCALE 1:1000

0

NEW BUILDING

EXISTING BUILDING

II

B

HOSPITAL ORGANISATIONAL CHART

Appendix I – Organization Chart
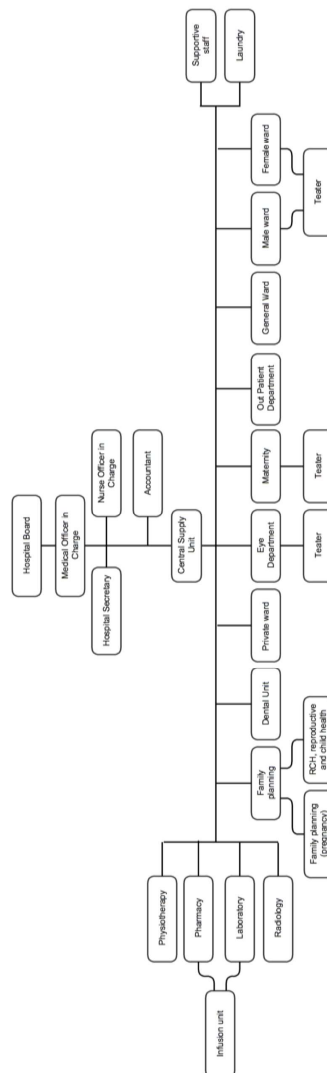
C

LOGBOOK

Date	Organisation/person	Meeting/contact	Comments
14-feb.	Hospital management	Presentation	Presentation of budget and drawings
15-feb.	Contractor, Makonda	Meeting	Before the clear method, few notes, Emma sick
16-feb.	S:Arch15	pre-procurement	The process will take time according to S:Arch15
17-feb.	Contractor, Enoika	Initiation	Based on running protocols
17-feb.	Contractor, Makonda	Additional questions	Few notes, but good questions
17-feb.	Contractor, Makonda	Email	Sent drawing on ramp
17-feb.	Contractor, Enoika	Email	Sent drawing on ramp
18-feb.	Contractor, Enoika	Phone call	Not received BOQ (from H:accountant). Made a separate version
18-feb.	H:director	Meeting	Contact person-H:director or [not interviewed hosp.mgmt. member]
20-feb.	Contractor, Grinda	Meeting	Just thought about planning a meeting, full review. H:accountant came later.
20-feb.	Contractor, Makonda	Receiving tender	Good questions and discussions
21-feb.	Contractor, Enoika	Receiving tender	Sealed BOQ, waiting for opening until H:director arrived
21-feb.	CBM	Meeting	Only observation, well-structured and entertaining
21-feb.	Contractor, Grinda	Receiving tender	Sealed BOQ, got it in hand. No discussion.
21-feb.	Contractor, Grinda	Meeting	Conflict - if they do not get both projects
21-feb.	Work	Presentation	Make compilation
23-feb.	Contractor, Enoika	Email	Questions: missing items, VAT, preliminaries
23-feb.	Contractor, Makonda	Email	Questions: Sums don't add up
24-feb.	Contractor, Enoika	Phone call	Answer questions about windows above meeting
24-feb.	Hospital management	Meeting	Took decision about contractor. Earlier in the day than expected
25-feb.	Work	Contract signing	Contract based on South African model
28-feb.	Contractor, Enoika	Phone call	H:director announced to Enoika that they received the bid. We were told the following day
1-mars	Contractor, Enoika	Email	What would be calculated for the coming day's meeting
1-mars	Project Group	Phone call	The PG needs at least one day to decide on the amount of contact writing
2-mars	Hospital management	Meeting	Plan for meeting with Enoika
2-mars	Contractor, Enoika	Meeting	Discussion about changes, no number
2 mars	Contractor, Enoika	Email	Drawings on windows etc
2 mars	Contractor, Enoika	Phone call	H:director was given the number we could send to the PG for decision, misconception
3 mars	Contractor, Enoika	Meeting	Negotiation + contract signing
21 mars	Contractor, Enoika	Email	Enoika wants to reduce wall thickness to 200 mm (from 230)
27 mars	Contractor, Enoika	Email	It's okay, but the beams and columns are not reduced. Addition to contract.

D
CONTRACT

Contract agreement

Emergency Department at Kolandoto Hospital

Africa Inland Church Tanzania

X

1. Contract agreement

This agreement made on:

03/03-2017

between Kolandoto Council Designated Hospital, P.O BOX 1, Shinyanga (hence known as the Employer) and Enoika Company Limited, P.O Box 107, Meatu, Simiyu (hence known as the Contractor).

The Employer gives the Contractor the mission to execute construction of EMERGENCY DEPARTMENT AT KOLANDOTO HOSPITAL (hence 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 in the sum of:

112'450'353'8 (one hundred and twelve million four hundred and fifty thousand three hundred fifty three point eight) TZS.

The project shall start on 23/03-2017

And the due completion date shall be 16 weeks after starting date.

This bears witness that the parties have made this Agreement to be executed on the date stated above.

SIGNED ON BEHALF OF THE EMPLOYER:

……

Clarification of signature:………………………………………………………………………………...

SIGNED ON BEHALF OF THE CONTRACTOR:

………………………………………………………………………………...………………….

Clarification of signature: ……………………………………………………………………………

1

X

2. Attachments to the contract

The Scope of Work, which include the specifications and drawings, establishes what the Contractor is to construct and what quality 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 specifications, 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 instructions 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.

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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 XX 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 Kolandoto 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.

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 some of it is done by a Subcontractor. This means that if the Employer rejects work done by a subcontractor, then;

3

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- 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 payments are as follows;

- 40 % at the Commencement date
- 40 % at the middle stage of construction
- 10 % at completion of work
- 10 % 1 month after completion of work

6.1. 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 due completion date. This deduction may not exceed 10 %.

6.2. Deduction of payment due to lack of quality

If the work done by the Contractor does not match the drawings and specifications 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 5 % 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;
- has subcontracted part of the work without the Employer's consent.

4

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XIV

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 contract within 14 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 work done and not yet paid for;
    - for all materials or goods 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.

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INTERVIEW GUIDE

The following questions and topics were used to guide our semi-structured interviews. Each interview began with a brief explanation and introduction, and ended with a concluding thanks to our participant(s).

E.1 INTRODUCTION

Used in all interviews

Information for interviewees: This interview is part of the evaluation that we are conducting for IAA. It's purpose is to find out what happened within the project that you were a part of during your time in Kolandoto, divided into four different parts of the project. The questions regard the practical implementation that you did, and not your master thesis project as a whole.

E.2 CONCLUSION

Used in all interviews

That was the last question. Do you have anything you would like to add or that you feel has not yet been mentioned? Do you have anything you would like to ask me/us? Can we contact you if we think of some other question or find something that needs clarification? Thank you for your participation.

E.3 HOSPITAL MANAGEMENT

Presentation: (Name), age, profession, education, background, role in the project. Can you tell us how the collaboration with the Healthy Hospital project started? Have you worked in similar projects with students before?

What were the tasks the students were supposed to do here?
Who told you what the students were going to do, and how?
What did you expect from the students, before they arrived?
Who asked for this project?
Did the students change their plans when they got here?
If so, why did they change?

How was the planning process (with the students)?
How was your involvement in the planning?
How was the communication with the students?

What was the responsibility of the students?
Did they have the right competences for this?

How was the company/executor chosen?
What was the criteria?
Who was involved in the decision?

What was your role and responsibilities during the execution?
Would you have done anything differently?

Was the project completed when the students left Kolandoto?
Was that according to the plan?
Can you tell us about your last meeting with the students before they left?

What is your opinion about this project?
Did it fulfil your expectations?
Were you satisfied with your influence over the project?
How was the students' contribution?

If you could have done something different with the project, what would you have changed?

Did you feel like you had a good contact/connection to the students during their time here?
Would you say that the contact has been different with someone special?
Has the way you work with the students changed over the years?
Is there anything that has improved?
Is there anything that has not worked as well as it used to?
What is the most important thing you have learned by working with the Healthy Hospital project?

E.4 HOSPITAL TECHNICAL STAFF

The technical staff was interviewed in Swahili, with the help of a translator. Our translator was a hospital nurse who spoke Swahili and English. Several questions needed to be rephrased or eliminated, due to difficulties communicating.

Technical evaluation:
Status: Observe, Ask and Divide all different parts as much as possible

Capacity: What is the capacity? Is it enough? Is it too much? Does it change or is it always the same?

Maintenance: Is it needed? How often? How long each time? Is help needed?

Areas to research:
Electricity: Sun cells, Batteries, AC.
Waste zone (Working environment, extra question for waste zone).
Emergency department-capacity.
Eye OPD- capacity.
Water: Pump, Dosatron, Distrubution system

Interview questions:
How was the planning process (with the students)?
How was your involvement in the planning?
How was the communication with the students?

What was the responsibility of the students?
What was your role and responsibilities during the execution?

Was the project completed when the students left Kolandoto? Was that according to the plan?
Can you tell us about your last meeting with the students before they left?

What is your opinion about this project?
Did it fulfil your expectations?

Were you satisfied with your influence over the project?
How was the students' contribution?

If you could have done something different with the project, what would you have changed?

Did you feel like you had a good contact/connection to the students during their time here?
Would you say that the contact has been different with someone special?

E.5 FORMER MASTER THESIS STUDENTS

These interviews were held in Swedish since this is the native language of both the interviewees and the interviewers. Questions are translated into English below.

Presentation:
(Name), age, profession, education, background, role in the project.

Why did you decide to do your master thesis within an aid project?
Why did you go to Kolandoto?

What did you plan to do in the project before you left for Kolandoto?
Who came up with the basic/original idea for that?
How did you perceive your role in the project upon arrival?
Was your plan changed after your arrival in Kolandoto?
In that case, why?
In what way was this change received by the hospital management and the project group?

Can you tell us about your first (full) day in Kolandoto?
What did you do?
Who did you meet?
How did it feel?

Who were involved in the project? Hospital staff, local companies, swedes etc.

Can you tell us about the process of planning the project when you came to Kolandoto?
Was the hospital involved and in what way?
How was the communication between you and them?
How was the responsibility divided?
What was your responsibility?
Was your competence the right one for this responsibility?
Was your knowledge not enough or not fully utilized?

How did you find and decide who should execute the work? Who was present at meetings?
Who took the final decisions?

How was your knowledge and competence perceived by the hospital?
How was it perceived by the company/executor?

What type of relationship did you have with the hospital within the planning process?
Regarding the preparation of material and choice of executor, would you have done anything differently if you would be able to and in that case what?

Who was involved in the execution of the project?
What was your role during the execution process?
Were you comfortable in that role?

Who was responsible for the follow up of the project?
How was it decided who was going to be responsible?
According to you, did this person have the right competences and knowledge?

If you could have been able to redo the execution phase, would you have done anything differently and in that case what?

Was your project completely finished when you left Kolandoto? If not, was that the way it was planned?

Can you tell us about your last days in Kolandoto?
What did you do?
Who did you meet with?
How was the timing for leaving the project?
If you could redo the last days, would you have done anything differently?

How much influence did you have in the project?
Was this as you expected it to be?

How did this project affect the hospital?
How did you contribute to the impact?
Are you satisfied with your contribution?
How was your contribution perceived by the hospital?

How was your connection with the hospital management?
Looking back at the project; what role did you have in it?
Was this different compared to the role you thought you would have in the beginning of the project?
Why did it change?

If you could go back in time with the knowledge you have now, would you have changed anything?

E.6 PROJECT GROUP

These interviews were held in Swedish since this is the native language of both the interviewee and the interviewers. Questions are translated into English below.
These interviews were also held as an extension of the interviews with former students, in the case of S:Eng15 and S:Arch15. The questions were held as a separate interview with PG:member.

Why did you join the project group?

How has your communication with the hospital been? (When not present in Kolandoto)

How would you describe your role, when you went to Kolandoto with master thesis students?
Your role towards the hospital management?
Your role towards the students?

How has the communication with the students worked, when you were in Sweden and they were in Kolandoto?

How would you describe your role in the project group?

What have you learned from being part of the project group?