Participatory Approach and Community Empowerment in Safe Motherhood in rural Mangochi, Malawi

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List of acronyms

ADC	Area Development Committee
ANC	Ante-natal Care
BA	Bicycle Ambulance
CBSM	Community-based safe Motherhood
CHAM	Christian Health Association of Malawi
CHD	Community Health Department
COM	College of Medicine
CRH	Centre for Reproductive Health
DA	District Assembly
DC	District Commissioner
DDPS	District Development Planning System
DEC	District Executive Committee
DHMT	District Health Management Team
DHO	District Health Office
FGD	Focus Group Discussion
HC	Health Centre
HSA	Health Surveillance Assistant
MD	Maternal Death
MDHS	Malawi Demographic and Health Survey
MOH	Ministry of Health and Population
PAR	Participatory Action Research
RH	Reproductive Health
SADC	South African Development Countries
SM	Safe Motherhood
SRH	Sexual and Reproductive Health
TA	Traditional Authority (chief of the area)
TBA	Traditional Birth Attendant
TTBA	Trained Traditional Birth Attendants
VDC	Village Development Committee
VHC	Village Health Committee

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PREFACE

This report provides a review of a project funded by Cordaid in The Hague, 'Capacity building in Participatory Action Research in the Community-Based Safe Motherhood (CBSM) in Malawi', a collaboration between the Population Research Centre (PRC) of the University of Groningen and the College of Medicine (CoM), Mangochi campus in Malawi.

The project started in 2008 when Cordaid approached the PRC with a request to contribute expertise on Participatory Action Research (PAR) in health issues in the existing CBSM project of Malawi's College of Medicine. The original project focused on community-based safe motherhood and it was initiated in the mid-1990s by Dr Jan Hofman. Since then, many people have been involved in the overall CBSM project, as illustrated by the list of authors of the three papers included in this report.

After an initial feasibility study in Mangochi in November 2008, the 'capacity building' project was established and it focused on:

- documenting the project, in close collaboration with the coordinator of the project, Mary Kumwanje Sibande
- contributing additional aspects of (qualitative) participatory action research to the project
- identifying 'best practices' and describing them in order to scale up
- contributing to other research activities carried out by CoM in the CBSM project.

This report fulfills the first two objectives, and in turn it provides the basis for the identification of 'best practices' which are described in separate flyers. The documentation of the project is partly based on annual reports as well as on the memories and experiences of the project coordinator who has been with the project throughout the years. We spent many hours together: Mary recounted many of her experiences gathered in the course of the project and I recorded her accounts.

While developing the Participatory Action Research (PAR) approach, we realized that the approach employed in the CBSM project was in fact participatory action from the very beginning. The capacity building project has enhanced the research component. In the first instance, the idea was to develop this research component together with CoM researchers in Blantyre. However, the distance between Blantyre and Mangochi turned out to be too far to achieve effective research collaboration. Instead, we started to focus on research capacity building in Mangochi itself.

In view of limited quantitative indicators for evaluation, the research capacity building project focused primarily on the application of qualitative evaluation methods such as focus group discussions (FDGs) and in-depth interviews, complemented with participant observation. The project coordinator Mary Sibande received training in research methodology and application of qualitative research methods in Groningen. Mary conducted, transcribed and analysed all focus group discussions and in-depth interviews. The findings are included in this report. While reporting her research experiences, it was a revelation to discover that she applied Van Strien's Regulative Research Cycle (1986) without actually knowing it herself.

The project coordinator developed further expertise in applying these methods in close collaboration with students of the PRC, especially with Dyon Hoekstra whose fieldwork and Master's thesis (Hoekstra, December 2011) focus on male involvement in safe motherhood in Mangochi. In addition, a researcher from the Mangochi campus, Olivia Jelenje, has received training and she recently graduated from the PRC with an MSc in Population Studies. Olivia conducted qualitative research on family planning, which is presented in her Master's thesis (Jelenje, December 2011).
Two other students from Groningen, Hanneke Kuipers and Myriam Hemsteede, have visited Mangochi. Hanneke conducted research on the education of girls in the Mangochi area (Kuipers, December 2011), which highlighted the issues of poverty and the basic needs of people in the Mangochi area. Many voiced their concern that 'indeed it is better to send girls to school, but if there is no money, no food, how can girls go to school?' Myriam visited the CBSM project and held many discussions with different stakeholders in the project, while adhering to her own framework on the evaluation of methodologies of participatory approaches. Her report (Hemsteede, December 2011) is a good overview of the advantages and disadvantages of the participatory approach in general and specifically in relation to the present project.

Thus, this report is a description of what has been achieved in the CBSM project: the initiatives carried out with regard to the adapted bicycle ambulances (Chapter 5), the training of TBAs (Chapter 6) and the development of the community-based maternal death audits (Chapter 7).
Moreover, the report identifies the different steps that were taken in the project with respect to the Participatory Action Research approach, as described from Chapters 4 to 7, and summarized and identified as possible 'best practices' of the PAR in Chapter 8. Herein lies the main contribution of this report: how the participatory action approach can be improved and applied elsewhere.

Finally, this brings me to a more personal note. When I started this project in Mangochi, I was not aware of how important this project would turn out to be, also in terms of my own research. Having conducted research-for-action activities in India and Kosovo, the Malawi project proved its utility in developing – mostly with PhD researchers – the participatory research approach at our own research institute. Not only in different health-related research projects in the South (India, Uganda, Ghana, and Tanzania), but also in projects on healthy ageing in the north of the Netherlands. The fact that the participatory approach, developed in the South, is equally applicable to the North has been a huge eye-opener … and a very pleasant one, indeed.

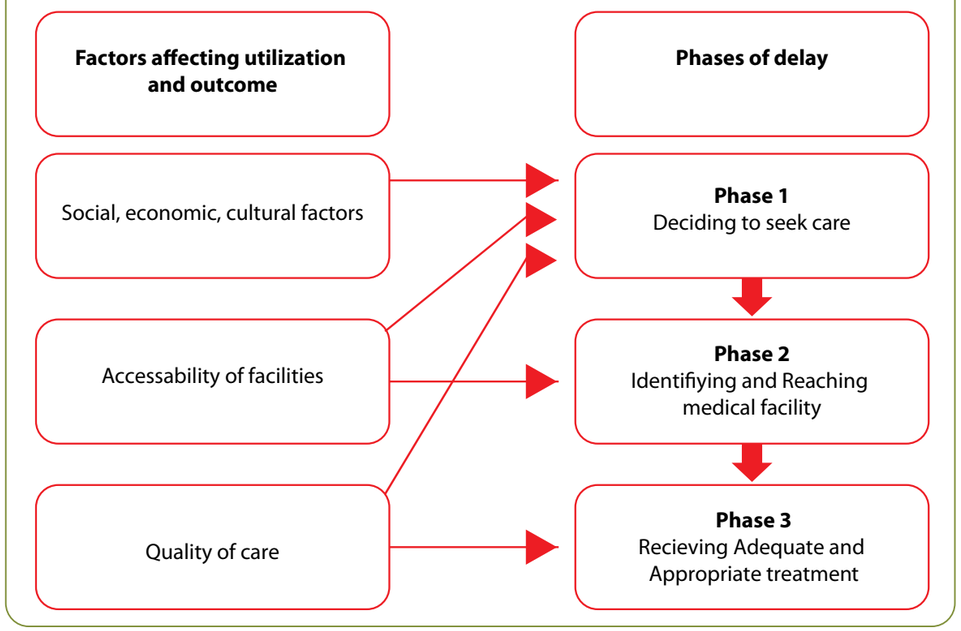
I want to thank, also on behalf of Mary: Dyon Hoekstra for all his efforts in supporting the report; Gina Rozario for correcting the English; Caroline Penris for a final touch in editing.

Prof. Inge Hutter, demographer and cultural anthropologist
Groningen, 12 February 2011

1. INTRODUCTION

Maternal mortality in Malawi remains high despite the many interventions taking place in the country. According to recent reports by the Reproductive Health Unit (RHU) of the Ministry of Health, the maternal mortality ratio (MMR) in Malawi is currently at 807 per 100,000 live births. It almost doubled between 1992 (620 per 100,000 live births) and 2000 (1,120 per 100,000 live birth) and declined slightly to 984 in 2004. In spite of the current decline to 807 maternal deaths per 100,000 live births, Malawi still has the second highest MMR in Africa. The major causes of maternal deaths are postpartum haemorrhage, postpartum sepsis and ruptured uterus (Ratsma *et al*, 2005; Hofman and Sibande, 2005; Thornton *et al*, 2007; Geubels *et al*, 2006; Hofman et al, 2009). Most of the causalities are those from the rural underserved areas. An analysis of 81 maternal death audit reports, in various districts in the country (Ministry of Health, 2005), shows that 85 per cent of all maternal deaths took place in the rural areas.
Many factors contribute to high maternal death occurrence in developing countries such as Malawi, especially the poor access to maternal health care services. Vital health facilities are often too far away and too expensive for the people in need of those facilities. More than half of the population live further than 5 kilometres from their nearest formal health facilities; only 20 per cent of the population live within 25 kilometres of a hospital. And while essential health care is meant to be free, the reality is that only 9 per cent of government and mission facilities provide free access to the full essential health package as stipulated by the government (Lawson *et al*, 2008). The statistics further tell about the skewed distribution of health infrastructure, concentrated in urban areas, even though about 70 per cent of the national population of 15 million lives in rural areas. Mangochi is one of the districts in Malawi with a high maternal mortality rate; it is ranked third. A common concern of health workers in Mangochi is the low utilization of maternal health services by women from the rural areas, and the late health-seeking behaviour for maternal health services, mostly when complications have already developed (Phoya *et al*, 1992). As in the rest of the country, many factors contribute to this high maternal mortality which can be grouped into community-related and services-related factors.

Figure 1: The delay model | Source: Thaddeus and Maine (1994)



The delay model

Thaddeus and Maine (1994) identify 3 delays in accessing adequate maternal health care (see figure 1).

Thaddeus and Maine (1994) describe the three delays as follows. The first delay concerns the delay in deciding to seek care on the part of the individual or the family or both. The delay is shaped by socio-economic and cultural factors such as illness characteristics, the socio-economic status of women, long decision-making processes influenced by the perceived and actual distance to the services, services costs, and previous experiences with the health care facility and the perceived quality of care.

The second delay concerns the delay in reaching an adequate health care facility and is shaped by the accessibility of factors such as the distribution of facilities, travel time from home to the available facility, cost of transport and the condition of the roads.

The third delay pertains to the delay in receiving adequate care at the facility which is caused by quality of care factors such as the adequacy of the referral system, shortages of drugs, equipment that is available, trained personnel and competence of the available personnel (Thaddeus and Maine, 1994).
This paper, dealing with the poor access to health services, focuses especially on the first and second delay as described by the model.

Malawi's health system

The Ministry of Health (MoH), CHAM (Christian Health Association of Malawi) as well as other private-not-for-profit NGOs are the principal providers of health services in Malawi: the first-named provides 60 per cent and the latter two 36 per cent of the health services (SRH Policy, 2009).
Malawi's health care system is differentiated into three levels: primary, secondary, and tertiary. *The primary level* comprises community initiatives, outreach clinics, dispensaries, health posts, health centres, and rural or community hospitals. This primary level is particularly critical to meeting the health care needs of 85 per cent of Malawians who live in the rural areas. The *secondary level* consists of District and CHAM hospitals which perform important functions in response to referrals from primary-level health facilities. The *tertiary level* is made up of the 4 central hospitals and one private hospital with specialist services.

Malawi's health delivery system is under severe and continuing pressure resulting from a poor macroeconomic environment, high levels of poverty, the devastating impact of the HIV/AIDS pandemic, and the critical shortage of human resources to deliver health care. Malawi continues to experience a persisting shortage of skilled health care professionals. As a result, the coverage and quality of health services are being adversely affected by the inadequacy of facilities. In both MoH and CHAM facilities, many establishment posts have remained vacant, in many cases up to 50% (Ministry of Health and Population, 2003). In response to this poor state of its health delivery system, the Malawi government embarked - with significant support from its development partners - on key reforms of the health sector (SWAp Malawi, 2008). These reforms include:

a) The adoption and implementation of a health sector wide approach (SWAp) with a common Programme of Work (POW) based on an Essential Health Package (EHP). The EHP is designed to meet the basic health needs of a critical mass of Malawians, to be provided free of charge at the point of service delivery.
b) Decentralization of health services to District Assemblies and expanding access to health services through Service-Level Agreements for maternal health with selected CHAM institutions.
c) Implementation of two plans (Six-Year Emergency Pre-service Plan and Human Resources Emergency Plan) with a focus on MoH and CHAM institutions.

The implementation of the SWAP Programme of Work (POW) is focused on accelerating the pace of refurbishing health facilities, supplying and repairing medical equipment, improving pharmaceutical and medical supplies, and increasing and improving transport and communications systems (SWAP Malawi, 2008b).

Access to sexual reproductive health and rights (SRHR) services is worse in rural areas as there is inequitable deployment of health personnel, the distribution of which favours urban areas, the secondary and tertiary levels of care. This is aggravated by the critical shortage of health workers across the board, especially the shortage of midwives (SRH Policy, 2009). The MoH in general, and its Reproductive Health Unit (RHU) in particular, play critical coordination roles that ensure the effective and efficient

delivery of RH services including maternal health services countrywide under the national RH program. This is done through policy formulation, resource mobilization, technical assistance and supervision.
The purpose of the national RH programme is 'to promote through informed choice, safer RH practices by men, women and young people, including increased use of high quality, accessible reproductive health services' with a goal of 'improved sexual and RH for men, women, and young people in Malawi, especially the vulnerable and the underserved' (SWAp Malawi, 2008b). Key components of the RH program include; family planning; maternal and neonatal health (safe motherhood); prevention and management of STI/HIV/AIDS; prevention, early detection, and management of cervical, breast, and prostate cancers; infertility; mitigation of harmful practices and obstetric fistula (National RH Strategy, 2006-2010).

In a move to improve maternal health outcomes, a 'Roadmap for Accelerating the Reduction of Maternal and Neonatal Mortality and Morbidity' was launched in 2007. This roadmap drew from and built on the SWAP POW and the Emergency Human Resources Program for Malawi.
Also the Malawi SRH policy statement 3.9.2.3 calls for community sexual and reproductive health services to be participatory and thus ensure that such services meet the needs of men, women and young people as well as being culturally acceptable. Policy statement 3.8.2.1 calls for the elimination of harmful SRHR practices to be fully integrated in the delivery of sexual and reproductive health and rights services (SRH Policy, 2009).

With the goal to achieve community ownership of the health programme, community involvement in SRHR initiatives is thus encouraged. The aim is to empower communities with skills to take the lead in problem identification and solutions and to carry out their own health initiatives, thus empowering communities to adopt and promote a continuum of care between the household and health care facility.

The Community-Based Safe Motherhood (CBSM) project

The Community-Based Safe Motherhood (CBSM) project started in 2005 in Chilipa zone in Mangochi District. The project was implemented in collaboration with the Ministry of Health, through the district hospital and the community itself. The overall goals of the project are:

- to improve maternal mortality and morbidity rates by empowering the communities
- to increase male participation in maternal health care issues
- to improve safe motherhood and reproductive health service delivery in rural settings through an improved referral system from villages to health facilities.

In this paper, we discuss three integrated initiatives within CBSM that focus on improving the first and second delays in seeking maternal health care, by adopting a community participation approach. All three integrated initiatives focus on the enhancement of maternal health, namely through

- the introduction of adapted bicycle ambulances (chapter 5)
- training of traditional birth attendants (TBAs) and enhancement of the referral system by trained TBAs (chapter 6)
- developing community-based maternal death audits (chapter 7)

In chapter 8, we summarize the key characteristics of the community based approach adopted in the project, the 'best practices' than can be identified and suggestions and recommendations for future projects.

2. THE PROJECT AREA: MANGOCHI AND CHILIPA

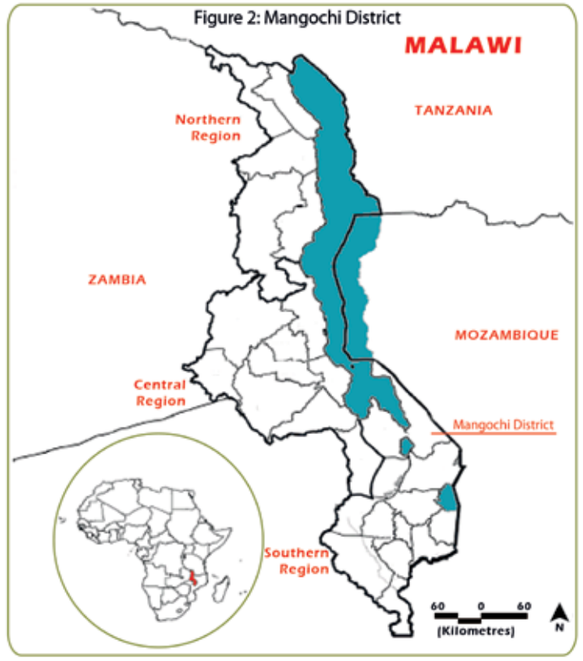
Mangochi is one of the districts in the southern region of Malawi (see Figure 2). Several tribes live in the district: the Yao who are the majority, as well as tribes, among them the Chewa, migrated to Mangochi for various reasons. The Tumbukas and Tongas from the northern region migrated to the Monkey Bay area for fishing. The Chewa and Lomwe tribes who are found in the upper lands of Mangochi including Chilipa, mostly migrated because of farming. Some did not have enough land for themselves in their own districts and they moved to Mangochi as tenants and later found themselves a piece of land to farm, while others specifically sought a piece of land for themselves and their families.
Most of the inhabitants of Mangochi are engaged in small-scale businesses and most families earn their living from domestic farming. The majority of the people in the rural areas live on their annual harvest which is usually not sufficient for the whole year. Young men - including boys - go to South Africa for either work or business. Young women go to South Africa as well, where they work for some months or a few years and then return to Malawi. Malawian migrants in South Africa remit part of their income to their family members for their living expenses. Some Malawians go to South Africa on monthly basis to buy goods and commodities for retail in their small shops in Malawi as a way to earn their living.

It is important for the purposes of this paper to know that the main means of transport in rural Malawi is the bicycle. Passengers and goods are transported on the so-called bandu.
There are several religious groups in Mangochi District. The majority are Muslim. Most Yao are Muslims though there are a few Christians. Christians belong to three main denominations: the majority is Roman Catholics, followed by Protestants and Anglicans. Followers of other religions are few in number.

The literacy level is low. On average, 82 per cent of children aged 6-13 years attend primary or secondary school in Malawi (urban: 91 per cent, rural 800 per cent). Primary school attendance for girls is 82 per cent, for boys 79 per cent (NSO, 2008). However, fewer girls do continue for secondary school. Only 8 per cent of women and 15 per cent of men attend some secondary school. And of female household members in Malawi, 30 per cent did never attend any school; among male household members this is 20 per cent (NSO, 2005) (NSO, 2005; NSO, 2008). It is also worth mentioning that most of the Yao normally obtain Islamic education in madrasa and few Yao attend normal schools.
Note also that the Mangochi society is predominantly matrilineal, in which the maternal uncle plays an important role in decision-making in the family. The maternal uncle is called mwini mbumba (meaning: owner of his sister's children).

The project was carried out in Chilipa zone of Mangochi district in Malawi, one of the zones in the upper lands of Mangochi. This zone lies on the western side of Mangochi, bordering Ntcheu and Balaka districts. It covers the catchment areas of five maternal health centres: Chilipa, Phirilongwe, Mtima bii, Kapire and Katema. These centres serve a total population of 100,000 spread over 160 villages. Chilipa health centre has been upgraded to a Basic Emergency Obstetric Care (BEMOC) facility in 2009. Phirilongwe, Mtima bii and Chilipa offer free maternal health services. The two facilities at Kapile and Katema are CHAM paying facilities.

Figure 2: Mangochi District



3. METHODOLOGY: PARTICIPATORY ACTION RESEARCH

In the CBSM project, a Participatory Action Research approach was adopted. This approach implies that research has - from the onset - an explicit aim of social change and improvement of the lives of people. Research is also conducted *with* people rather than *on* people (see e.g. McIntyre, 2008, Koch and Kralik, 2006). Within a Participatory Action Research approach, not only are research methods such as in-depth interviews or focus group discussions applied, but also meetings, dialogues, seminars are considered to be methods of information collection. The basic assumption is that knowledge is created at any place and by any person in society.

Within the participatory action approach, the present project aims at improving the maternal health situation in Mangochi, people's life in general and most importantly the empowerment of people, enabling and facilitating them to take care of their own health and life. This explicit aim implies the adoption of not only health indicators to estimate the impact of the intervention but also indicators of empowerment. Participatory action research is conducted *with* people rather than *on* people, and the present project focuses strongly on participation and involvement of the community. The basic idea is that interventions can only be effective and efficient if the community is involved from the very beginning.

Throughout the duration of the project, different stakeholders in the community were actively and continuously involved. Examples of stakeholders are women and men in the reproductive ages, the Area Development Committees (ADC) and Village Development Committees (VHC) including the village head, traditional healers and traditional birth attendants, health care providers, and initiation counselors. The different stakeholders involved are described in detail in another section of the report.

From the beginning of the project, information was gathered from focused meetings, community dialogues, and seminars which dealt with the aspects of community involvement. In addition, health workers and other health service providers were asked about their perceptions of needs of the community regarding maternal health.

With the aim of hearing the voices of people in the community and mapping out their perceptions and feelings on maternal health and possible solutions, the qualitative research methods applied consisted of participant observation, informal meetings and discussions, interviews and focus group discussions.

To evaluate the three integrated initiatives, clinical data on the number of maternal deaths, the number of women seeking health care in the health services, the number of referrals to the health facilities by the trained TBAs and transport involving bicycle ambulances, were recorded. These data were collected by the TTBAs in the villages.

In addition, focus group discussions were conducted in December 2009 - January 2010 to obtain insight into how different groups (both urban and rural communities) perceive the impact of the three integrated initiatives. Participants of the FGDs were recruited from different groups in society, in order to collect a wide range of opinions. Focus Group Discussion guides were developed (see Appendix A-C).

Bicycle ambulances

Four focus group discussions (FGDs) were conducted, three in the rural implementation area and – for reasons of comparison - one in the urban community where a bicycle ambulance was provided by another project. To obtain insight into how leaders, that is, decision makers for community development, perceive and view about the bicycle ambulance initiative:

- one FGD (N=8) consisted of members of the Area Development Committee (ADC) in the project site; and
- an urban FGD (N=10) consisted of men responsible for development of their village.

To obtain insight into the experiences of women on the use of bicycle ambulances at the time of their delivery and the effectiveness of the initiative

- a third FGD consisted of women (N=8) who used the bicycle ambulance. They all delivered live babies and four of them came to the discussion with their babies as evidence of a bicycle ambulance saving their lives.

To elicit the response of men towards the usefulness of the bicycle ambulance and how it impacts maternal health in the area,

- a fourth FGD (N=8) comprised of men who have personally cycled a woman from a village to a health facility.

Trained TBAs

To evaluate the perceived effectiveness of the Trained TBA initiative, four Focus Group Discussions (FGDs) and four In-depth Interviews (IDIs) were conducted in the rural implementation area. To obtain insight into how decision makers in the community view the training of TBAs and its effectiveness:

- three FGDs were conducted (N = 8, 7, 9 members respectively) with men, members of the Area Development Committee (ADC) and Village Health Committee (VHC); TTBAs themselves and health workers; and men whose wives delivered both with TTBAs and at the health facility in the project site.

To get insight in the experiences of women who sought assistance from the TTBAs and their evaluation of the initiative:

- one FGDs (N = 9) was conducted with women who delivered with the help of TTBAs and women who were referred by the TTBAs to the health facility.

To get insight in how people themselves feel about the usefulness of the TTBA initiative:

- two IDIs (in Katema and Chilipa) were conducted with men whose wife had delivered with the help of a TTBA
- two IDIs (in Chilipa and Mtima bii) were conducted with women who delivered with the help of the TTBA.

Community Based Maternal Death Audits

To evaluate the perceived effectiveness of the Community Based Maternal Death Audits initiative, three Focus Group Discussions (FGDs) and five In-Depth Interviews (IDIs) were conducted, all in the rural implementation area.

To get insight into how decision makers for community development (men, elderly women, health workers) opine about the community based maternal death audit initiative:

- three FGDs were conducted (N=7, 8, 10 members respectively), with men, Area Development Committee (ADC) members, and village Health Committee (VHC) members; with TBAs, traditional healers, village leaders, religious leaders and health workers. Also uncles were included *(mwini mbumba)* and fathers of the deceased.

To get insight in the experiences of women whose daughters died and men whose wives died of a maternal death and to get to know how they feel about the MD audit initiative

- two IDIs were conducted with the mothers of the deceased daughters in Katema and Chilipa.
- two IDIs were conducted with men who lost their wives in Katema and Chilipa.
- one IDI was conducted with a local leader (village headman) whose wife died a maternal death.

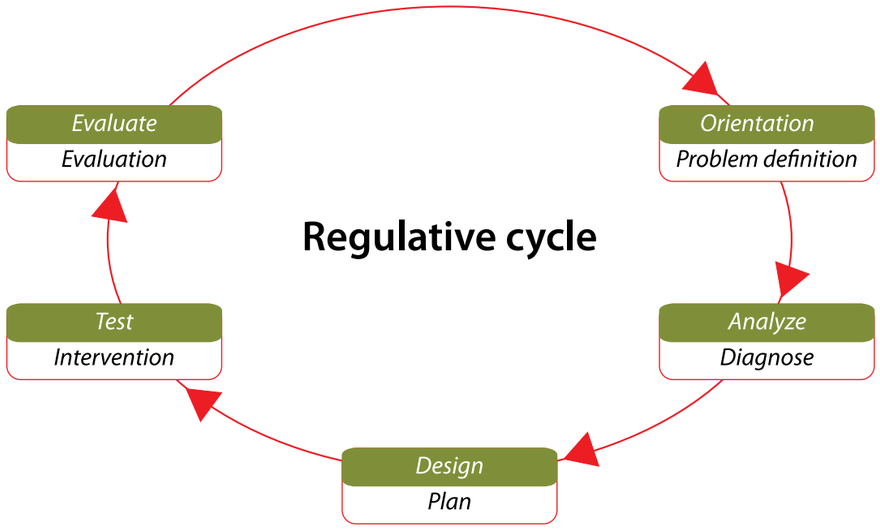
All FGD and IDI data were collected using a digital tape recorder. Data were transcribed and analysed through AtlasTi, according to the principles of grounded theory (Corbin and Strauss, 2008).

4. RESULTS PRESENTED ACCORDING TO THE REGULATIVE RESEARCH CYCLE (VAN STRIEN 1986)

We present the results according to the different stages of the Regulative Research Cycle developed by Van Strien (1986, cited in 't Hart *et al*, 1998):

- **formulation and diagnosis** of the problem, also called the situation analysis
- **making a plan** or the formulation of an intervention to solve the problem as identified in the phase of diagnosis
- the **implementation** of the intervention
- the **evaluation** of the intervention

Figure 3: Regulative Research Cycle of van Strien (1986)



Source: Hemati *et al* (2009)

In contrast to the 'traditional' empirical research process, but in line with the Participatory Action Research approach, the regulative research cycle formulated by Van Strien (1986) implies that scientific research not only leads to academic output, but explicitly includes an intervention or action to improve the situation of the people under study. Research is of course conducted according to scientific principles and through a rigorous application of (qualitative) research methods. In the CBSM project, community participation has been a constant element in all the stages of the regulative cycle.
The four different steps of the regulative research cycle are used to describe the three different initiatives in the community-based safe motherhood programme.

5. THE BICYCLE AMBULANCE INITIATIVE

Mary Sibande Kumwanje[3], Jan Hoffman[4], Agnes Chimbiri[5], Christine Fenenga[6], Jose Utrera[7] and Inge Hutter

One of the major challenges in the rural underserved areas of Malawi is access to maternal health care services. The main means of transporting ill patients between the different health facilities are motor vehicle and motor cycle ambulances (UNFPA & AMDD, 2008), which leaves the problem of covering the distance between the villages and the health facilities. In the rural setting, improved means of transport are either hardly available or are costly for the rural poor. Mangochi district has the same scenario in this regard. Possibilities to improve means of transport in these areas are hardly available. It sometimes takes people more than six hours to walk and reach the health services, which might be too long to save the life of a pregnant woman experiencing complications. Delays emerge as a pertinent factor contributing to maternal deaths.

There have been other projects that have provided bicycle ambulances in order to enhance maternal health and prevent maternal deaths. In rural eastern Zambia, for example, a project implemented a pilot bicycle ambulance project was implemented and 70 lives were saved in 6 months (Transaid, 2008). Also in Mangochi, bicycle ambulance projects have been implemented, but not all of these projects have been successful – according to community members in the area. For example, bicycle ambulances were donated by Save the Children and the Catholic Mission, but they were just donated in clusters: one bicycle ambulance was shared among a number of villages. Community ownership of the bicycle ambulances was not considered, and when the ambulance broke down, the villages needed to make a collective decision, which was difficult.

Learning from these earlier experiences, in developing the initiative regarding bicycle ambulances in Mangochi, the CBSM project adopted a participatory action approach to maternal health. The CBSM initiative project donated 105 bicycle ambulances to 105 villages in the Chilipa zone in the period 2006-2009, and used a participatory approach to arrive at an improved design of the bicycle ambulance and to make them more acceptable to the community.

5.1 Formulating and diagnosing the problem

- The formulation and diagnosis of the problem of maternal health in the project included:
- the mapping and identification of existing structures and relevant stakeholders
- the identification by the community of the problems and the existing situation.

5.1.1 Identifying structures and stakeholders

The CBSM project works from the District Hospital in Mangochi, in close cooperation with the District Health Office (DHO) and the District Assembly (DA), which is a decentralized government institution taking responsibility for the development and planning of the District, as indicated in Figure 4. The CBSM project needed approval and support from the DEC, before it could start the implementation. Collaborating with both health and decentralized government institutions has been crucial to the success of the CBSM project, as it enabled and enhanced the bottom-up approach to maternal health. In this way, the governance system adopts a more bottom-up approach than the health system.*

The **District Health Office (DHO)** is a mother body for all health care services in the district within the Ministry of Health, responsible for the second level of care and offering all basic health care. More importantly, it performs referral functions for the primary level. The **District Assembly (DA)** delivers its activities through the District Executive Committee (DEC), headed by the **District Commissioner (DC)**. The DEC is responsible for the implementation of all aspects of district development plans.

[3] Additional authors mentioned here played a key role in developments of the CBSM project. The two main authors, Sibande and Hutter, are responsible for the final texts in this report.
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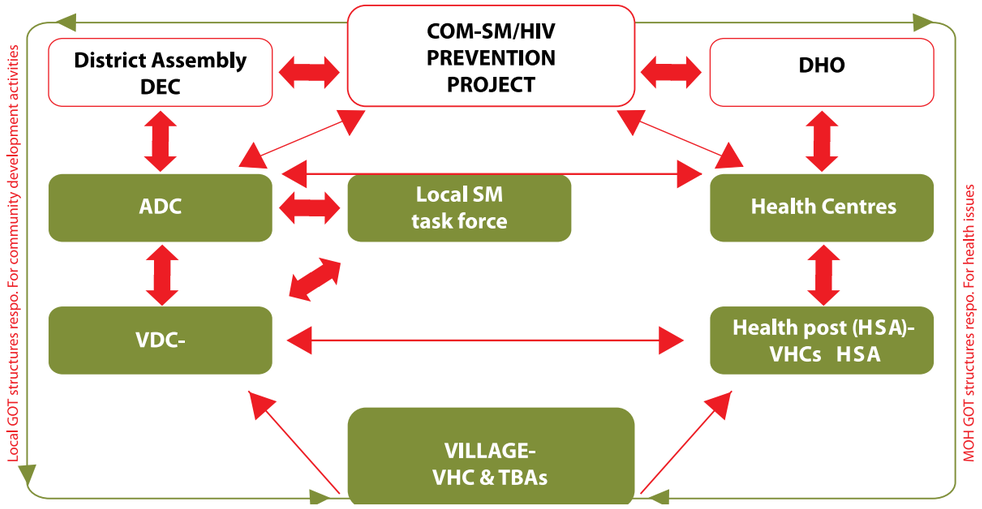
[6] PharmAccess, at time of the project with Cordaid, The Hague, The Netherlands
[7] Cordaid, The Hague, The Netherlands

Figure 4: The CBSM project within existing health and development structures



In collaboration with the DHO and the DEC, the project identified the following structures as crucial for the success of the CBSM project:

- *structures for development and planning* such as the Village Development Committee (VDC) and the Area Development Committee (ADC)
- *health structures* such as the Village Health Committee (VHC), Health Posts and Health Centres.

Structures for development and planning

The Malawi government uses decentralization and a systematic bottom-up approach to development and planning. The government established the **District Development Planning System (DDPS)**, which links the formulation of basic policy goals with the design of specific local programmes and projects, to ensure that lessons learnt from the implementation of the projects also provide feedback into the planning cycle. In this way the system is based on the principle of bottom-up grass-roots community participation, at all levels. The DDPS ensures that planning and decision-making are participatory and that local people – through the Area Development Committees (ADC) and Village Development Committees (VDC) – are involved in the development process, from needs assessment to project implementation, monitoring and evaluation. The Chilipa zone is managed by three ADCs and 16 VDCs.

The **Area Development Committee (ADC)** is the representative body of all Village Development Committees (VDCs), consisting of 30 to 40 members, such as the VDC chairpersons, representatives of wards, faith-based institutions, youth and women's groups, business and traditional healers. The ADC organizes monthly meetings and assists in identification, prioritizing and preparation of community needs, which are submitted to the DA. The ADC supervises, supports, monitors and evaluates the implementation of all projects at the Area Level.

The **Village Development Committee (VDC)** is a representative body of a village or group of villages charged with responsibilities for facilitating planning and development at the grass-roots level. A VDC consists of 16 members, among them an elected member from each village, ward representatives, four nominated women and an elected extension worker representative. The VDC coordinates community-based issues with the ADC and the DEC, and communicates messages from the ADC /DA to the communities. It assists in identifying, prioritizing and preparing community needs; it mobilizes community resources for self-help activities; it supervises, monitors and evaluates the implementation of development activities in the villages;

it initiates locally funded self- help activities; and it reports to the group village headman (GVH) about all activities and discussions of the committee.

The CBSM project, being community based and using bottom-up and participatory approaches, fitted very well into these existing structures: working within these structures would enhance the feedback to the community and facilitate ownership of the initiative. In the first instance, the project consulted the ADC and informed them about its aims. The ADCs were actively involved in identifying the need for the project, the needs of the community in maternal health, and provided information on relevant institutions. After having had detailed discussions with the ADCs, the door was open to consult the VDCs for further problem identification and involvement of the community itself. Through the support and recognition of the ADCs and VDCs, the CBSM project gained entrance to the villages. All ADCs and VDCs in the Chilipa Zone are actively involved in the CBSM project.

Health structures

Within the health structures, the following relevant institutions were identified. The **Health Centre** is part of the primary health care and critical in meeting the needs of Malawians who live in the rural areas. It has three departments, namely maternity, clinical and public health, in which it offers basic services such as Antenatal Natal Care (ANC), delivery and postnatal care, family planning, clinical and services for under-fives. Some Health Centres additionally provide Preventing Mother-to-Child Transmission (PMTCT) and Sexually Transmitted Infection (STI) services. In most rural areas, the Health Centre is a referral facility. Records – kept for all patients admitted – provide key health information about the catchment area. The Health Centre supervises health services in its catchment area, such as the Health Posts and the Village Health Committee (VHC).

The **Health Posts** are managed by a **Health Surveillance Assistant (HSA)**. A health post is critical for basic primary health care services. Main services offered are related to health and hygiene, such as bathrooms, toilets and clean wells for safe water. The HSA reports and manages outbreaks of disease such as cholera, manages under-five clinics and provides immunization for children. The assistant reports on all health eventualities in the villages in the catchment area such as births and deaths, pregnancies and chronic illnesses. The assistant also compiles village populations segregated into different target groups, such as under-fives, women and men of child-bearing age, and the number of households in each village and the distance to the nearest facility. The HSA is supported by and is responsible to the VHCs, and reports to the Health Centre or, where relevant, dispensaries.

The **Village Health Committee (VHC)** is a representative village body charged with responsibilities for facilitating planning and development at village level. This committee consists of ten members elected by the village headman and his counselors, among them active women and men of reproductive age and the trained TBA. The VHC is responsible for facilitating sanitation activities such as digging pit latrines and rubbish pits; recording and reporting on all health issues and deaths; transporting patients to health facilities; collecting contributions to improve health indicators; and mobilizing villages for outreach clinics. The VHC is situated under a health post cum HSA. It reports to the responsible Health Centre.
The CBSM project worked with the VHCs as these committees were already involved in transporting patients to the health facilities and mobilizing village members to contribute towards bicycle ambulances. In addition, the project also worked with these committees because the TTBA, a member of the VHC, is usually the first point of referral regarding maternal health. The VHCs manage the bicycle ambulance.

The CBSM project worked within the structures described, and considers itself to be a *facilitator* and an *intermediator* between the community and all these different stakeholders.

5.1.2 Community members identifying the situation and problem

On asking the community members, both men and women, in focused meetings and community dialogues about their needs in accessing health care at the time of delivery, they indicated that –among other things –

they needed better transport. They first described the six means of transporting patients which they use in the community, such as:

(1) *gondolo*; this is a big basket made of reeds which were cut in small sizes, soaked in water and dried in the sun. Later the small pieces are intertwined to make a basket. The patient is put in this basket which is put on a bicycle carrier; one man pushes the bicycle, two to three others hold the basket and walk to the health facility.

(2) a chair; a woman is put in a chair which – like the basket – is put on a bicycle carrier; also one man pushes it and 2-3 men hold the chair and walk to the health facility as they would do when using the big basket.

(3) *ngolo* (an ox-cart) which is pulled by cattle. The patient is put in the ox-cart pulled by two bulls and taken to the health facility, while two boys guide the bulls. The community said this means of transport is rough for the patient and that they can only move at the pace of the cattle.

(4) among the extremely poor, people use a *machira* (locally handmade stretcher). When a patient needs to go for health facility care, the TBA informs the guardians, who inform other men. These men round up energetic men to go into the bush and make the *machira*. Men go into the bush and cut down big and small trees; they tie the small ones on two longer trunks with ropes. They make something like a ladder, bring it home, put a mat on it, and the patient is put on this. Four men carry this on their shoulders and walk to the health facility. In cases where the health facility is far from the village, they mobilize 6 to 8 men to take turns to carry the *machira*.

(5) beds; the patient is laid on the bed and, as with the *machira*, 4-8 men carry the bed with the patient on their shoulders and walk to the health facility.

(6) an ordinary bicycle; a patient who is able to sit is put on the bicycle carrier, supporting herself either by holding the sides of the saddle or the person cycling to the health facility. If the patient is unable to support herself, she is still placed on the same carrier and 2-3 men support her. One man pushes the bicycle and they all walk to the facility.

Health workers complain of many cases where the delay in reaching the facility is one of the major causes of maternal deaths or complicated case outcomes such as obstetric fistula.

A remarkable aspect in the Regulative Research Cycle (see above) is that it only includes problem identification and not the identification of possible solutions by the community or stakeholders. The CBSM project however *did* ask the community about possible solutions.*

5.1.3 Community members discussing first and second delay and possible solutions

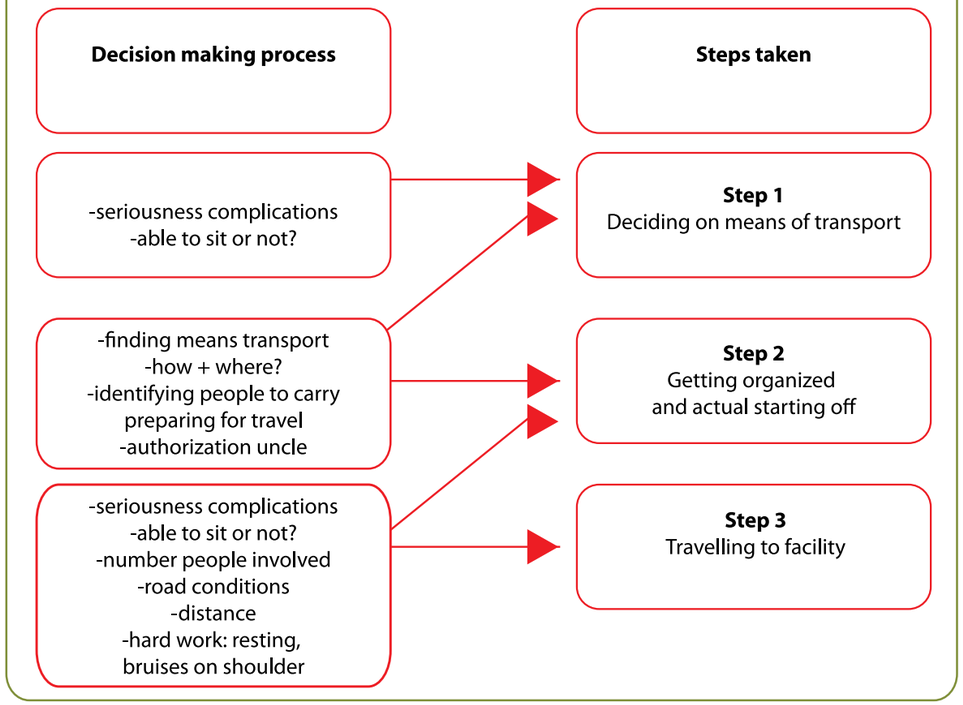
Both men and women remarked that there are serious delays in deciding, organizing and travelling from home to health facilities. Women said it is embarrassing to be carried by a group of men on their shoulders while in labour:

'They already carry you as if they are carrying a dead body.'

Or as other women mentioned, it is as though they are carrying us to the graveyard already.

They indicated that given the lack of means of transport in the rural areas, it is not easy to make a decision to take a pregnant woman and travel with her to the health facility. They indicated that several factors are considered in the process of decision-making. The process can generally be divided into three steps. Figure 5 summarizes the first and second delays as perceived and identified by the community. They themselves identify *three* different steps in the two delays. The first and second steps are related to the first delay of the model designed by Thaddeus and Maine (1994); the third step to the second delay.

Figure 5: Three steps in decision making according to community



Step 1 – decision-making on means of transport

The community indicated that women would inform men that a pregnant / delivering woman needs to go the health facility. Men first ask about the condition of the patient, and this determines the type of transport they should use. The different possible means of transport have already been described. Men generally ask 'is this patient able to sit or not?' If a woman cannot sit up or is very sick, they decide to use a *machira* or a bed. If she is able to sit up, they can use either a bicycle or a *gondola*. People also explained that step one is only easy for those who have access to an ox-cart, because whether a woman is able to sit or not does not then make a difference. When it is decided which transport means can be used, the second step is taken.

Step 2 – getting organized to starting off for the facility

Women and men explained and mentioned several factors that affect the organization of transport. These include type of transport to be chosen. As they indicated, for example,

'If we are to use a *machira* for the patient who cannot sit up, it takes too long.'

A *machira* is not readily available and has to be made by men in the bush. In the case of making a *machira*, the head of the family will have to choose 4-6 young men (at times led by a VHC member if available) to make this stretcher in the bush. Men will first discuss and verify with women whether they should really go and make the stretcher or not. They indicated,

'We always relied on whether either the TBA or elderly women who saw the patient to tell us to go and make the stretcher.'

This usually implies a long group decision-making process on whether to do it or not.

While the stretcher is being made, a message is in the meantime sent to the maternal uncle of the labouring

mother to inform him about the condition and to ask for his permission to take her to the health facility. This is especially important if a woman died on the way to the health services: to whom should the dead body be brought, as the maternal uncle is responsible for the children of his sister *(mwini mbumba)*, i.e. the delivering mother. Note that the society is matrilineal and the maternal uncle plays a major role in decision-making, especially regarding the children of his sisters. In most cases the uncle lives in the place where he is married, usually not close to this household of the delivering woman (his sister). As people explained, usually men will start off for the health services only after they get feedback from the uncle.
Though the stretcher can be carried by four men on their shoulders, for long distances between two and four more men are needed to take turns as they walk to the facility. Women also prepare some food and other necessities for the journey to the facility. All together, the decision-making is a long process and delays the actual start of the journey to the health facility.

Step 3 – travelling to the facility
Men indicated that walking to the facility with a patient on their shoulders is not easy. In the case of long distances, the carriers – always men – have to take a rest and they have to take turns on the way. Men indicated they usually take a very long time to reach the facility regardless of the available means of transport. They also explained the pains they encountered while using a *machira* and a bed: in several cases, because of the long distance and the weight, they had to rest on the way and the mother died in the meantime. This was more painful for them, as they indicated. As they reasoned, the journey was already arduous and long and they had to rest, and yet the mother died. It left them with a lot of bruises on the shoulders caused by the *machira* or a bed, and yet the mother died. And, as the men indicated, next time a pregnant woman might be in difficulties, they would hide, not wanting to go through that experience again. As they say:
'not again' *(Kawirinso? Ine ayi...)*.

The traditional means of transport thus imply both a delay in decision-making in the community (first delay), and a long travelling time (second delay).
Furthermore, the condition of the roads plays an important role; in the rainy season bridges might collapse and people have to take a roundabout route to reach the health facility. Similarly, people indicated that sometimes it would be just too dangerous to travel at night; if there are herds of elephants, for example, one has to take a roundabout route as well.

In trying to find a solution to this problem, community members indicated that they would need a bicycle ambulance. And if they could keep it in their communities, this would reduce all problems that have been highlighted. They said that with a bicycle ambulance, just one man could cycle and take the patient to the facility, and in a shorter time. The decision-making and organization of transport arrangements would improve in this way, and shorten the time of travelling to the health facilities. For a distance that took them four hours with a *machira* or bicycle, it would take them only one hour with a bicycle ambulance, they argued. This would make improvements concerning the second delay.

5.2 Planning the intervention
The planning of the intervention consisted of making the bicycle ambulances more acceptable to the community, *based on* the community's perspective and *with* the community.

5.2.1 Making the bicycle ambulances more acceptable
Initially five bicycle ambulances were introduced to the community, but the community members (both women and men, especially the pregnant women) did not accept these common bicycle ambulances. They shared concerns, the major ones being:

1. Association with death
People associated the stretcher attached to the bicycle with the stretchers in the hospitals which are used to carry dead bodies from the wards to the mortuary. So they were afraid to use them. The rumour was that if you were carried on a bicycle ambulance to the health services, you would die, no matter what. So, pregnant mothers refused to use them. On asking the community what to do to overcome this problem, they first indicated: 'We need a bicycle ambulance that carries *living* people, not dead'.
And they suggested adding a step onto the stretcher/bed and a compartment to carry luggage. As they reasoned, a dead person does not step on anything and does not need to carry luggage. So this would definitely be seen as an ambulance for the living. They also indicated that they needed something for shelter and a cover against the rain, and a mattress to provide comfort. The bicycle ambulances were accordingly modified. The community later on indicated that they felt it was *their* product and *their* design, and actually the bicycle ambulance should have another name, as it was no longer a common bicycle ambulance. However, they did not come up with a special name.
With this modified bicycle ambulance, as the community reasoned, any man (*mamunawe*: meaning a husband, partner, father or a brother) can just go to the village headman to get the stretcher and tie it on behind the bike. 'You ask your mother or mother-in-law to bring the luggage and put it in the compartment of the stretcher ... and off you go.' So, the modified bicycle ambulance enables people to travel with just two people to the health facility, rather than being dependent on group decision-making.

2. Association with witchcraft
Another association was that if you were carried on an ordinary bicycle or other means of transport, needing the already described group decision-making, everybody including witches would know that a woman was in labour and would apply their magic *(akumanga)*. People thought that witches would obstruct the labour, the child would never come out, and a woman in labour would die because of the pregnancy. Instead women preferred to go at night, so that people and hence also witches would not know that they were travelling to the health facility. With a modified bicycle ambulance, it was a simple matter of a husband, father or brother going quietly to the chairman for a bicycle ambulance and transporting the pregnant mother to the facility. No other community members would need to be involved.

3. Lack of privacy
For the same reason, women indicated that they would not have any privacy in the case of group decision-making. Women indicated that everyone would know about their delivery if they were carried to the facility by a group of men (4-8) with women walking alongside them. They said that when a woman had to deliver on the way to the health facility, the women would ask the husband and the other men to go somewhere else, to give the women a chance to help deliver the baby. They usually found space just away from the road and used the pieces of cloth which are normally tied around their waists called *chitenje* for privacy. But even then men could hear everything that was being said. There would be no privacy and women said they did not like it, but that they had no choice at that time. It would be alright for their own husband to know, but not for other men. But with a bicycle ambulance, usually very few people (only your husband, brother and/or sister or mother/mother in-law) would know that a woman had left for the facility.

Figure 6: An Adapted Bicycle Ambulance Photograph: Mary Sibande

5.2.2 Establishing the Safe Motherhood Village Fund

Besides preparation for the adaptation of the bicycle ambulances, a Safe Motherhood Fund was initiated in collaboration with the community members to provide readily available funds to be used to maintain the bicycle ambulance and to buy supplies for the trained TBA in the village. This was considered to be highly important for community ownership of the initiative. Community members said that the fund was their *chikole*, meaning 'proof' that they needed a bicycle ambulance and were ready to support their TBAs (see Section 6). They called the fund *SM Village Fund* because village members contribute to it and village members manage it themselves. The process is as follows: the village headman and his counsellors decide on the amount to be contributed by each household. Then they ask VHC members to collect the contributions and record the names of every member who contributed. The village gives the VHC member a time frame to complete this activity.

Village members initially agreed to buying paraffin (gasoline) for lighting the lamp when a woman had to deliver at night, and soap for disinfecting as the TBA offers her delivery services in the village. Part of the fund is also for maintaining the bicycle ambulance, because it is their property. The fund also acts as evidence for the project that the village is ready to maintain the bicycle ambulance on their own, and so this becomes a criterion to be considered before donating a bicycle ambulance to a village.
The village headman reinforces the formulated by-laws (see later).*

A function of the ADC is to establish a **local safe motherhood taskforce** as an action committee responsible for monitoring and implementing safe motherhood activities from the community perspective. The function of the local safe motherhood group is to follow up on the by-laws by the ADC to guide implementation of safe motherhood initiatives, such as following up on weak village headmen,; encouraging local leaders in monitoring activities by the TBAs, monitoring the proper utilization of the bicycle ambulances, and modelling male involvement in maternal health issues. The safe motherhood taskforce reports to the ADC.

5.3 Implementation of the intervention

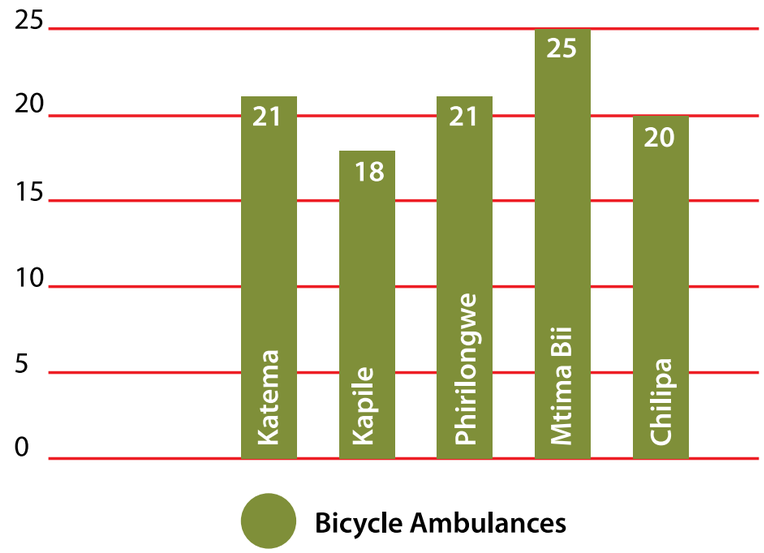
The intervention itself consisted of
- donating the bicycle ambulances
- ensuring community ownership
- enhancing community participation in implementation

5.3.1 Donating the bicycle ambulances

From 2005 to 2009, several bicycle ambulances were donated to Chilipa villages, i.e. the catchment areas of the five health facilities (see Figure 2). The donations were made in four phases: in the first phase, five bicycle ambulances were distributed equally; in the second, third and fourth phase, bicycle ambulances were distributed according to the contributions by the village members (see further on): the number of bicycle ambulances distributed in these phases were 40, 32 and 28, respectively. In total, the number of bicycle ambulances donated amounted to 105.

It is good to note that it was not the project that decided where to donate the bicycle ambulances - it was the ADC that decided about this. The project took special care to ensure that funds were available to support the BA. In order to justify equal distribution of these bicycle ambulances and to make sure they would be maintained by the communities, the project required the community to have maintenance funds ready before they requested for a bicycle ambulance (see later). The community then came up with their own criteria on how to select villages which were most suitable to receive the bicycle ambulance. The community looked at the distance from a village to the nearest facility, whether the village had established the Safe Motherhood Village Fund (discussed later), and whether the Village Health Committee (VHC) was also active. The bicycle ambulances were distributed as follows over the catchment areas (see Figure 7).

Figure 7: Distribution of Bicycle Ambulances in Chilipa Region



In Mtima bii, 25 bicycle ambulances were donated because at the facility no maternal health services were offered. In Katema 21 bicycle ambulances were donated, the facility is a paying facility, so bicycle ambulances were provided to compensate for the cost of hiring for referrals to the district hospital. There are not many options for transport. In Phirilongwe, 21 bicycle ambulances were donated, as villages could not be easily reached due to the lack of bridges. The situation in Kapile is relatively better, as cars are available in the area, and it is closer to Balaka District Hospital. At times patients use vehicles from the parish or the convent. Also the catchment area is relatively smaller; 18 bicycle ambulances were donated, while in Chilipa we donated 20 bicycle ambulances.

The bicycle ambulances, however, are not just donated. The project focuses on community ownership as well, as described in the next section.

5.3.2 Community participation before donating the bicycle ambulances

Community leaders take an active role in preparing community members for the bicycle ambulance donation. For example, the ADC mobilizes the VDCs (see Figure 4) to accept the initiative and submit plans for the villages to benefit from the donation, based on requests from the VDCs for bicycle ambulances to be donated to their village. The main tasks of the ADC are to decide on which villages benefit first, to put in place the criteria for selecting villages to benefit from the donation, and to formulate by-laws to ensure proper use of the bicycle ambulance. As indicated by both men and women,

In particular the ADC gets involved in the role of making an application for the ambulance and sorting requests that come from various Village Development Committees. It is the ADC that selects priority villages from the many existing villages.

and

There are by-laws which stipulate that the bicycle ambulance is to be taken care of and not to be abused in any way. Many meetings are conducted before the arrival of the ambulance rather than after it arrives. After arrival we may have just one meeting a year or whenever a need arises.

The members of the community also indicated that several meetings were conducted by the local leaders to mobilize village members to contribute towards the bicycle ambulance before it is donated. The money contributed by the community for a Safe Motherhood Village Fund, as described in Section 5.2.1, is also for maintaining the bicycle ambulance.

5.3.3 Ensuring ownership of the community

The following activities focus on ensuring the ownership of the bicycle ambulances by the community:

1. The villages that want to be given a bicycle ambulance *contribute a minimum amount* of MK4000 ($28.50). This amount was raised by the village members and will be kept and used by them to maintain the bicycle ambulance donated. So this is *a maintenance fund*. The money is checked by a Health Surveillance Assistant (HSA). Then a message is sent to the project coordinators that the conditions for donation are in place. The bicycle ambulance is donated through the maternity and public health departments of the Health facilities.

2. The village headman and the responsible HSA organize *a village meeting* which is facilitated by the project with the *involvement of different stakeholders*, such as the Ministry of Health (MOH), maternity and public health staff and the ADC members. The three collaborators in the CBSM (CBSM, DHO and ADC) give talks on key project initiatives with a focus on improving the access to quality maternal health care. Among these is the use of bicycle ambulances, but also other project activities such as trained TBAs, a community-based functioning referral system, management of the bicycle ambulance, maternal death audits, male involvement, prompt referral and roles of VHC and village headman (see Sibande et al., forthcoming). The objectives of these meetings are to provide information and create awareness about maternal health issues, and also to enhance contact and interaction between health workers and the community.

3. On the donation day, the village headman addresses the gathering; the treasurer counts the money in front of with the village members. This gives *evidence and credibility* to the project that they have start-up maintenance funds and it also gives confidence to village members that the money that they have contributed will be used for its intended purpose.

4. Then the project coordinator *donates* the bicycle ambulance with a mattress and returns the contribution money to the village through the village headman and his VHC. The master of ceremonies, usually a member of VHC, *reviews the criteria* for receiving the bicycle ambulance and the criteria for its use. This procedure enhances the trust in the VHC and the village headman: they did not misuse the money of the community. It also enhances the pride and *ownership* of all community members about the bicycle ambulance that is now available in their village. For example, a village headman voiced his disappointment in an ADC meeting,

> Oh my fellow village headmen, the project has given the bicycle ambulance to all my fellow headmen, but not to me. Where is my bicycle ambulance? My people have contributed. I have the money. So, where is the bicycle ambulance?

In this way he was indicating the ownership of the bicycle ambulance: it is not the project's bicycle ambulance but the village's bicycle ambulance.

5. The village headman emphasizes the importance of having Safe Motherhood Funds, thanks members who contributed and encourages those who did not contribute. He then gives them a grace period to do so and announces the penalty for those who do not contribute. Community members decide where the bicycle ambulance will be kept. The headman closes the meeting by stressing the by-laws and his role in the management of the bicycle ambulance and the Safe Motherhood Village Funds.

In their closing remarks, village headmen engage in a typical exchange with the village members and they gave a long speech:

Village headman: You people, have you seen this bicycle ambulance? Whose bicycle ambulance is it? Is it mine?
Community: No, it is ours! We have contributed to it, it is our money.
Village headman: So, now you can see that I did not misuse your money. This is the evidence.

5.3.4 Community participation in implementation

During the implementation phase, the community is continuously involved. Once the bicycle ambulance has been donated, community members manage it by themselves and make sure it is in running condition. They monitor the proper use of the bicycle ambulances through the village headman. Two members of an ADC explained who are responsible for management of the bicycle ambulance and what the community members do to ensure its proper use.

One ADC member said:

> In the first place we have the chief; alongside him we have a chairperson, we have a committee in place that looks into the affairs of the bicycle ambulance; the chief is the overseer. The chief knows that the bicycle ambulance is not his/her personal property, they know it belongs to the community, we always remind each other that this thing came to serve the people for the purpose of health care, not for carrying goods.

And the other said,

> When the bicycle ambulance is brought to the village, we have a meeting, and during this meeting the chief will state the appropriate use of the bicycle ambulance, so everybody is made aware and every person is a guard on the other. People monitor the condition of the bicycle ambulance and maintenance is carried out.

5.3.5 Record keeping

Records are kept on bicycle ambulance use and the effectiveness of the bicycle ambulance is shared. Community members indicated that the village, through the VHC, keeps record of when the bicycle ambulance has been used, *who* used it and *to which facility*, how long the journey was and what the *outcome* of that referral was. They further indicated that they followed up on every outcome of the patient who used a bicycle ambulance, in order to monitor how the bicycle ambulance saved lives of village members suffering from other conditions as well. In the villages, the bicycle ambulance is not used only for maternal referrals, but also for other conditions such as cholera. The information on the use of the bicycle ambulance is reported to the village headman who relays the information at other development meetings in the village and at the VDC or ADC.

5.4 Evaluation of the intervention

Regarding the evaluation of the whole project, which is concerned with bicycle ambulances *and* maternal death audits *and* training of TBAs and initiation counselors, we analysed clinical data on referrals from the villages to the health facilities and the number of hospital deliveries. We also looked at maternal mortality. Of course, we cannot conclude that changes are due to the CBSM project only. However, we do report on

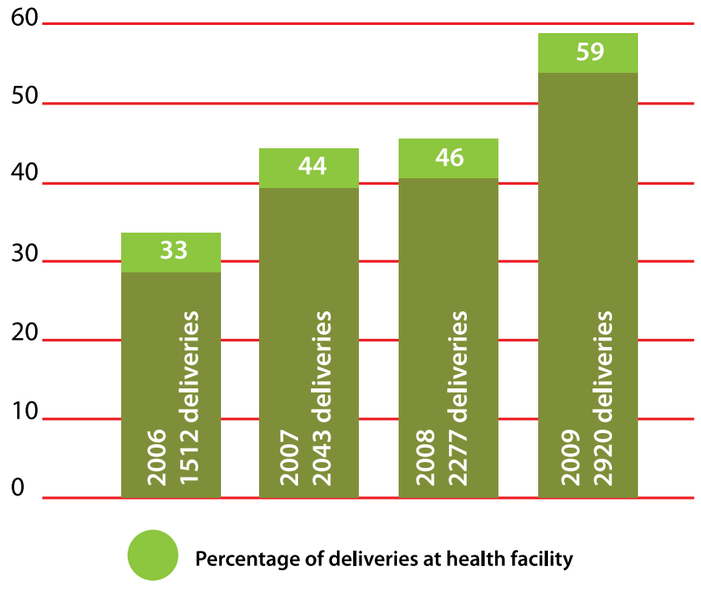
changes observed. Regarding the bicycle ambulance initiative, we focused on the following indicators:

- the utilization of bicycle ambulances in referrals to the health services and the communities' perception of
- reduction in the first and second delays, due to
- increased availability of transport
- reduction in delays to decide on health care
- reduction in time taken to reach the health facilities
- other perceived effects of the bicycle ambulance
- increased privacy for women delivering
- increased male involvement in pregnancy and delivery
- increased feeling of being loved and cared for
- pride in taking women by bicycle to health facilities
- community ownership

5.4.1 Overall changes taken place in the CBSM project

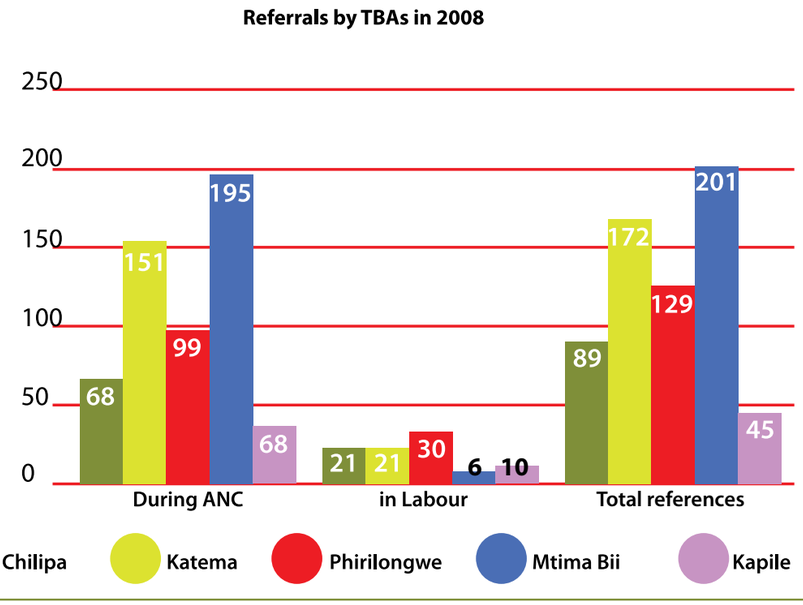
Overall, implementing all activities in the CBSM project (bicycle ambulances, training and referral by TBAs, maternal death audits), the community-based maternal death (MD) audit reports show that the number of maternal deaths in the area caused by the first and second delays have diminished in the catchment area. As indicated before, we cannot completely contribute the declines to the CBSM project alone, but we can sketch the overall changes that took place. In 2005, 19 maternal deaths occurred, out of which 9 were due to first and second delays; in 2008 only 2 of the 10 deaths were due to the second delay and no woman died as a result of the first delay. Throughout the project period, institutional deliveries (as indicated by the clinical data for the five health centres) increased from 33 percent in 2006 to 59 percent in 2009 (see Figure 8).

Figure 8: Number and percentages of health facility deliveries in Chilipa Zone, 2006 - 2009



The overall number of referrals of pregnant women by the TBAs in the village to the health facilities also increased from 19 in the year 2005 to 254 to 2007, and 395 in the year 2008 (see Figure 9). As illustrated in Figure 9, most referrals were made in the ANC period, rather than during labour, indicating that the pattern of referrals changed. Mothers did not wait until they were in labour to go to a maternal health facility. It also shows improved health-seeking behaviour in that women sought care earlier than in the past.

Figure 9: Overall number of referrals to health facilities in 2008



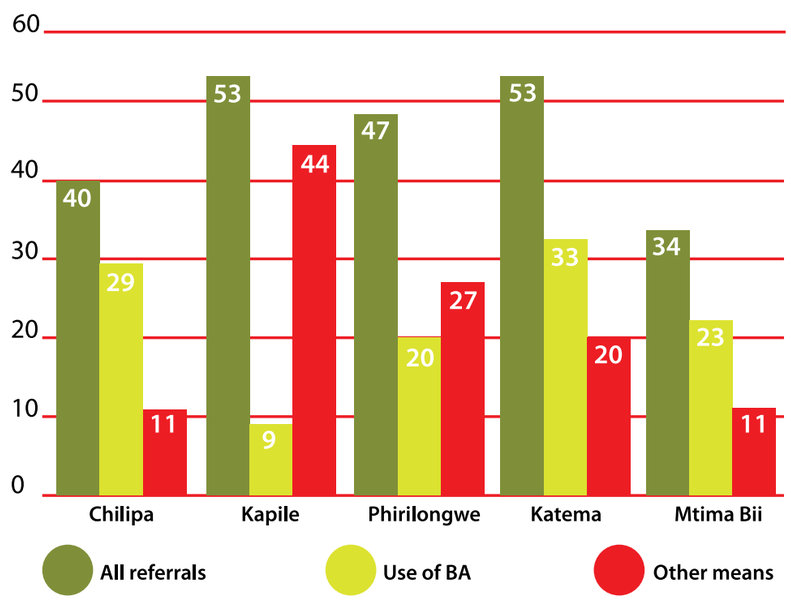
5.4.2 Utilization of the bicycle ambulances

The number of women using a bicycle ambulance increased from 0 in 2005 to 114 in 2007 and to 161 in 2008. Figure 10 shows the number of pregnant women who used the bicycle ambulance to access the health facilities as a percentage of the total number of referrals during the year 2007.

The figure shows that in Chilipa, 72.5 percent of all referrals utilized the bicycle ambulance; in Phirilongwe 43 percent, Mtiima bii 67 percent, Kapile 17 percent and Katema 62 percent. The percentage in Phirilongwe is somehow lower, as the number of bicycle ambulances was lower than in the other catchment areas. The percentage in Kapile is very low, as more health care is available in the catchment area and the area is close to the district hospital. Looking at all the referrals by bicycle ambulance, it is heartening to note that none of the mothers died.

Data from the five health facilities and from all trained TBAs in the area show that most mothers who used bicycle ambulances to make use of the maternal health services had good outcomes (live baby and mother). In 2008 all the referrals in the three health centres of Kapile, Phirilongwe and Mtima bii had live babies and mothers. No mother died in childbirth in the three mentioned health centres in the year 2008.

Figure 10: Number of referrals by Bicycle Ambulances and other transport means, 2007



5.4.3 Perceived changes

The focus group discussions show that the bicycle ambulance is the most preferred means of transport in the villages, compared to any other means in the rural community of Mangochi, because as men and women say:

- it is readily available, and
- it does not need time to organize to set out for the facility service

and

- one man can cycle it
- it is comfortable
- it does not need fuel
- it is fast
- it suits the types of roads in the rural areas

and

- it has good results

and

- it is managed by the community members themselves
- it unites the community
- it increases male involvement and community empowerment in maternal health issues.

To quote an ADC member about the advantages of a bicycle ambulance,

> It is convenient for us in rural areas. It is the fastest possible, taking into account our roads, it is free, it does not need a lot of people, it is like an express with no stopping, it is light, even with hands I can pull over, and it does not need fuel.

And another member added:

> Before the bicycle ambulance, people were using stretchers carrying a woman in labour as if it was a dead body, and others would use a bed. This was a burden because a bed on its own is heavy, if they used a *machira*, constructing the stretcher was another hassle. We see the usefulness of the device (bicycle ambulance); it is really reducing deaths in this community. Previously it used to take too long looking for a mode of transport to go to the health facility, but these days it takes less time, as the bicycle ambulance is readily available in the community.

And another man in the men's group said,

> Maternal deaths have reduced a lot because of the bicycle ambulance. It is faster than most of the means we have here. In the remotest areas there is no other option, it is the bicycle ambulance.

It was also mentioned that earlier more people used to deliver babies on the way because it took too long before they reached the facility.

In summary, an ADC member stated,

> The BA as we have said is to be supported more than anything else.

We will expand on all the aspects mentioned by the community members in the focus group discussions. We first deal with the perspective of the community on how the bicycle ambulance has changed the delays and different steps in decision-making at the time of delivery, as summarized in Figure 5. After that, other – often unexpected – perceived effects of the bicycle ambulances are described.

First and second delay

The community felt that the changes in the first and second delay due to the bicycle ambulance were as follows.

Perceived importance of availability

The participants in the focus groups highlighted the importance of the fact that the bicycle is readily available in the village, and thus there is the possibility of using it to bring pregnant women to the health facilities at the moment when it is needed, and thus saving lives.

A father-to-be said,

> When I see that it is time (to deliver), I will go to the village headman to ask for the bicycle ambulance to take my wife to the hospital.

And a village headman recounted,

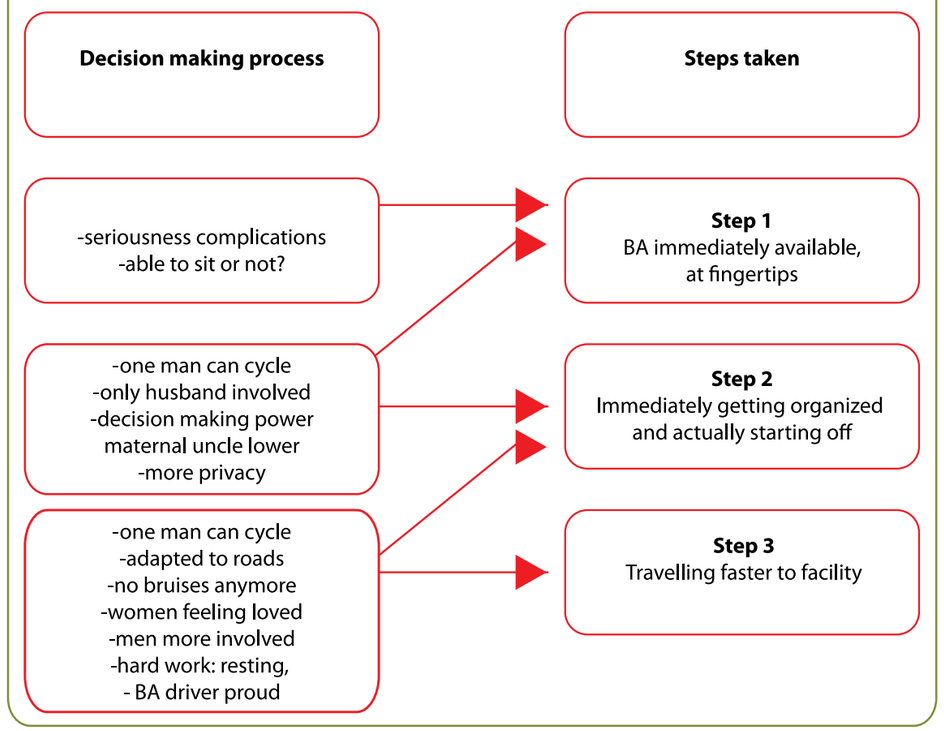
> I sent my VHC members with a bicycle ambulance to the TBA and told them to set out for Katema health facility, because our facility (Mtima bii) does not provide maternal health services.

The woman he sent to the health facility delivered a live baby. On returning to the village, the chief took pride in having sent her to the health facility, and announced at the ADC meeting that he had saved this life and highlighted the importance of the availability of the bicycle ambulance. In this way, he also indicated that the availability of the bicycle ambulance in the village itself empowers the community and enables people to take timely decisions.

Reduction in the three steps to reach the facilities

The perceived changes in the three steps as identified by the community itself to reach the health facilities (see Figure 5), are depicted in Figure 11.

Figure 11 : The bicycle ambulance and three steps in decision making



Community members (men, women and local leaders) all said that the bicycle ambulance has reduced the length of time taken as follows.

Reduced delay in deciding to go for health facility care

As people indicated

> Because the bicycle is at our fingers tips when there is a patient, you just go to the chief or VHC to get an ambulance and you go for health care.

A woman said,

> The bicycle ambulance is good, as it is always at our finger tips, more than the other modes of transport. It is more comfortable, its space is decent – the stretcher is rough.

This again illustrates that the mere availability of the bicycle ambulance in the village ('it is at our finger tips'), empowers people to make timely decisions.

Reduced delay in getting organized to leave for facility services

These days either a husband or a bicycle ambulance rider starts off with the ambulance to the facility, and you do not need a group of people to cut trees, make a machira and carry her on their shoulders. That age is gone, there are no delays now, and the bicycle ambulance has made our work easier.

Reduced delay in travelling to the health facility

> It is faster to take a woman on a bicycle who is lying comfortably on it than it was carrying her on either a chair tied on a bicycle carrier or a bed carried on the shoulders and then walk to the facility.

> The bicycle has reduced all these delays, and it really has reduced maternal deaths in this area.

Men indicated are also relieved of the trauma of bruises in travelling to the facility:

> We are now free people; in this area we don't have bruises on our shoulders any more from carrying patients to the facility. We just cycle a bicycle ambulance; within one hour you are at the facility.

Reduced time to reach health services

The bicycle ambulance thus decreased the delays in accessing maternal health care, as in Jekete village, which is 25 km from the nearest health facility,

> We now travel faster to health facilities, because with the bicycle ambulance travel distance has been reduced to half – we used to walk more than four hours from home to this place but now we cycle in less than two hours.

A man who had taken women to the facility by bicycle said,

> Delays in reaching the facility have been reduced because it is faster to cycle the woman than to carry them either on the shoulders or walk with her on locally made stretchers and or ox-carts, like in my case it never took too long.

Other perceived effects

Other, perhaps less expected, effects of the bicycle ambulance, as perceived by the community, are described in the following.

More privacy and feeling loved and cared for

A woman shared her experience when she was in labour and was taken to the health centre on a bicycle ambulance. Her husband took her. She was very happy that it was not a group of people who took her to the facility, only her husband. She indicated that she felt there was more privacy, being alone with her husband and not a group of men from the village who would carry her on the machira. Besides more privacy, she said she felt loved and cared for by her husband: 'We women are now respected, because privacy is maintained with the bicycle ambulance.'

And another woman shared similar feelings,

> My husband took me by bicycle and I felt loved and protected. If he had not loved me, he would send somebody else to take me there. I felt good that he did not leave me, it reminded me that we were together in becoming pregnant and in suffering he did not leave me alone, to suffer alone for something we did together.

Women shared a changed attitude towards husbands being involved when they used a bicycle ambulance. Women said that the involvement in the cycling also initiated husbands to escort their wives to ANC and family planning services.

One woman said for example,

> We are going together for ANC, now we do everything together. These days, men find it easy to take their wives to the hospital because of the bicycle ambulance since it is easier, *chikuku basi* (just a bicycle ambulance). We are using family planning methods and things are improving.

We also observed this shift from delivery to ANC visits in the referral data.

Men feeling more involved in maternal health

Men indicated that the bicycle ambulance had improved their involvement in maternal health issues. They now willingly involved themselves in cycling mothers/partners, more than before, when older means of transport means were used. They also indicated that the pattern of male involvement had changed. As they explained, in the past it was the elders who decided and asked who should be involved in carrying the mother

to the facility. But with the bicycle ambulance, partners can decide on their own.

A participant in the men's focus group said,

> The bicycle ambulance has helped to get more husbands and other men in the community involved in maternal health issues.

Another man confirmed,

> Men are more involved with the introduction of the bicycle ambulance, this time men are more involved. We all know that the ambulance has come because of women, the work is very light now as compared to the age of stretchers.

A local leader said,

> I will be happy taking my wife to the health facility by bicycle because my wife is going to be helped at the hospital. I will also cycle carefully and very fast so that we reach the hospital faster. For me there is no problem carrying my own wife, just as someone with a car would carry his wife.

Bicycle ambulance drivers, and pride in driving women to health services

An unexpected effect of the bicycle initiative was that there now are bicycle ambulance drivers in the village. The post was created by the VHC. The drivers are men who are taking up the job voluntarily and who feel it is their duty to take a woman to the facility when the partner/husband is not available. One of them said,

> I am the bicycle ambulance rider myself. This time when a woman is in labour, we do not hide ourselves because it is user friendly. You just cycle as if you are cycling a bike and you save the life of women in our villages.

Again, this shows empowerment of the community to take care of their own health issues and the ability to avoid maternal deaths as far as possible.

Community ownership

The findings further show that community members (men, women and local leaders) feel happy with the management of the bicycle ambulance, that is, that it remains in the hands of the community members. An ADC member said,

> The ambulance is being taken good care of by the people, because everybody believes it is theirs. People vandalize things they feel belong to the government. We believe it is ours and we take good care of our own property. People would be suffering if the bicycle ambulances were managed by government. The government would repair the bicycles any time they liked and so poor access and usage would result. We should maintain it ourselves.

One village headman said,
I want my bicycle ambulance for my people in my village.

Unites the community

The bicycle ambulance was felt to unite the community.

Men said,

> As men we always accompany the bicycle ambulance to the hospital and it unites the community. It is promoting the well-being of mothers when they are about to deliver. It is necessary for more than just women, men are also using it.

Difference between rural and urban?

Since we wanted to know about the differences between the rural and urban areas were, a focus group discussion was also held in an urban area where bicycle ambulances had been introduced. The participants in the urban group said that it is a very good means of transport if you do not have other means, but that it cannot be compared to a vehicle. In the urban areas, people have other options and there are good road networks, and so the bicycle ambulance is not their number one option. It is less used as compared to the rural areas.

One member said,

> Yes that is possible of course, but it cannot be compared with a motor vehicle.

Another man said,

> We do not have a problem, because if ever someone has a problem with going to the hospital, there are a number of brothers to the chief. These are the ones who ferry people to the hospital. They have got their own cars and they help a lot in bringing people to the hospital. I have a bicycle ambulance at home, but it is not as useful as those cars at the chief's brothers.

and

> The few times we used the bicycle ambulance were not all successful. Most of them ended in deliveries on the way. This shows that it is not as effective as cars would be.

This indicates that the bicycle ambulance is the best option in the present situation of poverty, when no cars are available, distances are long and roads are bad in the rural areas. As a bicycle ambulance rider says,

> In my case my situation is typical in the village; we do not have any means of transport. The only means of transport is the bicycle ambulance; this is the same in most remote areas. We do not have cars here, the roads are bad so we have no choice. We just go for the bicycle ambulance. Bicycle ambulances are helpful, even in general sickness.

Further improvements needed

The participants in the focus groups indicated the need to make further improvements to the bicycle ambulance. Their experience was that they take patients to health facilities at times that were not planned. Women also felt that the step on the ambulance was too high. To solve these minor problems (as they called them), they suggested the following improvements. The bicycle ambulance should have:

- A cover of some kind for privacy of the patient, and for protection against sun and rain

One participant said,

> The only thing lacking about it is the roof, especially during the rainy season. I would like the ambulance to have a roof, in case of hot sun or rain. That would even respect humanity, not leaving a sick person in the open. This would create privacy of some kind. A sick person is to be taken care of and respected, so we may also make something to shield around, in case you're going fast. It would be good if it also had lighting, even if it uses batteries we would still buy them.

In addition, the bicycle ambulance could be improved, as the community indicated, by

- reflectors at the rear
- lights, important when travelling at night
- a lower step
- a manual motor if possible, to make it easier when cycling uphill
- a raincoat for the cyclist
- a shield on the sides to protect the patient from falling off when cycling fast over rough roads.

Village members also indicated that it would be useful if the bicycle ambulance could be donated with another bicycle. This bicycle would then only be used for the bicycle ambulance, so the community does not need to arrange and use their own bicycles. Furthermore the village members indicated that the bicycle ambulance could have a shelter on its own.

6. THE TRAINED TBA INITIATIVE

Mayi wanzeru amakadikilira kuchipatala ndikuchilila komweko pofuna kupulumutsa moyo wake ndi wamwana (A wise woman goes to the health services in order to save both lives - the baby's and her own)

Mary Sibande Kumwanje [8], Agnes Chimbiri [9], Kenenth .M. Malete [10], Jose Utrera [11] and Inge Hutter

In many developing countries, a large proportion of the population still does not have access to maternal health services thus relying on Traditional Birth Attendants (TBA) to meet their health care needs. A majority of births in these countries, particularly in the remote rural areas, take place at home or in the community and are commonly assisted by relatives and friends or TBAs. In these circumstances, TBAs who have been trained can contribute to improving MCH care as they offer the only means by which women in rural communities have access to a clean delivery; Malawi is not an exception to this. With the reality that most TBAs are elderly women who are well respected and already acknowledged to attend to mothers during labour in rural settings, and with the fact that many women were assisted by TBAs in these areas: 10.5 percent of the live births in urban areas and more than two times - 24.4 percent- of the live births in the rural areas are assisted by a TBA (NSO, 2001). In addition, in most facilities in rural Malawi there are shortages of drugs, equipment, supplies and human resource (Ministry of Health, 2005), therefore the facility is not always a good alternative.

In many developing countries, including Malawi, initiatives have been developed to train TBAs. Studies show that training of TBAs can dramatically reduce maternal mortality and other obstetric complications with very low costs and utilizing the existing resources (WHO, 1990). Recent studies in Pakistan, Bangladesh, Guatemala and Malawi (WHO, 2009) where researchers worked with TBAs to improve health behaviours found positive results in terms of an increased number of referrals by TBAs to health services (MacArthur, 2009). The trial in Pakistan found a significant effect of TBA training on perinatal mortality, with a 30% reduction (from 823 to 1077 deaths), corresponding to rates of 85 versus 120 deaths per 1000 live births and stillbirths in the intervention groups in comparison to the control groups, respectively. Maternal mortality was reduced by a similar amount (26%), but this relationship was not statistically significant. The Bangladesh study found a significant increase in the proportion of TBAs who advised on the timing of the introduction of complementary foods for pregnant women at three and seven month follow-up in the intervention and in the control group. The Guatemala study studied peri-natal mortality in a subset of women who were referred by TBAs to an improved health-care facility - available to women in both the intervention and control areas. The study found that among women who were referred by TBAs before and after the intervention, mortality was significantly reduced from 22% to 12%; among referred women in the control area there was a non-significant reduction in mortality from 17% to 12%. The main conclusions of these studies thus were that the potential to reduce perinatal-neonatal mortality by TBA training and health service linkage, alongside improvement in maternal health services, is promising. However, the number of studies turned out to be insufficient to provide enough evidence to establish the effectiveness (WHO, 2009).

In Malawi, the government -recognizing the acute shortage of staff in the midwifery profession- introduced the TBA training program in 1992. Especially in the rural areas, TBAs -whether trained or untrained- do play an important role in the provision of delivery and other maternal and child health services. By the year 2008, there were over 5,000 TBAs in Malawi out of which the Ministry of Health had managed to train just over 2000. Only the trained TBAs were given a delivery kit. They were encouraged to refer all 'at risk cases' to the hospital although logistical issues contributed to making the referral issues quite a challenge (Bisika, 2008).

[8] Additional authors mentioned here played a key role in developments of the CBSM project. The two main authors, Sibande and Hutter, are responsible for the final texts in this report.
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The objectives of the Malawian TBA training program were that TBAs should be able to:
- provide clean delivery services
- provide antenatal care services
- refer at risk mothers to health facilities
- promote post natal care and early breast feeding

This was thought to be the means by which Malawian rural women would be able to access maternal health care. The government developed a training manual which was used in the trainings of the TBAs. A first training lasted for four weeks, a refresher trainings would be conducted for two weeks. At the end of the initial training, TBAs were given delivering kits with all the necessary supplies to make sure they were going to provide clean delivery services. The kits also contained supplies to use during the ANC visits. Once they went back to their homes (working places) they were supported to report on their work to the district TBA coordinator during her supervision exercise. During her supervision, both the trained and untrained TBAs were supposed to be supervised and given supplies, for all of them were working. Those not trained were also registered and when the training was prepared, the TBA coordinator could select from the list which was already available. The TBAs were supposed to have frequent refresher courses but because of the inadequate resources, years past before some TBAs went for a refresher training. Likewise, the supervision of the TBAs was challenged. So, most TBAs were working with very little knowledge and which in most cases was not updated. In this approach, TBAs were mainly offering delivery services; the other services were given little attention (Mangochi District Hospital, 2006)

In 1996, UNFPA conducted an evaluation of the support provided to the TBAs and they concluded that the effectiveness of TBAs could be increased, if their programmes were part of the broader national strategy to improve reproductive health. They recommended that TBA programmes should include adequate supervision, transportation and provision of supplies. Also, the report recommended that TBA programmes should increase efforts to ensure the availability of supplies to conduct a clean delivery since this is essential for TBAs to follow aseptic procedures.

According to the findings of the 2000 Malawi DHS (NSO, 2001), the proportion of deliveries being attended to by TBAs increased between 1992 (18 percent) and 2000 (22.7 percent) by about 5 per cent point. This could mean that the TBAs became more popular, maybe through the expansion of TBA training program and their growing integration in the formal health sector. But it could also mean that the formal health system became increasingly difficult to access.

Studies evaluating the effectiveness of the TBA programme in Malawi indicate that not all TBAs were trained, that only those trained were given supplies, but that both the trained and untrained were practicing. Studying effectiveness of TBA (Bisika, 2008; UNFPA, 1996), both studies had the same findings on lack of supervision of TBAs, TBAs were not offering clean deliveries because of lack of supplies and they had no transport to refer mothers to health facilities.

In 2007, Malawi implemented the WHO ban on TBAs. TBAs were banned to provide delivery services. The rationale for this ban was that low-skilled TBAs were unable to identify obstetric emergency cases, at an early stage. Delays caused by poor transport infrastructure and the paucity of medical facilities contributed to the high incidence of maternal deaths. It was hoped that by preventing TBAs from practicing, mothers would utilize the country's medical facilities, but nearly half of all deliveries still occur outside medical facilities (NSO, 2005). There is seemingly evidence indicating that the TBAs did not completely stop working, but that they had go underground in many areas in Malawi, as is evidenced by the DHS results indicating that institutional delivery is still low.

In October 2010, the Malawi leadership lifted the 2007 ban to help addressing the challenge. As policy makers indicate now: 'We need to train traditional birth attendants in safer delivery methods. We should not completely stop them, because their work is very important. We should train them to assist us in addressing the health challenges that we are facing.'

At time of the inception of the CBSM project (2007), the TBA initiative in Mangochi area had not been very successful as perceived by health workers and the community (see Section 6.4). However, the reality was that TBAs were assisting mothers to deliver: 24.4 percent of all live births in the rural areas (NSO, 2001). Most of the TBAs were elderly women who were well respected and already known to

attend to mothers during labour. Working with the TBAs fitted well in the project's strategy of building on community initiatives in improving maternal health outcomes in the rural areas. Based on this, the College of Medicine initiated a TBA initiative in tandem with the Bicycle Ambulance Initiative, to improve TBA service provision and develop a community-based referral system. A referral system was considered to be critical for the TBA's success, as also a concluded in the 1996 UNFPA evaluation report (UNFPA, 1996).

Between 2006 and 2007, the project trained 45 TBAs in this part of the district. Before the project, already 17 TBAs were trained in this zone, either by the MoH, Save the Children or CHAM. Where the project already worked with all the community leaders in the project area, and also to ensure uniformity in the region, the project took responsibility to work with all the trained TBAs in the area. In 2008, a refresher course was organized for all 62 trained TBAs.

6.1 Formulating and diagnosing the problem

The formulation and diagnosis of the problem of maternal health in the project included:

- identification by health workers of factors contributing to high maternal death incidence in Mangochi. This has already been described elaborately in Section 5, on the Bicycle Ambulance Initiative
- the identification by the community of the problems and the existing situation
  We elaborate on theses aspects now.

6.1.1 Identification of the problem and possible solutions

Regarding the identification of the situation and the problem of high maternal mortality in Mangochi region and regarding the position of the TBAs within this situation, both of the following stakeholders were consulted:

- health service providers and
- the community

On asking service providers and the heads of government departments in the district, both from DEC and DHO (who are united in the District Health Management Team), in focused meetings which factors –as they believe- contribute to the high maternal death incidences in Mangochi, they indicated, among others, that many mothers are not utilizing the maternal health services but seek assistance form TBAs (= Traditional Birth Attendants). They first described the problems with TBAs as:

1) TBAs have no skills to identify complications and handle when they arise.
2) men are not involved; women are involved, even when they take labouring women to the facility. One member of the DEC mentioned: 'I came across a group of women on way to the hospital, I was stopped by them, and I took the pregnant woman and guardian to the hospital. They were walking to the facility with a labouring mother which was about 12 kilometres away; facilities are far away; and men are not involved'.
3) some TBAs delay to refer mothers to the health services because some of them are overconfident even in cases they cannot handle.
4) some TBAs take their service provision as their business and do not want to lose the money they get through the work.
5) the environment for deliveries is not infection free: most referrals from TBAs to their health services came with or end up with infections.

In conclusion, the technical officers said that the hospitals have more ANC clients but conduct very few deliveries. Many mothers are giving births at the place of the TBAs or in their homes and only come to a health facility when problems have developed. This is sometimes too late and then it becomes difficult to save the mother's life.

On asking the community about their needs in the field of maternal health, they –among other things- indicated that they needed a *trained* TBA. The villages had already well known TBAs but most of them were not trained. As said by a chief: 'the TBAs are doing a good job, but we need them to be trained'. The community members said that TBAs are assisting more mothers at time of delivery than the health facilities do. They indicated they have several reasons why TBAs are the best option for providing maternal health care in the village. The reasons can broadly be categorized (see Figure 4) in factors that are related to distance to the health services; perceived quality of care in the health services and costs; preference for known and caring TBAs; and factors at home.

In the words of the community members themselves, as expressed in the initial meetings with the project for problem identification:

a) most of our mothers are delivering in the homes in our village because of the distances, the broken bridges and poverty.
b) the health facilities are far away from most villages: it is difficult for a labouring mother to walk to these facilities, but TBAs are right here in the villages.
b) given the long distances, most villages have no means of transport. We thus either have to use a *machira* (locally man made stretcher) which needs a minimum of four people to carry the patient to a health facility or we use baskets (see Sibande et al. forthcoming on the bicycle ambulance initiative). This is too much to consider, so a TBA in the village is preferred
c) at times we are afraid of elephants at the night, so we cannot travel. So, we wished we had trained TBAs who could assist us, because TBAs would always be here with us in the village.
d) if we go to the health services, at times service providers are not there, and often we meet only the 'green nurses' (the ward attendants who are dressed in green uniform).
e) TBAs at the other hand have passion for our mothers because they are their relatives. Some mothers ran away from the health facilities because of the attitude of the nurses. They were scolded and some of the nurses said bad words such as 'I was not there when you were making your baby with your husband', some have been slapped at times. As people say: 'our TBAs are never rude to our mothers'.
f) the CHAM facilities (Christian Health Association of Malawi) charge costs for all maternal health services. Given the high level of poverty it not always possible to pay; but they pay very little to a TBA who sometimes provides services for free. Sometimes, people just pay in kind.
g) when we deliver in the hospital, we have expenses in the facility and in our home. We are poor, we can not afford that.
f) most women have other children and this makes it difficult for them to leave their families for a long time and wait for labour at health facilities.
i) during the rainy season, mothers are not willing to go to the hospitals, because they want to be in their garden and make sure they have food next year. So, they leave only when they have to deliver. If we would have a trained TBA, women can just go to see her.

The community summarized their problems by saying: 'our other main problem is the most of our TBAs are not trained. Even the few TBAs who are trained, are not supervised, they are not supported. How can they do a good job?'

A solution was identified by the community members and the project. The community indicated: 'In the health facilities you have training. We have heard that you trained some TBAs in X, so we want you to train our TBAs as well. No training- no good work … and give us bicycle ambulances. Training is the solution here'. The health services providers at the other hand indicated that earlier referrals were needed. In analyzing both the concerns of health workers and the community, the project agreed to train the TBAs but only within a participatory approach because of the shared responsibility for the initiative. The aim was to try and address concern from both sides, the main issues being that TBAs are delaying to refer mothers and TBAs are not trained.

The project thus agreed to do the training, but also indicated that they could not train all the TBAs. The community was asked to do the selection of one TBA per village who wanted to be trained. Together the criteria of a trained TBA were discussed. The men in the community indicated that the women in the community should decide about it, as they are the ones having deliveries. Ultimately a TBA who would be worthwhile to be trained was agreed by the women to be a woman who:

- is liked by the community, is polite, confidential, and does not scold the women
- is not likely to move away soon, who is stable and will stay in the village
- has given birth herself and has a good experience in delivering the mothers
- does not disclose experiences in the birth process to others
- is willing and interested to be trained
- is willing to change

- is willing to save her own community without being paid
- if possible, is able to read or willing to learn to write, or willing to learn this.

The project thought the trained TBA should be someone who is young and able to read and write. But in the discussions with the community this turned out not to be possible. The community indicated: young women will get married and move with their husband to the place where they want to stay. Also, not many people are able to read and write in the community. The project thus agreed with the criteria put forward by the community. The project wanted to build upon the existing practices and on those who are already trusted by the community, and are well-known to the community. The project wanted to focus especially on providing the skills to the TBAs.

6.2 Planning the intervention

Planning and preparation of the intervention consisted of the selection of a TBA per village, as agreed upon between the community and the project team, and establishing the Safe Motherhood Fund, as described in chapter 5.

6.2.1 Selection of one TBA in the village

Meetings were conducted at the village level. The village leaders decided that women in particular should be involved in the selection of the one TBA who would be trained in the project. So, it was mostly women and village leaders who participated in choosing the TBA for training. Before the selection, two points of agreement were made:

- the TBA post would be a non-paying post. The project would only meet the cost of the training but when the trained TBAs (TTBAs) work in the village, they will still work as volunteers.
- after the training, only the trained TBAs would be allowed to provide the services. This meant that the untrained TBAs in the villages would stop practicing when the trained TBA returned from her training. This was different from past practice, when more than one TBA worked in the villages.

Then, the village leaders called for a village meeting and voting for the TBA to be selected. The meeting was called for by the village headman. Also the VHC and HSAs, representing the health facility, attended the meeting. In other villages, the TBA coordinator or the community nurse attended the meetings. The project team was not present at this meeting; the name of the candidate TBA to be trained was secured after the election. Sometimes the election process led to problems and fights. For example, some chiefs wanted their sisters to be selected. It was decided that family members of community authorities could not be selected. The elections were not about money, the people knew it was a voluntary post. The elections were about status: to be elected as the best and most trustworthy TBA in the village.

At the time of the elections, the community also promised that they would
- provide money for the bicycle ambulance maintenance (see Section 5)
- build huts for the village to be used by the trained TBA for delivery purposes
- support the TBA with (paraffin) gasoline, soap, and matches, which were to be paid out of the Safe Motherhood Fund.

The names of the TBAs who were selected and who wanted to be trained were sent to the project team. In the first batch, 20 TBAs could be trained; in the second another 20 others. The project team first thought of distributing TBAs equally in the project area. That was however not always appropriate: in some areas the health facilities were already providing maternal health care and TBAs would not be as needed as compared to other more remote areas, and thus fewer TBAs from the former areas were trained.

6.3 Implementing the intervention

6.3.1. Training the TBAs

The training of the TBAs lasted for four weeks. Major topics focused on the main responsibilities of a TTBA and a limited, specific scope of services. TBAs were trained in:
- knowledge needed in order to refer to the health services
- applying skills to perform safe deliveries and post-natal care; however, it was only in limited cases, that is, only for 2 - 4 gravida women without any history of complications during delivery
- Antenatal care (ANC)
- promoting safe places for delivery and postpartum care
- supervision and reporting system
- networking and linking up with the community.

We elaborate the different training aspects in the following.

Safe motherhood knowledge and skills

The Malawian government training manual for TBAs was used as a basis for the training. Some of the topics were revised in order to suit the approach of the project. For example, the manual was very broad and it was geared towards a broad training, while we wanted the TBA to be trained for a more relevant and limited scope. We wanted to stimulate the trained TBAs to conduct certain activities, to be a first point of contact at delivery. We also wanted them to refer pregnant women to the health services in order to enhance access to skilled attendance at the time of delivery.
The TBAs learned that - within the project's approach - their main role was to improve maternal health in their village and their specific scope of responsibilities covered only four main activities:

- providing antenatal care; checking for anaemia (eyes), and position of the baby in the womb, symptoms indicating lack of blood
- referring mothers to health facilities on time
- conducting deliveries only for gravida 2-4 mothers, with no previous history of complication either during delivery or post-natal care
- to advocate for a safe place to carry out deliveries.

In addition, the TTBAs would focus on alerting the community about signs of danger that might occur during pregnancy and childbirth; the preparation for childbirth; the need for male involvement and HIV - testing. This was also reinforced by other means of communication such as the CBSM *chitenje* (blue cloth wrapped around the waist, see photograph), special t-shirts, and educational materials such as posters.

The TBAs were taught theories and were exposed to many practicals and hands-on sessions. In addition, they were taught how to keep records of every service they provided, how to refer mothers on time to the health services during ANC, during labour and in the postnatal period. TBAs were trained to refer all their ANC mothers to the health facilities. We emphasized that after every new ANC visit to the TBA, the TBA should send the client to the health facilities for proper screening, malarial prophylaxis and tetanus toxide vaccination (TTV). To ensure timely referral of pregnant women, TBAs were taught about all the signs of danger during pregnancy, childbirth and the post-partum period and to refer mothers immediately when they observe these signs. They were trained to indicate their diagnosis on the pictorial referral forms after having seen the patient. They were taught to write their names and the diagnosis* in a feedback form which we had designed named *tsatane-tsatane wazotsatira zakuchipatala* form (detailed feedback form from health facilities). We also taught them to be advocates of safe pregnancy and safe delivery.

It was during these discussions about safe pregnancy and safe delivery in the training that the TBAs shared certain cultural customs and practices in their area. For example, the custom was that the first delivery should take place in the home of the patient's own mother but in the presence of the husband's sisters who are there to ascertain whether the baby is really their brother's. The sister-in-law would be in the delivery room and they would mention the name of the husband and – if this did not work to 'get the baby out' - then the names of the brothers of the husband would be called out, for example, 'If this baby is John's baby, then there is Edward, David ... etc ... (names of the brothers). Let this baby be born.'

If the baby was born, it was seen as proof that the baby was indeed the baby of the husband of the patient. The sisters then take care of mother and child for about 2 weeks, which is the tradition. If the baby is not born, and the delivery took more time, and all the names mentioned and the list of brothers exhausted, it was seen as proof that the baby was someone else's, i.e. the must have had an extramarital relationship.

The sisters would leave immediately, leaving the woman in labour with her mother and her sisters, and the relationship between husband and wife, thus the marriage, would end there. Related issues were subsequently included and discussed in the training: that there are other reasons why a baby is not born.

Another example refers to the importance of the role of the maternal uncle of the mother in labour. The people in the project area practise a matrilineal system. Only the maternal uncle has the power to take important decisions, including decisions regarding delivery: where and when to go for medical help.

Supervision

Supervision is an integral part of the training. TTBAs were informed that they will be monitored every month by the HSA (Health Surveillance Assistant) and their village leaders. The HSA collects data on what the TTBAs have done in a month, they report to the health centre which then compiles and sends the data to the project office. Moreover, the midwives, the project staff and DHO conduct quarterly supervision activities both at health centre and at TBA service points. During such an exercise TTBA records are checked to verify the compiled reports; their service delivery point *(chipolata cha azamba)* is checked to ascertain whether all the requirements are met including, a patients toilet, birthing hut with three rooms (ANC, delivery and postnatal), a patient's kitchen and *thandala* (structure for drying kitchen utensils) as well as the cleanliness of the delivery kit. The TTBAs receive grades for this. In the records the focus is more on referrals than deliveries, outcomes of their referrals and deliveries, and whether there were any maternal deaths/neonatal death. The best performer will receive an award during the next TTBA quarterly meeting.

Networking and linking up

An important aspect of the training also includes linking-up the TTBAs with the community. The TTBA were taught - as they are automatically members of the VHC - to ensure a good working relationship with the VHC members, especially during referral periods. It was stressed that in case a bicycle ambulance was needed for transporting a pregnant woman, they should inform the VHC member and the village headman. If the patient refuses to go to the health facility, then the village leader and the VHC should come to convince the patient and the guardians. This was to ensure team work and collaboration, and to strengthen networking in the community.

Best TTBA

In order to ensure that the TTBAs work within their specific scope, an award system was initiated and TTBAs themselves were also asked to provide criteria by which to judge the best TTBA performer/ TTBA. The criteria identified were:

- has referred more mothers to the health services; and the TTBA has feedback on some of the referrals
- the TTBA delivered only mothers within their second to fourth pregnancies, who had no history of complication in their previous deliveries
- the TTBA referred mothers on time, that is, women who were not diagnosed as being a delayed referral in the health facility feedback report
- no maternal death occurred in that period, and she kept the facilities under her responsibility clean
- the TTBA with a clean TBA kit and good record keeping.

This best – TTBA award has created a kind of amiable competition among the TTBAs: who has the nicest delivery hut, and who has the best new ideas (e.g. a ventilation window in the delivery hut).

TTBA Delivery Kit

At the end of the training, the TTBAs were given a kit with delivery supplies such as a hurricane lamp, cotton wool, cord ties, spirit for cord care, aprons and gloves, stationery (recording forms and writing material) and protective materials.

In the first year, 20 TBAs were trained. The community members (both women and men, and especially the pregnant women) however requested more training of the TTBAs. They argued that each village should have their own TTBA to ensure better coordination during referral activities.

During the 4-week training programme of the TBAs, the village leaders had two main roles to play, i.e. to convince and make the untrained TBAs in their villages stop practising and prepare to support the TTBA immediately when she returned from the training.

6.3.2 Preparing for reintegration of the TTBA in the community

Community leaders took an active role in preparing for the reintegration of the trained TBA in their village. The village leaders based their preparation on the specific scope of TTBA services as defined and included in the leaders orientation meeting that was held to discuss improved approaches to safe motherhood. The agreements made with the project team on their role in supporting the TTBA were about supporting the TTBA during referrals and monitoring, and the outcomes were to be reported to the VDC and ADC meetings.

The village leaders held several village meetings, explaining all the agreements and roles including the specific roles of the trained TBAs in promoting safe motherhood. They further explained the actions to be taken while the TTBA attended the training. The leaders reminded their members to establish and contribute toward the Safe Motherhood Village Fund (see chapter 5) to meet expenses incurred by the TTBA and as a condition for receiving a bicycle ambulance (see chapter 5). They also explained that mothers had to stop going for assistance from untrained TBAs in the village. It was also their responsibility to buy paraffin and soap for the TTBAs.

Women in the focus group discussions said that their village headmen discussed the following at those meetings:

> There are by-laws which stipulate that every pregnant woman must undergo ANC provided by the TTBAs, but only those who have had 2 to 4 pregnancies and those women with no history of complication during previous births *(popanda chovuta mbuyomo)* can deliver under the supervision of a TTBA. All first pregnancies *(mimba yoyamba/kuswa mphanje)*; fifth pregnancies and above, and all who had problems with previous pregnancies and births must deliver at the health facilities. He warned us that if this is not respected we will pay penalties in the form of goats either to him or the TA. (Traditional Authority, then chair of ADC; now adviser)
>
> In order to carry out our referrals, the project will give us a bicycle ambulance. This is our property; we will maintain it ourselves with the Safe Motherhood Village Funds *(chikole)*. The bicycle ambulance is given to us because we have a trained TBA who will know when to refer pregnant women as she is being trained in these matters.

The project team thought of distributing bicycle ambulances only in villages where there was a TBA to be trained, but the community persuaded the team to give bicycle ambulances to all faraway villages that had contributed to the agreed maintenance village funds. Villages with both a BA and TTBA were proud about the fact that they could boast of both.

Village headmen further gave the following explanations:

> A TTBA - as it has always been - is a volunteer. The project only helps us to train her but we are responsible, we will be buying soap, paraffin and matches for her every month, so my VHC will always monitor how these are being used. TTBAs will have to use these items for the intended purpose, for you women. HAS will check every month for example whether she only had day deliveries. We will restock only soap and not paraffin because she does not use the lamp during the day. So we need a Safe Motherhood Village Fund, by next week, VHC members will be collecting this money door to door, each household pays so much…….from next week to… The same money will be used for *chikole* for the bicycle ambulance. We need a minimum of MK 4000 or how much do you think should each house contribute?

and

> When the TTBA starts working she will be reporting on all the work she has done. At times you will see me at her place, but don't associate me with other dirty things like *kufuna chukumbuyo* (looking for the afterbirth). In the current approach, I will be checking on how she is doing her work so that we do not have to use our goats to pay the fine. During an emergency if you refuse to go to hospital, I will go there to help her. If the TTBAs says go to hospital, just accept that it is for your own good. *Mukumva azimayinu* (do you hear me, all you women?)

The VHC members added that the village leaders also asked them to build a birthing hut:

> Also we need to build a birthing hut for you where she will be working from, our TBA clinic *(chipatala chathu chamzamba)*. We should start moulding bricks and some of our builders will build the structure. We will ask the project for the plastic roofing. This is a good development. Do you have any ideas? Let's discuss.

6.3.3. Stopping untrained TBAs from practising

The headman and the VHC members, in some cases joined by HSAs, held talks with all untrained TBAs and told them to stop practising. HSAs explained in the focus group discussions that in these talks the village leaders were giving facts to untrained TBAs about why they had to stop practising. Facts from the leaders were based on the by-laws formulated by the ADC and the agreement they made with the project team in order to improve maternal health and TBA service provision.
The HSAs said that the village headmen stated the following facts:

- only trained TBAs are recognized as practising TBAs. They have backing from the village and ADC members, and their names have been sent to the ADC. They will be supported by the government and the project, they will be given supplies for their work and we also support them.
- Village Headman talking to untrained TBAs: 'palibe chawo' (there is nothing for you). If any bad incident happens to you like maternal death or neonatal death, you will pay two goats. I will report you to all relevant authorities, to the TA, the hospital, project team and to the district assembly'. And he added that the TA said 'you are destroying his people' *(a TA kuti mukuwathera anthu awo)*, meaning you are reducing the number of your fellow village members.
- Village Headman: 'The by-law is clear to everybody and is the same every where, *muzivutika pachabe* (you will be working hard for nothing), in fact you will just invite trouble for yourself if this happens.'

The VHC chairman added that the village headman pleaded with untrained TBAs to stop delivering babies and that the village headman gave them deadlines:

> It is good for you to stop, support the trained TBA and learn from her so that after her, it will be your turn, or you can be selected for other roles like initiation counsellors.
> The deadline for you to stop is the day when TBA X comes back from the training.
> If you have concerns I am available, and if women insist that you attend to them you let me know, because the same women voted for your colleague, and you are the witness. So start preparing to stop when it is time.

At a different meeting, the project team asked chiefs why they had to prepare untrained TBAs to stop their practice.

The Group Village Headman said:

> This is a psychological issue, the pride associated with TBAs in our communities is strong and significant, and because it is related to saving life, when they say 'I delivered this child!' *(mwanayu ndinabeketsa ine)*, which is very special. They need time to accept this.

6.3.4 Integration of TTBAs in the community

After the training, the TTBAs went back to their village and they had given an account to the village headman about all that they had learned in the training. They also confirmed that their tasks were limited in scope. The project required that the HSA to accompany the TBA on that visit to the village headman.

The project team organized an ADC meeting where the ADC members were briefed about the TTBAs who received training. The limited scope of their work was emphasized again. Also support was asked from the ADC to persuade untrained TBAs to stop delivering babies. Then the project team, together with the district and the health centre team (midwife of the centre, senior HSA), went for another village meeting where a bicycle ambulance was donated (see Section 5). Since most bicycle ambulances were donated to faraway villages, which were also the same villages where TBAs were trained to ensure improved and timely access to health facilities.

The project team then officially returned the newly trained TBA to the community, and introduced the new scope of the services: what the community could expect from the TTBA.
The Village Headman then announced that only their trained TBA was authorized to provide antenatal care. If untrained TBAs were found working, then they would have to pay a penalty.

At the launching of this new phase, the village headman is expected to reinforce the by-laws and emphasize that the TTBA would work within the defined parameters of her training, as well as promise to support her. He also would call for a new way of networking, in which the TTBA would not work alone, but one which involved everyone in the village to 'police' *(ndimusilikali wa wina)* each other. Whatever the TTBA does, the VHC should know, the Village Headman should know, the community should know. She is not the kind of doctor who knew everything.

Of course not all headmen played their role as expected. One of the village headmen continued to insist that his sister should be trained as a TBA. He also warned that when the selected trained TBA came back, no - one from the village would consult her. And it turned out as he predicted. However, when the wife of his nephew went into labour, the untrained TBAs were unable to deliver the baby and ultimately the headman had to refer to the trained TBA. After that, women started delivering at her place.

6.3.5 Establishing the Safe Motherhood village fund

The Safe Motherhood Fund was initiated in collaboration with members of the community to provide readily available funds which will be used to maintain the bicycle ambulance and to buy supplies for the trained TBA in the village. The Safe Motherhood Village Fund has been described in Section 5.

6.3.6 Delivery huts and waiting rooms for delivery

As already described, the community promised beforehand that they would build a delivery hut so that the TTBA could carry out her work. In the event the hut was not ready, the trained TBA was supposed to work in a designated building in the village. In the construction of the delivery hut, again a participatory approach was adopted. The project team and community discussed how the delivery hut should be constructed: how many rooms, the beds in the rooms, the location of the toilet, the placenta pit, and so on. The only fixed requirement was that the delivery, antenatal and postnatal rooms should be separate. The community then provided the labour and built the delivery hut. The TBA themselves could decide on the beds. The women in the village brought grass for the roofing; the men cut trees and made the framework of the roof. For privacy reasons, the delivery hut was located away separated from other households, which afforded privacy to any woman in labour. Moreover, fences were built to separate the toilet and so forth. The delivery huts are kept very clean. As a doctor from the health headquarters zone remarked: 'some birthing huts were cleaner than health facilities'.

Several TBAs constructed waiting rooms where women can wait for delivery.

6.3.7 Record keeping

The TTBAs were also taught the importance of written records. Since most of them were not able to read and write, the Ministry of Health designed pictorial forms on which TTBAs could tick off the services that had been offered. They were taught how to tick and how to instruct an assistant on what to record and how to add up the totals at the end of each month. The majority of them could ask their grand children/ husband or the VHC member to do the recording for them. One of the TBAs in Mtima Bii was helped by her husband who carried out the recording and summarized rigorously the total number of deliveries and antenatal and postnatal and referrals cases every month. Also he kept records of all referrals and their outcomes from the feedback information. The following provides a description of the process:

- Type of records kept
  TTBAs were taught to keep records of any services they provided in the approved files, and to complete information on:
- deliveries on the *kaundula wa azamba* (TBA delivery record form)
- ANC visits (on the reverse side of the *kaundula wa azamba*)
- referrals during pregnancy, labour and after delivery
- type of conditions under which a referral was made on the *kalata yotumizira wodwala kuchipatala*

(TBA referral) form, and
- outcomes of all referrals on the *tsatanetsatane wa zotsatila za kuchipata* (detailed feedback record form)

• How to record

As already mentioned, the TTBAs were taught to tick off the appropriate pictorial representations of the services they offered. They should record the date of service, their name, village, month and year in the space provided. The TTBAs were told that they could ask for help in writing from the HSAs, VHC members and other literates in the household in compiling their record.

• Where to send the records

The TTBAs were told that the records were to be sent to the health centre and the project staff through the HSAs, and to the village leaders through the VHC members. HSAs and VHC members visit the TTBAs every month to collect this information; at times village leaders also visit the TTBAs (see further).

• Who to use the records

TTBAs were also informed that different people will use their information, among them the village leaders, ADC members, health workers, district officers and the project team.

• How to use the records

The TTBAs were informed that in general, people will use the information they provided to explain about maternal health issues in this area. Village leaders will use the information as a guide to help them solve maternal health issues in the area.

The TTBAs were told,

If you do well, your village could be a model where people will come to learn how to improve maternal health outcomes while working with TBAs; health workers and the project team will share what you do with partners. They will be your channel to let others know what works in improving access to health facility services in the rural areas.

TTBAs were thus reminded of the importance of their information. In addition, they were told that their written records will be evidence of how they carry out their work, for example, the time of referral to the health services is recorded. For patients who require further treatment at the health facilities, such records are important because the TTBA could be blamed for a woman's death. However, by recording, it becomes clear that the delay was not due to late referral by the TTBA but to delays encountered when patients made their way to the health facilities (see examples chapter 5).

The TTBAs were also told that all village leaders knew about the importance of accurate record keeping, and were preparing other villages members to support the trained TBAs with the same information. Some village headmen said: 'When the TTBA starts working, she will be giving reports on every aspect of her work.'

- A chief explained further that the chiefs supervise the TTBAs and visit them at their place of work, although the traditional custom is that men keep away from places where women deliver. If a man visits a birth attendant, people will say that he wants to buy the placenta which is used in witchcraft rituals by those who want to get rich.

A chief said,

> At times you will see me at her place, but don't associate me with other dirty things like *kufuna chukumbuyo* (looking for the afterbirth). In the current approach I will be checking on how she is doing her work so that we do not have to use our goats to pay the fine. During an emergency if a woman refuses to go to the hospital, I will go there to help her. If the TBA says 'go to hospital' (I will say) just accept that it is for your own good. *Mukumva azimayinu* – do you hear me, all you women?

6.3.8 TTBA supervision

The needs assessment in the focused discussions with local leaders indicated that TBAs were hardly supervised. The project team proposed approaches of strengthening this supervision. All relevant partners agreed on TTBA supervision and its importance was emphasized. Partners included the community leaders, as a response to their own request for supervision and training of TBAs. Health workers, and especially the health centre staff and district TBA coordinator, are also involved in supervision. They also expressed in the focused discussions that due to inadequate resources the TBAs were not being supervised as required. During the training, TBAs were informed about how they will be supervised and by whom as described in the following:

Monthly supervision

• Every month the TTBAs will be visited by the HSAs who specifically supervise sanitation and infection prevention measures. The HSAs will ensure that the surroundings are clean, that the TTBA has a functioning toilet; a rubbish pit; a locally made dish rack *(thandala)*; drying lines; a bathroom and a kitchen. The HSAs also inspect the TTBA's kits and collect records from their forms and information on what they have done in a month. This includes the number of women referred to the health facility; number of mothers delivered; number of maternal and neonatal deaths that occurred during the month and number of first and subsequent ANC patients.

• TTBAs are also visited monthly by their local leaders; either the chief or a task force member and/or the safe motherhood field advisor. These people focus on the services that the TTBA offered in a month: they check the TTBA records and also collect verbal information on the number of referrals, deliveries conducted, outcomes of both referrals and deliveries (maternal death, neonatal death, stillbirth and spontaneous abortions), where exactly they occurred and their collaboration with other local structures such as the VHCs, ADCs and VDCs including fellow TTBAs.

Quarterly Supervision

• TTBAs are supervised by the project staff and the District Safe Motherhood Coordinator, joined by either the district TBA coordinator and/or the Environmental Health Officer. They focus on all areas such as infection prevention, ANC, delivery, and postnatal and referral services offered. They concentrate on verifying the records on how many mothers accessed the TTBA services, what the outcomes were, the nature of support from the community - ADC, VDC, taskforce members; how the TTBAs worked with the health workers and how their problems were solved. This team also collects data on all the services that are offered as identified from the records. The TTBAs are asked for clarifications about unclear cases.

Quarterly review/feedback meetings

• Another mechanism of supervision consists of the TTBA quarterly meetings, organized by the project team and facilitated in collaboration with the District Safe Motherhood Coordinator and the Health Centre senior staff. At these meetings, the TTBAs give reports on the progress, challenges faced, solutions put in place at the community level and support received from the community/HSAs and the project. During these meetings the data that are sent to the project office by the HSA – through the health centre maternity department - will also be verified. TBAs will receive supplies based on work done. For example, if the TTBA made more referrals for delivery at the health centre, she will be given more referral forms and fewer delivery record forms.

• The main objective of these meetings is to promote a participatory approach in solving problems that are identified. For example, if a TTBA had delayed in referring a pregnant woman and the woman died, then the case is discussed at this meeting. Fellow TTBAs and midwives together with the HAS agree on what to do to avoid such outcomes in future. This will ensure a continuous learning process to improve maternal health in the most remote areas. Information collected is used by all the project staff, health workers and the community through the ADC.

• In addition to the yearly TBA refresher courses and the supervision meetings, another productive approach turned out to be the emphasis on the importance of the referral system in the area. The focus is on timely referral, which means referring before the onset of complications. Thus underlying the limited scope of services provided by the TTBAs. Also TTBAs are reminded that their number one role is to be agents for prompt referrals. The TTBAs themselves subsequently renamed their services as a 'signpost

for maternal health services'. TTBAs are also reminded of the support they can provide and receive from different players; cooperation with patients and guardians when referring mothers to health facilities; village leaders to support them in convincing difficult patients to go for health services; and the health centre which sent them feedback on the patients they received from the TTBAs.

6.4 Evaluation of the intervention

As indicated in chapter 5, changes in the CBSM project (where bicycle ambulances, training and referral by TBAs, maternal death audits were combined) indicate in a reduction of the number of maternal deaths in the area, and an increase of institutional deliveries (as indicated by the clinical data for the five health centres) from 33 percent in 2006 to 59 percent in 2009 (see figure 5.8).

6.4.1 Increased referrals to the maternal health services

As indicated in chapter 5, the overall number of referrals of pregnant women by the TBAs in the village to the health facilities increased from 19 in the year 2005 to 254 to 2007, and 395 in the year 2008 (see Figure 5.9). As mentioned earlier, most referrals were made in the ANC period, rather than during labour, indicating that the pattern of referrals has changed. Mothers did not wait until they were in labour to go to a maternal health facility. It also shows improved health-seeking behaviour in that women sought care earlier than in the past.

While evaluating the pictorial referral forms that the TTBAs used for recording, and examining the reasons why they referred women to the maternal health services, it could be observed that the TTBAs referred all pregnant mothers to health facilities for proper management after their first ANC visit to the TTBA. Also, they referred any mother who experienced problems such as bleeding during pregnancy (ante partum or incomplete abortion), bleeding after delivery (post-partum both due to tears e.g.), malaria, eclampsia, convulsions due to high blood pressure, and puerperal sepsis (infections after delivery). They also referred women in labour: all women in their first pregnancy and women in their fifth pregnancy or higher; and any woman with a history of complications during previous pregnancy or pregnancies.

TTBAs used the bicycle ambulances that were donated to their villages to send women whom they referred to the health facility. These were women in labour and those experiencing complications. The TTBAs commented that with the arrival of the bicycle ambulances the referral of women to the health centres was made simple for them:

> These days with bicycle ambulances, I have one of those in our village, when I have a patient, I send for the bicycle ambulance and pack the necessary items for my patient, help her on to the bicycle ambulance, no delays, referring has now been made simple.

The project emphasizes the referral function of the TTBAs, rather than assistance during labour per-se, and the TTBAs themselves accordingly renamed their services as 'signposts for maternal health services' *(ife ngati akalodzela akuchipatala)* in the rural areas.

The TTBAs commented that as they are facilitators for safe places to give birth, that is, the maternal health facilities, it was necessary that they should receive feedback from the health facilities about their referrals. Although the mechanism has been in place, that is, service providers sending feedback to TTBAs through the HSAs every month, the TTBAs themselves said they did not always receive feedback through the HSAs, but had to rely most of the time on patients reporting back after they were discharged. This was seen in the discharge slips that were also found in the TTBA records on their referral outcomes during supervision visits and at quarterly meetings.

TTBAs said that making referrals nowadays is not a problem, and that they receive support from others in the community:

A trained TBA said,

> In my case if the patient refuses to go, I send for the village headman who at times comes with the VHC member and helps to convince the patient and guardians to immediately go to the health facility, the only problem I have is that the health facility does not send me feedback.

6.4.2 Perceived changes

The focus group discussions show that the training of TBAs is an important approach in improving access to facility maternal health services in the most remote areas of Mangochi.
According to both men and women:

- trained TBAs have a specific scope of services that is well known to the community
- they are signposts for maternal health services provided by health facilities
- they are polite and know their roles
- they work with the leaders and not as experts in the villages
- they keep records of the work they have done

and
- they refer patients before their conditions worsens
- they promote male involvement during their referrals
- they are available and right in the midst of the village members

and
- they are proud of good outcomes
- they facilitate getting organized and starting off for maternal health services
- they provide a contrast in relation to the maternal deaths and deliveries that occur under the charge of untrained TBAs in the villages

and
- they work in a team at the community level
- they complement the bicycle ambulance initiative
- the best TTBAs are a model for their colleagues and are a source of pride to the village leaders

Some of these aspects are elaborated in the following.

Increase of knowledge

As indicated by some ADC members, some TTBAs have posters in their birthing huts/workplace. These posters inform people about the scope of their services: they point out that TTBAs provide first aid in maternal health. All the participants shared that these are very effective messages to both the guardians and the patients. This motivates people to opt for maternal services.

One man said,

> They have strong messages for us also. I went to the TBA and I read, *'a wise mother chooses to deliver at the hospital; she awaits her labour and gives birth there'.* I thought to myself that if my wife delivers here then we are both not wise. I quickly changed my mind and went with her to the health facility where she delivered.

One woman said,

> A TBA wrote, 'I only help mothers in their 2nd; 3rd and 4th pregnancies, the rest I refer to hospital for safe delivery'. This was my eight pregnancy. I only asked her to give me a referral letter to stay at the health facility till I gave birth.

A young woman said,

> It was my first pregnancy. I became pregnant in Form Two, then stopped school and got married. I went to the TTBA and read *'akuswa mphanje ine sindtimabeleketsa'* (I do not deliver first pregnancies), I only refer them. I wanted a live child, so I insisted that my parents-in-laws accompany me to the health facility where I gave birth to this child.

Trained TBAs are better than untrained TBAs

Both men and women in the FGDs said that a TTBA was a better alternative than an untrained one. They said that the TTBAs started telling people to go to health facilities for antenatal care; they also posted messages on the wall of their birthing huts to remind clients about the importance of going to facility health services. They said that some leaders also used these messages to convince patients /

guardians to choose facility services.

One man said,

> The two worked differently, the trained TBAs know what to do and the untrained ones work by trial and error and injure women.

One village leader said,

> They were different. The trained ones were given equipment. They received gloves, a plastic (apron) to protect themselves, a basin, a bucket and referral papers, while the untrained had no equipment and did things according to their own view and way.

One woman said,

> The two worked differently, the trained know what to do, they are supervised and supported, we only thank them, the untrained don't know their limits, and they keep on trying until it is late.

Reduced delays in getting organized and starting off

Members of the community shared with the team that with the trained TTBAs – as well as the available bicycle ambulances - the traditional delays in getting organized and starting off for the health facility (see for more details, chapter 5) had been reduced. They said TTBAs were trained and they knew when to refer mothers on time, while other mothers were given the referral forms. Even in complicated cases, they used the bicycle ambulances which were readily available in their villages. TTBAs shared that since men are now willing to cycle their wives to health facilities, this also reduced the time that was commonly spent in waiting for the decision by the maternal uncle (see chapter 5). TTBAs encourage husbands to take immediate action, as one husband indicates:

> I went to the TTBA with my wife, but she politely told me, my wife needed to deliver at the hospital. There was still sufficient time to go to hospital. She asked me to take my wife on a bicycle ambulance, I quickly cycled her and she gave birth at the facility.

One woman said,

> We like TTBAs because they give letters to go to hospital. When you delay going, a TTBA follows up and reports to the village headman

Another woman said,

> TTBAs send us to hospital in good time; maternal deaths have reduced in our area. Maybe to those who are not taking things serious. Also men now support us; I went for antenatal care with my husband, we both had a health talk with the midwife.

Increased male involvement

Women indicate that TTBAs respected their husbands and worked with them in times of referrals. The TTBAs would tell them the reason why they had to refer a woman, and gave the referral forms for the health services. They asked the husbands to go get a bicycle ambulance, and bring their wives to the health facility. As participants indicated, the TTBAs encouraged male involvement, as the TTBAs do not shout at patients and their guardians. The Safe Motherhood advisors also reported that men were involved in this zone; men escort their wives and are present during ANC talks.

One woman said,

> My own husband took me to Chilipa health facility, we first went to our trained TBA, and the TBA told us that I have to go the health facility because I had problems with my other pregnancies. She told my husband to go with me. He accepted and I now have this baby.

And continued,

> In the past men were not involved like this, they only got involved to carry the patient to the hospital.

One man said,

> TBAs are very good, they do not shout at you or at your guardians. I went with my wife to the TBA; she welcomed us, examined my wife, then asked me to go with her to our nearest health facility. But at the facility, they sent us back and shouted at me for accompanying her without female guardians.

He continued, 'But the female guardians were following us on foot.'

Community pride in changed scope of TBAs

In general, both the community members and health workers indicated that the changed scope of the TTBA services (e.g. services limited to ANC, referrals and delivery care of only 2nd to 4th gravidae women) constituted a useful framework by which health workers could supervise the TTBAs. The changed scope instilled pride in TTBAs that they were still recognized as important members of the community, providing a vital service to their fellow village members. The TTBAs said that the limited scope of services gave them a chance to work with much more ease, as nobody could blame them for denying a service that was not within their scope.

One TTBA said,

> In the Chilipa zone we are lucky, unlike in other areas. We only have four services: ANC, childbirth for mothers in their second to fourth pregnancies with no previous history of complications, health services and referrals to health facilities.

Another TTBA said,

> This is good for us, it gives us time to be with our family members and farm in the gardens unlike in the past. I have also put this message on the wall of my hut. So that people read for themselves what I offer.

It was further indicated that trained people now knew and acknowledged that they were trained, when they worked and explained the scope of their services.

As one man said,

> TTBAs in our village are not working ignorantly; they are trained to handle only simple cases, without problems in the past. We monitor this, we as men, we know that all first pregnancies and those with problems have to give birth at the hospital, so we prepare in time.

Another TBA said,

> I was the best TBA because I worked within my scope of services. I was given gifts; they gave me, a *chitenje* (a wrap), a hoe and I participated in the exchange visit to Ntcheu. People admired me when I explained the way I work. I am now recognized as doing good work.

Community participation and ownership

As indicated by local leaders, community members participated actively in all the stages of the TBA initiative (planning, implementation and monitoring) as with the bicycle ambulance initiative. Some leaders said they actually demanded the training of TBAs in their areas, because they wanted a significant change. They indicated that they did not only want a bicycle ambulance, but also a TTBA who could make timely referrals with the bicycle ambulance. The chiefs said these aspects were their own initiatives because they demanded training, they guided its implementation from the community perspective and village members input was substantial. They proudly shared the achievements with fellow community members and visitors wanting to learn from them. They also indicated that in this approach they work as a team unlike in the past. They indicated that integration of initiatives (TBA, BA and community-based maternal death audits) empowered them to make timely referrals.

One chief said,

> We formulated the bylaws to guide these initiatives, because the people dying are our own, no one is a chief if they are no followers, good motherhood makes our villages grow, then you are sure of becoming a chief. The initiatives benefit us.

One ADC member said,

> Nowadays we check on what is happening with TBAs, if untrained TBA assists mothers in their delivery we charged a goat. We work together to help our mothers. If a TTBA is unable to

deliver, we refer the patient to the hospital together. In the past we did not have the Bicycle Ambulance, we used to carry the patients on a bed to the hospital.

One taskforce member also described what he observed during a task force meeting:

As task force members, we visit our TTBAs and see how they work. If there are problems, we tell the ADC. But some village leaders are not serious and very reluctant to work on this development.

The village leaders and chiefs also said that it was very difficult to do away completely with TBAs.

One chief said,

It is difficult to completely do away with TBAs because the distances are still the same, we have no alternatives.

Sometimes TTBAs decide to stop working, making way for the untrained TBAs to offer delivery services. Several chiefs also said that some more remote areas were less accurate and the situation there remained the same. They said that - while they were waiting for a change and solution – it would be better to work with trained TBAs than with untrained TBAs who are 'hiding'.

7. COMMUNITY-BASED MATERNAL DEATH AUDITS (COM-MDA)

Mary Sibande-Kumwanje[12], Jan Hoffman[13] , Agnes Chimbiri[14], Jose Utrera[15] and Inge Hutter

This chapter describes the development and implementation of the Community-based Maternal Death Audits (COM-MDA) within the CBSM project. This is an instrument in a participatory community approach which aims at reducing the first and second delays encountered by expectant women who seek health care. However, as will become clear later on, the initiative also relates to the third delay that hinders the access to quality care for maternal health in the health facilities.

The WHO defines maternal death as the death of a woman during pregnancy or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management. Maternal morbidity is defined as any illness or injury caused or aggravated by, or associated with, pregnancy or childbirth (WHO, 2010).

The general objectives in developing the Community-based Maternal Death Audits were to:

- obtain better insight into causes and contributing factors of maternal deaths in the region, regardless of its place of occurrence, at home, on the way or in the hospital
- enhance the knowledge of both health care providers and the community about the causes and contributing factors concerning maternal death
- thus identify points of improvement for the prevention of maternal deaths in future.

Specific objectives were to:

- record all *maternal deaths* that occur in the community
- invite *villagers to identify* the factors that contribute to maternal deaths, i.e. processes that prevented or delayed a woman from receiving adequate care
- discuss these processes in the audit and *in dialogue with leaders and health workers*, in a *culturally appropriate* way
- address the identified contributory processes in *dialogue with the community*
- *provide knowledge* to the villagers and health workers about the processes in the community
- *provide knowledge* to the *health workers* about the processes in the community
- identify *avoidable factors* related to *health care,* which can be potentially remedied by improving the health services and the quality of obstetric care
- thus *empower villagers* to work on and solve the identified problems, in a way that is best suited to the community.

Thus COM-MDA facilitates villagers to be involved in maternal health issues by identifying underlying factors and applicable solutions that are suitable in the social context and thus prevent similar deaths from happening in the future. At the same time, the instrument facilitates health workers in obtaining more insight in other factors that contribute to maternal deaths rather than only the known direct causes. The instrument has been designed within the overall objectives of the project to improve the access to health facilities and to increase community (and male) involvement in maternal health issues in the region.

7.1 Formulation and diagnosis of the problem

The formulation and diagnosis of the problem of maternal health included the following:

- mapping and identification of existing structures and relevant stakeholders; this has been described in Section 5.1.1.
- identification by health workers of the factors contributing to high incidence of maternal deaths in Mangochi
- identification by the community of the existing problems and situation surrounding maternal health.

[12] Additional authors mentioned here played a key role in developments of the CBSM project. The two main authors, Sibande and Hutter, are responsible for the final texts in this report.
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7.1.1 Maternal mortality in the eyes of health workers

When asking health and technical officers in the district (both from DEC and DHMT) were asked in focused meetings about the factors contributing to high incidence of maternal deaths in Mangochi, they indicated that the majority of mothers seek assistance from TBAs and do not utilize the maternal health services. They also indicated that they do not have much information about these deaths, because only the hospitals were aware of the deaths that occurred in the health facilities. Citing an often-heard comment:

For those (deaths in the health facility) we know about their causes, but we know very little about those that happened in the community, unless the HSA reports on them. As we do not know about the causes, we need to be doing either follow-ups or community audits.

In the event of maternal deaths in the health facility, a facility audit is carried out. They are described by the health workers as follows:

1. When a maternal death occurs in the hospital, a case note is given to the Safe Motherhood coordinator who will report to the Ministry of Health and organize a Facility Audit.
2. The maternal health providers and other staff members involved in a case of maternal death attend the audit which is conducted within a week of its occurrence.
3. No villagers are involved. Only if the patient was referred by a TBA, then a follow-up of this TBA is planned, in order to find out what happened. The role of the TBA in this death is then generally explained to the community.
4. If the maternal death was a referral from another health center, then a follow-up in that health centre is carried out. Then, according to the health providers, they are told how they contributed to this death and the areas in which they should be more involved.

Thus this approach focuses exclusively on what caused the death and who was wrong (in the eyes of the health care providers), all of which pertains only to the facility (or TBA) level. Villagers are not involved at all. The health workers did indicate that community leaders had to be involved to address the community issues, but also pointed out the circumstances surrounding delivery in the villages: 'their (TBAs) environment is not infection-free, most referrals from TBAs come with or end in problems of infection.'

7.1.2 Maternal mortality in the eyes of the community

When community leaders were asked at VDC and ADC meetings about the causes and factors contributing to the high incidence of maternal deaths in Mangochi, they indicated that the health facilities were far away, and that some services charged fees which were very costly for poor people. As such, most mothers are assisted by TBAs, and the majority of these TBAS were not trained. The community leaders also gave their definition of a maternal death, which is the death of a woman during childbirth. In the local language a woman who dies before her baby is born is known as chitumbalala. The villagers also indicated that they were unaware of the causes, but that perhaps the health workers would know.

According to some members of the community:

> When a mother is pregnant we say *ali ndi pakati*, meaning she is between life and death. So when she dies, we know that she was already between death and life. Nature has allowed it. We don't know the causes.

They further said that they remembered pregnant women in their villages who died *(chitumbalala)*. Some said they had heard that some women bled a lot before they die and that some women had severe malaria and convulsions.

Further they mentioned:

> As for those who died in the hospital, health workers do not tell us what the causes were and we do not ask them. At times, health workers come to accuse us for causing those deaths.

7. 2 Planning and implementation of the intervention

The planning and implementation of the intervention consisted of:

- the notification of a death and identifying the time when the maternal audit should be carried out
- the preparation of the audit: where to do it
- the composition of the audit team
- the contents of the audit guide
- conducting the audit

7.2.1 Notification of death, when to do the audit?

When a maternal death occurs in the project area, the project receives the notification through either the health workers (if the death occurred at a health facility) or, in most cases, through the ADC, traditional birth attendants (TBA), health surveillance assistants (HSA), village health committee members (VHC) or the community. The HSAs report the death to the health facility which notifies the project office or the District Safe Motherhood Office. The ADC and villagers will report the occurrence of a death during their ADC meeting or will even call for a special meeting in order to investigate what has happened. To conduct the Community-based Maternal Death Audit, the project – once it gets the information - informs all members involved in the upcoming audit.

7.2.2 Preparing for the audit

The HSA informs the family of the deceased about the date of the audit. He also informs the village headman about the agreed date. In some cases, the village headman plans together with the HSA and informs the deceased family on which date the audit will take place. Following the Muslim tradition, the end of the mourning period is on the 40th day, known as *sadaka* (40th day after burial); the village elders and relatives of the deceased come together to celebrate and mark the end of the mourning period. It is a local feast: people cook and eat together, chat, laugh and ensure that the bereaved are not mourning anymore. It was agreed in the ADC that the audits will be done only after the 40th day, when the mourning period is over. Thus, the audit is carried out at a time that is deemed to be culturally appropriate.

7.2.3 Audit team

The audit team usually comprises seven members:

- from the community: the ADC representative, a group or village head man, and the VHC members (usually the chairman, the TBA)
- the project coordinator
- from the health system: the Safe Motherhood/Reproductive Health zone coordinator, a nurse-midwife, the HSA from the nearest facility.

The team goes to the family / household of the deceased in the village. The family includes the caretaker of the deceased woman, in this matrilineal society it is often the mother or sisters of the deceased; sometimes also the husband. Other family members or villagers (e.g. traditional healer involved) might be included.

Each member of the audit has an important role to play for the audit to be successful. First of all, it is important that both community and the district safe motherhood coordinator and the public health coordinator are involved in the audit. This is important to strengthen the teamwork of those working with the community, and for the local authorities and health workers to share responsibility and establish and maintain a network. As Figure 4 in chapter 5 shows, representatives of both the (bottom-up-oriented) governance system and the (more top-down-oriented) health system collaborate in matters regarding maternal health.
Involving the community leaders is important so that the responsibility for maternal health is shared; for the health officers it is important to hear from the family how a maternal death has occurred, which might shed light on other factors which contributed to that death other than the causes known of the health facility.

7.2.4 Where to do the audit?

The family members usually decide on the place where the audit should be conducted. In most cases it is held outside the house within the compound of the house of the deceased. Led by the head of the bereaved family, the audit team and the village headman are taken to the selected spot. All members sit on a mat that has been laid out. In most cases only the village headman sits on a chair. As the members are still grieving because of the death, the audits are always done outside the house, within the compound: this gives the impression that the meeting is organized for the sake of the deceased and that it does not

focus on blaming the family. Usually the family members make sure that the orphans (children of the deceased) are around, so that the audit team can see them and probably suggest how they can be looked after, especially the youngest ones. The arranged place will always be a quiet place with few disturbances. Members sit in a semi-circle.

Creating a safe atmosphere

It is extremely important to create a safe and non-accusatory atmosphere. The ADC represents the TA and explains why the team is there; this helps to calm the family members and provides the message that even their TA is concerned and supports the audit. The ADC's presence in the team and his leading roll provides the message that 'he is one of our own, he has authority and knows what we feel'. The HSA is the health worker who visits the house on a regular basis, who helps the family in getting organized and receiving the audit team, together with the VHC member. The presence of both helps to strengthen the link between the villagers and the health facility workers. Also the HSA helps the team to link what happened at the community level to the events that happened at the facility. The VHC talks about the involvement of the village at the time that the deceased became sick and during the burial. This fosters a feeling of solidarity and conveys the message that everyone in the village are affected, thus creating an enabling and safe environment to conduct the audit. It makes sure emotions do not run high and that fears of being accused are reduced. The nurse explains what happened at the facility and the project coordinator plays the role of facilitator to bring all together and facilitate the audit.

The atmosphere should be one of 'we are here for the dead'. It is explained that the objective is to prevent similar deaths from happening in this family and the village at large. The emphasis is that *no one* was wrong but maybe *something* went wrong, and that the audit being conducted is for the welfare of the community. Indeed, there was once when an audit was conducted without the presence of a chief and ADC members. The relatives did not want to give any information and just started to cry: 'Stop reminding me of the deceased, what can I do for these children?' It was not possible to carry out a proper audit at that time.

7.2.5 The audit guide

An audit guide (see Appendix C) was designed with guiding questions for each participant (so-called informants) in order to obtain the whole story about what happened to the deceased. The story runs from the day that the informant became involved with the deceased. Information is collected about what the deceased went through during pregnancy, delivery and her ultimate death. The information thus varies per informant, as each of them related to the deceased in different ways. For example, the closest guardian describes what the deceased woman went through from the antenatal period to labour and subsequently her death. The information includes for example what was said to the pregnant woman, by whom, and what the informant witnessed. Attendants at time of delivery - either a traditional healer, a TBA or health worker - tell the story from the day they started providing care to the deceased. The VHC member VHC and the village headman would tell their story from the moment that they were told that the woman needed health care or when they got a report that she was dead. Also the HSA would start from the day that he/she became involved with caring for this particular client. All the stories together provide a collection of information of what the deceased woman went through, both in the village and at the facilities; from the time that she was alright, through all that happened to her; till her death and burial. This approach of collecting the stories from different perspectives is important for the community to identify factors that contributed to this death: factors which need to be addressed in order to prevent similar deaths in the area. Also, the information gives a clue about where proper care was missing and what may have caused her death - important information for the health workers to help them improve their service provision.

7.2.6 Doing the audit

A Community-based Maternal Audit in the Mangochi area proceeds as follows.

- The chief of the village welcomes the members of the team (see preceding) and explains why this is an important meeting for the family and the community. He/she asks all the members of the team to provide correct information on what happened so they will be able to find out where things went wrong.
- The project coordinator introduces the objective of the audit and emphasizes that this is not a fault-finding exercise but a mission to identify what went wrong and what can be done to prevent such a death in future. This explanation puts everybody at ease to express and give an account of what happened, without any fault finding or blaming. The project coordinator also seeks consent from the team to relay the collected information to the community.

The project coordinator and health personnel take turns to facilitate the audit. This is done to share responsibility and also to build capacity in health workers to carry out the audits. The chief mainly acts as an intermediary to ensure a conducive atmosphere.

Commencement of the audit:

- The first question is posed to the closest guardian of the deceased woman (i.e. the caretaker): either her mother, sister, or mother-in-law, sometimes it is her husband. The caretaker is the person who is able to provide the most comprehensive account of what the woman went through. He/she is asked to tell the whole story: what happened, who were involved, for example the TBA, or the maternal uncle. Those identified as having been involved and who are present at the audit will provide additional information, for example, the TBA will add information on demographic data (age, parity).
- The audit team decides on the next person to continue the story.
- The village headman - who is also the custodian of the graveyard - is asked to tell his story: how did it all happen, and what was his/her role? The latter question is not only meant to obtain all information, but also enables him to know the causes and to give him the authority to address the community when it is time to do so.
- The community-based health service providers, for example, the TBA or traditional healer, are asked to explain what was done in the process. What did the deceased mother complain of? What was said to the mother and family, what did they do for treatment/care? What was the outcome?
  What happened?
- Also, the health care providers at the level of the health facility provide information about the patient: what was her condition, how serious was it, with whom did she come, and when did she come? What was the time? What was the main complaint? What was the diagnosis, what did the health worker do? How did the woman die? If the deceased woman was referred further, members of the audit team also went to the final referral place to inquire about the same issues.

Health providers can also provide information about conditions present at that point in time. For example, there was no power, no electricity, so an operation was not possible; or there was no blood in the blood bank; there were no drugs. Thus, indicating the issues at the point where the third delay (quality of care) in maternal health occurred.
As will be clear the whole episode is very sensitive, and it is very important not to apportion blame to any party during the discussion! We will return to this issue in the following section.

At the end of the audit, all the stories are summarized, and the main contributing causes of specific maternal death are identified. The team does not explicitly look for solutions, because in their view the solutions should not come from a small group of people, but from the whole village. However, possible solutions are mentioned in the audits. The village headman is asked to set a date for a feedback meeting with the community.

- In closing condolences are paid to the family. Those present offer their sympathy and say, 'We are sorry that she died', and especially the mother, sister and children are addressed. Often, some money is given for the care of the children of the deceased [16].

[16] Until now, the project has hardly given money to the husband - only to the mothers, sisters and children of the deceased woman. The project discussed this at length: who loses the most when a woman dies? In this matrilineal society (see before), the husbands joins his wife's household. After the death of his wife, the husband always goes back to his own family. After the 40 days of mourning, he is set free to marry again. This is called kusudzula. At times the husband in questions attends the audit. If the project gave him money, the money would be lost for the family left behind: he often will marry again, to a woman somewhere else. Also, culturally he is not expected to be responsible for these children; they are the responsibility of the uncle (mwinimbumba). Even if the husband would want to take care of the children, the relatives of the wife will not allow it.
Thus, it are mostly the mother and sisters of the deceased woman who take care of her children.

Usually, an audit takes about 3 hours, at the very least. Everyone is given the opportunity to tell his or her story, everyone can express their opinions and feelings.

From the foregoing, it is clear that the Community-based Maternal Death Audit aims not only at deriving information about what actually happened in the whole episode as well as factors that contributed to maternal deaths, both in the village and in the health services but the audit also ensures ownership of the problem, with the different informants/stakeholders, and it empowers several informants - community health workers in their work, women (relatives of the deceased) - to speak out before men.

7.2.7 Need for a conducive atmosphere, no blaming, need for competences

As will be clear, the whole process is very sensitive, and it is very important not to apportion blame to any party in the discussion! From the very beginning, it is made clear that informants have been invited to explain what happened. The fact that the audit takes place in the home of the deceased helps: it indicates that members of the audit team take the effort to come to them, and want to listen and hear their story. The attitude of the audit team should be sincere. Mediation, especially by someone in authority, for example the Chief, is extremely important.

However, the information can indeed be sensitive, e.g. if it turned out that the hospital had left the patient unattended for a long time, or that treatment was not given in time, or patients were not treated at all. The audit team emphasizes that it is important to understand what had happened.

If there is an atmosphere of blaming, it is often at the facility level. For example, a husband took his wife to the health facility. He was not allowed to talk to his wife; she died. The nurse told him that there was no blood. He was very angry, saying: 'my wife was one week in the facility, you did not allow us … now you tell me that she is dead!' There was another case of a man who lost his wife. She was in the hospital for one month. When she died, the family asked: 'she was on time, what did we do wrong?' The project mediated, the woman's family went to the hospital, and talked to the DHO.

In order to be able to organize and conduct a Community-based Maternal Death Audit, certain competences are needed such as very good communication skills; a feeling for people or empathy; awareness of what is good for the community; mediating skills; social network capacities such as identifying the different roles that different people play; a willingness to work with the community; and a wish for transparency.

7.2.8 Analysis of the information collected

When the audit is done, and all the accounts have been collected, the information is analysed. The recurrent themes in the accounts are summarized and categorized according to identified contributory causes and direct/indirect causes. In addition, information about the following is recorded: age and gravida, education and marital status, the type of facility involved (public, CHAM), and so on. In more recent audits, the audits are recorded, transcribed and analysed (see further on).

7.2.9 Feedback meetings in the community; feedback to ADC and the District

After the analysis, and after a date has been set in agreement with the village headman, a feedback meeting is organized in the village. It is a village meeting in which all the villagers are supposed to participate. The village headman makes some opening remarks, the project team presents the findings. And then, the community is asked to suggest solutions in order to prevent future deaths. There is debate on certain issues and on suggested possible solutions. The aim is to draw a conclusion: this is what we should do the next time. The objective of the meeting is to share information and more importantly to emphasize community ownership of not only the problem but also the solution - thus focusing on empowerment of the community.

The same results are then presented at the ADC; ADC members discuss what they should do to prevent a similar death in their area. For example, the ADC made a by-law that for any woman who dies due to pregnancy/delivery at the TBA's place, the TBA has to pay a goat to the village headman and to the deceased family, as the TBA should ensure that women are properly referred to the health facilities.

However, until now, no such thing has happened and the sanction has not been carried out.

The same results are presented at the District level: what can the officers do to prevent a death from occurring? The objective of this meeting is to create more awareness on maternal health in the villages at the district level by 'translating' the community stories into the health system, thus providing necessary information and enhancing subsequent actions and activities. Also, the information is meant to inform the health system about existing gaps.

The feedback meetings with regard to the Maternal Death Audit - are found to be extremely important as mentioned in Section 7.6 on the evaluation of the intervention.

7.3. Results

7.3.1 An example of a Community-based Maternal Death Audit

The following example of a Maternal Death Audit is based on a case (we will call her Mrs. A) in 2009at Ndembe village in Katema. The audit team consisted of the project coordinator, the district SM coordinator, a senior HSA, one ADC member, the health centre in charge, and the Public Health Officer. The HSA directed the way to the household; he had made prior arrangements for this day so that people would be available. The midwife from Katema undertook the note taking and recording. The project coordinator was the facilitator.

Proceedings:

- At the household level, the HSA began by ensuring that all members concerned for the audits were present. These included; the village headman, the guardians of the deceased woman (mother, father, sister), the orphans of the deceased, and whoever rendered care and support to the deceased before her death, in this case a TTBA and VHC member. The HSA then handed over the meeting to the village headman (VH).

- The village headman introduced the objective of the visit and the reason for the audit. He also asked the guardians to give correct information.

He emphasized,

> We have come neither to remind you of the death nor to find out who was wrong, but find out what happened to Mrs. A … to die like that.
>
> I know she was a VHC member and was attending ANC; I actually met her going for ANC before the elections. And for you who have come, help us know where things went wrong. I ask you to ask relevant questions that can help us obtain information that is correct … you must dig out information with your questions, I now hand over to the one who will lead us.

And he continues by saying:

> As you prepare I can already tell you what I know….
>
> On that day (when Mrs. A died) I was at home. Then a boy came to tell me that Mrs. A had died at the Mangochi district hospital where she was referred to. I asked what happened; the boy said they told me to tell you that she died after the operation, the baby died during at the operation. 'She went yesterday', the boy said. This is how I came to know about this maternal death.

- The project coordinator expressed sympathy, and then started the audit by saying that all were very sorry and touched by this death:

> It is with this concern that we sit here today to hear from those that were close to her during her pregnancy and labour till the time of death, (to hear) what happened. As the village headman has said, together we should have information on *what* went wrong for her to die like this, and not *who* was wrong.

- The project coordinator then introduced the procedure followed in the audit and said that the team will

first ask a few questions on the background of the deceased: age and parity, and past and pregnancies; the choice of place of delivery; the day that she started labour; the day that she delivered; how she delivered; where she delivered. After that, the team will ask the guardians and others to give an account of what they remember about the events.

The father of the deceased said:

> I am not *mwinimbumba* (the maternal uncle), but since we received the information from the HSA that you are coming for this purpose and that the village headman has already begun the proceedings, you can start.

He then called one of his daughters, saying that she was with the deceased woman at the hospital. The guardian showed the health passport which had all the needed information on the background of the deceased woman. The deceased woman was divorced at the time she was pregnant, and her husband was not around.

Then on asking: *What happened as far as you can remember?*
The mother of the deceased was asked to give an account. She was asked: 'What happened as far as you can remember?'

She said:

> She was attending ANC at the Katema health centre. She was a model for all of us, since she was a VHC member. During her ANC period no problems were reported. Then in her last month we went to Katema to await labour. She was admitted to the waiting room, the following day she started labour and was admitted to the labour ward. In the morning the nurses called me to say that she needed to be sent to a big hospital, Mangochi, but they had no transport. They asked me to look for transport.

She continued,

> As you know this village is far from the health centre, I am poor, I have no money. I went to the market and sent a message home, and started looking for transport. All the health workers were waiting for me to find transport. All the vehicles I could find were very expensive for me, they were charging MK 3000-4000. I negotiated with them for someone to take me to Mangochi on credit, so that I could pay later on. This took me several hours. Late in the afternoon, one accepted to assist me on credit. *(She sobs)*…you know I have delivered 12 children all at home with no problems … You introduced safe motherhood and said that we should deliver at health facilities. But here I was left alone to look for transport to refer my daughter to Mangochi; at home my relatives would have assisted me! *(She sobs further)*

The village headman comforted her saying,

> *Basi, madzi akatayikasawoleka* (it's okay, water that has been thrown away cannot be drawn back) … continue to tell us what happened.

While the mother continued sobbing; her daughter (sister of the deceased) added 'it is painful because the nurses did not assist her enough'.

The mother continued:

> We left for Mangochi in the afternoon, we arrived at Mangochi hospital late in the afternoon, my daughter was weak and was unable to walk by herself. I helped her to walk to the labour ward. The nurses asked me where I came from and when her labour started. I told them from Katema health centre and that labour started the previous day.
>
> After they examined her, they told me that we were late, and that her uterus had ruptured. She needed to go for an operation. I agreed to the operation - I wanted my daughter to live. They told me to wait outside, that they would tell me when the operation was over. After a long time they called me and they told me 'Your daughter has been operated on but the baby is dead. She will be coming out soon and will be sent to the serious ward (the intensive care unit), you should go there now'.

I went to this serious ward. A short while later they brought her with a bottle of fluids running. They placed her on the bed, hung the bottle of fluids and told me to keep an eye on the bottle. They instructed me that once the bottle is empty I should go to their office to report, they also told me she was not yet awake. I should keep talking to her to wake her up. Then they left. My daughter had a big bandage on the abdomen. I felt sorry for her: she had a scar without a baby.

After some time the bottle was empty and I went and reported. After a while a nurse came with another big bottle and a small one. She said that the small one contained medicine for the treatment. Again the nurse told me to report when the bottle became empty. It did not take too long before the small one became empty. I went, reported and came back to the bedside. I repeatedly called out to my daughter, she never responded. Then suddenly she started groaning. I thought she wanted to turn and talk to me, as I was trying to help her turn. My colleague (a guard of another patient who had been operated on) advised me not to turn her. She said to me 'she is very sick, do not turn her'. Just go again and tell the nurse about what's happening. I went and reported again.

When I came back, I found her struggling to breathe, after some time she stopped breathing. The nurse came, observed her, checked her hand, arm and chest, then covered her with the cloth and said to me 'She is dead'.

This is how she died. My daughter can confirm that they did not take care of her at the health facilities. A week after burial, this senior HSA here and other nurses from Mangochi came, asking me for the name of the TBA. Where I went to, who delayed us from going to the hospital. I again told them that I never went to any TBA with her. I went to a health centre, then found my own transport on credit to Mangochi. They did not believe me, it hurt! Since then nobody has ever shown up to even ask about the welfare of these orphans. I have told you that the deceased was a VHC member I told you. Now you are here from the safe motherhood. Tell me how I am going to care for all these five children; three have already stopped schooling because we cannot pay for school uniforms.
She finished her account.

The sister of the deceased was asked, 'since you were with her, is there anything else you can add? What else happened that she might have forgotten?'

The sister said:

> She has explained everything, she was there the whole time. Maybe just to add, that at the serious ward my mother was on her own because the nurses told us to be taking turns. I was outside. They called me in when my sister died.

In response to the question,

> Also from the health workers, the senior HSA, what do you know about this death, since you have also been mentioned, and what are you expected to know about this death?

The HSA explained:

> It is true that the deceased was at Katema during labour. Then she was referred to Mangochi hospital. The guardians hired a car to take them to Mangochi; as you know we do not have an ambulance at Katema. The report from Mangochi was that she had an operation due to a ruptured uterus, meaning they delayed going to the hospital, both the baby and the mother died there.

He continued:

> The Mangochi service providers came to follow up on this death. They said she arrived at Mangochi with a ruptured uterus. They were told that she had gone to a TBA. They wanted to visit this TBA, since we did not know which TBA it was, we came here to ask if we could meet this TBA.
> As the mother said, she refused to go to any TBA. It is also true that the deceased was a VHC member and was attending ANC at Katema. I actually met her during her other visits. It is also true that since then we have not come back. But it does not mean we are done with the

children, whenever they are sick, you can come with them to the hospital and remind us that they are the children of the deceased lady. We will assist them to receive good care. About school we cannot do anything, we only try to find and provide support for health-related issues.

In reply to the question:

Maybe the VH can also add information if you have remembered anything else, it could be whether you heard anything like whether she also visited a traditional healer and others?

The village headman said:

As I explained earlier on, I was only told of the death, that she had gone to Katema health centre for delivery. She was then referred to Mangochi district hospital, had an operation and died the same day after the operation, there at Mangochi. It was then that I knew we had a maternal death in my village as we had learnt from the project what a maternal death is. We lost an active VHC member, she was hard-working in most development activities; she was an example to the women in this village.

And he continued,

I do not know the problem but from what the guardians have explained, there are two problems here - lack of transport, which delayed getting to the health facilities, and the care at the serious ward was left to the guardians. We have a paying facility here, maybe if you as a project can help us have a government health centre. By the way, I have not yet received my bicycle ambulance; I need one though in this case there was no delay from the village to Katema.

The VHC chairperson only commented that what had been said was true.

On asking whether there were any more comments, the sister said:

Safe Motherhood messages should continue reaching all women in the villages. Also as the VH has said, if the government could consider building a government facility for us, which provides ambulance service free of charge? You see we were not late, but because there was no ambulance at Katema, my mother had to try to borrow money. It was too much, she had to negotiate about hiring a car on credit, all this delayed the process of getting her to a bigger hospital. Now the health workers are saying that we delayed here at home. Also you as Safe Motherhood advocates, you should not only spread these messages, but also tell health workers at the hospitals that they should not leave seriously ill patients alone with guardians. We go to them for everything, not only treatment. These messages should also be on radios and in plays to reach everybody.

The village headman said:

First, I need my bicycle ambulance. My village has already contributed towards the Safe Motherhood Village Fund as you can see. This village is far from the health centre, but also if we had a bicycle ambulance, we can cycle to the district hospital, rather than wait the whole day for transport to be found. At the health facilities, health workers should be doing what you tell us in the community. These women need their care and attention. Also the health services should not always think that delays only take place in the villages. Untrained TBAs have stopped working. Ask the DHO to consider assisting us with an ambulance at Katema. These poor people – when they are in such situations – are always asked to hire their own transport. These suggestions will improve the situation.

The midwife commented that the other thing would be that village leaders ensure that husbands/partners support the pregnant woman till delivery even if they have separated.

- The facilitator concluded by thanking all the members for coming together, the guardians for giving important information which will be analysed and presented at the coming village feedback meeting. In conclusion, she informed all members present that the village headman and the HSA were asked to organize a feedback meeting to present these findings to village. So that as a village, people can agree on what they can do to prevent similar deaths in future and what they could say to health workers to prevent such deaths. She asked the midwife to convey condolences to the mother, who had left in the meantime. At the very end of the session, the coordinator talked to the orphans on the challenges they have been facing since their mother's death, and asked the village headman toclose the discussion.

7.4 Evaluation of the intervention

In the evaluation of the whole project, which is concerned with bicycle ambulances and maternal death audits *and* training of TBAs and initiation counselors, we analysed clinical data on referrals from the villages to the health facilities and the number of hospital deliveries. We also looked at maternal mortality. Of course, we cannot conclude that changes are due to the CBSM project only. We only report on changes observed. Where the Community-based Maternal Death Audits is concerned, we focus further on changes perceived by the community.

7.4.1 Overall changes that have taken place in the CBSM project

As mentioned before, in chapters 5 and 6, conducting all activities in the CBSM project (bicycle ambulances, training and referral by TBAs, maternal death audits), the community-based maternal death (MD) audit reports show that the number of maternal deaths in the catchment area caused by the first and second delays have diminished. As indicated before, we cannot attribute the decline to the CBSM project alone, but we can sketch the overall changes that took place. In 2005, 19 maternal deaths occurred, out of which 9 were due to first and second delays; in 2008 only 2 of the 10 deaths were due to the second delay and no woman died as a result of the first delay. Throughout the period of the project, institutional deliveries (as indicated by the clinical data of the five health centres) increased from 33 percent in 2006 to 59 percent in 2009 (see Figure 8).

The overall number of referrals of pregnant women by the TBAs in the village to the health facilities also increased from 19 in the year 2005 to 254 to 2007, and 395 in the year 2008 (see Figure 9). As illustrated in Figure 9, most referrals were made in the ANC period, rather than during labour, indicating that the pattern of referrals has changed. Mothers did not wait until they were in labour to go to a maternal health facility. It also shows improved health-seeking behaviour in that women sought care earlier than in the past.

7.4.2 Perceived changes due to the Community-based Maternal Death Audits

As has been indicated in the FGDs (see chapter 3 for methodology), the strength of the Community-based Maternal Death Audit lays in the audit itself and especially in the subsequent community feedback meetings. The community feedback meetings are subsequently taken upwards to the district level.

With regard to the Maternal Death Audits, community participants in the FGDs indicated that the audits:

- made the voices of women and the community heard in the ADCs and at the district level
- ensured feedback to the health facilities on the care that was provided to the deceased
- strengthened the networking and linkages between the community and health workers

The feedback meetings in turn appear to be very important to the community as the former enabled the latter to:

- receive more information about maternal deaths
- increase awareness on the causes of maternal deaths
- enhance ownership of the problem
- promote and improve male involvement in finding solutions to prevent maternal deaths
- modify some risky cultural practices.

The following points about the Community-based Maternal Death Audits were raised at the evaluative FGDs.

Women and community voices were heard in ADCs and at the district level

Women felt that the MDA enabled both community leaders and people at the district level to hear their voices. They said that during the MDA they explained what they went through when they received care in the health facilities and what happened when they were transferred from small facilities to a district hospital. According to a few women, 'Since we are the guardians, during the audit we talk about everything that happened; this information reaches the ADC and also gives feedback to health workers.'

Also local leaders said the approach was very helpful: 'We hear from women what and how they were

cared for.'

This was not the case in the past, when the only information they received about a maternal death was when a mother in labour died before delivering.

One ADC member said:

> The information that women tell is important in development. They use it to revise some cultural values and practices; health workers revise their way of doing things in terms of referrals. Some of the orphans are better assisted after the audits.

A woman said:

> This is a good initiative, now men and community leaders hear our voices; we explain what we went through. Our voices are also heard in the district, like me, I hear they have now changed the referral system; we don't have to hire vehicles.

Bringing feedback to health facilities on the care provided to the deceased

The leaders (ADC members and chiefs) said that the MDA also provides feedback to the health workers. As women/guardians share the experiences about what they went through, health workers who participate listen to how they handled the deceased, how they treated the guardians and the roles they gave them. They also said that they got to hear how guardians perceived their care.

One chief quoted a guardian as having said the following:

> The nurses at the small facility were concerned, they referred me with concern, but at the district hospital, they did not help me. They made me do all their tasks of looking after the patient, yet we went to them for help. The Safe Motherhood people should also be working with health workers to treat us well. This is a good feedback to health workers.

Another leader quoted a husband who said the following:

> One husband said: 'you are not going to do the audit here, unless you come with those nurses who refused to allow me to accompany my wife to the hospital. I have no story; the doctor told me she died because there was no one to give her blood. But I was not allowed to go with her in the ambulance whilst she was bleeding. I took a lift later, when I arrived at the hospital it was too late to save her. If I had gone with her I could have donated blood, the nurses wanted my wife to die.'

As mentioned, in particular the feedback meetings in the community have been very powerful, as indicated by participants in the FGDs.

Notification of pregnancies and maternal deaths

In the FGDs, women indicated that the feedback meetings helped women who were helpless. They mentioned how some local delegated leaders took advantage of helpless women and that once they made them pregnant, they were never supported. The women said that these women were told not to disclose who was responsible for their pregnancy; some women died because of the lack of support to go the facility services, as they had no money. During the feedback meetings about such a death, it was agreed that every pregnancy should be reported to the village leader as well who the father of the child is. The village headman will then make sure that the man supports the pregnant mother.

A local leader said:

> A maternal death occurred in my village. At the feedback meeting, the audit team gave us a report. (It appeared that) the deceased was made pregnant by my counsellor, who had given her a garden. The counsellor told her not to disclose that he was responsible. She delivered at home; she had no money to go to the facility. After delivery she bled to death.

The leader continued:

> I was shocked and asked my village members what to do. At this meeting we passed a rule: every pregnancy will be reported to the village headman. The village headman will make sure that men support the helpless women. Every man should be responsible for making a woman pregnant.

A mother said:

> It (the MDA) helps less privileged women by informing the village headman about who is responsible for the pregnancy and getting supported for these women. Because of this, it was agreed at the maternal death feedback meeting that behind every pregnancy is a man and that he should be made responsible for it.

Increased awareness about causes of maternal deaths

Villagers, including ADC members, indicated that the MDA initiative has raised awareness about the causes of maternal deaths. Villagers know more about the causes than in the past. In the past, a maternal death was a death of a pregnant woman while in labour *(chitumbalala)*. Now the villagers know that maternal deaths include deaths as a result of abortions. The initiative has also made them know more about the causes of these deaths. They indicated that no maternal death is ignored in their community.

A man said:

> Now we know about most of the causes of these deaths, at the feedback meetings we are asked to identify what went wrong for each death that occurred. From the stories told by the closest guardians, we know about delays in receiving care at facilities, or lack of male involvement.

And he continued, 'in the past we suffered in silence and lost our mothers, now we have a role to play. We know the causes.'

One man said, 'the objective of the audits is find out *what* went wrong and *not who* was wrong, so we all participate. We discuss how to solve the identified problems without blaming anybody.'
They said that knowing about contributory causes will allow the community to do something. The health workers in their turn provide information about the direct causes of maternal deaths.

The following account by a village leader illustrates his knowledge about the delays encountered when seeking health care for women in labour:

> A maternal death occurred in my village, it was in the month of Ramadan. They went to our trained TBA. The TBA referred her to the health centre. It was in the late afternoon. The labouring mother decided to prepare the meal for her husband who had been fasting the whole day. The husband said he could not take his wife to the hospital as he was fasting … They had no bike. I gave my bike to pull the bicycle ambulance and found other people to take this mother to the hospital which is 25 kilometres away. All these things caused delays. She arrived at the hospital and they said that her uterus ruptured. The ambulance which took her to the district hospital also came late. She died on the way, because of her ruptured uterus. These days we know about such causes.

And a VHC member said:

> A woman died at our village this year. She lived in town but came home to deliver her baby. Labour started and she went to the TTBA who referred her to the hospital, also because the baby presented itself with the buttocks. The mother (of the pregnant woman) decided to deliver her daughter but she was not trained in this. She delivered the baby but the baby died. Her daughter started bleeding. They first went for traditional medicine, it didn't work. Then they asked us to take her to a health facility. It was late and she was still bleeding. I cycled her on a bicycle ambulance to Ulongwe health centre. There they said she had bled too much. They referred her to a district hospital for transfusion but she died before she received transfusion. We know about these causes.

A young woman said:

> We have also heard that some women die because they attempted an abortion. It is better to go for family planning than abortion. We only need more family planning services in the area.

Men in the FGDs said that the feedback meetings indeed continue to raise awareness about the causes of maternal death in the area, and they also create an environment where villagers hear from the health workers, i.e. the challenges they face in referring mothers to the district hospital. They also indicated that these meetings have assisted villagers to change their practices and values as well as health workers to

improve the services they provide.

A woman said:

> At one feedback meeting it was reported that the nurse told the guardians 'we have no units to call for an ambulance; if you have money you can either buy us some units or you can hire a care. She (pregnant woman) has to go to the district hospital now'. The guardian wanted to save her daughter, bought the units for them, and they called the ambulance; but hours passed and nothing happened. Then the guardian went out to negotiate for a hire. She succeeded and took her daughter to the district hospital. It was too late, her uterus had ruptured. She died the same day after an operation. Health workers (present at the feedback meeting) regretted having done this.

Promotion of male involvement in preventing maternal death

Involvement of men in maternal health has been low, as illustrated in the two following stories.

A woman in the FGDs gave the following account:

> My daughter was married, she was a second wife. She became sick in the seventh month of her pregnancy. We went to the hospital. They said she had malaria for which she was treated. Also she was anemic and undernourished. The husband only gave us some money for meals. He was staying with his other wife at that time. When labour started, we were afraid to go to the hospital because we did not have enough money; it is a paying facility, and the last time they shouted at us. We went to a traditional healer. She died there before she delivered because of anemia.

Sometimes, however, the hospital does not allow them to be involved. They are not present when donor blood had to be organized, which led to the death of the woman in labour:

A woman said:

> My daughter died last year, she went to ANC in the morning. When she arrived at home, she went to pass urine; then she started bleeding. She asked me to take a look. I called her husband who took her back to the hospital on a bicycle ambulance. I followed them. They referred us to Balaka district hospital, for which we hired a car.

As she continued:

> At the hospital they sent her husband away. We stayed for many hours. Then late in the evening, they took her to the labour ward. They asked me to look for donors, and I told them 'You sent him away, the husband. It is now night-time, I cannot walk alone'. I tried to send for him. As he was making his way to the hospital they called us and told us she had died. When we collected her body we also discovered that they had operated on her.

Both men and women in the FGDs indicated that the initiative had improved male involvement. They said that they learnt during the feedback meetings that some of the contributory causes to maternal deaths were related to the lack of or delay in male involvement. They said that when the husbands were away, either with their other wives or had gone to work elsewhere, some of the women died. This is what they learnt during feedback meetings. They also said that after they had learned this, they agreed that VHC members should take such women to the health facilities. They also said that the initiative has helped men to be more responsible for pregnant mothers, when there is a need to go to the health facility. They further said that when they find them (pregnant women) in difficulty on the way to the hospital, they make sure they assist in taking them to the facility.

They said that they had also learnt from this initiative that when they escorted their wives to the health facilities, they should not leave before consulting the doctors to do so, in case they will still be needed. They gave an example of a wife who might need either blood or to be transferred further to another bigger facility. They also shared that they would advocate for male involvement in all the neighbouring facilities outside this catchment area because, in their words 'They are still in the old days where males are not/less involved'. Women said that when they went to health facilities with their partners, they were assisted more quickly. They were respected and they could easily discuss what they were told at the clinic. More men said that they were happy about the changes and proud.

A man said:

> We are more involved, we are exposed to maternal health information unlike in the past when this was only women's business. We as VHC members cycle mothers to the hospital on bicycle ambulances to prevent further deaths. In our village we have agreed that whenever a pregnant mother is in labour, it is our duty to take her to the facility.

He continued:

> We now have bicycle ambulance drivers. No woman should die because of failure to be taken to the hospital in our village. We have to save our mothers.

Another man said:

> After attending a maternal death feedback meeting in our village, I made a decision that I will take my wife to the hospital myself without delay. I asked her to tell her relatives in advance. When labour started, I took her to Chilipa health centre and told the nurses I was waiting outside. I was praying for my wife, women thought I was sick but I told them I was thinking about my wife. They laughed.

And he continued:

> After some time, the nurse came and told me my wife had a baby. I jumped with joy and pride. I asked if I could see her. They told me to wait; there were other patients in the labour ward. They brought her to the postnatal ward *(chikuta)* and I went in; saw my wife and my baby. I am a living example and will always advocate this. It all started with the MDA feedback meeting.

A woman talked about the custom of leaving children of a deceased woman with her mother's and sister's family:

> Men like this initiative, it solves their problems too. I am a task force member. A wife of a village headman died. After forty days, he was asked to go back to his home, leaving all his children with the relatives of the deceased. He said 'I feel sad about our practice; I want to care for my children.' During the audit he asked if he could be allowed to take care of his small children. In the end he was allowed to support them. He was thankful for the initiative because he could still care for his children.

The husband said:

> This initiative is good; it has allowed us men to be involved. We in the community can now discuss with health workers where things went wrong and how the children left behind can be supported. When they came for an audit at our village we asked, 'We did what is required and she died at the hospital, how am I going to care for all these children? What else should have been done?

Community participation and ownership

The FGDs indicated that the MDAs and especially the feedback meetings were very important in allowing communities to find solutions on how to prevent future maternal deaths. The feedback meetings prompted the communities into action on what to do next.

As indicated by the local leaders, villagers participated willingly in the audit and organized feedback meetings. Some leaders said that they actually organized the village meeting themselves and asked the HSAs to inform all the others concerned such as the health workers and project staff. At the meetings, the leaders made opening remarks and informed the participants about the objective of the meeting. The leaders indicated that because the approach respected their culture and the leader's role - they had owned the initiative. They only called on the visitors to present the audit findings and to witness how the action was taken. After this, the village headmen reported to their VDCs and the ADC. The chiefs said that these were their own initiatives because they addressed issues in their villages, for which they received recognition as chiefs.

One chief said:

> We cannot be chiefs if all mothers and new-borns die. Who we are going to rule and guide? We are chiefs because we have people and it is because they were born alive. If we prevent maternal

deaths, we are a healthy village. And we are recognized as leaders.

Modifying some risky cultural practices

Participants in the FGDs and IDIs said that the initiative adopted a good approach: it has facilitated the modification of some risky practices and values, as they shared with the villagers who could freely decide on what to modify. They are involved but not blamed. In previous follow-ups on maternal deaths, they said they were blamed and forced to do something without understanding why they had to do it.

One man said:

> Some years back, a delegation from the hospital came to our village headman. They called for the TBA and told the village headman in our presence 'Your TBA is a killer; she kept the patient in labour for three days, this patient died because her uterus ruptured at the TBA's place. They ordered the village headman to stop this TBA from practising; they took the TBA kit and went off.

He continued:

> They did not ask our guardians what happened. After they had left; the father of the deceased went to the village headman and pleaded with him not to stop the TBA. He said 'It was my fault, we had no transport, I insisted that my daughter should go to the TBA, while I went to inform her uncle, so that he could give us permission to go to hospital. Others were looking for transport. The issue was not the TBA but the transport and the uncle.

And one village leader said:

> This approach helps us assess which are the risky practices and values that we have, and gives us a chance to modify them as best as we can without blaming anybody. We are not after who is wrong but we want to find solutions to identified problems. There is much respect.

Summary

In summary, according to the men and women, the audits have:

- helped them to have bicycle ambulance drivers (male volunteers) who cycle mothers whose partners are either not available or cannot cycle due to other problems.
- made community leaders change the role of uncles (*mwinimbumba*: owner of sisters and their children) to husband/partners (*mwinimimba*: 'owner' of the pregnancy), so that every man is responsible for a woman's pregnancy, until the pregnant mother delivers.
- changed the perception that labour and childbirth are women's business, into one in which everybody is responsible for ensuring that every pregnant mother becomes a healthy mother with a healthy baby.
- empowered community leaders to keep track of every maternal death that occurs in their village.
- helped village members to plan preventive measures to reduce maternal deaths.
- empowered local leaders to interact with health workers on what can be done in order to reduce maternal deaths in the rural areas.
- strengthened networking and linking in improving maternal health in the most remote areas.
- helped to keep a record of every casualty of maternal death that was buried in the village

This has been supported by:

- reinforcement of by-laws on timely referral to health facilities
- reinforcement of by-laws on health facility deliveries; and penalties if a maternal death occurred in the village

and also

- men are proud of their involvement
- they are proud that their ideas are valued and that the situation has improved
- they are proud that they are ahead of most men in other districts, in terms of their involvement in improving maternal heath
- they are happy that other come to learn from them
- they are proud that maternal deaths have decreased in their community

and

- the initiative has created a good networking environment for discussing sensitive issues
- it brings key stakeholders together to improve maternal health
- the community freely participates and their culture is respected
- it complements the BA and TTBA initiatives

8. CONCLUSIONS, REFLECTIONS AND RECOMMENDATIONS

In this chapter we identify six aspects which are important in the participatory action research (PAR) approach: PAR itself; community participation; community ownership; empowerment; male involvement; and cultural appropriateness. We also include possible and noteworthy future developments and recommendations in the separate sections. Finally, we reflect on the limitations of the project.

8.1. Participatory Action Research (PAR)

As described in Chapter 3, a Participatory Action Research approach implies that research is conducted – from the onset – with the explicit aim of social change and improvement of the lives of people. Research is also conducted *with* people rather than *on* people (see e.g. McIntyre 2008, Koch and Kralik 2006). Within a participatory action research approach, not only are research methods such as in-depth interviews or focus group discussions applied, but also meetings, dialogues, and seminars are considered to be methods of information collection. The basic assumption is that knowledge is created at any place and by any person in society.
In fact, as described earlier in the Preface, the CBSM project has been participatory action-oriented (PA) from the very beginning, namely in the focus on improvements in maternal health, decline in maternal mortality, and increased community and male involvement; obtaining information from the community about their perception of problems surrounding maternal health, and what their practices and needs are; and – very importantly – eliciting the community's perceptions of possible solutions.
All these were achieved through focused meetings and discussions. The capacity building project has added the research component of PAR: in its documentation of the project in this report; and the use of more scientific methods of data collection, in the first instance for evaluation purposes only, such as focus group discussions, in-depth interviews and participant observation.
The project thus has been PA from the beginning, while the R has been added more recently. Does this make the project one that fully employs the PAR approach? In our view, the project is (still) only partly PAR. With reference to Van Strien's regulative cycle (1986), additional scientific research methods could be applied as follows:

- At the very beginning of the project – the stage of problem analysis in Van Strien's cycle (1986) – either through a qualitative *situation analysis*, applying qualitative methods in a scientific and rigorous way; and/or a quantitative baseline survey. A *baseline survey* then would not only include the usual indicators of health, but also indicators of degrees of participation, ownership and empowerment (as will be described later on). These indicators could be formulated and operationalized on the basis of qualitative research findings. The findings of this situational analysis and baseline survey are subsequently *validated* with the community and stakeholders concerned, to ensure that the findings indeed reflect what the community and/or stakeholders meant.
- Throughout the different steps of the project, e.g. through *qualitative monitoring* of the processes of the intervention.
- By applying *quantitative evaluation* methods, measuring the indicators mentioned above, after the implementation of the intervention.

It is also recommended that when conducting a PAR project, the processes should be documented from the very beginning, especially the workshops and focused meetings. Recalling the processes afterwards, as had to be done in this particular case, can lead to selective memories being recorded.
It is also essential that scientific researchers involved in a PAR project are at hand to participate in the relevant parts of the project.

8.2 Community participation

The project strongly advocates involving the community, and we can clearly state that community participation is very strong. However, how is community participation measured exactly? And who do we mean by the community?

In the project, the local governance system – as described in detail in Chapter 5 – has been essential for the success of the project. The involvement of the bottom-up governance system (the chiefs, village headmen, Village Development Committees, Area Development Committees) together with the more top-down health system (District Health Office, Health Surveillance Assistants) has been vital. We are convinced that without the local governance system, the project would have been less successful. The involvement of this governance system ultimately led to the formulation of by-laws by the local community. One such by-law was the imposition of a penalty for the death of a pregnant woman – a goat – which the community views as a high price. Hemsteede (2011), in her report on her visit to the CBSM project, rightly reflects that in this way the project makes use of the existing power system. At the other hand, in adopting community participation as a strategy, strong leadership is also needed.

In general, it is thus essential to conduct a stakeholder analysis before starting a PAR project with strong community participation. Who are the stakeholders? Which roles do they play? Where are they involved?

Besides the local governance system and health system, women and men in the community were involved in the CBSM project. Recently, more of the youth have been included.

So, what makes the project really community-based? We summarize the different aspects identified in Chapters 5 to 7:

Bicycle Ambulance paper (Chapter 5):
- The following questions were posed to the people in the community (men and women):
  - What are the problems in maternal health that they perceive?
  - What is commonly done in case of problems during delivery?
  - What are the possible solutions?
  - How can possible interventions be adapted to the needs of the community?
- Making the community responsible for maternal health, through the Safe Motherhood Fund (see sub-section on ownership) and thus repair of the ambulances

In addition, in the training of TBAs (Chapter 6):
- The traditional system of TBAs was used and
  - the community was asked to select one TBA to be trained (TTBA)
  - the community prohibited other TBAs from practising
  - the TBA system was slowly transformed into a referral system
- Making the community responsible for maternal health, through the Safe Motherhood Fund (see sub-section on ownership), and thus hygienic delivery places for the TTBAs

In addition, in the development of the community-based MDAs (Chapter 7):
- the community was asked to identify maternal deaths in the area

- community members as well as development officers and health workers were requested to identify factors that contributed to maternal death:
  - local customs regarding death and mourning were respected
  - discussions were carried out according to the local custom: sitting on the ground in the mats in the compound, for hours together, in a group
  - possible solutions were identified together
- information on contributory causes of maternal deaths flows back into the community, through the community feedback meetings
- information on contributory causes of maternal deaths in the community flows back into the development and health system (ADC, district level)
- causes of maternal deaths were made known to the community so that they can make informed choices

Adopting a community approach thus does not mean that all activities are focused on the community only. Indeed, informed choice and creating awareness and knowledge about relevant health issues are highly needed as well. In the project, this was especially evident in the training of the TBAs, while in the community feedback meetings health-related and local knowledge were brought together and discussed.

In this regard, it would be interesting to elaborate how community participation can be measured (see

e.g. Rifkin 1996); how to identify relevant stakeholders; and how to 'combine' or 'translate' so-called biomedical health knowledge and local knowledge.

8.3 Outcomes of the project: maternal health

In the different chapters, we highlighted the changes that have taken place in Mangochi area. As indicated, the number of maternal deaths has declined in the past years; the number of referrals by TTBAs to the health services has increased; and the percentage of women delivering in the health services has risen as well.

While the project has focused on addressing and reducing the first two delays encountered by women in labour, it seems (especially from Chapter 7) that the next step is to focus on the third delay – a reduction of which will make a difference in saving lives. Chapter 7 provides many examples of the low, and at times inadequate, quality of care provided by the health services.

In addition to the quantitative data (see also the sub-section on limitations of the study), in the qualitative evaluations people in the community indicated that:

- the time to reach the health facilities has decreased with the introduction of the bicycle ambulances
- the referrals by the TTBAs to the health facilities have increased
- knowledge about causes of maternal death has increased, especially through the community feedback meetings

Furthermore, the qualitative evaluations indicate more ownership of the maternal health problem, more empowerment and male involvement. These issues are discussed separately in the following sections.

In future, it is imperative to focus on improvements in the quality of care, and especially the attitude of health workers, as more women are now able to access the health services. In addition, suggestions were made to further improve the bicycle ambulances, including fitting the bicycle ambulances with a motor. Proper transport, which becomes especially crucial in times of emergency, remains a major problem in the Mangochi area.

8.4 Community ownership

The examples mentioned also indicate the importance of community ownership:

- ownership of the problem and the solutions;
- ownership of the Safe Motherhood Fund for repairs of the bicycle ambulances and hygienic sites and amenities for the TTBAs; recording the use of the ambulances by the community
- ownership of the selection of the one TBA to be trained; and others to be prohibited
- ownership of knowledge on causes of maternal deaths

The formulation of by-laws can also be seen as a sign of ownership, by the community leaders.

8.5 Empowerment

The three Chapters provide ample evidence that shows that community members feel empowered in issues surrounding maternal health. Examples include:

- the adaptation of the bicycle ambulance; people feel it is their invention, and even wanted to provide a new name for the modified bicycle
- having the bicycle ambulance at hand, in the village itself; in case it is needed, people can use it immediately, without being dependent on others, or first having to make a carrier themselves as in the past
- women indicated that they feel loved and cared for by their husbands who cycle them to the health services; they felt that they had more privacy at the time of delivery
- the job of bicycle ambulance driver was created, as a result of the introduction of the bicycle ambulance and through the community feedback meetings
- women indicated that they felt that their voices were heard in the Maternal Death Audits, as they are the guardians of those who were pregnant or in labour; as a consequence their voices were also heard in the community and at higher levels through the community feedback meetings
- especially men indicated that they got to know much more about the causes of maternal death from the feedback meetings and that they could make informed choices

It would be interesting in future to carry out more work on empowerment and health issues. The WHO (2006) published a report on health and empowerment, reflecting on different measurements of empowerment such as self-efficacy. Also, concepts such as self-regulation, self-management, popular in the European context, focus on this aspect of empowerment.

The Master's thesis by Olivia Jelenje (December 2011), which focuses on family planning, also pays attention to the concept of self-efficacy in the context of Mangochi.

The findings indicate that empowerment of the community also means that community members have (a right to) relevant information and knowledge on maternal health, so that they can make an informed choice.

8.6 Male involvement

Especially in the evaluative focus group discussions and in-depth interviews, the importance of greater male involvement in safe motherhood was highlighted by the community itself. Men indicated that they felt proud to cycle their wives to the health services, instead of having to depend on others in the community to carry a woman in labour to the hospital; thus the sense of being more involved in the safety of their own wife was self-affirming. In addition, men indicated an increased awareness of the causes of maternal death as a result of the community feedback meetings. Case studies indicated the need for more male involvement, for example in organizing transport where needed or donating blood for transfusion.

The Master's thesis by Dyon Hoekstra (December 2011) provides a very detailed report on how men in the Mangochi area view the importance of male involvement in safe motherhood.

8.7 Culturally appropriate

Several aspects mentioned in the three Chapters highlight the importance of taking into account local and cultural practices in the area, for example:

- cultural perceptions: the ambulances were associated with death; steps were added to the bicycle ambulance to indicate that the ambulance is for transporting someone who is alive; need for women to accompany the woman in labour as her guardians; association with witchcraft during delivery
- the role of the maternal uncle in this matrilineal society, 'owning' the children of his sister; Hoekstra's thesis (2011) indicates that this custom is actually on the decline in the Mangochi area
- respecting the 40 days of mourning after a death

The different theses and reports of the Groningen students indicate that many more cultural practices have to be taken into account.

8.8 Limitations of the project

Several ideas for future development have already been raised in the foregoing. To some extent, they also indicate the limitations of the project and the study. Below are a few of the limitations:

- We cannot be sure about the quality of the quantitative data provided. Hemsteede (2011) shares similar concerns. Have the referrals by TTBAs, deliveries at the health services, maternal deaths all been recorded in the right way? Are there been differences in categorization, in measurements? How valid and replicable are the data? In a society where many people have a low educational level, validity of the data is an issue. In future, the quality of quantitative data has to be ensured and improved.

- In general, the PAR approach can be compromised if the research part is conducted by the same persons who conducted the interventions. In general, this can be done within PAR, as borne out by Van Strien's regulative cycle. However, in our other research projects employing PAR, we exercise caution in our role as researchers and we refrain from immediate participation in the

interventions (e.g. they are carried out by health workers and change agents) and we approximate a PAR approach in that we conduct participatory (qualitative) research which in itself includes an action component. We focus on capturing the voices of the community, citizens, patients or clients. By offering the means through which their voices can be heard and studied, focus groups and in-depth interviews offer new dimensions and create different perspectives of the issues under discussion. In addition, in translating our research for health workers or change agents, we consider ourselves to be a channel through which the voices of the community, citizens or clients can be heard. Moreover, that part of the translation of research is action-oriented. As such, the quality of the research is high because it is conducted more independently from the actual interventions. This is definitely something to be developed further, in the near future.

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Appendix A1: English version Oral Informed Consent for the Focus Group Discussions regarding the Bicycle Ambulance (BA) Initiative in rural Mangochi (men, ADC members and village members)

Hello. My name is _____ and I am working with the College of Medicine - Centre for Reproductive Health. We are conducting a participatory Action research on how bicycle ambulances are used with focus on maternal health in Chilipa zone.
We would like to know more about bicycle ambulances in relation to maternal health and about bicycle ambulances and male involvement in maternal health issues. Also we would like to know whether community participation plays any role in bicycle ambulance initiatives in the rural Mangochi.
This study will gather information on how bicycle ambulances promote male participation in maternal health issues, on how using bicycle ambulance reduces delays in accessing facility maternal health care, and about the significance of community participation in implementing the bicycle ambulance initiative in the poor resource settings. This information will assist the government and other NGOs to implement successful bicycle ambulance projects in the rural areas of the developing countries, such as Malawi.

We would very much appreciate your participation in this study. The discussion is likely to take about one hour to complete. Whatever information you provide will be kept strictly confidential and will not be shared to other persons.

We will be recording this interview with an audio recorder which will be kept safely and which will not be provided to others outside the research team. Participation is voluntary and you are free to withdraw from the discussion any time you feel uncomfortable to proceed. Bearing in mind that your views are important we hope that you will participate in this study.

Do you agree to participate in this discussion?

_____ _____
Signature of Person Obtaining Consent Date

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Appendix A2: English version Focus Group Discussion regarding the Bicycle Ambulance (BA) Initiative in rural Mangochi

Introduction;

Ask everybody for just a very short introduction about health services in the area, specifically about maternal health services.

Available maternal health services

Start easy:

- How are maternal health care services in this area; availability?
  - Probes:
  - *If maternal health care services are available, if not what does it mean?*
- How accessible are these services?
  - Probes:
  - *For distances to service delivery points?*
  - *Advantages of such services?*
  - *Support from partners in accessing these services?*
  - *Commonest means of reaching the services?*
- What are the different types of maternal health services available (in general)?
  - Probes:
  - *Traditional and improved, CHAM and Government services?*
  - *Who provides the services?*
  - *How are they provided?*
  - *When are they provided?*
  - *Who else is involved?*
- What do men /partners do?
- What do women do to access these services?
  - Probes:
  - *During pregnancy?*
  - *And during delivery?*
  - *And after delivery?*
- Which services are most favored by pregnant women?
  - Probes:
  - *During pregnancy?*
  - *During delivery?*
  - *After the delivery?*
- How do women travel to such services delivery points?
  - Probes:
  - *During emergencies?*

Pregnancy, delivery and after delivery

So you all know types of maternal health services, where these services are offered and who provides care at these service points, so you all know advantages of these services during pregnancy, labour and after giving birth

- What is normal during the pregnancy/delivery/first weeks after delivery? (Signs and symptoms in general)
  - Probes:
  - *What are normal signs?*
  - *What are abnormal signs/symptoms?*
  - *When do abnormal signs develop?*
  - *What should communities do to save the lives of the mother and the baby?*

- What can happen if no proper care is sort on time during such abnormal times?
  - Probes:
  - *What complications?*
  - *Death?*
  - *Any experience with given answers?*
  - *Where are stories coming from?*
- How should women be transported to service points of proper care on time during such abnormal times?
  - Probes:
  - *Type of transport means available?*
  - *How easy they are to find?*
  - *Who makes decisions about when to go?*
  - *How are men involved?*

Bicycle ambulance utilization

From health workers I have heard that community members are using bicycle ambulances to transport women from villages to health facilities, during labour, and when women have abnormal signs during pregnancy, labour or after giving birth. What is your opinion on this?

- Probes:
- *How many women have used bicycle ambulances?*
- *Why does the community choose to use bicycle ambulances?*
- *What are reasons behind it?*

- What are the advantages of using the bicycle ambulances?
  - Probes:
  - *What were the outcomes when the bicycle ambulance was used?*
  - *Who were involved in cycling bicycle ambulances?*
  - *How were decisions made to go for facility maternal health care?*
- How do you think the use of a bicycle ambulance reduces delays to access proper maternal health care?
  - Probes:
  - *How long does it take to start off for facility maternal health care?*
  - *How long did it without a bicycle ambulance? Why?*
  - *How long did it take to travel to the facility?*
  - *How long did it take previously without a bicycle ambulance? Why?*

Male involvement

If somebody said something about participation of men;

- You said males are actively involved, can you explain a little more about this?
  - Probes:
  - *How are they involved?*
  - *Specifically who are involved?*
  - *How you feel cycling your partner to health facility on a bicycle ambulance*
  - *Why do you like a bicycle ambulance compared to other available means (machira, gondolo)?*
  - *How do you compare your involvement with bicycle ambulance to with other means? Are there any more examples?*
- How fulfilling are the outcomes with a bicycle ambulance compared to those with other available means?
  - Probes:
  - *How do these outcomes enhance men's willingness to be involved in maternal health issues?*
  - *What is satisfying? How important is your involvement?*
  - *Do men like this involvement? Why / why not?*

Community ownership

Community leaders in ADCs have stressed their ownership of these bicycle ambulances. Saying; I am requesting for my bicycle ambulance for my people in my village.

- How are bicycle ambulances managed in villages?

Probes:

Who is the overseer of the bicycle ambulance initiative?

What is the role of the village leader in this initiative?

What is done to make sure that the bicycle ambulance is being used for its intended purpose?

- How are bicycle ambulances distributed in the communities?

Probes:

What is the role of the ADC at this level?

How are villages to benefit from bicycle ambulance donation selected?

What is the role of the VDC, VHC and the village headman?

What do they do and say?

- Why do you think community ownership is key to the success of bicycle ambulance initiative?

Probes:

What would happen if the bicycle ambulance was owned by either NGOs, or health institutions?

What would be the consequences?

What do community members do to ensure sustainability of bicycle ambulance initiative?

- How do community leaders monitor utilization of bicycle ambulances?

Probes:

Records on use of bicycle ambulances?

Where do they share advantages of bicycle ambulance?

How do they relate use of bicycle ambulance to the reduction of maternal deaths in their communities?

How do they compare challenges with bicycle ambulances to those with other available transport means?

- What is your opinion about this community ownership of bicycle ambulance with the success of the initiative in this area?

Other changes

- Finally; in general, what should be done to make bicycle ambulance initiative more successful than it is now in the rural areas of Mangochi?'
- What would be the possible improvements to be made on the bicycle ambulance so that it serves better the needs of the people here?
- What changes would you suggest in improving how the ambulance is taken care of managed?

Finishing the discussion;

Ask if someone still wants to mention anything we might have forgotten to talk about regarding the research topic. Discuss this if necessary. Then ask if someone has questions about the discussion or about the research itself.

Finalize with thanking the participants, again mention that the results will be dealt with confidentially and offer them appetizer.

Appendix B1: English version Oral Informed Consent for the Focus Group Discussions and In-Depth Interviews regarding the Trained Traditional Birth Attendant (TTBA) Initiative in rural Mangochi

Hello. My name is _____ and I am working with College of Medicine - Centre for Reproductive Health. We are conducting a participatory Action research on facility maternal health services and TBA services in the hard-to-reach areas in this zone.

We would like to know more about the facility maternal health services and TBA services in relation to maternal health. We would also like to know what members of this community think should have been done to improve safe motherhood in the rural areas.

This study will gather information on access and challenges to facility maternal health services, TBA services in the past and their outcomes, and the new roles of TBAs, advantages and setbacks of the new roles in the hard to reach area, the actual situation at hand, What other changes can be made to improve safe motherhood in the rural areas. This information will assist the government and other NGOs to implement interventions that will help prevent mothers dying from child birth related causes and there by improve maternal health outcomes.

We would very much appreciate your participation in this study. The discussion is likely to take about one hour to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

We will be recording this discussion with an audio recorder which will be kept safely and will not be provided to others outside the research team. Participation is voluntary and you are free to withdraw from the discussion any time you feel uncomfortable to proceed. Bearing in mind that your views are important we hope that you will participate in this study.

Do you agree to participate in this discussion?

_____ _____

Signature of Person Obtaining Consent Date

****

Appendix B2: English version of In-Depth Interview Guide regarding the Trained Traditional Birth Attendants (TTBA) Initiative in rural Mangochi

Introduction: Maternal health services

1- How available are maternal health services in this area? How close are they?

2- What are the types of these services are available? How close were they in past?

3- How accessible are they?
Probes:
Where else can you find these services?
Who provides these services? Who else?

4- Can you further tell how these services are offered?
Probes:
ANC? PMTCT?
Delivery services? Postnatal services?

Experiences with past pregnancies / deliveries/FP

5- Can you tell me something about the pregnancies, delivery and family planning services?
Probes:
Where did women go for ANC? Where do they go now?
Who was providing the services? Who else?
How were choices made for ANC? Who was the decision maker?

6- Now tell about delivery services in the past?
Probes:
What did pregnant women do when it was time for them to give birth?
Who were providing deliveries services? Why?
What were the outcomes of maternal health then?

Traditional services

7- Which RH services are offered in the village?
Probes:
When are they offered?
How are they offered? By whom?
Are the service providers trained? How were they trained?
What type of do they offered?

8- How is infertility treated in this community?
Probes:
Is infertility a common problem in this community?
How long does it take to treat infertility problem in a woman?
Who else provides treatment for infertility problems?

9- Tell me more about sexually transmitted infections in this community?
Probes:
Are they common? Which sexually transmitted infectious are common?
How are they treated? Who else?
Why do women like seeking treatment from there?

Traditional birth attendants

10- How were TBAs chosen? How were trained?
Probes:
What were the differences between trained TBAs and untrained TBAs?
Did the difference have any effect on maternal health outcomes? What effects?
How did the community support them?

11- What services were provided by TBAs?
Probes:
Mention all the services?
How were these services provided?
What supplies did they use? Who provided to them? How?

12- Between health facilities and TBAs, where did women prefer to go for delivery services? And why there?

13- Tell me what happened in times of emergencies?
Probes:
How were referrals made to from TBAs to health facilities?
Were they delays in referring? Why?
Who else was involved in deciding to refer a pregnant mother to health facilities?
How were men involved?

14- How did TBAs work with other health workers in the past? And now?
Probes:
How did they work with midwives? With HSAs?
What records were kept by TTBAs? How were they kept?
How did their records reach health information system?
How was their information used? By who?

15- How did the community support TBAs?
Probes:
What support did TBAs receive from village headmen?
From elderly men? From elderly women? From couples?
And from the community?

16- What challenges were faced by the communities with TBA services?
Probes:
How were TBAs supervised?
How were TBAs replaced? Were TBAs employed? If yes by who?
How were TBAs paid?

New roles of Traditional Birth Attendants

17- The government changed the roles of TBAs, Delivering mothers is not their role but referring and advocating for facility delivery services
Probes:
What is the situation in your community?
Which services are still provided by TBAs these days?

18- What are the advantages of the new role in your community?
Probes:
How do new roles improve maternal health outcomes in your community?
How do new roles improve male involvement in maternal health outcomes?

19- What are the challenges with the new roles of TBAs in your community?
Probes:
How are you overcoming these challenges?

20- What do you think should be done in this area to improve safe motherhood in your area, so that fewer women die of getting children?
Probes:

By the government? By the community? By the NGOs?
How should these be done?
What should be your role in this change?

Finalizing questions;
21- How do you think the future will be for the health of community?
Probes:
Future plans for improved maternal health?
Plans for preventing the spread of SEIs and HIV?
Will the health be better or worse?

22- Do you think the situation of the health of mothers in the Mangochi area should be changed? And if so how this should be done?
Probes:
Role of chiefs? Faith based leaders?
Available structures? Politicians role?
Communication challenges?

Other changes
- And finally; in general, what should be done to improve maternal health outcomes in the rural areas?'

Finishing the discussion;
Is there anyone who has questions about the discussion or about the survey itself? Is there anything you would want to still mention?
Once again let me mention that the results will be dealt with confidentially

Thank you for participating

Appendix B3: English version of Focus Group Discussion Guide regarding the Trained Traditional Birth Attendants (TTBA) Initiative in rural Mangochi

Start;
Ask everybody for just a very short introduction about themselves.

Introduction: Maternal health services
1- How available are maternal health services in this area? How close are they?

2- What are the types of these services are available? How close were they in past?

3- How accessible are they?
Probes:
Where else can you find these services?
Who provides these services? Who else?

4-Can you further tell how these services are offered?
Probes:
ANC? PMTCT?
Delivery services? Postnatal services?

Experiences with past pregnancies / deliveries/FP
5- Can you tell me something about the pregnancies, delivery and family planning services?
Probes:
Where did women go for ANC? Where do they go now?
Who was providing the services? Who else?
How were choices made for ANC? Who was the decision maker?

6- Now tell about delivery services in the past?
Probes:
What did pregnant women do when it was time for them to give birth?
Who were providing deliveries services? Why?
What were the outcomes of maternal health then?

Traditional services
7- Which RH services are offered in the village?
Probes:
When are they offered?
How are they offered? By whom?
Are the service providers trained? How were they trained?
What type of do they offered?

8- How is infertility treated in this community?
Probes:
Is infertility a common problem in this community?
How long does it take to treat infertility problem in a woman?
Who else provides treatment for infertility problems?

9- Tell me more about sexually transmitted infections in this community?
Probes:
Are they common? Which sexually transmitted infectious are common?
How are they treated? Who else?
Why do women like seeking treatment from there?

Traditional birth attendants

10- How were TBAs chosen? How were trained?

Probes:

What were the differences between trained TBAs and untrained TBAs?
Did the difference have any effect on maternal health outcomes? What effects?
How did the community support them?

11- What services were provided by TBAs?

Probes:

Mention all the services?
How were these services provided?
What supplies did they use? Who provided to them? How?

12- Between health facilities and TBAs, where did women prefer to go for delivery services?

Why there?

13- Tell me what happened in times of emergencies?

Probes:

How were referrals made to from TBAs to health facilities?
Were they delays in referring? Why?
Who else was involved in deciding to refer a pregnant mother to health facilities?
How were men involved?

14- How did TBAs work with other health workers in the past? And now?

Probes:

How did they work with midwives? With HSAs?
What records were kept by TTBAs? How were they kept?
How did their records reach health information system?
How was their information used? By whom?

15- How did the community support TBAs?

Probes:

What support did TBAs receive from village headmen?
From elderly men? From elderly women? From couples?
And from the community?

16- What challenges were faced by the communities with TBA services?

Probes:

How were TBAs supervised?
How were TBAs replaced? Were TBAs employed? If yes by who?
How were TBAs paid?

New roles of Traditional Birth Attendants

17- The government changed the roles of TBAs, Delivering mothers is not their role but referring and advocating for facility delivery services

Probes:

What is the situation in your community?
Which services are still provided by TBAs these days?

18- What are the advantages of the new role in your community?

Probes:

How do new roles improve maternal health outcomes in your community?
How do new roles improve male involvement in maternal health outcomes?

19-What are the challenges with the new roles of TBAs in your community?

Probes:

How are you overcoming these challenges?

20- What do you think should be done in this area to improve safe motherhood in your area, so that fewer women die of getting children?

Probes:

By the government? By the community? By the NGOs?
How should these be done?
What should be your role in this change?

Finalizing questions;

21- How do you think the future will be for the health of community?

Probes:

Future plans for improved maternal health?
Plans for preventing the spread of SEIs and HIV?
Will the health be better or worse?

22- Do you think the situation of the health of mothers in the Mangochi area should be changed? And if so how this should be done?

Probes:

Role of chiefs? Faith based leaders?
Available structures?Politicians role?
Communication challenges?

Other changes

And finally; in general, what should be done to improve maternal health outcomes in the rural areas?'

Finishing the discussion;

Is there anyone who has questions about the discussion or about the survey itself? Is there anything you would want to still mention?

Once again let me mention that the results will be dealt with confidentially

Thank you for participating

Appendix C1: English version Oral Informed Consent for the Focus Group Discussions and In-Depth Interviews regarding the Maternal Death Audit (MDA) Initiative in rural Mangochi

Hello. My name is _____ and I am working with College of Medicine - Centre for Reproductive Health. We are conducting a participatory Action research on maternal deaths which have occurred in this zone.
We would like to know more about the environment in which maternal death occurred; about the causes / contributory causes to these deaths. We would also like to know what members of this community think should be done to prevent similar deaths in the future.
This study will gather information on the circumstances in which a maternal death occurred, on the type of care the deceased received, on what went wrong for this lady to die. This information will assist the government and other NGOs to implement interventions that will help prevent mothers dying from child birth related causes and there by improve maternal health outcomes.
We would very much appreciate your participation in this study. The discussion is likely to take about one hour to complete. Whatever information you provide will be kept strictly confidential and will not be shared to other persons.
We will be recording this discussion with an audio recorder which will be kept safely and will not be provided to others outside the research team. Participation is voluntary and you are free to withdraw from the discussion any time you feel uncomfortable to proceed. Bearing in mind that your views are important we hope that you will participate in this study.

Do you agree to participate in this discussion?

_____ _____
Signature of Person Obtaining Consent Date

****

Appendix C2: English version of In-Depth Interview Guide regarding the Maternal Death Audits (MDA) Initiative in rural Mangochi

Introduction: Maternal health services
1- How available are maternal health services in this area?

2- What are the types of these services are available? How close are they?

3- How accessible are they? Where else can you find these services?

4- Who provides these services? Who else?

5- Can you further tell me how these services are offered?
Probes:
ANC? PMTCT?
Delivery services? Postnatal services?

Experiences with past pregnancies / deliveries
6- Can you tell me something about the pregnancies, so the time before the delivery?
Probes:
How many pregnancies has she carried in her life time?
Did everything go well?
Had she ever been at risk? If yes what was the risk?
Some extraordinary happenings?
Where did she sort the needed care?
Where did she attend antenatal? Where did she go for delivery?
How were you involved?

Most recent pregnancy
7- How many months was the pregnancy? Any risk factors/complications/abnormal detected during pregnancy?
Probes:
Any extraordinary happenings? If yes what were they?
Where did she go for care? Where else did she go?
How did she travel to the care point?
What type of treatment did she receive?
What happened after the treatment?
Who took care of her during this time? How were you involved?

Time of death
8- What was her status at the time of her death?
Probes:
Marital status?
Died before delivery? In labour? After delivery?

9- Where did the death occur? Why?
Probes:
At Home? At TBAs? On the way? At health facilities?

10- How did she die? When?
Probes:
What happened? Who was the service provider at the time of death?
What type of service was she given? What did they say was the cause of death?

11- What do you think are the causes of neonatal deaths in this community?
Probes:

Availability of care? Access to quality health care? Violence against women?
Cultural practices/values/beliefs? Choice of place of delivery?

12- What has happened since she died?
Probes:
To the children? The husband? To the mother and family?
What did village headmen do? What did HSAs do?
What do health workers do? Who else is concerned?
Cultural observations?

13- If she died after giving birth, how is the neonate?
Probes:
Where the neonate is? How it is being taken care of?
Support from the father? Why is the situation like this?

Expectations of the man
14- What was expected of her partner during pregnant, delivery and after giving birth?
Probes:
Did you help? What did you do?
What were motivated you? What challenges were there?
Present at death?

Maternal deaths
15- What could be done prevent her from dying?
Probes:
Help closely? Arrange medical assistance?
Good food and drinks?

16- What do you think should be changed in your village or area so that less women die of getting children?
Probes:
What? How and by whom should this be realized?
Your role in it?

Finalizing questions;
17- How do you think the future will be for the health of your family?
Probes:
Future plans for more children?
Will the health be better or worse?

18- Do you think the situation of the health of mothers in the Mangochi area (or in the respondent's his own specific village) should be changed? And if so how should this be done?
Probes:
Role of men in this? Possible to change this?

19- What do you expect from the health situation in the Mangochi district for the future?
Probes:
Do you think the health situation in the Mangochi area will improve in time?

Appendix C3: English version of Focus Group Discussion Guide regarding the Maternal Death Audit (MDA) Initiative in rural Mangochi

Start;
Ask everybody for just a very short introduction about themselves,

Introduction: Reproductive Health Care Services
1- How have been reproductive health services in this area, availability?
Probes:
Types of Reproductive Health (RH) services are available?
If not availability what does it mean?

2- How accessible are these services?
Probes:
Where are they offered? Distances to service delivery points?
If family planning (FP) and Sexually Transmitted Infection (STI) services are available? If not what does it mean?

Different types of maternal health services in the area
3- What are the different types of maternal health services available (in general)?
Probes:
Traditional and improved services?
Who provides the services?
How are they provided? When are they provided? Who else is involved?

4- Which services are most favored by pregnant women? With which service provider?
Probes:
During pregnancy? During delivery? After the delivery?

5- How do women travel to these services?
Probes:
During emergencies?

Pregnancy, delivery and after delivery
So you all know types of maternal health services available in you area, where they are offered and who provide services at these service points.

6- How do women access quality maternal health care services?
Probes:
During Antenatal? Delivery? After giving birth?
Who provides care at these three periods?

7- Where do pregnant women like to go for care?
Probes:
During Antenatal? Delivery? After giving birth?
Why do you/they say they like going there?

8- What happens if no proper care is sort?
Probes:
What happens to sort the needed care?
Who makes the decision to go for this care?
How long does it take to go?
What are the experiences in the past?

9- What are the means of transport used to take women to seek proper care?
Probes:
Types of transport means available?

How easy they are to find and use?
How are men involved?
What was the experience in the past?

Family Planning and Sexually Transmitted Infection services

I have heard from village health committee members and some influential local leaders that women have difficulties in accessing family planning and that sexually transmitted Infections (STI) are common in this community.

10- Why is the situation like this?
Probes:
Difficulties to access FP services?
Reasons for common STIs?
How are people infected?
Reasons for the spread of STIs?

11- Who are more infected?
Probes:
Why are they more infected?
Cultural reason? Infertility reasons?

12- How available are FP and STI services in this community?
Probes:
If family planning services are available, if not what does it mean?
If sexually transmitted infection (STI) services are available?
If not what does it mean?

13- How accessible are these services?
Probes:
Distances to service delivery points?
Who provides the services FP? STI?
How often are the services available?

14- Where do men and women like to go for care? Where do youths like to go?
Probes:
For FP? For STI?
Why do they like going there?

15- What happened in the past?
Probes:
Where did women go for FP services? STI services?
Where did youths go for the same services?
Why was it like this?

Maternal deaths / Neonatal deaths

16- What is a maternal death?
Probes:
Deaths following abortion? After giving birth?
How often do maternal deaths occur? How often did they occur in the past?
Why was it so?

17- Have you ever experienced a mother dying because of her pregnancy?
Probes:
Close one? What happened? Could it be prevented?

18- What can you do in trying to prevent the wife to die from having children?
Probes:
Help closely?
Arrange medical assistance?
Good food and drinks?

19- Where are these deaths occurring?
Probes:
At Home? At TBAs? At health facilities? On the way?
Where were they occurring in the past? Why?

20- How do you know a maternal death has occurred in this area?
Probes:
What are the experiences in the past?
If more mothers were dying in the past, what were the reasons?

21- What happens when a maternal death has occurred?
Probes:
What happens to the one who was providing care at the time of death?
What do village headmen do? What do HSAs do? What do health workers do?
Who else is concerned?
What happened in the past?

22- What are neonatal deaths
Probes:
Still birth?
New born death from 7-28 days?
Do they occur?
What was the situation before?

23- What do you think are the causes of neonatal deaths in this community?
Probes:
Availability of care?
Cultural?
Choice of place of delivery?

Male involvement

If somebody said something about participation of men;
24- You talked about male involvement, can you explain a little more about this?
Probes:
How are men involved in maternal health issues?
How do you feel going with your partner for maternal health care (ANC? PMTCT? When giving birth? Ater giving birth?)

25- How were men involved in the past?
Probes:
Why was it like that?
Which involvement do women like?
Why?

26- If in the past men were not actively involved as they are involved these days, what were the reasons?
Probes:
What were the barriers?
What facilitates their involvement/participation these days?
How did you overcome the barriers?

Involvement of important others

I have heard from local leaders that uncles are responsible for their nephews and nieces family issues especially in terms of marriage, pregnancy/childbirth and deaths. Also relatives of the wife are more

responsible than those from the husband side during pregnancy and child birth.

27- How involved are they in reproductive health matters?
Probes:
Who is the decision maker for the size of family?
What is their role during family planning? ANC? When a woman needs to go for maternal health care?

28- What decisions are made for the size of family for the nephews or nieces family?
Probes:
If uncle? Mother? Husband?
Why is it so?

29- How are community leaders involved maternal health issues? And what is their role?
Probes:
In birth preparedness?
During emergencies?
When a maternal death has occurred?
In family planning?
And in preventing the spread of HIV infection?

30- What is your opinion about reproductive health/maternal health outcomes in this community?

Other changes
31- And finally; in general, what should be done to improve maternal health outcomes in the rural areas?'

Finishing the discussion;
Is there anyone who has questions about the discussion or about the survey itself? Is there anything you would want to still mention?

Once again let me mention that the results will be dealt with confidentially

Thank you for participating

Community-Based
Maternal Death Audits
save lives!

Community participation
is the key to success.

Real problems,
real solutions, real change!

Community participation is
the key to success.

Bicycle ambulances
save lives of many
mothers and babies in
rural Malawi.

Community participation
is the key to success!

Trained Traditional
Birth Assistants
save many lives of
mothers and babies.

Community participation
is the key to success!