

Sustainability of Maternal Health Care Interventions in Rural Ghana: The Case of Kassena-Nankana West District

Simon Peter Aziabah¹, Dina Adei¹, Romanus Dogkubong.Dinye²

¹ Department of Planning, Kwame Nkrumah University Science and Technology, Kumasi

² Centre for Settlement Studies, Kwame Nkrumah University Science and Technology, Kumasi

ABSTRACT

The drastic reduction in maternal mortality in rural Ghana is largely attributed to both internal and external interventions, raising the question as to whether reductions in maternal mortality can be sustained without external support. The bigger question is the ability of developing countries to sustain external interventions which have over the years contributed significantly to reduction in maternal mortality in developing countries. Kassena-Nankana District has benefited from donor supported interventions aimed at reducing maternal mortality. This has resulted in high reduction in maternal mortality in the district. The study examined the sustainability of some external maternal health interventions after their period of implementation in the Kassena-Nankana West District.

The study considered three external maternal health interventions implemented between 2009 and 2014 in the district. Detailed open and closed ended questionnaires were administered to two project managers, three health administrators, eight health volunteers and traditional birth attendants and 180 nursing mothers and pregnant women. The study revealed that in spite of implementation challenges, the incorporation of some sustainable mechanisms including; community participation at the initial stages, ease of accessibility and projects' integration within the normal health care delivery system were ensured. These contributed to the delivery of intervention services resulting in positive health behaviours though with minimal existence of intervention activities beyond implementation timelines. However other sustainable mechanisms that should be ensured include, funding beyond external periods, identification of project champions within host institutions, integration of project activities into normal daily routine activities among others so as to ensure the sustenance of intervention activities and successes achieved.

Keywords: Health Care, Sustainability, maternal health, interventions, rural Ghana

1.0 Introduction

Every society expects women to play their role in the delivery of healthy children who will grow into maturity for a social recognition within their communities. However, the journey of pregnancy and child delivery is sometimes one of no return. A woman dies every minute throughout the world, the result of which shatters a family, a community and a society (Hagman, 2013). For every woman who dies in Ghana, 20 or more are challenged with serious complications ranging from chronic infections to disabling injuries such as obstetric fistula (Agyei, 2013).

According to Hogan et al., (2010), more than half a million women and girls face their untimely death due to pregnancy and childbirth related complications each year. Out of these deaths, 99 percent occur in developing countries where Ghana is no exception. Globally, maternal deaths were estimated at 576,300 in 1990 and 535,000 in 2005 indicating a 0.48 percent annual reduction in maternal deaths. In Sub-Saharan Africa (SSA) there were an estimated 192,000 maternal deaths in 1990 reducing to 162,000 in 2010. Similarly maternal mortality ratios indicated a 41 percent reduction in the two decades between 1990 and 2010, with an annual reduction of 2.1 percent. In 2000 the maternal mortality rate was estimated at 740 deaths per 100,000 live births reducing from an initial regional average of 850 deaths per 100,000 live births in 1990 (WHO, 2012:26).

The situation has not been different in Ghana. In 1990 the maternal mortality ratio was estimated at 740 deaths per 100,000 live births reducing to 451 deaths per 100,000 live births in 2010 (MoH et al., 2011:9). That of the Institutional Maternal Mortality ratio stood at 216 deaths per 100,000 live births in 1990 falling to a low rate of 164 deaths per 100,000 live births in 2008 indicating a decline of 24.1 percent between 1990 and 2010, with an annual average rate of 1.2 percent reduction (NDPC, 2010:47). With the current rates of reduction, it was evident that achieving the 2015 targets of 54 and 185 institutional and maternal mortality ratios (MMR) respectively wasn't possible. For the Kassena-Nankana West district, since its creation in 2004, the district has witnessed a

continuous reduction in the MMR right from 2005. In 2005 the district recorded 476 deaths per 100,000 live births falling to 194 and subsequently recording 0 deaths per 100,000 live births in 2010 and 2012 respectively.

Maternal death or pregnancy related deaths are commonly associated with medical causes usually occurring during pregnancy, childbirth and post-delivery (Ronsmans and Graham, 2006) and indirectly as a result of some socio-economic factors such as cost, accessibility and infrastructural constraints as identified by Africa Progress Panel (APP) (2010). Medical related causes of maternal deaths include; haemorrhage, anaemia, prolonged labour, abortion, among others (Bais et al. 2004; Opoku 2009; Prata et al. 2010; Senah 2003). These medical conditions were found by GiveWell (2009) to be exacerbated by indirect health cost including transportation and loss of wages. These add to the already expensive health charges. Access to health care is also challenged by delays in the three-Ts, which are the time to decide to go to the hospital, the time to get there and the time to receive care (HSAO, 2008). In addition, deplorable infrastructure such as roads and health facilities and in some cases their unavailability all contribute to the fatality of maternal health especially in developing countries (APP, 2010).

It is worth noting that maternal health was never given prominence until the 1980s. Discussions on maternal health came into light after John Caldwell's article titled "Routes to Low Mortality in Poor Countries" in 1986 sparked up discourse on the path to reducing maternal health. This subsequently attracted a global conference in 1987 in Nairobi Kenya, the purpose of which was to reduce by 50 percent the high numbers of maternal deaths throughout the world especially in developing countries (Shiffman, 2000). The global promise to a 50 percent reduction in maternal mortality was reaffirmed during series of UN-sponsored international conferences throughout the 1990s, including the World Summit for Children in New York in 1990, the International Conference on Population and Development (ICPD) in Cairo in 1994, the World Summit on Social Development in Copenhagen in 1995 and the Fourth World Conference on Women in Beijing in 1995 (Berer and Ravindran, 2000).

Following these there has been dramatic increase in the attention given to maternal health including research and programmes by developing countries' governments, international agencies and nongovernmental organizations (Maine, 1993). To this effect some interventions implemented over the years include training of traditional birth attendants, provision of skilled delivery services, and distribution of clean delivery kits. Others include safe abortion and post-abortion care, family planning and obstetric care (GiveWell, 2009) as well as training in Emergency Obstetric Care (EOC). Some are the supply of care providers, renovation of existing health infrastructure and improved drugs supply, consumables and equipment for obstetric care, are among the many interventions incorporated in other areas (Nyamtema et al., 2011). With some of the primary causes being medical, complications can best be managed by skilled health care providers at well-established facilities. Another means of addressing maternal mortality is through antenatal care services and that explains why WHO endorses a minimum of four visits for antenatal care including screening and identification of warning signs during pregnancy (Adjei and Agyei, 2013).

With the objective of minimizing causes of death with the implementation of maternal health interventions at the international front, it is consented that a woman needs quality care services throughout her reproductive life. These involve the focus of interventions on offering family planning services, improving outcome during the post-delivery period, providing safe abortions, and increasing antepartum care (Nour, 2008). Thus interventions are implemented in three strategic areas of family planning (conception), skilled delivery attendance (delivery) and Emergency obstetric and neonatal care (postnatal care).

Attention given to the sustainability of health intervention programmes in the Western world has seen growing interest but with little consensus on the concept of sustainability and the operational definitions of sustainability. Shediak-Rizkallah and Bone (1998), pointed out that planning for sustainability requires a clear concept of its understanding and the indicators that affect it so as to ensure the monitoring of sustainability over time. To Smith and Joyce, (2003) sustainability of any project is the persistence over time of a quality of life, or those characteristics that contribute to human and ecosystem wellbeing. Adindu (2010) also defines the sustainability of Primary Health Care (PHC) as the ability to determine continuity of interventions after the exit of external stakeholders. Deducing from these, sustainability can be seen as the persistence over time of a quality of life with the continuity of project interventions through training of community members for proper management of the intervention. Thus, sustainability involves the continued existence of an improved life and projects' activities with a community capacity to manage the intervention or project. Shediak-rizkallah and Bone (1998) identified three areas of measuring sustainability from a continued health benefits, continued program activities and a continued capacity to develop and promote intervention programs. These they termed as the influences of sustainability under the three themes of: project design and implementation factors, factors within the organizational setting and factors in the broader community environment. And these they conceptualised as

factors that should ensure the maintenance of health benefits, an institutionalization of the program within an organization and the building of community capacity, hence an adoption of this concept.

The Kassena-Nankana East and West districts in Ghana have played important roles in health intervention programmes and health research. The existence of the Navrongo Health Research Centre (NHRC) is key in these interventions. Notwithstanding the scholarly attention given to maternal health and the interventions implemented over the years in various countries (Prata et al., 2010; Tawiah, 2007; Zere et al., 2012) much less has been done on the impact of these interventions (Burchett and Mayhew, 2009; Canavan, 2009) as well as their sustainability (Scheirer, 2005).

Notwithstanding the limited information, some achievements have been chalked the world over in the reduction of maternal mortality through the implementation of various interventions both national and international. While most national initiatives at reducing maternal mortality are easily sustainable due to the local strategies adopted at their implementation, same cannot be said of international programmes. The contributions played by international programmes in the reduction of maternal mortality cannot be underestimated placing a need for their continuation even after their planned periods of implementation.

This therefore drums home the need for an assessment into the sustainability of some of the maternal health intervention programmes implemented in one of the demographic districts (Kassena-Nankana West) of the Navrongo Health Research Centre (NHRC) a nucleus of health research and health interventions. This has been particularly so given the fact that the district has attracted a number of donor supported interventions in the area of maternal health, raising the question as to whether maternal health interventions can be sustained after external support ceases.

Undertaking this study, consideration was, therefore, given to three recently implemented maternal health interventions with the aims of addressing the socio-cultural practices that hamper maternal health; improving both the quality and quantity of neonatal and maternal health with the aid of the mobile phone through the capture of patient information; and improving the quality of prenatal and maternal care during facility level delivery of services through the use of a computerised Clinical Decision Support System (CDSS). All of which were implemented between 2009 and 2014 (Catholic Relief Service, 2011; Grameen Foundation, 2010 and Blank et. al., 2013). For purposes of confidentiality, the interventions would be referred to as interventions **A**, **B** and **C**.

All projects right from their design and initiation were to be sustained. The first had a project goal of 'sustaining improvements in the health status and wellbeing...' (Catholic Relief Services, 2011), the second was to be piloted in the district for two years and escalated to other districts as it was to keep health care providers in-touch with clients (Grameen Foundation, 2011) while the last was piloted from 2009-2012, after which the project was to be continued with a final release of a Clinical Decision Support System software to monitor 'antenatal care, care during delivery and up to 24 hours post-delivery' (Blank et al., 2013). With a mind-set that external funding is not always limitless nor is it for eternity, it presupposes that the continuation of these projects at one point or the other would be without external funding or support.

2.0 Study Methodology

The study was a descriptive survey research that adopted a case study approach. Primary data was obtained from four health centres (Fig. 1); two project coordinators of two interventions, three staff of the District Health Management Team (DHMT), four health volunteers, four traditional birth attendants (TBAs) and 180 pregnant women and nursing mothers. The study was conducted in the Kassena-Nankana West District of the Upper East region (Fig.2) between 1st and 14th November, 2014. The health centres were purposively selected based on the comprehensive maternal health care services they provide, thus family planning, skilled delivery services and postnatal care services.as well their participation in the implementation of the three interventions that were studied.

Purposive sampling was mainly used in selecting project coordinators, staff of DHMT and health volunteers and TBAs. Convenient sampling was however used in identifying pregnant women and nursing mothers. This was done by randomly selecting and interviewing the required number of respondents from each health centre. The 180 pregnant women and nursing mothers were selected from an estimated 2,142 population of expected pregnancies according to the Kassena-Nankana West 2013 annual report. The sample size of pregnant women and nursing mothers was calculated using the sample size calculator at a 95 percent confidence level and a 7 percent margin of error.

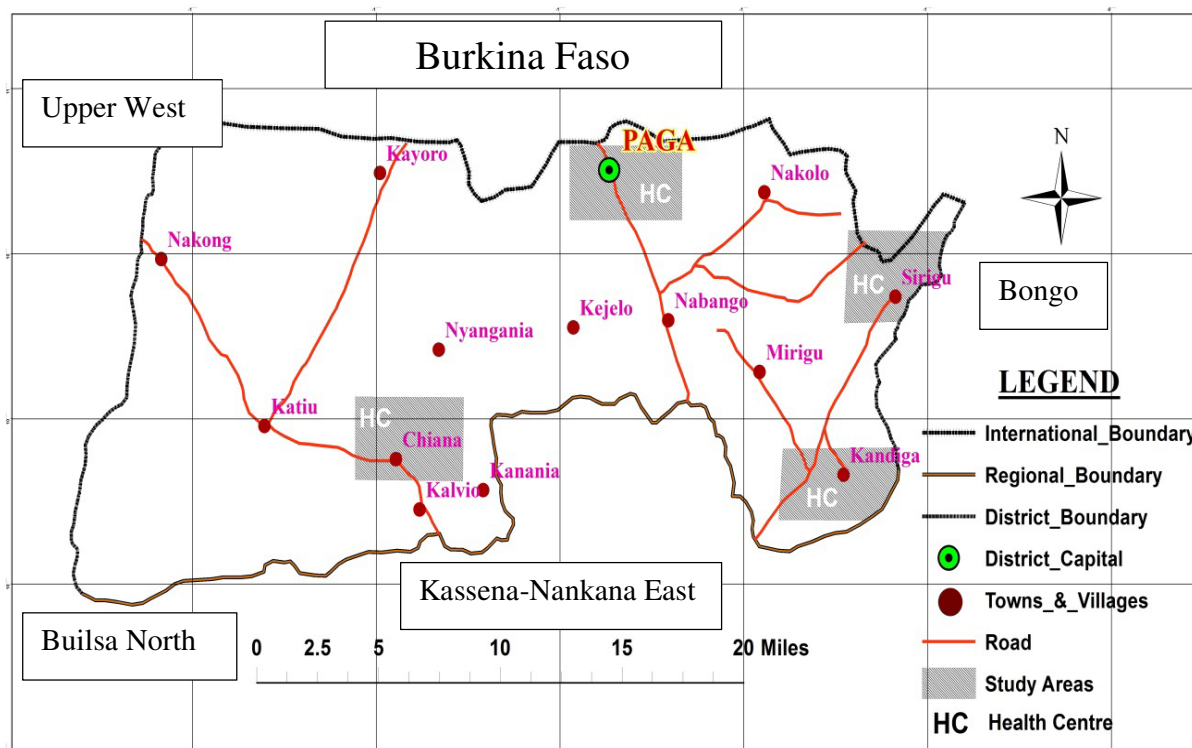


Fig. 2: Map of Kassena-Nankana West District showing study areas
Source: Kassena-Nankana West District Assembly, 2014

Questionnaire and interview guides were used to obtain information from respondents. Both closed and open-ended questionnaire were used in obtaining information from the various categories of respondents. Questions for project coordinators and staff of DHMT were mainly on projects design for sustainability and sustainable project implementation strategies. For health volunteers and TBAs questionnaires were directed at community level involvement and participation while that for pregnant women and nursing mothers centred on health behavioural changes and the maintenance of project activities.

The analyses of the study adopted simple percentages and inferences from some of the responses. This approach seem more appropriate for descriptive research studies as it allows for an in-depth analysis of the situation taking into consideration the conditions, practices, structures, differences or relationships that exist as compared to statistical methods for similar studies.

3.0 Findings and Discussion

3.1 Projects Design and Implementation Drive

Projects design or planned strategy of implementation greatly affects the extent of project success. The motivation for the initiation of any health intervention is as important as the implementation of the intervention for the achievement of its intended objectives. Hence, the extent to which project goals and objectives arise from local goals and objectives determine the receptor rate of programs by host governments. Similarly, to ensure the sustainability of any intervention, some minimum implementation timeline is needed for local adaptation and capacity building to allow for effective continuation.

For the projects that were investigated, the goals were all aimed at reducing maternal mortality thus; (A) 'improving skilled delivery care by addressing the socio-cultural practices that hamper maternal health', (B) 'reducing maternal health complications by improving both the quality and quantity of neonatal and maternal health with the aid of the mobile phone' and (C) 'improving the quality of skilled delivery care during facility deliveries'. The goals of all three projects; A, B and C were in the long term, 'to reduce maternal and child

mortality and morbidity in the district through the provision of quality health care services to pregnant women and nursing mothers'. With a long term objective same as district goal, the acceptor rate of interventions among local government was high as all worked towards a district goal of achieving zero maternal deaths; though the objectives were not mutually agreed upon.

While project goals and objectives can be said to have been informed by the district goal, same cannot be said about the implementation timelines. Besides project A for which the informed timelines could not be ascertained, both B and C project interventions had their implementation timelines informed by funding organizations as per the availability of funds for their implementation. Intervention B had an initial implementation timeline of two years while C was for five years. However, intervention B was implemented beyond its initial two year plan period in two and half years due to implementation challenges.

Projects implementation timelines especially those of an all new implementation strategy need some minimum implementation time period to allow for local adaptation for continuity according to Goodman and Steckler (1989). It is, however, commonly known, especially for international aid programmes that implementation timelines have always been informed by the availability of funds for projects implementation (Shediac-rizkallah and Bone, 1998). This does not allow for local adaptation and modifications as well as the building of local capacity to ensure projects' continuation beyond implementation time periods.

According to Goodman and Steckler (1989), the implementation of new programmes for a grant period of three years is too short to ensure institutionalization of new health promotion programmes. The introduction of an all new technologically based or phone specific project with intervention B and an all new strategy for improved health services delivery with project C called for some minimal amount of time for their effective introduction and implementation within our health care delivery system to ensure institutionalization and continuity.

To Shediac-rizkallah and Bone (1998), the implementation of pre-determined projects strategy by a funding agency is less likely to be sustained as compared to those which are of a mutually respectful negotiating process between funders and host governments. Bermejo and Bekui (1993) in Shediac-riskallah and Bone (1998) further point out that compared to a participatory approach where goals, targets and time frames emerge from an interaction of local people and service providers which facilitates the adaption of projects as they evolve, project approaches with pre-specified objectives and time frames are much less conducive for sustainability among local participants. From the investigations, all three projects indicate pre-specified goals, objectives and timelines. Though projects' goals and objectives conform to that of host institutional goals and objectives, pre-determined timelines did allow for full local adaptation and ownership, hence resulting in the end of projects as external support came to an end. Thus the emphasis lies not only with the conformity of project goals and objectives between project initiators/Non-governmental organisations and that of local institutions, but more importantly with a mutually negotiated process on strategies of projects implementation.

3.2 Projects' Funding Structures

Since no negotiation was held before projects implementation, so was there no alternative funding sources at the planning stage by projects' initiators/ Non-governmental organisations. This more so was the case because, funding for projects were sought for not by host institutions but by Non-governmental organisations who had pre-determined funding structures even before the implementation of projects. This resulted in no measures being put in place by the host institution to alternatively fund project activities beyond the external donor support period since project initiators did not take into consideration alternative funding sources in their planning. Thus, Table 1 only indicates funding from project initiators to host institution for the execution of projects' activities. Besides interventions A and B which partly funded project activities through the host institution, the activities of intervention C were directly funded by the project initiator (Table 1). Intervention A which was implemented from 2009-2011 had a one-time funding through the local institution in 2010. That of intervention B implemented from 2010-2013 had a three-time funding of project activities through the host institution in 2010, 2012 and 2013 (Table 1). The 2013 funding of project B was subsequently after the project had been extended beyond its initial implementation period. However, all projects provided logistics for the initial implementation of interventions as these formed basic needs for projects to kick-start.

A comparative analysis of project cost and funding through host institution for the implementation of project B indicates a 0.36 percent and 0.23 percent funding in 2010 and 2012 to host institution respectively and a 15.38 percent funding in 2013 for the implementation of project B (Table 2). In all the years of funding through host institution, less than 20 percent (0.36%, 0.23% and 15.38% in 2010, 2012 and 2013 respectively) of the implementation cost of project B was provided (Table 2). This draws the impression of a co-funding by host institution; however the host institution did not advance resources for the implementation of the project since

there were no pre-negotiations on implementation strategies including project co-funding if at all shortfalls in funding for project implementation was anticipated.

With the sustainability of intervention, funding plays a critical role in the extent to which project activities continue beyond external support periods. While initial funding is important to get interventions especially of international aid programmes started, equally important is the continuous funding of projects beyond such international aid periods (Scheirer, 2005). Financial sustainability of donor supported programmes is usually facilitated by beneficiary government/ host institution funding or cost-recovery by direct payment (Toledo et al., 2004). This however must be determined at the initiation stage during projects negotiation with local institutions regarding alternative and co-funding strategies.

Bossert (1990) also pointed out that the vertical or direct funding of programs usually has a better focus of resources aimed at improving activities for the realization of defined goals and objectives. However, they create institutional jealousies that are less likely to attract funding; making them less sustainable when external funding ceases. Goodman and Steckler (1989) add that factors favouring the integration of projects are the direct release of funds to implementing organizations rather than to intermediary organizations or directly to the project or program.

However, besides projects A and B which provided funding once and three times respectively, that of project C did not at all provide funding through the host institution. To ensure financial sustainability, external projects are to ensure direct funding of projects implementation through host institutions (Goodman and Steckler 1989). This was however not the case for projects A and B to the host institution. The inadequate funding of project activities and unavailability of alternative funding sources for the continuous implementation of projects was buttressed by a staff of the DHMT when he said; “The cost of running the projects is high for the district and the DHMT, and we do not have funds ear-marked for these projects. This is a major challenge facing us in carrying out activities of projects”, hence making all projects financially unsustainable.

3.3 Integration of project activities and availability of project leads/champions

For an effective continuation of project activities, there is the need for an integration of project activities into existing activities of host institutions. This means a coordinated execution of project activities between project staff and host institution staff. This is usually done with activities and supervision being carried out by either of the two leading or collaborating, usually to allow for a gradual takeover of activities by the host institution.

The survey revealed that all projects had the execution of their activities carried out by health workers as leads and in some cases with the support of health volunteers while staff of project initiators assisted where there were challenges. Project A had its activities carried out by health staff with health volunteers as major collaborators similar to Project B. However, Project C was only delivered by health staff without any support from health volunteers. Supervision was however, championed in all projects by project staff with administrative staff of Ghana Health Service (GHS) as collaborators. This was to ensure an initial oversight of activities by project initiators while building the capacity of administrative staff of host institution to continue with supervisory activities as collaborators.

Also, the study showed that within the implementing institution, the District Public Health Nurse (DPHN) and the District Health Information Officer (DHIO) were identified as the main coordinators or champions of the three projects. The two administrative officers performed various responsibilities including monitoring and supervision. Some additional tasks were however performed by project coordinators with regards to Project B in the generation of reports, addressing challenges with phones, among others. The carrying out of activities of interventions by host institution staff meant that they would gradually imbibe project activities into their daily or professional duties. Also, the collaborative supervision of project activities especially meant, a gradual capacity building of institutional staff in that respect for continued monitoring and supervision of activities.

It was inferred from data gathered from the study that the availability of project leaders for all projects meant the availability of administrative leads to ensure the execution of project activities and a continuation after an end to donor support. This however did not ensure projects’ sustainability as projects championing was not institutionalized among administrative designates. The lack of information from one of the supposed designated project leads/champions, as a new transferee as at the time of collecting the data meant the concentration was only on projects output within the donor supported implementation time period.

3.4 Community Involvement, Participation and Access

Shediak-rizkallah and Bone (1998) identify community level models of change and development as appropriate for building problem-solving abilities of individuals and the larger community. Similarly, Scheirer (2005) points out among others that support from external community leaders and the availability of funding and other resources as inputs in the broader community environment are necessary for sustainability of projects at the community level. Kinne et al., (1989) in Shediak-rizkallah and Bone, (1998) point to the premise of a community approach to health behaviour; that change would last when health professionals, health institutions as well as community groups are involved in the implementation of health behavioural change activities which positively influences program sustainability.

Community members' participation and involvement in the execution of the intervention programmes was through community health volunteers and Traditional Birth Attendants. For an acceptance of any intervention in any community, there is the need for community members to be well informed of the intervention as well as to appreciate its purpose or importance. To this end, community members (health volunteers and TBAs) were informed by way of personal involvement in the execution of the maternal health interventions (Table 3). Members had a good knowledge of Project A and B as well as their purposes. These they identified as 'encouraging facility delivery and financial access' and 'educating women on pregnancy and delivery conditions' respectively (Table 3). This according to health volunteers and TBAs came to their knowledge through staff of GHS and projects, and personal involvement in the execution of the projects. Community members' participation included; the registration of clients, their education, assistance in the receipt of messages as well as the mobilization of clients for the receipt of intervention services.

While community involvement and participation play an important role in the sustainability of health interventions at the community level (Rifkin et al., 1988), equally important is community access to these interventions. This is assessed from three perspectives of financial access in terms of affordability, geographical access by way of distance to access interventions and timely accessibility in terms of time to access interventions.

For communities, all interventions charged no fees on clients to access their services (Table 4). Thus there was no cost recovery component from the side of clients. Financial accessibility to interventions indicated the ease with which potential beneficiaries can readily access these interventions, since one needs to access the interventions as well as benefit from them before they can be sustained. Geographical accessibility was assessed by way of walking time as it is the commonest means of movement among rural maternal clients. The minimum and maximum walking distance to access each of the interventions was between 10 and 20 minutes, though there were variations among the interventions (Table 4).

Among the major factors related to health care utilization is travel time and distance. Studies have widely suggested that health care utilization is affected adversely by long travel times of more than 20 miles or 30 minutes (Chan et al., 2005). The effective utilization of any health service or intervention greatly impacts on the success of that intervention.

The study identified that the time duration for intervention services to be rendered to beneficiaries also ranged between 10 and 20 minutes (Table 4). Among the services rendered included; health education in the case of project A, phone registration of clients and data entry in the case of project B and computer capturing of data in the case of project C.

Having respondents wait for an average of 15 minutes to receive services at no cost also encourages patronage. Thus for interventions to achieve any success there is the need for continuous patronage of such services so as to achieve results and hence be maintained. This is made possible through ease of access among which time factor plays a key role. Hence, the ease of financial, geographical and timely accessibility affords potential beneficiaries ease of patronage of services.

According to members of the communities, beneficiaries accessed project services at no cost, inferring from this, the cost of the projects were financed fully by Non-governmental organizations. This is however confirmed by the non-existence of co-funding of projects either by beneficiaries through cost recovery or host institutions through alternative funding as indicated under funding strategies. Thus, the ease of accessing projects by community members made projects sustainable at the community level.

3.5 Maintenance of Health Benefits of Interventions

According to Shediak-rizkallah and Bone, (1998) a major perspective on sustainability is the ‘Maintenance of health benefits’ overtime. This gives an insight into the usefulness of measurable objectives for tracking and maintaining the health benefits achieved through a health program or project. However, in tracking or measuring the maintenance of health benefits, it should be noted that modifications in population’s health behaviour are only slowly achieved overtime through education and social change. Secondly, educational messages and intervention activities need to remain for new generations to be exposed to them. They however maintain that, the interest and commitment in activities of a program to the realization of the objectives of that program should not be allowed to decline, even if its objectives are realized (Shediak-rizkallah and Bone, 1998).

Clients (beneficiaries) health behavioural changes (benefits) with respect to care attendances had seen great improvements. With regards to clients’ number of Antenatal Care (ANC) attendance during conception, 1.7 percent of maternal clients did not attend antenatal care during their first conceptions out of 180 maternal clients (Table 5). However, of the 97 maternal clients who conceived a second time, all attended ANC with a minimum of four ANC visits. Subsequently, the 85 maternal clients who conceived a third time also made a minimum of four ANC visits. These indicate improvements in the health behaviours of clients from a 1.7 percent of ‘no ANC attendance’ during first conception to a 100 percent ANC visits during second and third conceptions as indicated in Table 5.

Another factor that indicated clients’ behavioural changes as well as the maintenance of positive behavioural changes was the places of delivery by clients. Maternal clients indicated different places of deliveries including; hospitals, health centres, CHPS compounds and home deliveries.

Between facility deliveries and home deliveries, out of 177 clients who delivered a first time, 5.6 percent delivered at home while 18.1, 67.2 and 9.0 percent delivered at the Hospital, Health Centre and CHPS respectively. During second delivery however, home deliveries reduced to 4.1 percent with a 3.1 percent deliveries ‘on the way to the facility’ out of 97 deliveries. All third time deliveries (79) indicate a delivery in one health facility or the other (Table 6). The reduction in home deliveries from 5.6 percent to 4.1 percent during first and second deliveries and the subsequent 100 percent facility deliveries during third conceptions therefore indicate sustained behavioural improvements among maternal clients.

Maternal clients’ ANC attendances during their various times of conception were seen to show improvements with a 100 percent ANC attendance during second and third conceptions (Table 5). Subsequently, places of delivery also showed improvements with a reduction in home deliveries from 5.6 percent during first deliveries to 4.1 percent during second deliveries and a 100 percent facility or supervised delivery during a third time of delivery (Table 6). Thus the improved health behaviours of maternal clients in ANC attendance and places of deliveries during second conceptions were maintained over their third ANC attendance and places of deliveries. This meets the district’s objective of achieving zero home deliveries or 100 percent skilled delivery target as their maternal health goal. It also indicates a maintained improvement in the health behaviours of maternal clients.

Scheirer (2005) acknowledges the examination of sustainability by some studies after some years have passed, however she also points out that “there is no commonly accepted time for defining when a program is sustained”. Thus, for the sustainability of any programme or health intervention irrespective of the time of assessment, what is necessary is the existence of project activities so as to enable new client’s benefit from such project activities.

Of the three interventions, majority of maternal clients had no idea of the current existence of the interventions A and C. On the contrary, majority of clients indicated the existence of the activities of intervention B, they however made it clear that activities of this intervention were discontinued some time past and then restarted after a while. The current existence of activities of intervention B after its initial halt is a confirmation of the extension of the project beyond its initial planned implementation period as it was sub-awarded to the host institution.

The non-existence of project activities of interventions A and C beyond the original projects pilot period as initially intended are as a result of stakeholders’ inability to incorporate into the projects’ sustainable design strategies. These include; unsustainable negotiation processes, unsustainable funding strategies beyond external funding periods as well as the non-existence of institutional project champions or leaders to drive forward project activities. It can therefore be concluded that though some sustainable factors were considered in the implementation of the three interventions, for projects to be fully sustained beyond external funding periods, stakeholders must consider all the influencing factors that ensure the continuation of project activities.

4.0 Implementation Challenges of Maternal Health Interventions

4.1 Challenges from Intervention Initiators and Host Institution

Besides intervention A, with which implementation challenges could not be ascertained due to the inaccessibility of the project coordinator, the rest of the projects experienced some level of challenges. For intervention B, challenges encountered included poor network connectivity, low phone ownership among project beneficiaries, administrative bottlenecks among others. That of intervention C had more to do with the attitude of nurses against the use of computers, demand for higher remuneration by nurses based on the fact that nurses were rewarded financially as motivation for improved service delivery. The demand by health workers or nurses for increased remuneration was as a result of a dichotomy created between their usual work schedule and that of project activities. This was due to the direct or vertical funding of project activities by project funders. It was therefore inferred that the funding of intervention activities were not well fused into the routine funding procedures of the host institution hence a financial dichotomy between external intervention activities and host institutional activities.

The study also revealed the host institution encountered some challenges that impacted on the implementation of intervention project activities. These challenges included; inadequate staff, low capacity of available staff and of new staff and inadequate resources both financial and logistics for the effective implementation and continuation of project activities. In addition to these, was the poor attitude of health workers to new activities especially those related to new technologies.

4.2 Challenges at the Community Level

To the community, project A's logistics such as detergents which were usually distributed to pregnant women upon first visit to the facility were not sufficient and in some cases some pregnant women did not receive such gifts. Members of the community therefore identified 'continuing health education' and 'providing logistics for women' as ways of ensuring the project realises its objectives. However, the demand by health volunteers for the provision of detergents which were to initially attract maternal clients to health facilities, indicates their limited level of support in terms of resource provision or modifications of project implementation strategies for sustainability.

Regarding intervention B, some identified challenges included inadequate phones for project beneficiaries and difficulty in receiving messages. However, according to them there is the need to continue the delivery of phone messages to already existing beneficiaries as well as new maternal clients for project success. These challenges stated above brings into question the extent to which project deliverables are maintained. The study revealed that new clients do not enjoy project deliverables (messages), while already existing clients face difficulty in receiving project deliverables hence project deliverables were not maintained. However, the demand for project deliverables by both new and old clients indicates clients' awareness of the benefits of the project.

Community members could not pinpoint challenges and prospects for the future in the case of intervention C. This was as a result of the non-involvement of TBAs and community members through volunteers. Where there was any involvement it was very minimal, having to do with the mobilisation of clients. This left respondents with virtually no ideas of challenges faced and prospects for the future.

The unavailability of information at the community level with regards to the project indicates the inability of community to effectively contribute towards project sustainability. Hence, at the community level the project was not sustainable; this however might not necessarily affect project sustainability, if the project has little or minimal level of community role besides mobilisation of clients. Thus, other sustainable factors if put in place could sustain the project besides community participation.

4.3 Challenges of Beneficiaries

To the 180 beneficiaries, challenges faced with respect to project A included; nurses' absenteeism (8.9 percent), sometimes spending long time during health education sessions (4.4 percent) and in some cases a lack of understanding of the education being given (1.7 percent). Majority of beneficiaries however, did not have any idea (85 percent) of challenges encountered with regards to intervention A. To maternal clients, future prospects to ensure the achievement of project objectives would mean; continuing project activities (31.1 percent), continuing the soap distribution (62.2 percent) and educating health volunteers who would in turn educate project beneficiaries (6.7 percent). The education of health volunteers to in turn educate beneficiaries is very feasible since beneficiaries can better understand volunteers who would educate them using the local language as a medium of communication.

Intervention B also had its share of challenges experienced by beneficiaries. These included; clients excuses during the registration (6.7 percent) into the messaging system, time wasting and inadequate phones (13.3 percent). Prospects for the future from the side of beneficiaries included, engaging more staff and providing women with phones (6.7 percent) to access their mobile messages and educating nurses and health volunteers who would intend educate clients (43.9 percent) especially those without phones. Expanding project activities to beneficiaries in other communities also forms a great future prospect according to beneficiaries.

With intervention C, beneficiaries could not identify major challenges faced in relation to this intervention. Some however identified time wasting (6.7 percent) as the major challenge associated with the project activities. Suggestions on the way forward were therefore centred on the possibility of reducing the time spent during intervention services. To maternal clients, though with little knowledge of the project, they believed the initiation and execution of the project was for a good purpose, hence the need for project activities to be continuously delivered to its intended beneficiaries at a much more shorter time.

4.4 Recommendations

Given that maternal mortality remains an issue of great concern in Ghana as a result of the slow progress towards achieving the MDG/SDG targets, there is the need to sustain the little progress that has been chalked in the past years. There is therefore the need for efforts towards reducing maternal mortality rates in a sustainable manner and addressing challenges with maternal health interventions.

To address the challenges identified, it is specifically recommended that for interventions B and C, improving the activities of the projects meant improving phone ownerships among maternal clients (beneficiaries) through the collaboration of initiators, host institution and telecommunication companies to provide simple and affordable phones to beneficiaries to be paid for over a period of time; host institution can similarly collaborate with telecommunication companies to improve network quality by establishing network enhancement equipment in areas where they cannot mount telecommunication mast for economic reasons as their corporate social responsibilities; and finally host institutions should overcome administrative challenges by taking ownership of projects and improving monitoring and supervision for efficient implementation. Others include; frequently updating and upgrading the Clinical Decision Support System (CDSS) to include all data collected at the facility level by system developers, as well as frequent training of nurses to become familiar with the computer system. These challenges should be collaboratively addressed by project initiators, host institution, project beneficiaries and other stakeholders within an agreed timeline and then scaled up as in the projects plan. Success in addressing these issues depends greatly on the extent to which administrative staffs see projects as their own and incorporate activities into their normal routine activities for supervision and monitoring. To address challenges at this level, there is the need for host institution to accept project activities as part of their normal daily work routines as well as identifying project champions to champion project activities at institutional levels.

However, the following general recommendations are made for implementation to ensure the sustenance of maternal health interventions and a sustained progress in the reduction of maternal deaths in the Kassena-Nankana West District:

1. Donor organizations should ensure that the goals and objectives of their support interventions are informed by district goals and objectives.
2. Donor organizations or project initiators should ensure that implementation timelines of health interventions are mutually agreed upon with host institutions so as to allow for modifications before project implementations.
3. Donor organizations and host institutions should ensure a laid down funding plan for the implementation of project activities beyond donor support timelines.
4. Donor organizations and host institutions should ensure planned integration of project activities into routine activities of host institutions right from the start of intervention projects.
5. The design of projects should include leads/champions by project initiators within host institutions at administrative levels with a capacity-development/building plan to ensure the championing of project activities.
6. Both project initiators and host institutions should ensure community participation at the decision making stage of projects for an appreciation of projects' purposes and activities. This would afford communities the possibility of modifications in the implementation of activities that would ensure sustainability.
7. Sustainable planning should therefore be incorporated in the design (NGO level), integration (host institutional level) and participation (community level) in the implementation of projects by all stakeholders.

The implementation of these policy recommendations in health intervention programs or projects would go a long way to ensure sustenance of donor supported health intervention projects and the maintenance of health benefits over the long term.

4.5 Conclusion and Implications for Planning

While project goals were informed by district goal, timelines were not mutually negotiated and funding did not consider periods beyond external funding periods. It was therefore concluded that projects' implementation design was unsustainable. At the host institutional level, though activities were integrated into their normal daily activities, the absence of alternative funding and institutional champions, meant projects were institutionally unsustainable. At the community level, community members (health volunteers) participated in interventions A and B from their initiation stages, with some beneficiaries suggesting the inclusion of health volunteers to deliver intervention services.

Though some sustainable measures were incorporated at the institutional and community levels, these were not sufficient to ensure projects sustainability. It can, thus, be concluded that no one factor or indicator of sustainability can ensure the continuation of external programmes or projects but that all indicators play a necessary role in ensuring that health care interventions are sustained. Thus at the various stages of project intervention, measures to ensure sustainability should be incorporated in programs/projects implementation.

References

- Adindu, A., (2010). Effective Monitoring and Evaluation of Primary Health Care Interventions Requires Participatory Approach. *Journal of Advancement in Medical and Pharmaceutical Sciences*, 4(1):1–9.
- Adjei, S.A. and Agyei, V.,(2013). Hurdles To Reducing Maternal Mortality In Sub - Saharan Africa : Lessons From Within. *Modern Ghana*, (May). Retrieved on 14 November, 2014 from: www.modernghana.com.
- Panel, A. P., (2010). Africa Progress Report. *Maternal Health: Investing in the Lifeline of Health Societies and Economies*, Geneva, Switzerland.
- Agyei, L.A., (2013). Using the Birthing Stool to Reduce Maternal Deaths- A Must For Ghana. *Ghana News Agency*, (February). Retrieved February 11, 2014, from www.modernghana.com.
- Bais, J.M.J. et al., (2004). Postpartum haemorrhage in nulliparous women: incidence and risk factors in low and high risk women. A Dutch population-based cohort study on standard (> or = 500 ml) and severe (> or = 1000 ml) postpartum haemorrhage. *European journal of obstetrics, gynecology, and reproductive biology*, 115(2), pp.166–72.
- Berer, M. and Ravindran, S.T., (2000). *Safe Motherhood Initiatives : Critical Issues*. Blackwell Science. Oxford 3-12.
- Blank, A. et al., (2013). “ Quality of prenatal and maternal care : bridging the know-do gap ” (QUALMAT study): an electronic clinical decision support system for rural Sub-Saharan Africa. *BMC Medical Informatics and Decision Making*, pp.13–44.
- Burchett, H.E. and Mayhew, S.H., (2009). International Journal of Gynecology and Obstetrics Maternal mortality in low-income countries : What interventions have been evaluated and how should the evidence base be developed further ? *International Journal of Gynecology and Obstetrics*, 105(1):78–81.
- Canavan, A., (2009). *Review of global literature on maternal health interventions and outcomes related to provision of skilled birth attendance*, KIT Working Papers Series H3, Amsterdam: KIT.
- Chan, L., Hart, G.L. and Goodman, D.C., (2005). *Geographical Access to Health Care for Rural Medicare Beneficiaries*. University of Washington Rural Health Research Centre, Washington, USA
- Catholic Relief Services (CRS). (2011). Community Initiative on Maternal, Child and New-born Survival Project. Catholic Relief Services. Tamale, Ghana
- GiveWell. (2009). Reducing maternal mortality in developing countries. *GiveWell International*. Retrieved on February 10, 2014, from www.givewell.org
- Goodman, R.M. and Steckler, A., 1989. A framework for assessing program institutionalization. *Knowledge in Society*, 2(1):57–71.
- Grameen Foundation. (2011). *Mobile Technology for Community Health in Ghana*. Grameen Foundation. Accra, Ghana.
- Hagman, M., 2013. Maternal Mortality : Gender and Access to Health Services – The Case of Ghana. *Journal of Politics & International Studies*,(9):173–211.
- Health Sector Advisory Office (HSAO). (2008). Millennium Development Goal 5 Background Note; November Summit, 2008 Progress towards Millennium Development Goal 5 in Ghana. Accra.

- Hogan, M. C., Foreman, K. J., Naghavi, M., Ahn, S. Y., Wang, M., Makela, S. M., and Foundation, M. G. (2010). Maternal mortality for 181 countries, 1980 – 2008: a systematic analysis of progress towards Millennium Development Goal 5, *The Lancet* 6736(10):1–15.
- Kassena-Nankana West District Assembly (KNWDA). (2013). *Annual Progress Report (2012)*. Accra, Ghana.
- Kassena-Nankana West District Health Management Team (KNW-DHMT). (2014). 2013 Annual Report. Bolgatanga, Ghana.
- Maine, D. (1993). *Safe Motherhood Programmes: Options and Issues*, Centre for Population and Family Issues. Columbia University, New York.
- Ministry of Health (MoH), Government of Ghana (GoG), and United Nations Country Team (UNCT). (2011). *Ghana MDG Acceleration Framework and Country Action Plan*. Accra, Ghana.
- National Development Planning Commission (NDPC). (2010). 2008 Ghana Millennium Development Goals Report. Accra, Ghana.
- Nour, N.M., (2008). An Introduction to Maternal Mortality. *Obstetrics and Gynecology*, 1(2):77–81.
- Nyamtema, A.S., Urassa, D.P. & Roosmalen, J. Van, (2011). Maternal health interventions in resource limited countries : a systematic review of packages , impacts and factors for change.
- Opoku, E. A. (2009). Utilization of Maternal Care services in Ghana by Region after the Implementation of the Free Maternal Care Policy. Fort Worth, Tx: *University of North Texas Health Science Centre*. University of North Texas, USA.
- Prata, N., Passano, P., Sreenivas, A., and Gerdts, C. E. (2010). Maternal mortality in developing countries: challenges in scaling-up priority interventions, *Women's Health (6)*:311–327.
- Ronsmans, C. and Graham, W.J., (2006). Maternal mortality : who , when , where , and why. *The Lancet*, 368(9542):1189–1200.
- Scheirer, M.A.,(2005). Is Sustainability Possible? A Review and Commentary on Empirical Studies of Program Sustainability. *American Journal of Evaluation*, 3(26):320.
- Senah, K., (2003). Maternal Mortality In Ghana : The Other Side. *Research Review*, (1) :47–55.
- Shediak-rizkallah, M.C. and Bone, L.R., (1998). Planning for the sustainability of community-based health programs : conceptual frameworks and future directions for research , practice and policy. *Health Education Research; Theory & Practice*, 13(1):87–108.
- Shiffman, J.,(2000). Can Poor Countries Surmount High Maternal Mortality? *Studies in Family Planning*, 31(4):274–289.
- Smith, B.M.E. and Joyce, S.A., (2003). Sustainability in Project Analysis. *Latin American Mining Record*, pp.1–7. Retrieved on 9 November, 2013 from www.ausenco.com.
- Tawiah, E.O., (2007). Maternal Health Care in Five Sub-Saharan African Countries. *African Population Studies* 25(1):1-25.
- World Health Organization (WHO), (2012). *Trends in Maternal Mortality: 1990 to 2010*, Geneva, Switzerland.
- Zere, E. et al.,(2012). Inequities in maternal and child health outcomes and interventions in Ghana. *BMC Public Health*, 12(1):252. Retrieved on 9 November, 2013 from http://www.biomedcentral.com

Table 1: External Donor Funding of Projects through KNW-DHMT

Funding Year	Source/	2008 (GH¢)	2009 (GH¢)	2010 (GH¢)	2011 (GH¢)	2012 (GH¢)	2013 (GH¢)
Project A		-	-	2,670.00	-	-	-
Project B		-	-	5,096.00	-	1,642.30	11,200.00
Project C		-	-	-	-	-	-

Source: Kasena-Nankana West-District Health Management Team, (2014)

Table 2: Cost and Funding to DHMT for Project B

YEAR	2010	2011	2012	2013
Implementation Cost	GH¢1,400,000.00	-	GH¢700,000.00	GH¢72,800.00
Funding to DHMT	GH¢5,096.00	-	GH¢1,642.30	GH¢11,200.00
% of Project cost	0.36%	-	0.23%	15.38%

Source: KNW-DHMT (2014); Field Survey, (2014)

Table 3: Community Level Involvement in Projects' Execution

Intervention	Purpose	Mode of awareness	Community Participation	Stage of participation
Project A	Encourage facility delivery and financial access	Staff of GHS and personal involvement	Clients' mobilization, education and registration	Project initiation
Project B	To educate women on pregnancy and delivery	Project staff and personal involvement	Clients' mobilization, education and registration	Project initiation

Source: Field Survey, November (2014)

Table 4: Community Level Accessibility to Interventions

Accessibility		Project A	Project B	Project C
		%	%	%
Financial	-	-	-	-
Geographical	10mins	50	25	25
	15mins	25	50	50
	20mins	25	25	25
Waiting Time	10mins	25		37.5
	15mins	50	25	37.5
	20mins	25	75	25.0

Source: Field Survey, November, 2014

Table 5: Antenatal Care Attendance during Pregnancies

ANC Attendance During First Pregnancy			ANC Attendance During Second Pregnancy			ANC Attendance During Third Pregnancy		
ANC Attendance	Freq.	%	ANC Attendance	Freq.	%	ANC Attendance	Freq.	%
No attendance	3	1.7	4-6 ANC's	8	4.4	4-6	31	17.2
1-3	4	2.2	7-9 ANC's	89	49.4	7-9	54	30.0
4-6	44	24.4	Total	97	53.9	Total	85	47.2
7-9 ANC's	129	71.7	No Conception	83	46.1	No Conception	95	52.8
Total	180	100	Total	180	100	Total	180	100

Source: Field Survey, November, 2014

Table 6: Beneficiaries' Places of Delivery

Place Of First Delivery N=177			Place Of Second Delivery N=97			Place Of Third Delivery N=79		
	Freq.	%		Freq.	%		Freq.	%
Hospital	32	18.1	Hospital	52	53.6	Hospital	56	70.9
Health Centre	119	67.2	Health Centre	26	26.8	Health Centre	15	19.0
CHPS	16	9.0	CHPS	12	12.4	CHPS	8	10.1
Home	10	5.6	Home	4	4.1	-	-	-
-	-	-	On the way to health facility	3	3.1	-	-	-
Total	177	100.0	Total	97	100.0	Total	79	100.0

Source: Field Survey, November, 2014

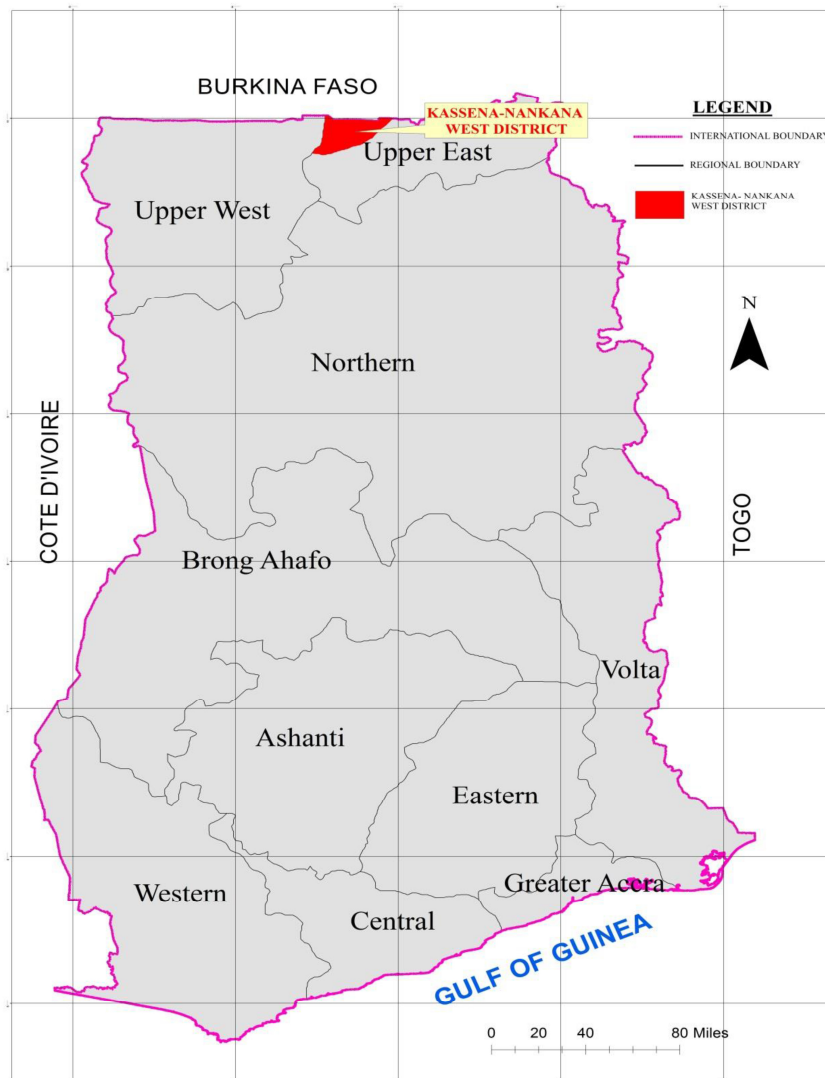


Figure 1: Map of Ghana-Kassena-Nankana West District in a National Context
 Source: Survey Department, Accra Ghana, 2014

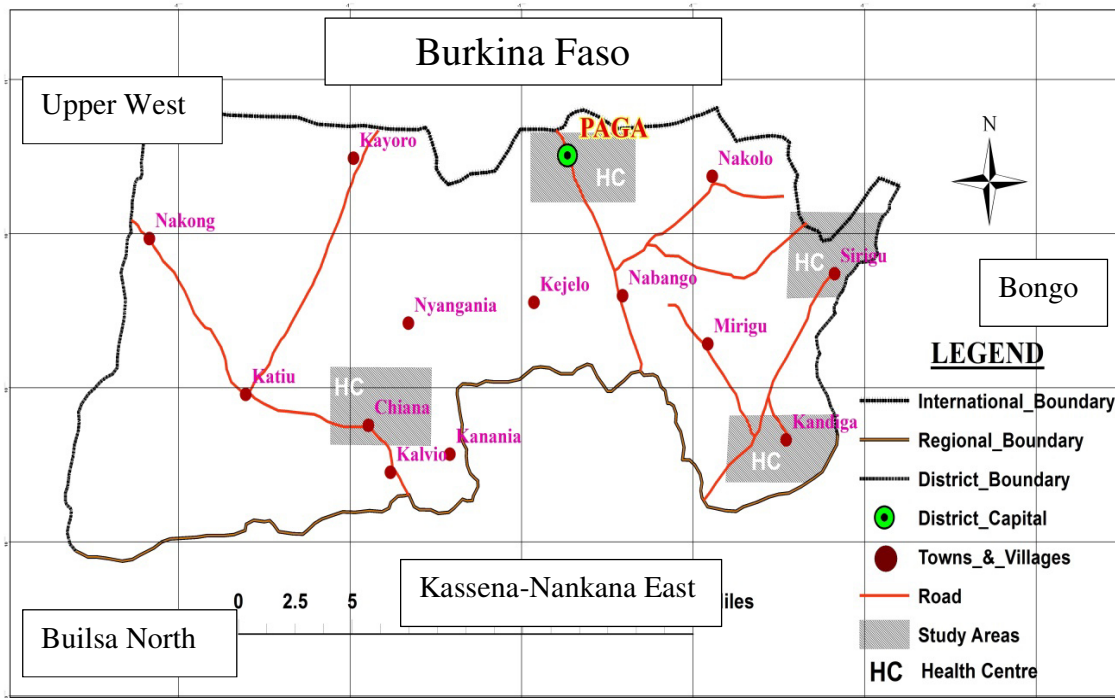


Fig. 2: Map of Kassena-Nankana West District showing study areas
Source: Kassena-Nankana West District Assembly, 2014