Possibilities and obstacles regarding under-five mortality
-A case study in Babati District, Tanzania

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Abstract

Tanzania is close to reach one of the Millennium Development Goals; to reduce child mortality with two-thirds between 1990 until 2015. This qualitative case study focuses on under-five children’s health in Babati district, situated in the north-west of Tanzania. The empirical data used in this thesis has been collected through interviews with health personnel and mothers during three weeks in February to March 2012. The purpose of the study has been to identify direct and underlying reasons causing child mortality, and to investigate what measures are needed to improve the situation. The most prominent diseases creating death amongst children are pneumonia and malaria, and also diarrheal diseases are common. The prevalence of the diseases differs from wet and dry season, whereas there are more cases of illness and death during the wet season. Malaria and pneumonia are common causes of death during the wet season, and diarrheal diseases are more common during the dry season. Underlying reasons affecting child mortality in Babati district are the lack of infrastructure, such as few well-functioning roads to the main hospitals which affects the rural population in particular. Also the limited access to transport is a vast problem when there is acute illness or childbirth. The clinics available in Babati district are poorly equipped and have a lack of personnel, creating a stressful situation for both healthcare workers and patients. More governmental funds and infrastructure is needed in the area to be able to create a sustainable situation for future children.

Key words: Children, Pneumonia, Malaria, Wet season, Health
Sammanfattning


Sökord: Barn, Malaria, Lunginflammation, Regnsäsong, Hälsa
List of abbreviations

UN- United Nations
MDG- Millennium Development Goals
ARI- Acute Respiratory Infection
FGM- Female Gender Mutilation
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1. CHILD MORTALITY

In 2010 7.6 million children around the world died before their fifth birthday.¹ Improvements in this area has been made the last few years and many global actions has been taken regarding this issue, but still too many children die due to reasons as lack of functioning health care systems and under-nutrition.

In 1990 the World Summit for Children took place, which was the greatest gathering of world leaders at that time. The summit was held to define children’s rights and to develop a global action plan for the wellbeing of future children. The action plan contained seven major goals; reduce child and maternal mortality, reduce under-nutrition, universal access to drinking water and sustainable sanitation solutions, universal access to basic education, improved illiteracy rate and improved protection for children living under difficult circumstances.² Some of the supporting goals focused on declining common diseases such as measles, diarrhea and Acute Respiratory Infection (ARI) in order to combat under-nutrition and vitamin insufficiency. In 2002 an evaluation of the action plan was made indicating that it had both succeeded and failed in some areas. Great progress had been made to broaden the use of vitamin A supplementation and the use of iodized salt, which is important since lack of iodine is a common reason for mental retardation. Great efforts had also been made to eradicate polio and decreasing diarrheal diseases by 50%, and the main goal became fulfilled—namely to reduce child mortality by one-third until 2000. However many underlying reasons for child mortality is still occurring, such as under-nutrition, child poverty and the effects of the HIV/AIDS epidemic.³

In September 2000 world leaders united with the aim to form the Millennium Development Goals (MDG), and now more vigorous effects were discussed in order to combat poverty, starvation, maternal and child death. One of the eight goals formed is to reduce under-five mortality by two-thirds between 1990 and 2015. Often there are more societal structural contributing to child mortality such as weak democracy, high gender inequality and no existing social security. There is a vast difference between high-income countries and low-income countries and amongst the top 36 countries with the highest mortality of children under the age of five in 2010 there was only one country not situated in Africa, namely Afghanistan.⁴

1.1 The situation in Tanzania
In Africa, and sub-Saharan Africa in particular, child mortality rate has decreased steadily since 1960’s. In Tanzania the under-five mortality rate before 1960 was 240 deaths per 1000 live births. A lot has happened since then and in 2010 the under-five mortality rate had decreased to 76. This is a drastic change, but improvements are still needed. This is clearly seen if we put Tanzania in comparison with Sweden who had a rate of three under-five deaths per 1000 live births the same year.

Tanzania is close to achieving Millennium Development goal number four which is a result of health efforts such as vaccination against measles, better care for pregnant women with malaria, vitamin A supplementation and Prevention of Mother to Child Transmission of HIV. The situation is worse in rural areas than urban areas, as infants born in rural areas have 30% risk of dying during their first year and in 2010 only 42% of the mothers in rural areas delivered on a health clinic with skilled personnel. The main reasons for deaths amongst newborns are severe infections, suffocation (asphyxia) and preterm births. In Tanzania, malnutrition is an underlying reason for half of all child mortality (in 2008 22% of all children were underweight) and one-third of the population lives below the poverty line. Under-nutrition amongst pregnant women affects the baby in a great extent, and also newborns are affected while the mother is breastfeeding. 11% of women in the reproductive age are considered badly nourished. The most common infections are pneumonia and diarrhea, and many cases of child death are also connected to Malaria and HIV/AIDS.

In Tanzania it is free of cost to take children up to five to the doctor. Even medicine is provided for free. Even though this visionary reform has existed for more than 6 years, still Tanzania has not reached the required levels. The goal according to MDG 4 is to decline under-five child mortality to decrease child mortality with two-thirds between 1990 and 2015. In 1990 the under-five mortality

15 Interview nurse 1.
rate was 191 deaths per 1,000 births; the goal until 2015 is to reduce this number to 64. The Tanzanian government has stated this goal as achievable.

1.2 Problem formulation
The national and international goals to combat child mortality have yet not been fulfilled. Progress has been made regarding the survival of small children and infants in Tanzania and important reforms have been implemented. Even though important changes regarding welfare and economy is taking place within the country, those who are the most vulnerable still suffer, namely children and women. To be able to achieve MDG 4 Tanzania has to improve the situation for these groups. In order to investigate which matters needs more attention from the Tanzanian government and society, the possibilities and hindering factors for Tanzania to achieve the goal within the predetermined time range will be investigated.

1.3 Purpose of the study
The purpose of the study is to identify most common death causes affecting under-five child mortality in Babati district, Tanzania. The study will also examine the underlying reasons (such as socio-economic) affecting child mortality, and evaluate the probability for the district to reach MDG 4.

1.4 Research questions
- What causes under-five mortality in Babati district?
- What underlying factors are contributing to under-five mortality in Babati district?
- What is required of Babati district to be able to fulfill MDG 4 until 2015?

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2. METHODOLOGY

2.1 Research field and choice of method
This field study is a qualitative study conducted in Babati district, situated in north-central Tanzania. The empirical data used in this the thesis is gathered through interviews in Babati district during 24th of February to 7th of March 2012. The study is a case study focusing on child health and mortality within the Babati district. The form of a case study was suitable since the thesis intend to investigate the current situation in this particular district, whereas the study cannot be used to show a general picture of the situation in whole Tanzania hence the sample size only represents Babati district. When qualitative methods are used, the study may not be suitable for generalization of the results, since the information collected may not be comprehensive enough to show an adequate picture of the situation. The data reflects the individual informant’s viewpoints and is therefore not applicable in a larger extent, thus creating a lack in the extern reliability. This study may be difficult to replicate since the social environment cannot be “frozen”, and as the situation regarding children’s health changes continuously. The approach of the theoretical framework used has been inductive, since the aim has not been test the theories as in a deductive study. There was previous knowledge regarding two of the three theories used before the study, but the approach was not to investigate if they were correct or not, instead they are used to get another dimension of the situation and tools for a multifaceted analysis.

The empirical data used was gathered through both qualitative and quantitative methods. Semi-structured interviews were used to collect the qualitative data used, and statistics from a hospital gave a comprehensive picture of the prevailing situation in the district. Quantitative data was useful in the study in order to make valid conclusions regarding child health and mortality, in order to strengthen or reject some of the qualitative information used. Secondary sources have been used to get an understanding for the situation worldwide concerning child mortality, and also to get accurate background information. Finding reliable statistics has been somewhat problematic since the figures differ from different organizations and bureaus. The statistics used in this thesis are the ones that seem to be most accurate after comparing with several sources.

In the collection of data, focus has been on identifying reasons for infant and under-five mortality through interviews and statistics from the local hospital. Initially the idea was to focus only on infant mortality, but after some consideration the focus was changed to under-five child mortality which

included newborns, infants and children up to the age five. This decision was made since infant and under-five mortality is closely related, since what affects the infants also affect the five-year olds to a high degree. In the initial state of the study only rural areas were to be examined, but there were some difficulties regarding how to define a “rural” village. During the field study the focus changed to involve both urban and rural areas.

2.2 The interviews
The interviews were semi-structured meaning that questionnaires were used, but also improvised questions were asked and spontaneous discussions took place. The interviews were between 20-60 minutes long. Initially, group interviews with mothers were supposed to be made, but it was difficult to gather these individuals since they were too busy in their daily life. However, it was shown early in the field study that individual interviews was preferable. The interviews became personal and the informants often spoke about their family life and personal matters. When addressing sensitive issues concerning health it is important not to ask questions which may intrude on the informant’s personal sphere. It was difficult to know which questions were too personal when putting the questions together before the field study, but early in the field study my understanding for this became better. After the first interviews the questionnaire was modified to not be too forthcoming regarding sensitive matters, but also to better fit the purpose of the study.

A field assistant assisted during the field study, he was from the district and knew the surroundings well. The field assistant had the role as the interpreter in five of the interviews where the local language Swahili was translated into English; meanwhile the other four interviews were conducted in English. The assistant helped out in one of the four interviews in English when the respondent’s language skill was not adequate enough to conduct the whole interview in English. One respondent spoke English fluent; but there were some misunderstandings in the other two interviews accomplished in English. When this happened, the questions had to be asked in several different ways before the respondent gave a satisfying answer. This happened particularly in one interview, where the respondent thought she answered the question, but misunderstood the question and answered something else. Maybe the questions asked were too difficult or imprecise, or maybe the person was not familiar with the terminology used. Some information may got lost during the interviews conducted in English due to this, as well as when interpreter was used. When addressing sensitive subjects regarding female health (such as female gender mutilation) a female field assistant was assisting during the interviews. In the other interviews a male assistant help to interpret. When conducting interviews in another country and culture it is important to bear in mind that me as a western women might affect the outcome of the interviews.
The respondents who were subjected for interviews were aware of the fact that no financial compensation could be given afterwards. Nevertheless, the informants claimed compensation at arrival. A conflict arose, and the field assistant tried to convince the respondents or village elder that no compensation was offered, since the material is to be used in research. In total six interviews were cancelled with mothers and traditional midwives in rural areas due to this reason. When people with official positions were interviewed this question never came up, and maybe it was because the interviews were conducted during their working hours.

2.3 The informants
The interviews were accomplished in Babati town, Dareda and in surrounding villages. The informants consisted of three nurses, three mothers, two professional midwives and one traditional midwife. A field assistant facilitated the process of finding the informants relevant for the study.

These persons interviewed were chosen because of their knowledge of child health issues in the district. By interviewing both midwives and nurses working at the pediatric ward, a comprehensive picture could be made regarding both infant and child under-five mortality. Initially, only midwives were considered as relevant for the study, but the field of work became too narrow. They knew a lot about maternal, neonatal and infant health but not so much about issues concerning older children. Consequently other informants had to be added, in order to complete the study. Therefore also nurses were interviewed, which gave a broader picture of child mortality in ages above one year. Mothers were interviewed in order to get a brief understanding of the health care situation in the area, and how they perceive the local health care arrangements. The mothers’ interviewed were middle class and upper middle class. This definition may be used in a too broad definition, but is only used to bring up the fact that there were differences in the livelihoods of the women, whereas affecting the empirical results.

In Dareda and Babati town interviews was conducted with nurses and midwives at the local hospitals. Both the nurses and midwives interviewed have long experience in the health profession. By visiting two hospitals the reliability of the data was strengthen. In one village an interview was made with a nurse on the local health clinic, which also functioned as a mobile health clinic.
3. Theory

3.1 Introduction of the theoretical framework
The theoretical framework used in the thesis was identified before and during the field study. I had previous knowledge regarding the demographic transition and think it is a fascinating theory and was eager to apply it in a context. The understanding of the theory already existed, and it was easy to apply it to case study. It is interesting because it might predict the demographic future for Tanzania, since the theory has proven accurate in many countries population developments. A limitation had to be made when using this theory, since a lot is written in the subject and different scholars seem to put focus on different parts of the theory.

The epidemiological transition was also considered as useful before the field study and was chosen because the theory can give a further clarification of how the demographic transition takes place. The epidemiological transition discusses infectious diseases and its impacts on children and women in the reproductive age. The theory explains a move from infectious diseases (in developing countries) to man-made diseases (in developed countries). By using these two theories together a comprehensive analysis can be made regarding the future demographic change in Tanzania. There is also a link seen between the epidemiological transition and the empirical data collected during the field study, whereas the theory can help to elucidate the empirical results.

The third theory used is based upon the concept seasonality. The interest for this concept was developed during the field study, when many of the respondents mentioned that there was a difference regarding common child diseases during the dry and rain season. The main article used is written by professor Robert Chambers, a scholar who have done impressive work regarding the situation in developing countries and issues related to poverty. This theoretical framework was used in order to strengthen the result from the empirical data, whereas they seem to coincide.

3.2 The demographic transition
This theoretic framework has its ground in the demography research field. The main idea of the theory is that socio-economic development goes hand in hand with decreased mortality and fertility. The first phase of the transition describes a pre-transitional society, when a country has high fertility- and mortality rates. Societies in this phase are characterized by a young and mainly rural population, agricultural economy, low gender equality, and weak democracy, i.e. a typical pre-industrial society. After industrialization has taken place, improvements are made in the society and the economy is growing. Socio-economic improvements are made in welfare, health care and the overall

living conditions gradually become better. When this occur the demographic transition enter phase two. The overall death rate and child- and infant mortality decreases.

In this phase the fertility rates are at the same high level as in phrase one, but mortality has decreased remarkably. When this occurs there is a risk for the so called demographic trap- the population increases rapidly and the country’s resources are under heavy pressure which might lead to environmental degradation. The outcome is an unsustainable development which leads to a large population with scarce resources to live off. The time for this period varies- some countries go through it in a few decades, others are stuck in it for centuries, depending on the overall socio-economic situation in the country. In phase number three the country has a full scale industry. More improvements are seen such as female empowerment, better access to contraceptives, better educational- and health systems and less unemployment. As a result the fertility rate also becomes lower, and there is a further decrease in mortality and eventually the rates get balanced. It is seen that an increase in the per capita income has a positive effect on fertility decline. Better living conditions seem to stipulate families to have fewer children. A temporary population growth is seen, fewer children are born and the population grows older. The main characteristic to enter the demographic transition is decreased mortality which is commonly followed by decreased fertility.

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22 Ibid.
Decreased fertility can be a result of many different factors, but fertility is very seldom reduced without a decline in the mortality rate.\textsuperscript{24}

\textbf{Fig. 2}

<table>
<thead>
<tr>
<th>Tanzania: Demographics</th>
<th>1970</th>
<th>1990</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crude death rate (annual deaths per 1,000 population)</td>
<td>18</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Crude birth rate (annual births per 1,000 population)</td>
<td>48</td>
<td>44</td>
<td>41</td>
</tr>
<tr>
<td>Life expectancy at birth</td>
<td>47</td>
<td>51</td>
<td>57</td>
</tr>
</tbody>
</table>

Source: UNICEF, Tanzania statistics

In the case of Tanzania, the deaths rate has decreased continuously during the past decades and is today the same as for high-income country such as Sweden.\textsuperscript{25} There has been a modest decrease in fertility in Tanzania the last few years, yet the fertility remains at high levels as seen in the graph below.\textsuperscript{26} In 2010 every women gave birth to 5.4 children and there is vast differences between rural and urban areas, where women in rural areas has almost twice the amount of children than their urban counterparts.\textsuperscript{27}

The high fertility in Sub-Saharan Africa may also be connected to cultural norms, and in many African societies’ high fertility and large families is rewarding both socially and economically.\textsuperscript{28} In high income societies a large family is associated with an economic burden, in contrast to many African societies where a large family is seen as a life insurance and a social security. Traditionally, childlessness is considered something very negative in African societies and less than six children is often seen as insufficient. A study in Nigeria focusing on perceptions on families with less than six live births showed that the families’ relatives condemned them for not being foreseeing enough (since no one could take care of them when they become elderly).\textsuperscript{29} Traditionally female sexual abstinence has been seen as the only mean of fertility control (especially by men).\textsuperscript{30}

However, women’s educations have a positive effect in keeping fertility down. Women in Tanzania

\textsuperscript{24} Dyson, 2010, p. 119.  
\textsuperscript{29} Ibid.  
\textsuperscript{30} Ibid.
with no education give birth to 7.0 children, meanwhile women with secondary or higher education gives birth to 3.0 children.\textsuperscript{31} As development proceeds throughout the transition, it will eventually lead to better conditions for female education, and empowerment.

\textbf{3.3 The epidemiological transition}

This theory is inspired by the previous one, but explains more thoroughly the reasons for and consequences of decreased mortality and fertility, by focusing on disease patterns. The theory consists of four propositions characterizing the epidemiological transition explaining the different stages throughout the transition. Three different models of the transition will be described, with specific characteristics for high- and low income countries.

Proposition one starts as early as in 1650, when mortality rates decreased around the world. Before there had barely been any increase in the population, due to causes as famine, war and epidemics. The life expectancy at birth was fairly low and the populations were young. Even if the fertility was at its highest levels; the population would not be bigger anyway since the natural cause of death was so severe. Even in years with advantageous possibilities such as good harvest, the mortality was high. The population growth before 1650 was slow due to high mortality, but after 1650 a new area started and the population grew in a gradually, whereas before the pattern had a cycle where the population grew but at any major crisis it reduced.

In the eighteen century a sustained population growth was seen and also the decreasing mortality became more constant. The stabilized population was due to more seldom and less drastic peaks in mortality. This is as well seen in the demographic transition mentioned earlier, whereas the mortality first decreases and then after a while a decline in fertility is seen- and then the population growth stabilizes. Developing countries is moving slower through the transition, but many of these countries have seen a stabile increase in mortality since the middle of twentieth century. There can also be a hidden momentum in the demographical data reveling increased death tolls at a specific time. An example of this is when foot binding was popular in China and many girls died because of blood-poisoning as a consequence.\textsuperscript{32}

Proposition number two describes a change in the disease patterns when a country moves through the transition. Diseases seen in pre-modern or developing societies are often pandemic and infectious diseases. When the society has outwitted those diseases (which often are easily prevented if the means for this is accessible), chronic lifestyle deceases are seen instead. Omran describes three stages

\textsuperscript{31} Tanzania National Bureau of Statistics and ICF Macro, 2011, p.57.
\textsuperscript{32} Thorborg, Marina, Lecture, Global development A, Södertörn University Collage, 8 December 2009.
of the epidemiological transition starting with *The Age of Pestilence and Famine*.\textsuperscript{33} This phase is characterized by shifting trends in high mortality thus keeping the population low, and the life expectancy is low (20-40 years). A vast majority of all deaths is caused by infectious diseases (such as diarrhea and tuberculosis), malnutrition and complications during pregnancy and/or childbirth. During this age there is very little frequency of cancer and cardiovascular diseases, which are common in developed countries. The second stage is *The Age of Receding Pandemics*, \textsuperscript{34} where the epidemic peaks becomes rare and life expectancy is increased (to 30-50 years). Population growth now becomes stabilized. In the third stage, *The Age of Degenerative and Man-Made Diseases*, \textsuperscript{35} mortality declines further and the mortality reaches a low level, and stays there. Now life expectancy exceeds 50 years and fertility becomes important for population growth. It is seen that disease patterns changes a lot when the life expectancy increases and a move is made from infectious diseases towards man-made diseases. Aspects contributing to this are eco-biologic and socioeconomic factors. Eco biological hazards may be difficult to detect, and its effects might be noticed a long time afterwards. Improved standard of living, better hygiene solutions, improved knowledge regarding nutrition (and access to nutritious food) contributes to a shift. Also political efforts are important, to improve public health care and implement preventive measures. The evolution of medicinal science and public health systems is of bigger importance today than it was in the early transitions seen in high income countries, were socioeconomic reforms were the starting point for a change in the disease pattern. New medicinal technology is more important for developing countries today, where science is transferred from the high income countries which have had a great influence on the decreased mortality rates in developing countries.\textsuperscript{36}

Proposition three states that the most significant changes in diseases patterns are seen amongst children and young women. When pandemics and infectious diseases become less frequent, this group is the one who benefits the most, since children and women in their reproductive age are more affected by these diseases.\textsuperscript{37} Child survival is improved as a result of better housing and living conditions. As Omran describes:

*Although all age groups benefit from the shift in disease patterns and the increase in life expectancy, the decline in childhood mortality is demonstrably the greatest, especially in the one to four year age group.*\textsuperscript{38}

\begin{flushleft}
\textsuperscript{34} Omran, p.737-742.
\textsuperscript{35} Ibid.
\textsuperscript{36} Ibid.
\textsuperscript{37} Ibid.
\textsuperscript{38} Ibid.
\end{flushleft}
Girls has a less risk of dying than boys before their reproductive age, but after this age their probability of dying increases in countries which has low life expectancy. If the woman survives during her reproductive age, her life will be longer than men’s if the overall life expectancy in the country has reached above 50 years. During this phase the mortality ratio between men and women amongst the young population evens out when there is a move towards man-made diseases, but the distribution is still uneven in the older population.

Proposition four suggests that when women in reproductive ages gain from the decrease in mortality, their fertility is enhanced. The fertility rises in an early stage of the transition, since increased likelihood for women’s survival in their reproductive age occurs earlier than increased survival amongst infants and children. There is a contradiction, since over time this ends up in lower fertility rates. When infant and child survival is drastically improved the birth intervals amongst mothers are lengthen, and the fertility rate goes down. A birth interval of two years or more is advantageous and the chances for the child to survive increases.

Omran describes three different models for the epidemiological transition. The first one, *The classical (Western) Model of Epidemiologic Transition*, describes a typical western country, European to be specific. The mortality rates drops after socioeconomic improvements in the society, such as the sanitary revolution. The infectious diseases retracted in the 1920-1930’s. The second model is *The accelerated Epidemiologic Transition model*, where a country goes through the transition mentioned above, but in a much faster pace. This happened to Japan, which moved through the transition in just a few decades in the postwar period, but for the developing countries today it often takes a longer time. In the case of Japan, they legalized abortion early which played a crucial part in the fast movement throughout the transition. The third model represented by Omran is *The contemparay (or Delayed) Epidemiologic Transition model* which is seen in many developing countries today. The mortality has begun to decrease within these countries, but there has been no substantial change in mortality rates since the post-World War II period. International health programs have resulted in a population growth, never seen within these countries before. This has manipulated mortality decrease, and has not been followed by a natural fertility decrease as in countries without any major international efforts. The countries following this model have a common characteristic; they had all been subjected to “population control” programs. Some improvements are

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39Ibid.  
40Omran, 2005. P.749  
43 Ibid.  
44 Ibid.  
45 Ibid.
seen in mortality amongst children and women, but still the levels are quite high and women in the reproductive age have higher risk of dying than men in the same age. Countries following this model are seen in Asia, Latin America and Africa, even though every country has its very own specific conditions.

3.4 Seasonality
This theory is grounded in the work of Robert Chambers. The theoretical framework is based upon the concept of seasonality; the socio-economic impacts of the wet and dry seasons in sub-tropical countries, where the seasons have great impact on peoples livelihood’s, especially for those in rural areas. Food is cheapest and most available after the harvest season, which in northern Tanzania is from May until June/July. The wet season has two phases in northern Tanzania, i.e. the short and the long rains. The short rains are in October to December, and are followed by the heavier long rains which start in March and lasts until May. Chamber does not make any distinction between these two periods; instead he uses the broader definition “the wet season” and refers to sub-tropical climates in general.

During the wet seasons food supplies are down at its lowest and therefore the food often has inferior quality, is expensive and least varied. When the intake of food is less frequent and the food is less nutritious, the immune defense is weakened and a higher frequency of infectious diseases is seen as a consequence. Malnutrition and morbidity is more frequent during the wet season, and these circumstances often affect the poorest people, in particular women and children. The death rates in tropical countries often peak during or after the wet season. Malaria, diarrheal diseases, skin diseases and fungal infections are more common in the wet season, whereas just diarrheal diseases are

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frequent throughout the year. Infant mortality increases during the wet season and the reasons why are many. The women, especially the poorest ones, work harder during the wet season which may result in less time for nursing the baby, but also less time to look after her own health. If the mother works hard and at the same time has insufficient food intake, her breastfeed will be poorer quality, thus affecting the baby’s health. When the mother has less time to devote to the family, the children becomes suffering. The sanitary conditions may be worsened; since she has less time to clean and look after the household. The food may get less nutritious with many factors contributing; the food supply is low, the access to fresh vegetables are scarce, the climate is unfavorable for stocking food supplies (dog days) and she might only cook once a day, leaving the food on the stove getting less nutritious throughout the day. The smaller children are often also left at home, leaving the older siblings in charge. Rural agricultural populations have a higher prevalence of sickness during the wet season.

In such case, generally, costs to society and to families of incapacity through sickness will be higher wherever there is a labour deficit at times of seasonal demand, so often precisely when vulnerability to sickness is greatest.

The rural population is often the poorest and sickness is affecting them the most. They have smaller economic margin for unexpected expenses such as hospital visits, medicines and the loss of workforce whenever someone in the family is sick. This could end up in that the family sometimes has to sell important investments used in farming to be able to cover the costs for the sickness. In the wet season when the work burden is heavier; there is a higher risk for getting sick. This becomes a vicious circle.

50 Ibid.
51 Ibid.
52 Chambers, 1982, p.224.
53 Ibid.
4. CHILDREN’S HEALTH IN BABATI DISTRICT

4.1 Healthcare in Babati district
Babati district has two major health centers. The first one is Mrara hospital located in Babati town and the second one is Dareda hospital which is located approximately 20 minutes by car from Babati town. Together these two hospitals cover nine administrative areas located in the district, which is habituated by approximately 300,000 people. There is also a new-built hospital close to Babati town (Manyara regional hospital) which is not operating at the moment. This will be specialist hospital, and patients need a letter of referral to be able to get treatment there. At the moment there is a problem to recruit staff to the hospital.

In Tanzania medicine and doctor’s appointments are free to children under five; still many children die due to diseases treatable if adequate health practices and medicines are available. In the two hospitals visited there is a problem with medicine accessibility. It is common that the parents must buy complimentary drugs to their children after the doctor’s appointment. Sometimes they only have the most basic drugs available in the hospitals, such as pain relievers containing paracetamol. There are many pharmacies in Babati town were most common drugs are available, e.g. anti-malarial medicine, pain relievers and antibiotics but the problem is that this is only available for families who can afford it. Babati district is in general a relatively wealthy area, but the problem exists. An issue regarding the health institutions is that there is a lack of personnel and as a consequence the waiting time for consulting is usually long. Often there is also a lack of medical equipment, and if available the equipment at the clinics is often old-fashioned.

4.2 Under-five child mortality in Babati district
Amongst the informants working at health clinics/hospitals there was unanimity according the main death causes for children under-five deaths. The main reasons are pneumonia, malaria and diarrheal diseases. According to figures from Dareda Hospital pneumonia is the most prevalent death cause throughout the year. However, the informants mentioned malaria as the major disease causing child sickness and death. Some informants only mentioned fever first, but responded positive on the question if malaria probably was the cause of the fever.

55 Interview nurse 1.
56 Interview nurse 2.
57 Interview mother 3.
58 According to all the nurses and professional midwives interviewed.
59 Statistics Dareda hospital
60 Interview nurse 1 and 3.
Fig. 5

<table>
<thead>
<tr>
<th>Most frequent death causes amongst children under five</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008</strong></td>
</tr>
<tr>
<td>Pneumonia</td>
</tr>
<tr>
<td>Diarrheal non-bacterial</td>
</tr>
<tr>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Severe protein malnutrition</td>
</tr>
</tbody>
</table>

*Deaths cause ranked 1-4 with most frequent one on the top. Source: Statistics from Dareda hospital, Tanzania.*

In order for pregnant women with malaria to stay healthy during pregnancy they are given two doses of anti-malarial medicine at the hospital during pregnancy.\(^{61}\) There was a difference regarding how many times the medicine was taken amongst the mothers. The mother who had a better economic situation had taken the medicine three times while the other mothers had received one injection.

Pneumonia can be a side effect of malaria and both diseases has a higher prevalence during the wet season. The risk of getting pneumonia is then higher as an outcome of colder weather.\(^{62}\) The data used in figure 6 from Dareda hospital could be deceptive when representing Babati district, since Dareda and its adjacent surroundings is located at higher latitude then the rest of Babati district. The higher latitude leads to colder weather which could be the reason why there is such a high prevalence of pneumonia amongst the remitted patients. In the dry season diarrheal diseases are more evident than malaria, caused by contaminated water and food.\(^{63}\) Overall, there are more patients visiting the hospitals during the wet season.\(^{64}\) As well as the above mentioned, Acute Respiratory Infection (ARI) is a common diagnosis for children under five.\(^{65}\) It was the second most common diagnosis in 2011 amongst children under-five admitted at Dareda hospital. One informant mentioned ARI as cause for infant death. However, it is seldom described as a direct cause for child mortality, but may be connected to pneumonia since both diseases affect the lungs.

HIV was also mentioned when speaking about malaria, since untreated HIV weakens the immune

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\(^{61}\) Interview midwife 1.  
\(^{62}\) Interview nurse 3.  
\(^{63}\) Interview nurse 2.  
\(^{64}\) Interview nurse 3.  
\(^{65}\) Statistics, Dareda hospital.
system and can make the effects of malaria even worse. HIV/AIDS is also an underlying factor causing child mortality. When HIV-positive women give birth their babies are often smaller, weaker and are more vulnerable for infections. If there is obstructed labour during delivery, the risk for the baby to get HIV is higher. HIV positive mothers are transferred to the HIV Care and Treatment Clinics (CTC), where they undergo treatment to decrease the risk for transferring HIV to their baby. Children with HIV positive parents may also be affected by the parents’ incapacity during periods of sickness, when they might have a loss of income or not the strength to look after their children.

### 4.3 The child’s first year

The factors causing infant and child mortality is similar, but newborns and infants are more likely to get infections due to their sensitivity. Asphyxia and jaundice was also mentioned as reason causing newborn death and illness. Asphyxia may occur during delivery, if the baby gets the navel string around the neck. Jaundice is a liver disease which can be caused by hepatitis.

Sepsinia (bacterial infection in the blood) was mentioned as a high risk factor for infants if the baby is delivered at home, where the surroundings and towels/rags used are non-sterile. Traditional midwife practices do not use medical supplies, medicines and natural medicines when helping mothers to deliver. Traditional midwives is common in Tanzania and many villages has one or two women with this knowledge. Women visit them if they think that they are pregnant, whereas the traditional midwife examines the women in order to decide how far the woman is in her pregnancy. However, during the pregnancy the women usually visit the hospitals for checkup and health control, rather than the traditional midwife. In the villages the traditional midwives assist women to deliver if they do not have time to get to the hospital.

According to the professional midwives there is a big risk for traditional midwives to get HIV when helping HIV positive mothers to deliver. If gloves are not used during the delivery, the virus can be transferred via blood and mucus through wounds. For the wellbeing of everybody involved the use of gloves and the importance of clean surroundings are vital. The traditional midwives are needed in Babati, since they fill up a gap that conventional health services cannot cover at the moment. The traditional midwives are not allowed to help with the delivering unless it is an emergency situation,

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66 Interview nurse 3.
67 Ibid.
68 Interview midwife 1.
69 Interview midwife 2.
70 Interview traditional midwife.
71 Referring to the villages visited.
72 Interview traditional midwife.
73 Interview mother 2.
74 Interview nurse 3.
but some women want to give birth in their home village rather than at the health clinic. There are many different factors which can explain this. The maternity ward at Mrara hospital situated in Babati town has 15 beds and 2 midwives working. The waiting hours are long, but the women might get treated faster if she has contacts at the ward according to one of the respondents. To deliver at the hospital is free of charge.

All of the mothers interviewed had visited the hospital regularly during their pregnancies, and after delivering they went back to vaccinate their children. The vaccinations were amongst other things against typhus, polio, tetanus and also vitamin A supplementation was given.

Another difficulty regarding delivering and acute illness is the transport to the hospitals. Wealthier families have the possibility to call a taxi when they need to get to the hospital immediately for delivering or get treatment for their sick child. If the family cannot afford this the situation is far more problematic. There is only one ambulance in Babati district, and according to the informants bribes are sometimes required to be able to use it. Another problem is that there is limited access to good roads. The main road has tarmac, but the other roads are of poor quality, very bumpy and take a long time to traffic. When there is heavy rains the roads are even worse, and sometimes inaccessible due to flooding and loose mud. The rural clinic visited did not have any transport for patients with acute diseases. At day time they could get help to arrange a transport from someone living in or close to the village, but at nighttime it was far more difficult to find a transport. Mostly people living in rural areas far from any city centre are affected by this problematic situation and therefore traditional midwifes are consulted by the rural population.

4.4 Underlying factors contributing to child-mortality
The rural populations are often farmers and have an uneven income throughout the year. In the beginning of the year, from January till March, some farmers lack of food since they are waiting for the harvest. This may result in undernutrition amongst babies and children, which is common and makes them more vulnerable for infections. As well, if the mother does not eat sufficient food, she cannot produce enough nutritious milk to breastfeed the baby. Undernutrition and malnutrition can also be connected to alcoholism and other problems in the family. The lower level of rural parent’s education was also emphasized as a reason for higher child mortality in rural areas. Primary education is not regarded as sufficient educational level.

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75 Interview traditional midwife.
76 Interview mothers 1 and 2.
77 Interview midwife 1.
78 Interview mother 2 and 3.
79 Interview nurse 3.
80 Interview midwife 1.
When asking if any improvements in the health care system of Babati is needed, there were many suggestions amongst the informants. More governmental funds are needed in order to buy modern hospital equipment, hire more staff and keep a sufficient medicine supply at the hospitals. The need of more staff was emphasized, but it is difficult to find competent personnel as is the case regarding the new built Manyara Regional Hospital. In one village there was an urgent need for transport, to be able to take women with acute labor issues and children with severe illness to the hospital. Also electricity was needed at the clinic, now they used a kettle heated up above charcoal for sterilizing the tools which is both complicated and time-consuming. There was also a wish for an operation room at the ward, where less complicated operations can be done. Now they had to remit patients to the hospital situated in Babati town for simple operations, even though they have the competence to perform it themselves. 

4.5 Education and female heath

Other problems affecting children’s health were noticed during the field study. These issues may not play a crucial role regarding child mortality but are still important to highlight. In Tanzania there is a tradition of circumcising women, also referred to as Female Genital Mutilation (FGM). Parts of the female genitals are removed, often with a razorblade, and in some extreme cases the vagina is also stitched together. This practice is banned by law in Tanzania but is affecting many girls and women. In Tanzania, the frequency of FGM is the highest in the Manyara region where Babati is located. The most common method used is cutting and removal of flesh. The age of the girls subjected to FGM varies, but often they are under five years of age. When women who have been subjected to FGM are about to give birth there is higher risks for both mother and baby. The tissue is not flexible enough to handle a delivery and midwifes has to cut the tissue open or use a tool called episoto to widen the vagina. There are many complications connected to FGM during the delivery, like heavy bleeding and prolonged labor which could be followed by death and midwifes were very troubled by the current situation.

The parent’s educational level was also emphasized as a reason for higher child mortality in rural areas. If the parents have higher education, the child has better chances to survive. Primary education is not regarded as sufficient, and both parents should attend the general health care education

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81 Interview nurse 1.
83 Ibid.
84 Interviews midwifes 1 and 2.
85 Ibid.
Not only education in school is important, but also education as family planning. One hospital and the clinic visited offered family planning. It consists of lectures regarding contraceptives and sexual transferred diseases such as HIV, often with an emphasis on the use of condom. Both hospitals undertook health care education for families with children, where they also learn about nutrition for children and disease prevention as for malaria. If the health staff noticed that the parents sought care for their children with the same diagnosis several times, the families were suggested to attend the health care education. The fathers seldom appeared and there was a frustration amongst the nurses regarding this matter, since the fathers’ lack of knowledge was apparent. Two of the mothers had been to family planning several times at Mrara hospital, which was their own initiative. The wealthier mother had not, but she went to life skill education at school which she thought was sufficient enough.
5. Analysis

All countries have left the earliest phase in the demographic transition today, but few developing countries have successfully gone through the demographic transition fully. Sub-Saharan Africa was the last region in the world to enter the demographic transition.\(^9^0\)

Tanzania is one of the fastest developing countries in this region; living conditions is getting better and the economic situation is stabilizing both at national and household level. If compared to surrounding countries such as Rwanda and the Democratic Republic of Congo, it is clearly seen that Tanzania has made impressive progress in its development. However, when comparing Tanzania to any high-income country major differences can be seen.

The crude death rate (as seen in figure 2) has decreased steadily the past 40 years, but the fertility rates have not changed much. This indicates that Tanzania is in step two of the demographic transition, which is characterized by a declining death rate and constantly high fertility rates, which could be a disadvantage for the development since a big population combined with high fertility levels, may cause a high pressure on resources within the country. High fertility rates can be connected to many underlying reasons, as described earlier, and therefore it is difficult to point out the exact reasons causing fertility rates to still be at a high level. According to the demographic transition theory, further development in Tanzania such as improvements in healthcare and infrastructure will lead to a decrease in the fertility rates. Especially better educational system and empowerment for women are needed. There is also another dimension; cultural norms and living conditions have an influence on high mortality. To have many children may function as a social security system mainly for the poor, rural population. In families who have agriculture as their primary source of income, work force within the family can make a major difference, since employing workers might be costly.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1967</td>
<td>12.3</td>
</tr>
<tr>
<td>1978</td>
<td>17.5</td>
</tr>
<tr>
<td>1988</td>
<td>23.1</td>
</tr>
<tr>
<td>2002</td>
<td>34.4</td>
</tr>
<tr>
<td>2010</td>
<td>44.8</td>
</tr>
</tbody>
</table>


Tanzania’s population has increased a lot the past decades (as seen in the figure 5), which indicates a move in the demographic transition. If it would be a considerable drop in the fertility rates, Tanzania would have the chance to enter the last phase in the transition. This will stabilize the population rates

\(^9^0\) Ewbank & Gribble, 1993.
over time, giving Tanzania a slightly decrease in the population which could be good in the context of Tanzania’s further development. After all, Tanzania has good chances in follow through the transition, but further socioeconomic development is needed.

Japan is one of the highly developed countries today which have moved extraordinary fast towards a developed society after Second World War, even though they were defeated and suffered great amount of economic and societal damage. In the case of Japan, the population has increased over the years, but with a slower pace the last past decades. The demographic transition claims that the population growth will need a decrease to be able to make a move towards a developed society with a stable and healthy population, but what if it would be possible for Tanzania to maintain its large population and still be successful? Major investments in the educational area could be one solution. If the Tanzanian people would have better possibilities and resources to attend higher education, this would create a well needed workforce which in turn would provide Tanzania with good tools for future development. Japan had a well-functioning educational system even before Second World War, which made it easy for Japan to re-build the nation quick after the defeat. This shows that an educated population is valuable, because the country will have a foundation to build on after times in crisis and epidemics. Also the expertise will be within the country, with no need to get help from “professionals” from developed, western countries when creating infrastructure and similar projects.

Infectious diseases are common in Tanzania and a vast problem for the overall health situation in the country. As the epidemiological transition points out, infectious diseases are most prevalent in developing countries and will start to disappear as the living conditions improve. One could say that Tanzania is somewhere between The Age of Pestilence and Famine\(^91\) and The Age of Receding Pandemics\(^92\), since death causes related to complications during the maternal period and infections are still highly prevalent. Despite this, the life expectancy at birth has increased steadily the last past decades and is now above 50 years, probably reaching 60 in a near future (as seen in figure 2). According to Omran cancer and cardiovascular diseases were seldom seen during the first stage. A critique to the theory can be that these diseases often affect an ageing population; since the life expectancy was so low maybe these kinds of diseases did not have time to appear in developing countries. According to Omran, it is advantageous if the intervals between childbirths are more than 2 years. Half of the births in sequence in Tanzania are within three years from the latest birth and 16% of women give birth with intervals less than two years.\(^93\) Even though three years are better than two,

\(^{91}\) Omran, 2005, p.737.
\(^{92}\) Omran, 2005, p.737.
it is still a close interval and it would be preferable with longer birth intervals, which could result in healthier children. The families would also have a better economical situation, since they have time to save money between the childbirths. As the children grow older, they become less sensitive for infections, and if the birth intervals are longer there is a smaller chance that the children will be ill at the same time, making it easier for the parent/parents to nurse them individually, providing better care. This is especially important during the wet season since when there is lack of food, malaria is also peaking. This makes the situation even more difficult for families to support themselves; as a result the children do not get enough nutritious food and/or the medicines needed. This can be connected to the seasonality theory, which indicates that there are vast differences throughout the year.

The empirical data gathered showed that pneumonia and malaria is mentioned as the two major diseases causing child mortality. In the statistical findings pneumonia is a more apparent death cause. Chamber does not mention pneumonia in his article, merely the increased diagnoses and deaths caused by malaria. Even though pneumonia is a common diagnosis, few of the respondents could say what caused pneumonia. Two of the respondents who were health personnel said that cold weather was the main reason and that pneumonia was more common during the wet season. One respondent said that malaria can advance into pneumonia, whereas a connection can be seen between the both diagnoses, since malaria also is more frequent during the wet season. ARI can also be taken into consideration. As mention earlier ARI is not a death cause for children under five. Since pneumonia is the most frequent death cause for children under-five it is a possibility that there is a connection between ARI and pneumonia, since both diseases affect the lungs. ARI can be a result of the use of indoor stoves heated with firewood, which generates toxic smoke which in the long run can cause ARI if often exposed.

The informants said diarrheal diseases are more common in the dry season, whereas Chambers writes that they are often more frequent during the wet season. In Babati this specific detail might differ from Chambers theory. In general diarrheal diseases are often increased during wet season, since the water recourses are often flooded and bacteria are easily spread in the water, but in Babati there might be a problem with the water wells in the dry season as well. Even though the informants said that diarrheal diseases are more common in the dry seasons, does not exclude that children suffer from these diseases during the wet season as well, just that malaria and pneumonia is more common. One reason causing the high prevalence of diarrheal diseases in the dry season could be water stress, meaning that the water resources are exploited heavy during the dry season, leading to lack in the quality of the water and emptying the recourses. In order to investigate this further, a better understanding regarding the water recourses of Babati has to be made.
Furthermore, the seasonality theory discusses the higher prevalence of child sickness during the wet season, which is connected to the mother’s lack of health and absence from the household during periods of hard labor. A weakness in the theory is that it does not bring up the husband’s role in these circumstances. In Chambers’ article, the women are seen as the only caretakers for the children. In many families this might be the truth, but still the absence of the husband needs to be discussed. What is his contribution to the household or if he is absent, what is the reason for that? Chambers’ article should incorporate a gender perspective when discussing the role of the hard working mother mentioned in the article. In the other hand, it may be seen as a statement from Chambers’ side not to discuss the husband’s role at all- presuming that the husband does not contribute to the child care and household chores. The outcome might be different if the husband’s role were to be taken into consideration. If the husband would take some of the responsibilities regarding childcare and the household, the woman’s burden would decrease and thereby be positive for the children.

It was noticed during the study that if the mother/parent has a good economy combined with an extensive social network can provide better care for their children. The mother who had a better economic situation received the anti-malarial medicine given during pregnancy three times while the other mothers had received one injection. The two mothers said that they had received one injection during all of their pregnancies. The wealthy mother said she that she was treated well at the hospital since she knew people. There is a possibility that she got the extra anti-malarial injection since she had good contacts at the hospital. The two mothers who were not as wealthy had only taken the anti-malarial medicine once and though it was adequate, whereas the nurses claimed that if the medicine is taken only once, the effect is not as sufficient as when fulfilling the treatment with the second dose. Here it is a clear district in the apprehension regarding how many times the anti-malarial medicine should be taken, divided after income. The interesting fact is that the wealthy mother was given the medicine one extra time, even though there is no health benefits from this according to the health staff. This indicates that there is some difference in the treatment of the patients, depending on if the patient has contacts at the hospital. The mother who had good contacts also said that she had meet many of the nurses/midwifes at her work, so they were acquaintances. The study would need more interviews with mothers with different social statuses’ to prove that this hypothesis correspond with the reality.
6. DISCUSSION

An important matter for Tanzania’s future, both for the country itself and the children within it; is the importance of education. When education is mentioned in this case, it is higher education after primary which is needed. The parent’s education was mentioned during the field study as a factor for having healthier children, but was not viewed as the major factor contributing to improve children’s health.

Even in a high income country like Sweden the educational level of the parents’ is a factor for more healthy and successful children. It may be difficult to see education as a direct factor contributing to healthier children, since the positive results of education is seen over a long time period. Healthier children born with longer birth intervals could be the reality in 20 years’ if the children, and in particular girls, is well educated today. Education for women must be more emphasized when talking about children’s health, but also when addressing development in general, since education is one of the key factors to reach a sustainable development. In this particular case education could encourage women to have their first baby at an older age and also longer birth intervals. Having children at an early age will prevent them from attending upper-level education, since seldom women educate after having children. Since the birth intervals are short, they will be occupied in childbearing for the years to come.

Empowerment of women may also have a significant role in decreasing child mortality. Empowerment would amongst other things play apart in the unofficial abolishing of FGM, because even if it is prohibited by law, it is still practiced in a high degree. If women in Tanzania would have more influence, they would have a stronger impact in the abolishment, but many values are deeply funded within the culture. FGM is valued when the daughter is about to get married, and mothers themselves also practice FGM on their daughters, which is an act of good faith because they think their daughters are better off this way.

Better living conditions for all Tanzanians would have great influence on the burden of work, which is more demanding during the wet season. If the overall economic situation would be more advantageous, the families who are self-sufficient framers would have the funding to invest in workers. When having extra workers except the family, the mother’s workload would decrease which would give her more time to nurse her children during these times of sickness. Also, if the economic situation is better this would result in better access to nutritious food during the wet season. An in a larger extent- an active import market would help during these months when food supplies are down.
at its lowest. If the country would have a stronger economy it would be more likely that the import of fresh comestibles would be improved. Imported goods is often more expensive, but if the families would have a better economic situation they could afford this.

After all- all improvements for safeguarding children’s well-being goes hand in hand and functions best together. Some of the factors seen during the field study are difficult to change, e.g. diseases connected to the climate, where we only can try to prevent and limit the consequences (of malaria for instance). The most important changes in Tanzania would be those that are described as underlying factors in this thesis, since they would build an important foundation for the future children of Tanzania. Infrastructure and education are two of those areas that would need more attention from the Tanzanian government, but also from foreign aid programs functioning within the country.

6.1 Further research
For future research it would be interesting to make a study with the focus on the parents’ knowledge regarding preventive measures for common child diseases. It could be rewarding to do a comparative study where the differences between rural and urban areas could be further examined. During the field study some prejudices towards rural people were observed, giving the impression that urban people belittled the rural people. It would be interesting to see what these prejudices are grounded in, and if how they affect the present situation regarding children’s health. It is possible that the situation for children’s’ health is more problematic in rural areas. It would have been preferably to extend the research to more rural areas, to see how the situation might differ there. One may also look into the situation in one of Tanzania’s many cultural tribes to see how the practices regarding children’s health differ between the tribe traditions and conventional practices.
7. **Conclusion**

- **What causes under-five mortality in Babati district?**
  The main reasons for under-five mortality are pneumonia and malaria. They are very much so connected to each other and therefore difficult to separate sometimes, thus both gives high fever. Diarrheal diseases are the third most common death cause, often caused by contaminated food and water. There is a clear distinction in the occurrence in the diseases during wet and dry season. Malaria and pneumonia is more common during the wet season, but diarrheal diseases are the most evident cause of death and illness during the dry season.

- **What underlying factors are contributing to under-five mortality in Babati district?**
  Underlying factors contributing to child-mortality in Babati are under-nutrition, poverty, scarcity of medical equipment and poor governmental investments in the healthcare system. The infrastructure system is insufficient right now and a better coverage with tarmac roads and also better means of transport is needed, in order to get acute sick children and pregnant women about to deliver to the hospitals. Sometimes the sick does not even reach the hospitals- since they cannot get hold of a transport. This affects pregnant women who have to deliver in their village instead with a traditional midwife, which may have implications on the baby’s health.

- **What is required of Babati district to be able to fulfill MDG 4 until 2015?**
  To be able to fulfill the MDG goal until 2015 Babati will need more governmental funds. Improvements have to be made in the health care system, such as more personnel, better medicine supplies and modern equipment. The clinics in the rural areas have to be improved, both the quantity and the quality of the clinics. The access to transports in the rural areas is crucial for the survival of delivering mothers and children with acute illness. The major hospitals need ambulances to be able to save lives in rural areas and the roads need to be improved. Better access to transport and better roads goes hand in hand; one cannot function without the other one.

Babati district have some challenges ahead in order to fulfill MDG 4 until 2015. The underlying obstacles affecting under-five mortality are profound; but not unconquerable. More governmental funding and attention on already existing health services would help Babati to achieve the goal within the predetermined time range. The possibilities for child under-five survival in the district are today depending on seasons and location, since there are differences between rural and urban areas. Hopefully in the future, children in rural areas would have the same chances for survival as their urban counterparts.
8. REFERENCES


Thorborg, Marina, Lecture, Global development A, Södertörn University Collage, 8 December 2012.


Informants

Midwife 1 [2012-02-28]
Midwife 2 [2012-03-07]
Midwife- traditional [2012-02-24]

Mother 1 [2012-02-26]

Mother 2 [2012-02-26]
Six children, one deceased at age four. Middleclass, semi-rural, primary education, sporadic income. Lives in a village.

Mother 3 [2012-03-03]
Two children, upper middleclass, upper level education and permanent job. Lives in an urban area.

Nurse 1- Local health clinic [2012-03-03]
Nurse 2- At a major hospital [2012-03-07]
Nurse 3- At another major hospital [2012-03-07]

Photograph on front page taken by author.