An Evaluation Of Digital Birth Registration Project: A Case Of Count Every Child Project In Kwale County, Kenya

by
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AN EVALUATION OF DIGITAL BIRTH REGISTRATION PROJECT: A CASE OF COUNT EVERY CHILD PROJECT IN KWALE COUNTY, KENYA

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In accordance with Daystar University policies, this thesis is accepted in partial fulfillment of requirements for the Master of Arts degree.

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I declare that this thesis is my original work and has not been submitted to any other college or university for academic credit.

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Date:__________________
ACKNOWLEDGMENTS

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*El Shaddai be with you all*
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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ALNAPH</td>
<td>Active Learning Network for Accountability and Performance in Humanitarian Action</td>
</tr>
<tr>
<td>CAK</td>
<td>Communication Authority of Kenya</td>
</tr>
<tr>
<td>CBSCR</td>
<td>Community-Based System of Civil Registration</td>
</tr>
<tr>
<td>CHEWs</td>
<td>Community Health Extension Workers, employed by MOH</td>
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<td>CRD</td>
<td>Civil Registration Department</td>
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<tr>
<td>CRO</td>
<td>Civil Registration Offices</td>
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<tr>
<td>CRVS</td>
<td>Civil Registration and Vital Statistics</td>
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<tr>
<td>CRVSS</td>
<td>Civil Registration and Vital Statistics System</td>
</tr>
<tr>
<td>DAC</td>
<td>Development Assistance Committee</td>
</tr>
<tr>
<td>DBR</td>
<td>Digital Birth Registration</td>
</tr>
<tr>
<td>DCRO</td>
<td>District Civil Registration Office</td>
</tr>
<tr>
<td>EDMS</td>
<td>Electronic Data management System</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GIZ</td>
<td>Gesellschaft für Internationale Zusammenarbeit</td>
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<tr>
<td>GoK</td>
<td>Government of Kenya</td>
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<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
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<tr>
<td>KII</td>
<td>Key Informant interviews</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<td>---------</td>
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<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>MCH</td>
<td>Maternal Child Health</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
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<tr>
<td>NCRVSS</td>
<td>National Civil Registration and Vital Statistics System</td>
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<tr>
<td>PEPFAR</td>
<td>President’s Emergency Plan for AIDS Relief</td>
</tr>
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<td>PI</td>
<td>Plan International</td>
</tr>
<tr>
<td>SMS</td>
<td>Short Messages</td>
</tr>
<tr>
<td>SPPS</td>
<td>Statistical Package for the Social Sciences</td>
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<tr>
<td>ToC</td>
<td>Theory of Change</td>
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<tr>
<td>UBR</td>
<td>Universal Birth Registration</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children's Emergency Fund</td>
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<td>UNSD</td>
<td>United Nations Statistics Division</td>
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<td>UNVP</td>
<td>United Nations Volunteers Programme</td>
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<td>USSD</td>
<td>Unstructured Supplementary Service Data</td>
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<td>WHO</td>
<td>World Health Organization</td>
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ABSTRACT

The purpose of this study was to conduct an evaluation of digital birth registration project on a case of count every child project in Kwale County, Kenya. The study’s objectives were to determine the relevance of digital birth registration (DBR), analyze the effectiveness of digital birth registration in accounting for every child at birth, determine whether there was increase in birth registration and suggest strategies that could be used and enhance DBR. The study used the descriptive research design and the target population were mothers who had used DBR system in registering their children, maternal health facility staff such as midwives, Plan International (PI) project staff who were responsible for DBR implementation, consortium leaders at civil registration department. The researcher used snowball sampling technique to select a sample size of 79 respondents. Data was collected using questionnaires and guided interviews to key informants. Quantitative data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20, while qualitative data was thematically analyzed. The findings indicated that DBR was relevant in digital birth registration as it responded to section 53 of the 2010 Kenya Constitution which states that every child has a right to a name and nationality from birth. The study further found that DBR was effective by ensuring that every child was registered immediately after birth while the mother was still in the maternity ward. DBR was also effective in removing all the barriers which were highlighted as the reason why most children did not have birth certificates. The study concluded that use of appropriate technology and continuous involvement of the Kenyan government were the pillars which made DBR a success. The study recommended that the Government of Kenya in conjunction with the telecommunications service providers should increase the network coverage to some remote areas and help to install more solar power in the health facilities.
DEDICATION

This study is dedicated to all the children who are denied their rights due to lack of birth certificates.
CHAPTER ONE
INTRODUCTION AND BACKGROUND TO THE STUDY

Introduction

Many views have been shared by different scholars regarding child registration. In developed nations, child registration is done electronically as soon as a child is born. They use more of decentralized systems to register every child (Watkins, 2009). However, in most developing countries such as Kenya, child registration is done through the local chiefs. As is reported in the study (Nationwide Civil Registering and Vital Statistics System Baseline Systems Assessment Report (NCRVSS) (2013). The report further states that, in Kenya for instance, The Civil Registration Department (CRD) adopted the strategy of using community-based informants who initially notify and, in effect, pre-register births. The informant serves as the legal witness to child registration.

Registration is conducted through allotment of a birth certificate to a child upon registering with the authorities for birth registration in every country. A birth certificates can be understood as an authorized document given to record persons’ birth and identified by name, place, birth date, and parentage (Woodward, 2004). A birth certificate is vital to every child because it helps in, providing entry to health care, immunization, confirming children register in school at the correct age and administering laws unfolding to minimum age for employment, handicapping efforts to avert child labor (Plan International, 2013).

Child registration begins at the delivery unit in every health center where a child is born. In most cases, paper work begins as soon as a child is born and the mandate to follow up on child’s birth certificate is given to the parent which in most cases takes long to acquire due to some bureaucracy. This bureaucracy has resulted in most children growing up without their parents obtaining birth certificates for them. Nevertheless, child registration systems are shifting from
manual to a digital birth registration. The traditional way of birth registration in some areas is done through paper-based recording at the hospital, assistant chiefs and chiefs before information reaches the national registrar’s office (NCRVSS, 2013). The digital registration system, aims at eliminating long channels of birth registration procedures.

With digital birth registration, once a child is born, the midwives inform the local registration agent through a mobile phone. The midwives enter the child’s birth details into a mobile device and submit data to relevant central government agency for example at the Ministry of State for Immigration and Registration. The birth registration is processed and validated by the central government agency. The birth identity is made available to the midwives, via a digital m-identity (on the midwives’ mobile phone) and local authorities are able to print off the child’s paper birth certificate from the central database when required (Plan International, 2013).

Digital birth registration aims to mitigate challenges related to delayed registration, eliminate long distances amid societies and registration centers, expenses incurred when travelling to the registration centers, complicated paper-based processes and bureaucracy. The systems also aim to capture vital information such as birth place, permanent address of child and date of issue. The system ensures that information will be recorded within a short period after their occurrence; otherwise low registration will take place and recall problems may occur which affect accuracy of information, especially about the date of occurrence. In the case of delayed birth registration, recall about the actual date of birth thus age is negatively affected.

**Background of the Study**

Child recording is authorized recording of the birth of every child by the administration and it is an ultimate human right and a crucial means of safeguarding a child's right and identity (UNICEF, 2005). Though birth recording is an authorized recording of every child, the majority of children around the world do not have birth certificates. Plan International (2009) specified
that all over the world, nearly 230 million children below five years are meritoriously imperceptible since their births have not been officially recorded. The study further showed that 85 million of these children are in the sub-Saharan Africa and 135 million are from the Pacific and Asia.

In 2013, Plan International stated that nearly 50 percent of the children who are born in Kenya did not have a certificate of birth. Being deprived of this certificate, a child cannot register for any general examination, which is obligatory for admission to secondary school and tertiary education, and if they are orphaned; they have a high possibility of being denied their right to property inheritance.

Registration for a certificate of birth is not easy, especially in some areas of sub-Saharan African countries. Inside the initial six months of the birth of a child, a community health worker and assistant chief begin the paper-based process for birth registration of a child (UNICEF, 2005). The report further states that if birth of a child is registered post the sixth month; the whole procedure will be more tedious. A parent will be required to go and see the, the area chief, assistant chief, the district commissioner, the district officer, and finally, the district registrar. This whole process is what in the end, makes some parents give up in following up on their children’s birth certificates.

In an attempt to curb this problem, Plan International in Kenya came up with digital birth registration initiative which aims at removing registration barriers and eliminate the bureaucracies which are involved during birth registration process. Digital Birth Registration (DBR) is an innovative end-to-end approach to birth registration. It builds on Plan International’s global reputation for Universal Birth Registration (UBR) advocacy and programs by using appropriate machineries (which includes portable phones) to digitally register births.
Statement of the Problem

Birth certificates are important documents that provide an everlasting, official and visible evidence of a country’s legal credit of existence of a child as a member of society. However, according to Plan International (2005), almost half of the children who are born in Kenya do not have birth certificates. This deny them their rights to education since a birth certificate is a requirement when children enroll for primary school and also it is a pre-requisite when children are registering for their primary school national examinations.

To address this challenge, Plan International in collaboration with the government of Kenya introduced a digital birth registration system which aims to register children and enable them to acquire birth certificate on the day they are born. Since the inception of this project, no evaluative assessment has been done to determine its effectiveness. This study sought to establish whether the piloted digital birth registration is effective in birth registration before the project can be rolled out to other counties as a child registration system in Kenya.

Purpose of the Study

The purpose of this study was to conduct an evaluation of digital birth registration project in Kwale in order to determine its effectiveness in enhancing birth registration hence the possibility of adopting DBR as a way of birth registration in Kenya.

Objectives of the Study

The objectives of this study were to:

1. Determine the relevance of digital birth registration;
2. Analyze the effectiveness of digital birth registration in accounting for every child at birth;
3. Determine whether there is increase in birth registration.
4. Suggest strategies that could be used to enhance digital birth registration based on the findings.

Research Questions

1. What was the relevance of digital birth registration in Kenya?
2. How effective was digital birth registration in accounting for every child at birth?
3. Was there any increase in birth registration since the introduction of DBR?
4. Which recommendations could be given towards the implementation of digital birth registration?

Justification of the Study

Kozma (2005) argued that society is being prejudiced by globalization which is compelled by technology. He states that technology is the future hence birth registration should incorporate technology as much as possible to enhance birth registration. Birth registration is not immune to current trends as Plan International is piloting DBR for country-wide adoption under the premise that digital systems are effective and efficient in services delivery.

Contrary to digital systems, the current child birth registration system which is called Community-Based System of Civil Registration (CBSCR) is grappled with myriad challenges including: inaccessible healthy facilities; travelling costs; loss of incomes during birth registering of their child; complicated paper-based processes and bureaucracy. It is prospective that digital birth registration will soon be adopted as a means of birth registration throughout Kenya if it proves to be relevant, efficient, effective and sustainable.

However, before rolling-out to other counties, it is instructive DBR performance evaluation is conducted in the piloted sites (Naivasha and Kwale Counties) in order to draw lessons and best
practices on how DBR implementation protocol could be adapted in a wider context. Since the inception of this project, there has been no evaluation conducted hence, this study was essential.

Significance of the Study

The study was a significant endeavor in promoting birth registration at the point of child birth. The findings are beneficial to project implementers, policy makers, parents, and workers in registration centers and other stakeholders in DBR.

To the workers in registration centers, complicated paper-based processes and bureaucracy will be reduced and to the parents, there will be elimination of large distances between their communities and registration centers.

In addition, this research provided recommendations to Plan international project managers and Kenya government on implementation of DBR at a national level.

Assumption of the Study

This study held the assumption that the relevant authorities would be willing to share information as expected as the study utilized much of government and organizations information.

The study further assumed that the project staff would be willing to share their true perceptions of the project performance.

Scope of Study

This study was limited to one pilot DBR centers located in Kwale. The research focused on project implementers of digital birth registration system at Plan International and UNICEF, civil registration department in Kwale, chiefs, and staff at selected health centers with maternity units in Kwale, parents who had used DBR and those who had not used DBR to obtain birth certificates for their children and parents with children under five years who were brought to the targeted health centers in Kwale.
Limitations and Delimitations the Study

The study was involved in evaluating private organization information on the process of birth registration in Kwale. In this regard, it was a challenge to get all relevant information from relevant authorities because at times the researcher found that there were double entries to birth registration which in turn did not give a true picture of the number of registered birth. The researcher saw that some respondents were not willing to participate in the study due to fear of victimization. However, in order to overcome this, the researcher guaranteed confidentiality and anonymity of the information and assured them that the information obtained was only going to be used for the purpose of this study, hence they began to open up for participation. It can be noted that staff participation was voluntary.

Definition of Terms

Registration: In this study, the term registration was used to refer to the extent to which the proposed technology has improved vital statistics in Civil Registration in Kenya.

Digital birth registration: Is used to refer to an advanced end to end method of child registration using appropriate technology.

Enhance: The term means to improve existing processes and the outcomes. It suggests that something is improved (Kirkwood & Price, 2012). In this study, the term was used to refer to the improvement of the birth registration processes in Kwale County as a result of the introduction of DBR.

Birth certificate: The United Nations Children's Fund (UNICEF) defined birth certificate as an official document given to record a person's identity upon birth. In this study this term was used to refer to legal document issued by the government which is essential for every child and vital for the national statistic for the purposes of national planning and distribution of resources.
Summary

Chapter one focused on introduction on the state of birth registration from the global perspective and the current situation in Kenya. Studies showed that all over the world, nearly 230 million children below five years are meritoriously invisible since their births have not been officially recorded. Out of these 230 million, 85 million of these children are in Sub Saharan Africa, and 135 million are from the Pacific and Asia. Statistics shows that, nearly 50 percent of the children who are born in Kenya do not have a certificate of birth and according to organizations which are children centric, a child without a birth certificate is invisible and vulnerable to a number of things. After showing the state of birth registration, this section also highlighted the problem statement, purpose of the study, objectives of the study, research questions, justification, and significance of the study, assumptions, scope of study, limitations, delimitations and definition of terms.
CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter presents information attained from the review of literature which was deemed relevant to this study. It also gives an assessment of literature on the genesis of civil registration, the current state of birth registration in Kenya, Africa and the entire world, review and understanding of digital birth registration system and the traditional way of birth registration. This chapter further explores the strategies which have been adopted by different international organizations to improve birth registration in developing nations and factors which contributes to lack of birth certificates to other children and the consequences of lack of it. Also highlighted in this chapter is the inference of theory of change in order to explain and comprehend the transition from traditional birth registration to digital birth registration. The literature in this chapter was derived from scholarly books, online journals and articles. The chapter of literature review is organized into theoretical framework, general literature review, empirical literature review and conceptual framework.

Theoretical Framework

A theory can be understood as a set of unified ideas, definition and proposal that present a methodical view of postulating relations among variables with the aim of explaining and predicting phenomena (Ghaue & Granhaug, 2002). In other writings, a theory is an amalgamated idea that explains relationship between different factors, its cause and effects. This study was guided by the two theories, the theory of change and modernization theory. For this study, the researcher considered the theory of change and modernization theory as most relevant models with the most relevant theoretical background for this study.
Modernization Theory

Modernization theory is a description and a clarification of the methods of change of traditional or underdeveloped societies to modern societies (Rostow, 1960). In other words, it is the process of changing from some old traditional ways of doing things to a more advanced way by adopting technology. The theory arose in the late 1940s and early 1950s as a distractive in the quantity of development. The theory came into being as part of the wider philosophical conflicts of the cold war and was rapidly incorporated by most western regimes as the basis of preparation for expansion predominantly in the areas of the development of non-western communities (Hoebink, 1997).

This theory viewed traditional civilizations as a series of rebuffs, latent and static, not advanced, not profit-making, not developing, not growing (Redfield, 1965). The theory became a substance stone of evolutionary remedy development where the focus is on deficits that transpire in poorer countries and where there are conjectures on ways to overcome these deficiencies.

The theory focuses on ways in which past and present pre-modern societies become modernized through courses of commercial growth, change in the society, political, and cultural structures. Moreover, the theory detects the economic growth of countries as limited from technological changes and yet it suggests that a country should be more modernized by cumulative technological expansion, which is also reliant on other countries (Rostow, 1978).

The theory is best matched to this study based on two factors. First, modernization theory came to light in 1940s and early 1950s after the cold war and it was embraced by a number of countries which are currently viewed as advanced nations. Likewise, the theory could be adopted by all developing nations in sub-Sahara in its technological, economic and socio-
development since most countries in sub-Sahara still use manual way of registering their birth and few countries have migrated to digital birth registration. Secondly, since the study focuses on Kenya, Kenya is one nation which is driven by vision 2030 where it aims to be a middle-class economy. And majority of her services are migrating from analog to digital one.

Model of Change

Model or Theory of Change is a method that was advanced and endorsed by the Aspen Institute Roundtable on Community Change, New York, and Act Knowledge, New York in the 1990s. According to Anderson, (2005), Theory of Change is used to define two things; a systematic project planning cycle and, a specific form of results model (which is the actual Theory of Change), which is the intended outcome of this process. The basics of this process are taking the project objective and goal as its focal points and regulate which prerequisites the project must create in order for the outcomes to be realized.

Theory of Change (ToC) is not an impact valuation method; relatively it helps projects and their evaluation as part of results-based planning. This highlights that Theory of change is proposed as one avenue to aid understanding of the importance of change of an approach in birth registration from the community-based systems to digital birth registration to achieve the desired results.

Theory of Change has been used to refer to a number of things such as: an engine of change, a roadmap, a blueprint, a theory of action (Jane, Gienapp, & Stachowiak, 2007). However, like Weiss’ initial definition, Theory of Change can be understood in relation to activities and outcomes, the expression of this is based on the idea that, all social activities are based on obvious or implicit theories on how and why the proposed activity will work. Enunciating this
model usually includes sightseeing a set of principles or norms about how change will occur to facilitate intended planned outcomes (Church & Rogers, 2006).

Functions of Theory of Change

Theory of change (ToC) helps move stakeholders such as the government of Kenya and project DBR implementers embrace the new way of birth registration from the community-based system to the digital approach. ToC aid stakeholders comprehend the essence of birth registration and accounting for everyone in the country for accuracy planning and distribution of resources.

In addition, ToC assist the project assessor to develop research questions that aims at measuring transformation which will happen given the specific approaches that are used at a given method, program, and customer level because they enable uncomprehending the connection between approaches and the achievement of results.

Implementation of DBR requires knowledge of what changes and assumptions are expected, and how change is expected to develop over the implementation period. The theory of change guides DBR efforts to focus on assumptions, outputs, outcomes, impacts, and even sustainability of a project. According to Frankel, Nina and Gage, (2007), the theory of change describes the pieces and steps essential to bring about the desired long-term goal.

This study borrowed from the theory of change as it seeks to explain and justify the change from the traditional birth registration to adopting digital birth registration. The study sought to interrogate the process involved in digital birth registration as opposed to the traditional birth registration.
General Literature Review

The Early Stages of Civil Record Keeping

Many views have been shared by different scholars to shed light on the genesis of recordkeeping. Since the beginning of time, knowing about the sum and the state of the populace has been putatively significant. To aid in this, structures of birth registry, marriages and deaths recordings have been a landmark of advanced countries for centuries of years. It was not until the 16th century around 1538 that Thomas Cromwell announced a system whereby the priests were obliged to have in recording all events of funerals, baptisms, weddings they presided (Massey, Arango, Hugo, Kouaouci, Pellegrino, & Taylor, 1993). In spite of the nuisance of hefty consequences for not abiding to this, the scheme did not achieve the desired goal. Many attempts were made over the years to make birth registration mandatory and to make people understand its importance. Nonetheless, it was not until the 19th Century in 1836, preceding a report from the parliamentary, that laws were presented forming a civil registration scheme in England and Wales.

Massey et al. (1993) further stated that while passing this law into act, the British government made flawless its aim to spread the attitude of registration to the neighboring Ireland and all its colonies. However, a period of time elapsed before this could occur. The provisions which were in England gave recognized churches the power to record the marriages. In Ireland, this procedure faced some challenges as; the Roman Catholic Church argued that this may diminish from the sacred nature of the marriage formality.

However, according to Scholtes, Peter, Joiner, and Brian (1988), child registration almost proved inevitable as the growing amount of laws regarding public health conditions, employment, and the rights of inheritance were forcing situations in which every citizen had to prove their legitimacy and correct age for them to be legible for employment. This caused numerous
challenges. For example, in 1854, the Scottish inspector of factories conveyed huge challenges in operationalizing the law on industrial employment since a huge number of emigrants from Ireland were offering themselves for work using a fake certificate of birth.

Synchronizing the preceding authors, the challenges which were faced in 1854, are still the same challenges which Plan International and their counterparts like UNICEF and Save the Children are currently facing. A number of children are being forced to child labor and the state is facing challenges to prove whether or not they are still minors or not because they do not possess any identity to prove their correct ages. To some extent these organizations have fought legal battles with the State because minors are being tried as adults.

Massey et al. (1993) stated that Presbyterian community raised some complaints about the absence of birth registration since it was challenging to create inheritance rights and they pointed out that their members who sought commissions in the work service could not prove their age or origins. Lack of child registration laws in Ireland proved difficult to enforce obligatory immunization against various child killer diseases because of the nonexistence of data regarding birth of a child. The same challenge was pointed out by UNICEF that a number of children are not given adequate medical treatment because of lack of birth certificates. Though this challenge was pinpointed in the early years of child registration, the challenges are still the same today.

Fritz, Morgen, and Kith (1943) stated that in 1861, two laws were proposed and put before the parliament. One recommending the formation of a registration system based on the Royal Irish Constabulary while the other aimed at using dispensary midwives as registrars. The two bills were referred to committee of Parliament and the conclusion was that the midwives were suitable people to act as local registrars. This act of Parliament of 1861 is no doubtlessly the approach which is being used in digital birth registration system by Plan International in an attempt to make sure that every birth is registered since digital birth registration make uses of midwives to
capture and record every birth. Fritz et al (1943) further wrote that child birth registration was made compulsory in 1863; a law catering for the recording for every death and birth in Ireland was also introduced and passed.

Relating to the foregoing statement by Fritz et al. (1943) that child registration was made compulsory in 1863 in other countries, this prompted questions that why almost 150 years later in Kenya, sub-Sahara Africa and other parts of the world, that half of the children are unregistered? This question gives room for the need to understand reasons why some countries trailing behind in terms of birth registration and the need of digital birth registration in the civil registration systems.

Importance of Civil Registration Systems

The systems of civil registration are used to record important events which are child birth, marriages, deaths, and have the possibility of aiding as central source of country wide vital statistics. Nevertheless, in various developing nations Kenya Included, civil registration and important statistics systems are not vibrant or absent to some extent; as an outcome of this, significant demographic, fertility and mortality data are not accessible on a continuous basis and do not reflect the true picture of the entire population.

In order to understand the disparity and attempt to resolve such gaps in these systems, it is important to undertake forensic investigation of current status with an aim to identify areas requiring improvement and prioritizing actions. In Kwale County, the CRD working together with Plan International conducted a technical assessment of the Registration and Statistic System to identify opportunities for strengthening the existing systems (CRVSS and Electronic Data management System (EDMS) and address key barriers in CRVS business processes.

The study was informed by recommendations from the second stakeholders meeting of African Ministers accountable for birth registration which took place in Durban, South Africa in 2013.
that called on African Countries to conduct an Inclusive Valuation of respective national Registration and Vital Statistics (CRVS) system and adopt action plans to reinforce the structures of recording every birth which occurs. Civil registration for instance is explained by the United Nation as the constant, perpetual, obligatory and general recording of incidences and features of important proceedings provided through a verdict or guidelines in accordance with the legal requirements of each country (UN, 2001).

An accurate registering system forms the basis of documenting facts of important life proceedings for instance births, deaths, marriages and divorces. These events are important at the individual level as well as at regional (county) and national government levels and for other organizations working with communities. The technical assessment provides opportunity for CRVS Digitisation to deliver administration and nominal guidance on how to use digital technologies to improve CRVS systems.

Consistent with the APAI-CRVS strategic direction, the target audience for the technical assessment report will be the civil registration authorities, national statistical offices and stakeholders responsible for owning and leading CRVS implementations in the country. In an effort to improve on the registration coverage for births and deaths, and ensure accuracy of the national population register, the report outlines various recommendations that will inform programmatic guidelines on how to use technology to automate the operations of the department and ensure efficient service delivery to the public.

To understand the need to improve the registration coverage, (UNICEF, 2010) states that about 51 million born children won’t be registered at their time of birth each year in most developing countries, this decodes to one third of global children. One out of each three evolving nations has a lower natal recording rate of lower than fifty percent. In South Asia, the expanse with the highest number of children unregistered, this upsurge to a ration of more than one out of two, or
above 24 million children not registered in 2007. Sub-Saharan Africa has the uppermost proportion of children below the age of five years who are not recorded at birth, with 66 per cent. These unregistered children are virtually constantly from poor backgrounds, socially excluded or displaced families, and frequently have uneducated parents or live in countries where recordkeeping systems are either not in place or not functional. Cost and distance to registration centers are the reasons most often quoted by parents for not registering their children.

Apart from being a fundamental social right, child registry is vital for executing general strategies and legislation setting an age limit for working, military conscription and age limit to prevent child marriage, and offers a treasured foundation for outlining efforts when children are detached from their parents in emergency situations. Civil recording also proves to be a credible source of data for forecasting services for children, such as preparations and executing immunization programs and supporting education planning.

UNICEF (2010) stated that children whose births are not logged at the time they are born will not be able to claim the facilities and defense to which they have an entitled on a full and equal basis with children whose birth is recorded. Though many evolving nations have realized worldwide proportions of registration, for instance, countries like Ukraine Bosnia and Herzegovina, Uzbekistan and Cuba, have attained 100 per cent, there are still other nations which have a rate of less than ten percent. Nonetheless, other nations have made magnificent development in cumulating birth registration since the new millennium, examples the Gambia, Vietnam, Brazil, Haiti, India, Myanmar and Cambodia.

Deplorably, in some nations of the sub-Saharan African region, recording levels have essentially waned in the previous five years, fortified clashes being the foremost reason for this. If child birth recording rates are to improve, it is significant to ensure that systems of birth registration are in place and being utilized, use producers that people can relate to and easily understand,
eliminate registration fees, make registration offices more reachable and make an effective information processes every stakeholder.

Strategies Adopted to Advance Birth Recording Rates in Developing Countries

For over sixty years, UNICEF has been operating on birth recording rolling out programs which are aimed at improving birth registry in 70 countries. At the nation level, UNICEF co-operates with legislative partners who include but not limited to the Civil Registry, Justice, Ministries, Electoral Office, Interior Ministries, Health Ministries, Department of Education and civil society. Other associates which include Alliance, Save the Children, Plan International and associates of the Health Metrics Network and the agencies of United Nations. These partnerships play a role in collaboration and ingenuities at the nation level.

Study determinations to reinforce UNICEF’s findings based on plan for birth recording are a continuous element of UNICEF-supported initiatives. Between the year 2005 to 2008, UNICEF led worldwide exploration efforts as well as continental research in Africa. National-level enquiry was conducted to recognise national-level restraints on birth registration in order to take this into justification when writing general plans of action and approaches, and to propose national laws, improvement to eradicate the blockades to birth recording.

The findings reveal that, political obligation and strategic partners are indispensable in instituting and executing birth registry initiatives, legislation and policies. On Birth Registry and the Identity Right in 2007, 18 nations pledged to reach free, timely universal birth registry and for all children by the year 2015. Lawful reform to guarantee birth recording which is cost free and done soon after a child is born is the initial step to cumulate birth registry rates. Between the year 2007-2008, UNICEF supported and braced the conscripting and amendment of national
permissible outlines to bring these in relation with international standards (Convention on the Rights of the Child and International Covenant on Civil and Political Rights) in 19 nations. The outcome of this action resulted in the National Act in Thailand being changed in 2008 to confirm that every birth is formally registered regardless of parents’ legal status.

Satisfactory guidelines, plans of action and approaches are important aspects for the execution of operative continuous national birth registration systems. UNICEF backs the writing, adoption and primary enactment of national plans of action and/or precise plans of action for omitted populace groups, like indigenous inhabitants, miniature migrant and children and displaced children. In the year 2008, numerous nations came up with national strategies and plans of action for birth registration with support from UNICEF to make sure that they improve birth rebirth. For example, in Liberia, a birth recording stratagem was institutionalised and sanctioned by the Ministry of Health and Welfare, while in Indonesia the Home Affairs Ministry propelled the National Strategic Plan 2010 which caters for universal birth registration.

Clearance of the bottleneck of children who are unregistered is one of the preliminary steps to take when instituting a birth registration system or kick-starting a current but inactive birth registration system. This approach is valued especially in the aftermath of armed clashes or natural disasters. It necessitates direct help to support government-led campaigns of birth registration through mobile birth registration brigades, similar to large-scale immunization campaigns.

Cambodia convened a civil registration system in 2000 and adopted legislation for its enforcement in 2002. The United Nations Volunteers Programme (UNVP) and Plan International implemented a nationwide mobile registration project between 2004 and 2006 that registered 8.6 million Cambodians within 15 months, a total of 70 per cent of the population equated to less than 5 per cent prior to the 2004 mobile campaign.
In Mozambique, campaigns to clear a backlog of unrecorded birth of children benefited 1.8 million children amid 0 and 17 years of age between 2006 and 2008 (65 per cent of all children living in the 33 districts covered by the programme). The programme also led to the expansion of a national plan of action on birth registration, with a special emphasis on community participation and mobile birth registration brigades.

According to UNICEF (2010), incorporating birth registry into health services is conceivably the most nominal approach to ensure children are registered considering the national civil registration systems absence of outreach capacity and human and financial resources. Visible results of this collaboration between the civil registrar and health sectors, implemented with UNICEF support in 29 countries between 2006 and 2008, include the augmented presence of civil registrars stationed in health centres, maternity clinics and hospitals, integration of birth registration in early childhood, immunization and other public health campaigns and integration within repetitive health service provision.

Enhanced UNICEF programming of birth registration based on longitudinal data has nurtured linkages between civil registrars and the health sector, leading to the following results: The Gambia’s amalgamation of birth registration into reproductive and child health services. Reportage now reaches 90 per cent of the country’s children and has stemmed in an increase of birth registration rates for children under-five, from 32% in 2000 to 55% in 2005.

In Uganda, the combination of birth registration on child health days emptied over 70 per cent of the backlog of unregistered children. In Mozambique, a community-based repetitive birth registration system was established within the framework of the national Accelerated Child Survival and Development strategy and has grasped over 800,000 children (eight per cent of all children in Mozambique).
UNICEF and Plan International Partnership

Plan International works hand in glove with UNICEF and it is UNICEF’s foremost cohort for birth registry. Ever since 1999, the two organisations have systematized eight conferences (four of these were in Asia, while Africa hosted three and the other one was hosted in the Americas) as the main goal of sharing good and best practices and safeguarding political support from all governments. The conference results produced milestone information on hindrances to birth registry, good and best practices in collaborating with the health sector and good practice in reaching out to neglected populations, which include minority groups, immigrants, refugees, and, information on birth registry have been helpful during these conferences for pinpointing good practice, countries that have improved birth registry rates over time and equating birth registration data between countries in order to produce optimistic rivalry between countries to upsurge their registry rates.

In Kenya, the law which is responsible for safeguarding birth recording is referred as the Births and Deaths Registration Act Cap. 149 Laws of Kenya. Before this was made into law, the local authorities were responsible for enforcing it, nonetheless, when it was passed, the church was authorised to spread over all over the country through legal notices. The Attorney-General was chosen the first person responsible with and who thus appointed the Registrar General as officer in charge of recording these births and deaths in the entire country and was aided by a deputy registrar general and as many assistant registrar generals as possible to carry out its directive. The directive of the Registrar General was recording of births and death, safeguarding of births and deaths records, giving of birth and death certificates and production of births and deaths statistics.

In 1963 on 12\textsuperscript{th} March, the primary lawful announcement pertaining record-keeping of births of black natives was made an obligation for registration of births of all populations of both Nyeri
and Nairobi districts as registration zones. While this legitimate announcement created Nairobi zone registering area, it too relieved the reversal of City Council of Nairobi as a registration zone therefore producing two registration officers in one registration area including medical officer of health and registrar general. This was conducted as a pilot study to find out if it was possible to register births and deaths of native blacks.

Rendering to the birth and death rules and conventions, there were four municipalities (local Authorities) gazetted as registration regions, which are Nakuru Municipality which was propelled in 1965, Eldoret Municipality sprang out in 1968, Kisumu Municipality launched in 1967 and Kitale Municipality flung in 1969. Through successive legal notices the Minister in charge stopped them and combined them with their rural counterpart areas to form one registration area according to their clerical district boundaries, therefore as is presently convened there is no local authority gazetted as a registration area in Kenya.

In 1971, the Minister availed the legitimate notice making mandatory the recording of every birth and death in the entire nation of Kenya in the outstanding constituencies. It was renowned that the Attorney General’s (AG) office had no adequate workforces and a network at the community level to reach each and every part of the nation to register each birth hence the institution of Community Based Registration Programme (CBRP) was promulgated, a trilateral corporation between the A G’s office, the President’s Office and the Ministry of Health. This partnership produced commissions for the Registrar General’s (RG) office where assistant’s chiefs and medical records officers of all sub-locations and health institutes became registration assistants by registering births and deaths within their corresponding zones of authorities and associations.
Evaluation Designs

Since this study aims at evaluating digital birth registration, the researcher took chances in finding the reasons why organisations conduct evaluations. Numerous organisations endlessly conduct evaluations and other forms of research within their programmes. These evaluations are done either due to donor requirements and to assess the effectiveness and efficiency of their interventions (Chris, 2002). To obtain best results from such evaluations, one needs an evaluation design. Hakim, (1987), states that evaluation designs are principally with the aims, intents and plans within the practical limitations of location availability of staff. On the same hand, bearing all these factors to be considered, evaluation planning and design should ensure that the benefits of evaluations outweigh the costs (Wholey, Hatry, & Newcome, 2010).

Courtey has to be focussed on establishing research designs which have the capacity of tackling the important birth registration glitches of the current times by drawing on the most effective and efficient arrangement of scientific methods (Wholey et al., 2010). The researcher has to be conscious of the range and the nature of the numerous objectives in order to design and control the research effectively. Dejong, (1994) believed that defining research design leads to setting crystal clear objectives and goals which emphasize on policy questions, sharpen the research exercise and meet the demand for accountability for research findings and applications with regard to outcomes.

Appropriate Dissemination Channels for Different Audiences

One change suggested to improve research utilization is increased dissemination of results (Weiss, 1995). Broader dissemination may bring a report to the attention of someone willing to use the results. There are many outlets for the dissemination of evaluation research. They include publishing in social science or human service research journals. They are also published in government documents and reports especially when the study concerns a government program.
Some evaluation reports are not published and this can make them more difficult, but not impossible to find (Sarveas, 2009). Even though unpublished the results may be presented at meetings or conferences, unpublished research reports can be obtained from the researchers themselves or from the organizations or agencies for whom the research was done. Researchers participate in a communication network with others doing research in the same areas. These personal contacts are a way to learn what others are doing and obtain unpublished research reports (Stringer, 2007).

One change that has been shown to increase the use of the results of evaluations is to involve the potential users in the evaluation itself. Users can help design the research or serve as interviewers. When they do, there is better communication between evaluators and users, the users perceive the evaluation as more relevant and credible, and they are more committed to the evaluation (Monette & Sullivan, 1994).

The Unite for Sight website states that there are two main steps in settling the evaluation process once data collection and analysis are complete: distribution and use of the findings. It continues to state that the drive of evaluation is to eventually make decisions that improve the quality of life of the communities and populations served. This is normally done through small programs modifications or major policy deviations, but neither can ultimately occur without the proper dissemination and utilization of findings. Erstwhile to start an evaluation, the researcher should define the groups which the findings of the evaluation will be reported Stringer (2007).

Once findings have been scrutinized, evaluation results may be detached among stakeholders and clients, not limited to partakers, development partners and community members. Ideally, these individuals will be ready and receptive to recommendations, since the evaluation process will have incorporated the priorities and interests of these groups. The Unite for Sight website (module 7) states that evaluators have vested interest of ensuring that findings from program
evaluation are disseminated to the proper audiences and subsequently utilized in a manner that will best improve quality of life.

In 2011, Rajiv Shah, the Administrator of the U.S. Agency for International Development, observed similar sentiment in concerning to the need for evaluation to inform future program improvements: In the end, the measure of our success will not be predicated on the number of evaluation done, or stored within a database, or even solely upon the quality of the findings. Our success will depend on our ability to use evaluation findings to strengthen our efforts and sharpen our decision-making (USAID, 2011).

When creating a distribution plan, it is very crucial to comprehend who is the intended end user of the evaluation findings; this information should be resolute using interested parties’ analysis (Stringer, 2007). Research reveals that information distribution plans which are custom-made to user needs have more chances to be used (NIDDR, 2006). With a bird eye view and comprehension of the user, it will also be easier to select the most suitable means of communication. At the early stages of project implementation, during interested parties’ analysis, it may be convenient to review common straits of communication and how people envisage findings which are being utilized (Wayne, 2000).

It is not adequate to distribute report findings or numerous communication materials to stakeholders and anticipate abrupt application of the same information (Fraser & Estrada 1998). Response and interested parties’ discussions are vital steps in the distribution process that can improve both the chances and quality of application. Facilitating discussion among interested parties’ can also help circumvent miscommunication of findings, brainstorm approaches for how to implement recommendations and way forward, while prevent the abuse of the findings (Milstein, 1999). In the course of evaluation, follow-up and technical assistance to stakeholder groups are crucial mechanisms in order to ensure the adequate use of evaluation results.
Factors Promoting use of Evaluation Findings

ALNAP (2006) categorized evaluation utilization into three. These three categories are organizational factors, relational factors and quality factors.

Design- purpose and approach: The resolution is elucidated and decided among the key interested parties at the design stage. The possibility for multiple potentially contrary purposes is eluded through conversation and prioritizing the main things. The method is made in harmony with the aim, needs and interests of users’. For instance, a field-learning or program-improvement purpose must guarantee ultimate participation of the field staff in the creation and a minimal stress on stakeholder need.

Partaking and proprietorship: There is an eloquent quality involvement of all key interested parties throughout the evaluation process. End users directly impact the tenacity and the design increasing its significance and ownership, and are suitably tangled throughout the process through a crystal-clear device such as direction-finding groups, conversations, amplification, and systematic feedback throughout the process.

Planning: There is an adequate lead-time and satisfactory allowance for eminence staff investment in the evaluation. The evaluation concurs with vital decision-making cycles or events such as new program cycle, new budget year/ allocation or parliamentary debates. Unintended timing can also be a factor- such as if the evaluation coincides with an unexpected occasion, event or crisis that increases its relevance.

Finally, timeliness is key. The operation window of opportunity is predominantly short for operational human programs and easily missed by relatively minor delays.
Evidence: The evidence is reliable, soundly explored, impartial and expert. The report is easy to read, brief, with reachable language and no verbiage. Recommendations are precise, arranged, productive, appropriate, practicable and identify who is responsible for action and when.

Tracking up mechanism: Specific tracking up plans are made at the beginning: clear distribution of each person’s’ duties; a major or a key individual is devoted to action; formal supervision response mechanisms and action plans; pro-active distribution through elevation of the findings to the user appropriate ways for example through organization meetings, performances, meetings, team negotiations, accelerate debrief as well as wide circulation through, for instance, the use of internet. Usage may be improved through tailored diffusion with content as well as form removed or modified for specific users.

Evaluator’s integrity: The evaluator is trustworthy in terms of capability and repute. The aptitude of the valuator to be composed and beneficial is also significant; indiscriminate negativity inclines to lead wholesale refusal. The evaluators and appraisal administrators must comprehend the political nature of evaluation, smoothen usage and manage all interested parties consequently. An expansion of skills comprises of enablement, interested parties’ analysis, the controlling skirmish moments and group difference are significant for user focused evaluation.

The organizational factors that promote evaluation utilization include culture where top notch management endorse a culture of knowledge acquiring such as honesty to enquiry and alteration, entrenched learning devices, transparency; organizational employees must value evaluation and have some knowledge of the whole process. The main obligation on the assemblies is an evaluation unit or individual devoted to culpability and learning in place. The evaluation unit must be mechanically and thoroughly allied to top notch management decision-makers, sufficiently resourced and capable.
Lastly, for information management, the organization must have an efficient information management mechanism, which may include but not limited to orderly distribution mechanisms, relaxed and official information sharing networks and systems (ALNAP, 2006).

Evaluation enquiry is integrally political as it is rightly allied with the aims of a social program, and with more universal executive goals and purposes (Dejeong, 1994). The relational factors that promote the utilization of evaluation findings include; personal and interpersonal relationships which include trust and credibility issues, an independent evaluation unit from decision makers and linkages with broader networks.

Rothman, (1980) discovered that the usage of evaluation results is likely to be positively inclined to the perception bearing of the researcher. Nevertheless, other researchers Dunn, (1980) note that, this aspect is less than vital for the effective use of evaluation results. Inputting by program staff in the process of evaluation has been found to be an optimistic aspect affecting the results utilization (Dunn, 1980). However different stakeholders will view different issues from an evaluation as relevant. The donors will be interested in the results and how the finances have been spent while the ministry of health together with partners will be more interested in what strategies and models worked. This study will be attempting to assess what other factors beyond perceived relevance and participation by program personnel promote utilization of findings.

In both research lessons and program assessments, the enclosure of commendations which offer a route for acting has been found to have a positive consequence on usage (Rothman, 1980;). Staff capability, resource competence, technology embracing and donor regulations play an essential role in defining the recital and triumph of donor supported project as found by (Gwadoya, 2012).
A widespread appraisal custom-built by the American Evaluation Association (Shulha, 1997) scrutinized 74 studies of assessment use. The appraisal found a cumulative incidence and credit of such procedure use, such as applicants’ augmented proprietorship of evaluation results, better self-assurance in the appraisal course and in smearing the outcomes and evidence of personal learning, all of which syndicate to produce a net successive result on program practice. This study looked at the role of the evaluation in promoting the expansion of birth registration in Kenya and decision making of evaluation findings, relevant and usable in improving birth registration.

Genesis of Birth Registration

After the turn of the century, birth and death registration became compulsory for Westerners in 1904 and Asians in 1928. In 1963, following independence, registration was made compulsory for all residents in Nyeri and Nairobi districts, followed by Bungoma and Nakuru districts in 1965-1966. By September 1971 it was extended to cover everyone in all districts across the country. The civil registration in Kenya has functioned subsequently from 1928 under the Deaths and Births and Registration Act, Chapter 149 of the laws of Kenya. Though this law is being withdrawn, a new law is being written in order to meet the provisions of the new Constitution which was promulgated in August 2010. The 2010 promulgated Constitution holds two articles specific to birth registration. It states that, obligation for citizenship to be conferred at birth (Article 14); prerequisite for citizens to have admittance to registration services (Article 12).

The general organization liable for the recording of birth and death in Kenya is the Civil Registration Department (CRD) which falls under the Ministry of Immigration and Registration of Persons. The CRD central office core functions are the handling, examining, and propagation of vigorous figures from birth and death proceedings. The CRD central office has five key partitions: Field services, Financial, ICT, Statistics and Training. The Statistics division
is responsible for the receiving, compilation, analysis, dissemination and use of the information to facilitate policies construction, administration and scheduling, and monitoring and evaluation of registration services. Currently, there are 107 native civil registration offices (CRO) rendering services across Kenya. CRO submit accumulated vital statistics periodically to CRD.

The Kenya National Bureau of Statistics (KNBS) is liable for broadcasting authorized vital figures on births and deaths and for calculating yearly vital events indicators by province (WHO, 2005). The KNBS has officers in about 200 of 285 districts and could conceivably collect vital statistics from CRO at the local level. However, currently information on vital events is exchanged only at central level: the KNBS Population Division, Vital Statistics Unit requests and receives aggregated information upon request from CRD. KNBS provides this information to the annual Kenya Economics Survey to estimate GDP and national budget, and to the United Nations Statistics Division (UNSD) for publication in the UN Demographic Yearbook.

The CRD adopted the strategy of using community-based informants who initially notify and, in effect, pre-register births and deaths. An informant is a legally designated person or entity that is, or should be, mandatory by law to notify the local registrar of the incidence of births and deaths. The informant serves as the legal witness to the event.

In Kenya, there are two types of informants also referred to as local registration agents, namely health institutions and assistant chiefs of sub-locations. Health institutions are responsible for notifying events that happen in their facility; assistant chiefs are responsible for notifying events that occur outside of the institution, that is, at home and in the community. By law, the birth and death registration process must begin with a local agent within three and six months of the event, correspondingly. Notice and recording are both free within that period. After 6 months, there is a penalty of 150 Kenyan Shillings in addition to the usual cost of the certificate (50Ksh). Birth and
death registration and issuance of certificates are currently only issued at place of occurrence. This results in greater likelihood for double birth registration.

The notification process involves the assistant chief or the local agent filling data on the authorized registering form which comprises a notification slip that is separated and presented to the parents or next of kin. The notification slip is the perforated stub on the top part of the registration forms. The assistant chief retains the counterfoil copy of the notice and the original notification is given to the family as impermeable of notification which they submit to the CRO to obtain a certificate. At this stage, the completed registration form can be considered ‘pre-registration’ until the time that the local agent submits it to the CRO to complete the legal registration.

Registration of Birth in Kenya

Similar studies have been done by other scholars and organizations in an attempt to assess the impact of digital birth registration on vital data collection. Some of those studies that were most relevant have been discussed herein after and were done in Pakistan with no study conducted in Africa since DBR is a new phenomenon being introduced by Plan International and UNICEF. According to UNICEF (2013), a study in Pakistan on the impact of the technology on birth registration found out that since the introduction of technology and birth registration at the point of birth in maternal hospitals shows that there was a huge percentage increase in birth registration over a period of ten years. This study took a look at what had been done in other countries and took a look at the current and type of birth registrations in Kenya. Below is a brief explanation of types of birth registrations currently in use and recognized under the 2010 Kenyan constitution.
Kenya has three types of birth registration, namely presently, birth registry or an alerted birth which is recorded inside six months of occurrence. Beneath this department, the Chief of Civil Registrar is in charge of birth registry bearing birth information of a specific child whose birth was alerted by the assistant registrar of a specific sub-setting or health institute and a birth statement dispensed to parents. This birth notice is dispensed to parents without any payment and it is given by the registration assistant where the birth of a child took place. Original copy is accorded to parents while matching copy is reserved by the distributing office for record purposes.

The second form of registration is known as late birth registration. Late birth registration denotes all births which are not recorded inside the stipulated six months which the law requires for registration from the day the child was born. In sustenance of late birth registration for a child as many of the following documents which are provided in form G. P. 138 A must be produced; Municipal notification of birth, Certificate of doctor or midwife who attended the birth, Child immunization clinic card, School leaving certificate, Baptismal certificate, Identity card or passport.

The third mode is registration of births occurring outside Kenya. This now conveys the last mode of birth registration which is recognized under the Kenyan Constitution. This is registration of birth of Kenyan citizens happening outside the recognized Kenyan territorial boundaries. This type of birth denotes to anyone who is born of Kenyan paternities outside the country for the child to qualify as Kenyan citizen by ancestry. Should the Registrar of births of Kenyans happening outside the country is not, beyond reasonable doubt, convinced that the child is not Kenyan, then automatically that child cannot be listed in the register of birth of Kenyans happening abroad as a Kenyan?
Empirical Literature Review

This section reviews slightly, the genesis of birth registration in Kenya and its importance and further reviews literature on what others have established on digital birth registration, other forms of birth registration. It also builds up on the three types of birth registration in Kenya as discussed earlier.

The Civil Registration Department in Kenya is coordinated by the Office of Interior and Coordination of National Government and is a government agency responsible for registration of vital proceedings happening in Kenya and of Kenyan nationals’ resident overseas. Internationally, important events include: live born children, deceased, marriages, fetal deaths, divorces, legitimation, adoptions, recognition, cancelations, and separation. However, Civil Registration in Kenya is authorized to record births, deaths, legitimation and acknowledgment (Technical Assessment of Civil Registration and Vital Statistics, 2014).

Recording of births and deaths was made known in Kenya (then East African Protectorate) in 1904. At the time, the conventions applied only to Europeans and Americans. In 1928, the British parliament decreed the death and birth registration Act (Cap 149) to deliver for obligatory notice and recording of death and birth in Kenya. It provided for mandatory recording of births and deaths of Europeans, Americans, and Indians throughout Kenya; for all other races, it provided for registration of deaths that occurred in municipalities. Mandatory registration in other areas and communities was protracted in stages, beginning with Nairobi and Nyeri, on March 1, 1963, until the whole country was covered on September 1, 1971.

Until 1989, footage of death and birth was a section in the Registrar General’s office, along with recording of marriages. In 1989 it was made a complete department (Civil Registration Department) and shifted to the Office of the President. During the restructuring of Kenya’s government in 2003, the department was relocated to the Office of State for Immigration and
Registration of Persons. CRD is now in the Department of Interior and Coordination of National Government, and it is the administration agency accountable for recording of births and deaths that occur in Kenya and of Kenyan citizens that occur abroad.

Civil Registration

Civil registration is the manner through which some authorities register the vivacious proceedings of its citizens and residents. The recording is ongoing, permanent, obligatory, and universal and captures the incidence and physiognomies of life proceedings such as death, marriages, birth, divorces and adoption. Civil recording information is captured in a fountain or files called a civil/population register or registry. The main purpose of civil registration is to generate permissible documents that are used to create and safeguard the civil rights of people.

United Nations, Department of Economic and Social Affairs, Statistics Division (1998) described civil registration as a state-run public association that obliges both universal interests by a system of gathering, screening, recording, filing, protecting, modifying, updating and confirming to the occurrence of crucial events and their features as they relate to the civil status of individuals, and as they affect them and their families, and by providing the official, permanent record of their existence, identity and personal and family circumstances.

Vital Statistics

Vital Statistics is a gathering of information described in relation to vital events which comprises thorough demographic information related to the infant, or deceased as well as medical data related to the vital event. Vital statistics are of extreme importance to the international community because they are the best cradle of data to measure global trends in fertility and mortality encumbrance.

When complete and accurate, vital statistics enable administrators to make guidelines and
strategies for elementary service delivery as well as social and economic expansion that answer to the desires of their citizens. For this vision to be comprehended, it is also important that the data is captured in an appropriate format to allow meaningful scrutiny.

As such, vital statistics system is required comprising tools and processes to tabulate the vital events data recorded by a civil registration system with the purpose of creating statistics. Efforts to advance the eminence of vital statistics are meticulously related to the expansion of civil registration systems in countries. Incorrect data can pose various risks to government planning, reporting and national security.

**Importance of Birth Recording**

Birth recording is the sanctioned footage of a child’s birth by every country. It is a long-lasting and authorized record which proves a person’s existence. Birth registration is a fragment of an effective civil registration organism that recognizes someone’s existence before the law. It institutes family ties and tracks the important proceedings of an individual’s life, from the day they were born to their marriage and eventually the time of their death. The significance of birth recording as the first legal credit of the child is emphasized in Article 7 and 8 of the Convention on the Rights of the Child, which states: “The child’s birth shall be recorded shortly after birth and shall possess the right from birth to a name, the right to obtain a nationality and, as far as possible, the right to know and be cared for by his or her parents”.

Children that do not have their birth registration documents are susceptible to risks such as: child trafficking, early child marriages, facing trials in a court of law as an adult. Birth recording will be the first government official acknowledgement of that child’s existence; it is government policy that every child must be registered at birth, under the regulations of Births and Deaths Registration Act (Cap 149).
In adults, birth certificates are needed for various purposes which are but not limited to, obtain social security, to obtain an employment in the formal sector, to show evidence to the right to inheritance, to obtain a national identity card which will allow them to exercise their independent rights to cast votes in the general elections of their countries and to acquire travelling documents such as passport. The absence of a birth certificate can have solemn, accumulative, and undesirable effect on a person’s life prospects.

In addition to provide the person with permissible proof of distinctiveness, birth recording likewise plays a vital part in the generation of vivacious figures for national planning. Birth recording is part of national civil registration structures that also record deaths. Marriage and divorces are also deliberated part of Civil Registration, however in Kenya they are under the obligation of the Attorney General office.

Civil recording offers the demographic facts that are obligatory by governments to follow the proportions distinguish and drifts of their populaces. This is also helpful in enabling efficient service provision through interaction with other government services (e.g. child vaccinations through working with the Ministry of Health).

Effective birth registration can also provide the foundation for other forms of identity that are acquired later in life such as National ID and passport. The creation of a legal birth identity allows future ID services to authenticate with the birth data to help protect against fraud.

To sum up the importance of birth certificates, recording of birth and issuance of a birth certificate has vast insinuations. Separately from it being the primary permissible byline of a child’s presence and tab to right of abode and nationality, a birth certificate is ultimate to realization of an integer of privileges and needs such as:-makes sure that a child join learning institutions at the proper age, prevent child labor by applying laws recitation to least age limit
for employment, effectively pawn the challenge of involuntary marriage for girls earlier than they are legally appropriate without proof of age, obtaining travelling documents, health and or insurance policy cover for a children, defending a child orphan from being dispossessed by guardians/relatives, safeguard children in conflict with the law and give them exceptional guard and not treated (legally) and almost as adults and protect children who are trafficked, including through repatriation and family get-together

Plan International

Plan International founded over 76 years ago is a child centered organization operating in over 50 countries across Africa, Asia and the Americas and reaching more than 75,000 households annually with a variety of development as well humanitarian support. Plan works globally with an estimated 84 million children, 174 million people and 90,131 communities. Plan Internationals’ work is founded on the UN Pact on the civil liberties of the child and children are at the heart of their programs.

Plan International shares one global goal; to increase its scope to grasp as much children as they can, predominantly children who are omitted or sidelined with excellence curricula. In the view of Plan International, there is a thin line and a clear connection amid of access to rights and poverty. The lowliest and most defenseless are those children who are dispossessed of their elementary rights to education, health, and protection. Working side by side with children and their families in the societies where they come from, cooperating with county governments and national government to put them to their constitutional task and support them to meet their responsibilities towards child rights.

Plan International partners with a variety of public society organizations to reinforce their volume and to device programs. They are also involved with establishments in social
accountable programs which was previously known as social responsibility. PI also recognizes that no one organization can operate in segregation; hence, they work within alliances and strategic coalitions in confrontation of the fundamental roots of child deficiency through promotions and drives on child rights.

PI in Kenya, with over 30 years’ operational experience of working within the Kenyan environs, its activities have revolved around education, health and water cleanliness, food and livelihood security, governance, youth and child protection programming, aiming at Kenya’s poorest and most ostracized children and their families. Currently in Kenya, PI remains committed to focus on eight Program Units (counties) of which seven of them are in the Coastal region in Kwale and Kilifi; in Eastern they are in Tharaka and Machakos; while in Nyanza region they are in Bondo, Homa Bay, Kisumu and Nairobi.

The overall objective of PI programs is to have transmuted institutes and humanities which reveres and aims to accomplish civil rights of all children throughout Kenya without any discrimination. Their programming is based on a child focused community development approach. The fundamental principle of child focused community development approach is moored on the human right based method to development. It depends on the cooperative action of public society to produce the enablement of all children without any bias towards them to achieve their full potential, and the action of states to live up to their duties under the UN Resolution on the rights of the child.

Rationale for Technical Assessment of Civil Registration and Vital Statistics

As pointed out earlier that birth recording is an important right for every child no matter their economic status and background. In Kenya, studies from the implementing agencies which focus on the rights of children shows that, approximately 60% of children are registered at the point of birth. In spite of numerous efforts by the government to attain a 100% registration level,
attainment of comprehensive coverage has been dreary. Currently registration coverage of births and deaths is 59% and 49% respectively of annual projections by the National Central Bureau of Statistics. For instance, in 2013 only 870,599 births were registered out of 1,491,951 expected births. Similarly, out of the 426,078 deaths that occurred, only 194,332 were registered. This implies that 621,352 births and 231,746 deaths were not registered.

Low registration coverage of births and deaths has led to lack of requisite data for planning, security challenges due to forgery of documents, duplications of identification documents, identity theft and lack of complete information for persons aged 0-17 years, which account for about 50% of the population. This unregistered 41% of the population at birth can only be documented by a government agency when reaching 18 years apart from a small percentage that is registered as late registration. Currently, it is statistically difficult to determine the actual number of the unregistered population. This gives room to applicants to provide false information during the registration process.

Working with Kenyan government (civil registration department), Plan International conducted this technical analysis to provide a detailed picture of the current Civil Registration landscape and an objective view as to whether digital technology is a feasible and cost-effective means of strengthening CRVS systems and processes to achieve a comprehensive registration of vital events. Various benefits are projected to be attained though use of technology in CRVS system/processes, potentially; support in current births (both in community and health facility) eliminating late registration. Raise civil registration coverage, through expanding the reach of registration, to over 90% thereby placing Kenya at comparable recommended international levels.

The technical assessment is conducted on the basis of clear need for CRD to define appropriate technologies for strengthening CRVS that are both scalable at national level and sustainable,
beyond ad-hoc pilots that have been implemented in the past as proof of concept in CRVS
digitization.

Enhancement of an excellence life for all Kenyans through affordable, accessible and available
ICT is another crucial social public value pillar, in Kenya’s ICT grand plan, with an objective to
reach +90% annexation of Kenyan society to public services, information and knowledge
through ICT. Connectivity infrastructure at county level and recognition of digital data in law is
currently a focus by the government. There are opportunities to leverage on ICT tools to develop
comprehensive CRVS system with a shift from paper based system.

Digital Birth Registration

Before enrolling DBR in Kenya, a background research was conducted on a number of countries
in Africa. According to PI (2009), Kenya was nominated as a sample study to sightsee in
complexity the affiliation between birth registrations and accessing services such as health and
education; the proposition being that where a child has a birth certificate this can improve his or
her chances for being able to acquire important and basic facilities such as healthcare and
education.

Child birth recording in Kenya as noted previously stands on 60 percent, giving it a perfect
setting in which to observe the effect of birth registration over a comparative scrutiny of diverse
populaces and geographical regions in which there are predominantly high registration rates, as
opposed to those where registering rates are closer to the national average.

Additionally, statistics from Kenya points out that school admittance is not widespread, and the
statistics are quite low at the secondary level, potentially allowing an inquiry into causal links
between absence of birth registration and absence of educational access. Lastly, PI has
commenced rigorous registration programs in specific districts in Kenya for example the
Universal Birth Registration Programs (UBRP) in Kwale which aims at giving a chance to explore how a rapid escalation in registration through NGO programming interventions might facilitate in achieving children’s rights.

The qualitative research group looked at the extent to which ownership of a birth certificate enables an individual child’s ability to access services (education, health and other social welfare services) as much as the extent to which the Government is using birth recording data for the formulation of evidence-based policies to permit effective allocation and targeting of resources, and monitoring the operation and delivery of services.

Just as in India, Kenya gave a context where previous quantitative data existed, and sufficiently detailed, to allow a multivariate regression analysis to be conducted to identify correlations between birth registration and key child-focused with development indicators focusing on health and education.

As part of the Plan International’s (PI) worldwide count every child edge, Digital Birth Registration (DBR) program aids governments to expand birth registrations and spread the reach of child birth recording to the marginalized through the suitable use of technology and reinforcing civil registration and vital statistics (CRVS) systems. According to (Plan International, 2013), CRVS has no need to reinvent the wheel when it comes to effective use of Information and communications technology (ICT). Foremost investments in the world of ICT in the field of global health, for instance the President’s Emergency Plan for AIDS Relief (PEPFAR), the Global Fund, have a wealth of knowledge and lessons learned on how to effectively implement ICT in global health, borrowing from the Principles for Digital Development.

PI has a dedicated DBR project team at International Headquarters whose purpose is to guide
and support implementations in all the countries they are implementing this system. DBR in Pakistan builds on Plan International’s extensive local knowledge of birth registration whilst taking full advantage of digitized registration to reduce key registration barriers and process bottlenecks. The DBR project team has developed a phased approach to DBR implementation, with a structured technical analysis forming the first phase (Plan International, 2005).

DBR builds on appropriate technology which aids birth recording, mainly for those who are sidelined or those who live in the furthest isolated parts of the country. One fundamental aspect of DBR is that there is provision of birth identity shortly after birth which in turn improves citizenship and strengthens CRVS systems, also accurate population data to support service planning. One of the key pillars of DBR is the use of appropriate technology. Schumacher, (2010) defines appropriate technology as, tools that are affordable than technologies established in developed countries and can be used in developing countries more effectively in devolved way with little training and assistance from outside. Kohr (1999) had a different view regarding appropriate technology. He argues that, community participation and amplified self-reliance in problem-solving work hand in glove with appropriate technologies. Collectively they can make a large influence in solving the problems in the community.

The preceding argument shows that, once a problem in which need to be addressed, active involvement of the community is required in addressing this problem. In relation to DBR, the community has to understand and relate to the technology being used and the importance of birth registration.

Gibbons (2008) stated that over the previous years, the digital health community has revealed through pilot studies that ICT has a potential to advance health service deliveries in developing countries. It has been further proposed that digital health interpolations will impact health outcomes considerably only when regularly used, or institutionalized, as a common practice.
Attaining institutionalization requires the proper and accountable leadership, right solutions, adequate methods, and adequate capacity. The author further states that, digital health is on the verge to signify health influence. through the inspiration of the supervision and the harmonized international standards used in eHealth, digital or electronic CRVS (eCRVS) interventions has a potential to deliver vigorous impact for children, citizens and governments in the long run.

In regards to DBR in Pakistan, Plan International postulates that DBR technical analysis is carried out to provide a detailed picture of the current CRVS landscape and an objective view as whether digital technology is a feasible and cost-effective means of strengthening CRVS systems and processes. Where relevant, the analysis also provides a blueprint for a technical solution along with the program components required to ensure that the technology proposed is able to address the current registration barriers and process bottlenecks at scale whilst at the same time providing a sustainable method of strengthening CRVS systems.

In Pakistan where DBR has been implemented, literature reviews indicates that the success of this project was attributed to the collaboration with other development agencies. In unification of what PI attributes as one of the key contributors of success of the project, numerous opinions have been shared in regards to development partnership. Numerous facts have been written about the theory of working in partnership. Heenan and Birrel (2011) stated that, decrypting theories into exercise is not a simple task. Corporations can be fashioned amid several of agencies, individuals or administrations with some comparable concentrations. There is typically an overarching resolution for associates to put their efforts together and focus on a specific goal.

As stated by Heenan and Birrel (2011), for DBR to be a success, it must not be conducted in isolation. In Pakistan, the project implementers maintain that there in need for holistic approach. This approach requires an active involvement across government departments which include
civil registration, health, national statistics to reflect the many stakeholders of accurate and comprehensive birth and death registration data. This means that, there must be harmonization of key stakeholders. In accumulation to above stakeholders, community must be well versed with the technology and what is to be done.

Since migration from community-based system of birth registration to digital birth registration utilize the use of computer systems. Gibbons (2008) acknowledged that the success of any eHealth project relies on two aspects, which are devices and hardware, and platforms and software components. In regards to argument by Gibbons (2008) in relation to DBR, devices and hardware will consist of mobile phones, tablets, laptops, desktop computers, and physical servers. While platforms and software components data transfer technologies, such as short message service (SMS, or text messaging) and unstructured supplementary service data (USSD) sent by mobile phone or web-based forms; software interfaces, such as APIs; and other backend components, such as database software and virtual storage.

Holding all the previous mentioned aspects constant including provision of computer systems, active involvement of the community among others, the success of DBR can be measured in different dimension which include, its relevance, its efficiency effectiveness and its sustainability. The Development Assistance Committee (DAC) views project success in relation to, relevance, connectedness, coherence, coverage, efficiency, effectiveness and impact. According to this model, if a project manages to meet the preceding criteria, it can be viewed as a successful project.

In order to understand DBR in the bird eye view of the DAC model, the following explanations can be related in regards to evaluation of DBR. Cooper and Schindler, (2003) defined relevance as focusing on measuring whether the project is still in line with what was stipulated in the project document while meeting the local needs and priorities as well as donor procedures and
the national government goals and objectives. Appropriateness is the altering of humanitarian deeds to local needs, aggregating ownership, accountability and cost-effectiveness consequently. Relevance norms can be used at distinct levels. Though interventions may be relevant at the macro level, this does not automatically mean that they are suitable in terms of the type of activity selected.

Nici and Wright (1995) defined efficiency looks at the outputs both qualitative and quantitative attained as a result of inputs. This entails comparing alternate approaches to achieve a desired output, to see whether the most effective method has been used. According to Anderson (2005), effectiveness aims at measuring the degree to which an activity achieves its purpose, or whether this can be expected to happen on the basis of the outputs within the stipulated timeframe. Measuring the effectiveness involves an examination of the extent to which stated intervention goals are met.

Having attained the preceding, the project will need sustainability. From the notion of sustainability, the impression that interventions should care for longer-term goals, and ultimately be managed without external donor input will be a norm which will be looked at. Having achieved the factors which will contribute to the sustainability of the project, this will open doors to look at the impact of DBR.

The sustainability of DBR depends of a number of factors. It has to have the local government and key stakeholder’s support. The interdependence between Plan International and its key stakeholders gives it reinforcement of the success of DBR system. Geilfus (2008) emphasized the importance of participation of the community for the success of projects. In his writing, he lays down that a lot has been said about involvement in a project and community-development setting. This is because, as it is well known, a number of development projects either fail or fall
short of their original overall objectives, because of the absence of active participation on the fragment of those for whom the program was envisioned in the initial place who are the beneficiaries. For any project to succeed, there is need for active involvement of beneficiaries (Geilfus, 2008). DBR has proved to have multiple stakeholders and according to the preceding statement by Geilfus (2008). It is equally important to engage all of them.

Some scholars view stakeholder engagement in different lights. Geilfus (2008) stated that numerous professionals still hold to an opinion of progress as a meek, lined process which entails moving in a straight line from one situation to another. In this regard, participation of the beneficiaries is a complete waste of time. However, some development practitioners offer a participation ladder, which elucidates how a community can gradually transform itself from an almost entirely passive bystander (beneficiary) into the owner of the whole process (an agent of self-development). What regulates the level of involvement in this ladder is the extent of decision-making power rendered to the community. This is correct equally of relations amongst civic associates and the development partner and those within community organizations and institutional local actors (Geilfus, 2008).

Nonetheless, it is important to explore reasons why some children do not have birth certificates. Different elements have been attributed to children’s lack of birth certificates. It is a parent’s responsibility to ensure that their children have a birth certificate and also a government responsibility to ensure that they provide a platform which enable people to obtain their birth certificates without any hindrances or any delay. Plan International (2013) pointed out three factors which have been attributed to absence of birth certificates. These include, long distances between their societies and registration offices, high costs of travel, lodging and loss of earnings when recording a child and complex paper-based processes and long administration and red-tapes.
Long distances between communities and registration centers has been a major challenge which Plan International (2013) pointed out. A number of people have to travel long distance to access health facilities. In most cases, due to cultural practices, a number of women give birth from their homes. The argument by Plan International (2013) held that it will be difficult for a parent to travel long distance and obtain a birth certificate.

National Civil Registration and Vital Statistics System (NCRVSS) (2013) further elaborated on long distances between their societies and registration offices, high costs of travel, lodging and loss of earnings when recording a child and complex paper-based processes and long administration and red-tapes which were also pointed out by Plan International (2013) as a barrier. The report stated that the local registration agents are the first authorized points of contact that provide legal witness and notification of the event.

However, there are inherent weaknesses in the system, especially regarding the notification of community events. It is further noted that, Assistant chiefs’ work for the President’s Office and are not employed by the CRD, they are therefore not directly supervised by or responsible to the CRO. Where the local agents do not or cannot perform notification tasks adequately, it is less likely that applying corrective measures or sanctions will be successful.

The sentiments by NCRVSS (2013) and PI (2013) are clear that the processes and long distances between their societies and registration offices, high costs of travel, lodging and loss of earnings when recording a child and complex paper-based processes and long administration and red-tapes discourages a number of parents from following up on their children’s birth certificates.

World Health Organization (2007) has a different view relating to factors which hinders child registration. They wrote that, the major obstacle to child registering is that it is not unanimously professed as an essential right and, as an outcome, it is given stumpy precedence at each level.
Registering might not be perceived as imperative by societies at large or by a government amid unembellished economic snags, by war-torn country, or by families who are struggling to meet their daily needs for survival. Synthesizing the two views, this can give a rationalization and direction towards curbing the problem of child registration.

It is significant to comprehend the root cause of why some children are not registered at birth. Sholtes (2008) defined the root cause as the rudimentary reasons behind the unruly or issues we experience and see in the community. The author further wrote that attempting to figure out why the delinquent has developed is a crucial part of the problem resolving process in order to get the assurance of the proper responses and also to aid citizens to own the problems. Once the citizens have owned the problem, they can identify its magnitude and will be willing to participate in the problem-solving process.

Many views have been shared in an effort to solve the problem of unregistered children. According the Sholtes (2008), fundamental reasons behind the unruly or issues we experience and see in the community. The report by UNICEF (2008) stated that factually, the gigantic hindrance to birth registration in Bangladesh was identified as lack of awareness and the importance of a birth certificate, which has led to the low demand for them.

Having a glimpse understanding of the root cause to lack of birth certificate, the question the researcher poses is, Introduction of DBR by PI is it addressing the root cause of the problem or it is addressing the emerging factors of lack of birth certificates? Synthesis of the ongoing views, and different theories can be utilized to explain why some things happen the way they happen. For PI, their approach may not be to solve the problem why children are not having birth certificates, rather they may be concerned with the effects of not having a birth certificate.
From the writings of Sholtes (2008), it can be comprehended what root cause is important because a scrutiny of the root cause seeks to go yonder than the symptom level solutions to dig out the fundamental true cause of the problem or challenges being observed. Once one has a bird eye view and a comprehension of the root cause of the problem, a community and the implementing agency can develop effective and sustainable solutions to that problem. These effective and sustainable solutions should be identified and defined by the community through process of community participation, which will eventually lead to community empowerment.

As highlighted by PI, without a birth certificate, a child is invisible, hence vulnerable to any form of abuse. As noted by the Government of India (2012), one of the alarming facets of child labor is that children are in working fields instead of them being in school. There is a resilient consequence of child employment on school going rates and the length of a child’s work day is destructively related with his or her dimensions to go to school.

Child labor limits the right of children to admittance and advantage derived from education and refutes the ultimate chance to attend school. Child drudgery, consequently, preconceptions children’s education and unfavorably distresses their health and wellbeing. This shows that development goals are jeopardized. Lack of birth certificates will make it difficult to attain the universal set sustainable development goals such as goal number one of eradicating poverty, goal number of zero hunger, goal number three of good health and well – being, goal number four of quality education and finally goal number five of gender equality.

With some projects which were initiated and could not be completed, some questions can be raised in relation to relevancy and sustainability of digital birth registration. To understand more on sustainability, Grober (2012) gave a comprehensive definition of sustainability. He defined sustainability as warranting that the institutions supported through projects and the welfares realized are preserved and remains long after the life cycle of the project. This definition gives a
clear guide line of what is expected even after the implementing agencies have left the community. Since digital birth registration is built on community participation and appropriate local technology. According to writings of Grober (2012), digital birth registration will be expected to continue long after Plan International has gone out of Kwale and expand to other counties in Kenya eventually adopted as a means of civil registration.

Grober (2012) further stated that enabling factors in achieving sustainability include a key element in feasible project outcomes is a strategy based on a holistic deliberations of livelihood schemes, needs and opportunities. This means that, for sustainability to be achieved, a project must seek to address holistic deliberations of livelihood schemes, needs and opportunities.

Conceptual Framework

The aim of a conceptual framework for this research is to assist a reader to swiftly see the presumed relationships of the variables in this study. Figure 2.1 illustrates the conceptual framework of the study.
The conceptual framework was formulated by the researcher. As indicated in Figure 2.1, the independent variable depicts the current state of birth registration which involves the paperwork of birth registration which is the current state of the civil registration department in Kenya which has been attributed as the contributing factor in low birth registration. The independent variable is characterized by very few experts in DBR, also the attitude of people towards birth registration. A number of people do not see a birth certificate as an important document. This justifies what has been mentioned earlier that nearly 50 percent of children born in Kenya do not
have birth certificates. In an attempt to solve this problem, the researcher proposed a set of intervening variables.

The intervening variables include effective use of technology, effective community sensitization by Plan International, training on the use of DBR and strengthened Government of Kenya policies on birth registration. From the conceptual framework, a positive influence of the intervening variables would have an impact in the civil registration department. These results will come through the effective use of technology in this case the use of DBR, when Plan International plays a leading role in effectively sensitizing the community about birth certificates, DBR and how it functions the community will be more enlightened and see the need to have birth certificates for their new born children.

For effective registration, this will also depend on the training accorded to midwives and nurses as they the key agents who are involved in the use of DBR. All the preceding intervening variables will be strengthened by the stringent policies by the Government of Kenya on birth registration. Once the intervening variables were working in harmony, the dependent variable which is the intended outcome can be achieved of increased birth registration, efficiency in acquiring birth certificates and a centralized vital national statistic.

The effective consideration of the conceptual framework for this study have several benefits to the intended outcomes of DBR project implementers, administrators, stakeholders, policymakers, civil registration department and the beneficiaries of DBR. A number of factors have to be well executed for intended outcomes of DBR to be realized.
Summary

This chapter has presented details of literature related to the study, the theoretical framework, general literature review, and the conceptual framework. It has provided a brief history of birth registration, the technology understudy which is digital birth registration, its objectives and goal, and the different types of birth registrations in Kenya. Empirical literature review, the conceptual framework, and discussion on how DBR is useful in the civil registration. Detailed literature of what other authors have articulated regarding the study under assessment has also been broadly discussed.
CHAPTER THREE
RESEARCH METHODOLOGY

Introduction

Crotty (1998) defined methodology as an approach, plan of action, procedure or a scheme which lies behind the optimal and usage of some specific approaches and linking the optimal and use of methods to obtain an anticipated result.

Methodology explains the method used in a research and it is the reference point for checking the suitability of ideas and issues for empirical investigation (Flick, 2003). This chapter discusses the methodology that was employed in the study. A detailed presentation of techniques, procedures and tools that were utilized to conduct this research are presented. This is done under the successive sub-headings including research design, population, target population, sample size, sampling techniques, data collection methods, data processing approaches, data quality control and data analysis procedures.

Research Design

According to Kumar (2005), research design is an approach that incorporates different components of a research in a consistent and coherent way. This study employed a descriptive survey design. Mugenda and Mugenda (2003) defined descriptive survey design as a process of gathering data for the purpose of getting answers to underlying questions under study. Descriptive research was found as the most appropriate for studying social phenomena due to its ability to describe a situation and portray an event, or situation (Kothari, 2008). The design was suitable for this study because it provides an opportunity to interact with the informants to comprehend the phenomenon under study. The researcher used descriptive survey design because the study was directed by four research questions which sought answers on whether
digital birth registration was relevant, how effective it was, whether there was any increase in birth registration as a result of this and whether there can be recommendations towards the implementation of digital birth registration. The design was found to be most suitable because it provided a chance to interact with the informants and provided answers for the research questions.

Population of the Study

Denise and Polit (1999) referred to population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications under study. In line with the preceding definition, population of the study was necessary because it showed the entire group and their characteristics in the area where research was carried out before the researcher obtained the sample size. The study population consisted of all mothers with children below the age of five who live in Kwale, all staff at maternal health service deliveries in Kwale, staff at civil registration department in Kwale and PI staff.

Target Population

Target population is often people who have some particular characteristics in common (Monette 1994). The target populations for this study were mothers who had used DBR in registering their children, and maternal health facility staff such as midwives, PI project staff who were responsible for DBR implementation, consortium leaders such as chiefs and staff at civil registration department where birth records were kept in Kwale County. The sample was drawn from three out of five health facilities where DRB was being piloted. The three health facilities were selected using sampling frame; this was a list of all the units in the population, from which a sample was drawn. The health facilities which were purposively selected are Msambweni which had recorded a total of 267 births, Matuga recorded 289 births and Kubo 235 births.
Sample Size

Sample size is derived from a sampling frame which is a list of elements in the target population (Cooper & Schindler, 2003). Sampling frame for this study was drawn from randomly selected three out of five health facilities which are implementing DBR in Kwale. The sample was derived from the primary respondents who were mothers that had used DBR in registering their children. It is reported by PI that as of 31st December 2014, 791 mothers had used DBR at three health facilities which were implementing DBR in Kwale.

To obtain a sample size, the researcher used 10% as recommended by Mugenda and Mugenda, (2003). Mugenda and Mugenda (2003) argued that 10-30% of the target population is adequate for descriptive studies. Therefore, a sample size of 79 respondents was proposed for this study. The respondents included 79 mothers who had used DBR, and additional key informants who included 1 Project staff, 3 maternal health staff, 1 Civil Registration Departments staff and consortium leaders. Sample was drawn as illustrated in Table 3.1 and 3.2.

<table>
<thead>
<tr>
<th>Center Name</th>
<th>Total number of midwives</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
<th>Project Staff</th>
<th>Staff at CRD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Msambweni</td>
<td>3</td>
<td>80</td>
<td>95</td>
<td>92</td>
<td>267</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matuga</td>
<td>4</td>
<td>75</td>
<td>104</td>
<td>110</td>
<td>289</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kubo</td>
<td>3</td>
<td>65</td>
<td>80</td>
<td>90</td>
<td>235</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>220</td>
<td>279</td>
<td>292</td>
<td>791</td>
<td>9</td>
<td>8</td>
</tr>
</tbody>
</table>
### Table 3.2: Sample Size

<table>
<thead>
<tr>
<th>Type of Respondents</th>
<th>No. of respondents</th>
<th>Data Collection Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project staff</td>
<td>1</td>
<td>In-depth interview guide</td>
</tr>
<tr>
<td>Maternal Health Facility staff (Midwife)</td>
<td>3</td>
<td>In-depth interview guide</td>
</tr>
<tr>
<td>Civil Registration Departments staff and consortium leaders</td>
<td>1</td>
<td>In-depth interview guide</td>
</tr>
<tr>
<td>Women (mothers who have used DBR)</td>
<td>79</td>
<td>Questionnaire</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>84</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Sampling Technique

Sampling technique gives reference to the processes used to attain a sample (Kothari, 2008). There are two elementary methods to sampling, namely probability and non-probability sampling (Kombo & Tromp, 2006). In probability sampling, every unit in the universe has equal chance of being selected in the sample and the results precisely generalized the population. However, in non-probability samples, respondents or units are nominated for practical reasons such as possession of characteristics relevant and required to the research question or budgetary constraints (Kombo & Tromp, 2006).

The researcher anticipated obtaining information from mothers who had used DBR since inception. However, some respondents were not within Kwale County during the research exercise due to various reasons. Therefore, the researcher used snowball sampling in conducting this research. Snowball sampling has been defined as a method for finding research subjects. One subject provides or guides the researcher the name of another subject, who in turn provides the name of a third and so on (Vogt, 1999). Hence the researcher used this technique to obtain data. Though during the exercise, 65 mothers who had used DBR were gathered at ASN Upendo Village dispensary, questionnaires were administered to all of them while they were gathered there because PI was also conducting their internal evaluation with them. For a few who were
not present during this exercise, the researcher was referred to them by the mothers present during the evaluation exercise.

Data Collection Instruments

According to Cooper and Schindler (2003), a good research instrument must be accurate, simple to use, efficient and capable of answering the research questions. Descriptive surveys typically use questionnaires or interviews to collect information (Singleton & Straits, 2005). Therefore, this study used self-administered questionnaire and In-depth interviews to key informant.

The questionnaire had both closed-ended and open-ended questions. The questions were designed to generate information on the relevancy, efficiency, effectiveness and suggestions of DBR. Closed-ended questions limit the list of responses to choose from, therefore, open-ended questions were used to obtain answers on qualitative aspects from the respondents.

The types of data used in this study were primary and secondary data. The researcher made use of both qualitative data and quantitative data for this research. Qualitative data was obtained through the interviews with the Key informants while quantitative data was obtained through administering questionnaires to respondents.

Kothari (2007) defined a questionnaire as the most appropriate instrument due to its ability to collect a large amount of information in short span of time. It secures confidentiality of the source of information through anonymity (Chandran, 2004). Basing on the preceding reasons the questionnaires were deemed appropriate for this study. The questionnaire was structured to provide respondents with easy-to-fill-in the data. The questionnaire contained both open ended and close-ended questions.

Key informant interview has been defined by Chandran (2004) as an interactive process in which the interviewer initiates a discussion by asking questions, with the aim of getting accurate and
complete information from the respondent. The researcher used this data collection technique for the purpose of comprehending the area under study. Interviews were conducted on one on one with the respondents with intent to find underlying experience, opinion, lesson learnt, success, difficulties, strength, weakness and future direction of DBR. For this case interviews were done with project staff and the Assistant Chief at Civil Registration.

Data Collection Procedures

Before collecting data in Kwale, the researcher sought authorization from Daystar University, School of Human, National Commission for Science Technology and Innovation (NACOSTI) and the County Government of Kwale. These authorizations enabled the researcher to carry out data collection. On the other hand, the interview schedule was administered through face to face interviews with the Key informants. Questionnaires had both closed and open-ended questions which were self-administered to the mother who have used DBR to register their children. The researcher trained two local research assistants who facilitated in carrying out data collection from the different respondents.

Pretesting

Instrument testing denotes putting of the research questions into test to a dissimilar study population but with similar features as the study population to be studied so has to detect possible problems, clarify language used, and increase respondent interest in the research (Kumar, 2005). Chandran (2004) wrote that a pretest is a way to show the extent a questionnaire converse with the respondents. It also aids the researcher to re-visit the questions to make them easy to comprehend and relevant to the study. The researcher used 10% of sample size which amounted to eight questionnaires used for pretesting as recommended by Thornhill (2009). Thornhill (2009) further argued that 10% of the entire population can be used to validate the questionnaires. Therefore a total of eight questionnaires were used in a different department.
within Plan International which was not part of the evaluation exercise and selected women from Kwale were engaged at one local health facility which was not part of the evaluation as well.

Data Analysis Plan

Data analysis can be comprehended as the procedure of regarding at and shorten the research findings with the aim to extract valuable information and come up with concrete deductions. According to Kombo and Tromp (2006), data analysis is probing what has been gathered in an investigation or research and making conclusions and interpretations. It comprises of exposing fundamental structures, dig out imperative variables, distinguishing any irregularities and testing basic assumptions. Data processing and analysis will comprise data preparation, editing, coding, classification and analysis (Mutai, 2011).

Data obtained from the field was in raw form which made it difficult to interpret without analyzing it. This called for data to be verified, coded, and key-punched into a computer software for scrutiny. It was from the outcomes of such scrutiny that the researcher was able to infer the findings of the research. The researcher used Statistical Package for the Social Sciences (SPSS) version 20 to conduct data scrutiny upon finishing data collection. SPSS helped the researcher to generate descriptive statistics which include, frequencies, percentages, and measures of central tendency which were important to the researcher to come up with a clear and precise conclusion on the evaluation of digital birth registration project. The researcher presented the finding in charts and tables. Qualitative data was thematically analyzed.

Ethical Considerations

The researcher followed due process to get authorization permit to conduct research from Plan International, Daystar University and National Commission for Science Technology and Innovation (NACOSTI). After obtaining all the required documents to conduct the study, the
researcher explained to the respondents that data to be collected was only going to be used for academic purposes only, participation in this exercise was voluntary, respondents were allowed to drop out of the exercise if they no longer want to participate and finally the researcher told the participants that no one would be victimized if they did not want to participate in this exercise. The researcher got consent of the respondents to participate in the exercise and he assured them of confidentiality. For confidentiality, the researcher did not disclose names of individuals who participated in the exercise.

Summary
This chapter has presented the methodology that was used to gather and scrutinize data during the period of the research. Data was gathered using questionnaires, in-depth interviews with the key informants and review of secondary data. The chapter has also provided information regarding the population and sampling methods which were used to determine the respondents of the study and ethical considerations.
CHAPTER FOUR
DATA PRESENTATION, ANALYSIS AND INTERPRETATION

Introduction

This section focuses on the projection and analysis of the study findings. Data was gathered through questionnaires administered to respondents. Key informant interviews with project staff and civil registration officials were also used in data collection. The interviews were only focused on the project staff and civil registration officials only because the research was aimed at evaluating the performance of DBR rather than the results of DBR, hence that information could only be derived from the project implementers.

Data collected was analyzed both qualitatively and quantitatively and presented in form of tables, pie charts, graphs, frequencies and in narrative. Descriptive statistics were used to discuss the findings of the study. Some direct quotes from participants were used for clarity of findings. The presentation included background information of the participants and findings according to the study objectives including determining the relevance of DBR; analyzing the effectiveness of digital birth registration in accounting for every child at birth; determining whether there was increase in birth registration and suggesting strategies that could be used to enhance digital birth registration based on the findings. The chapter also presents a summary of key findings.

Presentation, Analysis and Interpretation

Response Rate

The study had a sample size of 84 respondents from which 79 filled in questionnaires and the other five were the key informants who comprised of 1 project manager, 3 midwives, and 1 staff from Civil Registration Departments. However, the researcher could not gather information from the three midwives because during the period the research was conducted, the midwives who were at the targeted health facilities were new and recently deployed. In total, there were 81
respondents out of 84 planned which resulted in a response rate of 96%. This response rate was satisfactory to make conclusions for the study as it was representative enough. According to Mugenda and Mugenda (2003), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Based on the assertion, the response rate was excellent. Table 4.1 demonstrates the responses.

Table 3.3: Response Rate

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project staff</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mothers who have used DBR</td>
<td>79</td>
<td>98</td>
</tr>
<tr>
<td>Project staff</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>81</td>
<td>100</td>
</tr>
</tbody>
</table>

Social-Demographic Characteristics

This section presents, discusses and interprets the findings on the respondents which include, age, education qualification, the duration of stay in Kwale for respondents, number of children respondent has, if all have birth certificates and if they have used both DBR and CBSCR for birth registration.

Respondents’ Age Group

The study first sought the respondents’ age range. The findings show that a number of 43% (34) of respondents were women aged between 25-34 years, followed by the 35-44 age cohort at 29.11% (23). Those aged 15-24 years were 18.98% (15), and above 45 years were 8.86% (7). This shows that all sexual reproductive age groups were well represented in the findings as presented in Figure 4.1.
In order to comprehend the report by Plan International (2005) which indicated that almost half of the children born in Kenya did not have birth certificates, the researcher sought to find if the respondent’s level of education plays a role in acquiring their child’s birth certificate. The findings show that 5% (4) of respondents did not go to school, 22% (17) attained primary education, 53% (42) had secondary education, 5% (4) had post-secondary certificate, 8% (7) had diplomas and 6% (5) were undergraduates. The findings are tabulated in the Table 4.2.

**Table 4.1: Highest Level of Education Attained**

<table>
<thead>
<tr>
<th>Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not go to school</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Primary school</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>Secondary school</td>
<td>42</td>
<td>53</td>
</tr>
<tr>
<td>Post-secondary Certificate</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Diploma</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>79</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
From the findings in Table 4.2, the researcher found that the respondent’s level of education had no direct impact on reason why some children did not have birth certificates. As the study shows that 73% (58) of the respondents had attained at least secondary school education and above, this implies that they had the understanding of the importance of birth certificate as Article 2.11 of Kenya National Examination Council states that birth certificates must be used for verification of names during registration for national examination.

Duration of Respondents Living in Kwale

In order for the researcher to understand whether the respondents had adequate information on DBR since its inception in Kwale, the researcher sought to find out how long the respondents have been staying in Kwale County. The findings show that, 23% (18) had lived in Kwale for between one to two years, 19% (15) respondents had been living in Kwale for three to four years and 58% (46) respondents had been living in Kwale for over five years. The findings show that a large percentage of the respondents as presented in Figure 4.2 were familiar with the project and they were in Kwale when the project was launched by Plan International.

Figure 4.1: Number of Years Respondents Lived in Kwale
The Number of Children Each Respondent had

In order to have a clear evaluation of DBR, the researcher sought to understand the performance of the old system of birth registration which is CBSCR and the new system which was DBR. In order to get adequate information about these two systems, the researcher sought to find out the number of children each respondent had. Knowing the number of children each respondent had would assist the researcher to know if the respondent had used CBSCR to get a birth certificate for her children before. The study found out that 25.3% (20) of the respondents had one child, and 16.45% (13) had two children. 27.8% (22) had three children while 30% (24) had more than three children. The findings are tabulated in the Table 4.3.

<table>
<thead>
<tr>
<th>The number of Children Respondent has</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>20</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td>More than 3</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
<td>100</td>
</tr>
</tbody>
</table>

Children with Birth Certificates

After finding the number of children each respondent had, the researcher sought to find out from those respondents who had more than one child if all their children had birth certificates. At this point it should be noted that this question only targeted 59 respondents since the 20 respondents had only one child. The study found out that of those who had more than one child, 60% (35) said all their children had birth certificates and 40% (24) said that not all of them had birth certificates.
Upon establishing that 60% (35) of the respondents said that all their children had birth certificates, the researcher sought to find out how they acquired those birth certificates. 35 respondents stated that they acquired them through Digital Birth Registration (DBR) and Community-Based System of Civil Registration (CBSCR). The 40% (24) of the respondents who said not all their children had birth certificates were asked to give reasons why some of their children did not have birth certificates. Their response point to the reasons which were identified by Plan International which were the long distance between their homes and the registrar’s offices.

Information on what is DBR

Since DBR was a pilot project and there was a transition from the old way of birth registration which is CBSCR to DBR, the researcher sought to find out if the respondents were given adequate information on DBR. The study found that 100% (all) the respondents were given adequate information about DBR as stipulated in Figure 4.4.
All the respondents stated that they were given adequate information about DBR as they went to register for birth delivery.

Respondents Who Had Used DBR and CBSCR.

In order to understand the effectiveness of DBR, the researcher needed to compare DBR and CBSCR hence the researcher sought the perception of the users of DBR and CBSCR. The study found out that 38% (30) had only used DBR and 62% (49) respondents had used both DBR and CBSCR stipulated in table 4.4

<table>
<thead>
<tr>
<th>Birth registration system</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBR</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>CBSCR and DBR</td>
<td>49</td>
<td>62</td>
</tr>
<tr>
<td>Total</td>
<td>79</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4.3: Usage of DBR and CBSCR

Figure 4.3: Adequate Information about DBR
One respondent stated that she preferred DBR in child registration as;

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“it is less time consuming, it enables me to have a birth certificate for my children without going to the assistant chief’s office and traveling long distances to the nearest registrant’s office and being told to come back many times. The only thing I do is to go and collect the actual birth certificate otherwise the whole process finishes while I am still in the hospital”.
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Also, another respondent shared the same sentiments saying,

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“DBR was very good to me, not only me but even for other women who have used it. For example, I delivered my last child through cesarean section and it took me more than three months to heal completely. It would have been difficult for me to obtain the birth certificate while nursing my wounds and taking care of the new born child. DBR enabled me to get the birth registration while in hospital.”
```

Mothers’ Experience with DBR

The study sought to find the experience and perception of mothers towards DBR. The majority of mothers’ stated that the introduction of DBR was something to emulate and give credit to Plan International since most of the challenges they experienced in the past during birth registration were eliminated. They believed that if DBR continues, it would help them and other women to easily register their babies without having to travel long distances to the Assistant Chief’s office.

Most mothers applauded the introduction of DBR in the maternity ward. However, some of them could not believe that it was possible to register their babies while in the maternity ward using a mobile phone as they were used to the old system of going to the physical office and make an application. One parent showed her dissatisfaction with DBR because she lost her mobile phone which had her confirmation code for birth collection and it took her long before the hospital could retrieve the conformation code.

The mothers who had used both CBSCR and DBR continued with their praise for DBR as another respondent’s states that;
“How I wish this was introduced long back, I will tell you for sure that all my children would be having birth certificates. Among the three of them, I did not struggle to get a birth certificate for my last-born child because everything was done while I was in the hospital just after delivery. This was very helpful for me.”

Relevance of Digital Birth Registration (DBR)

The researcher sought to find whether DBR was relevant from the perception of the authorities who are responsible for birth registration in Kwale and the project implementors. In order to find this information, the researcher conducted key informant interviews (KII) with the project staff and civil registration official in order to get an in-depth of DBR’s relevancy. During the discussions with the KII, digital birth registration was found to be relevant and in line with the Kenya Constitution section 53 which states that, “Every child has a right to a name and nationality from birth.” One of the respondents’ states that, the 2010 Constitution of Kenya clearly outlines civil registration function as a primary basis to establish Kenyan citizenship by recording the occurrence of birth. CRD has a mandate to provide the operational mechanisms to comply with this constitutional requirement.” As one of the primary goal of DBR is to register every birth in Kenya, the preceding sentiments have no doubt that DBR was relevant to what the Government of Kenya wants to achieve.

The review of secondary data shows that DBR made use of mobile phones for birth notification and registration. The researcher found that the use of mobile phones was by no doubt relevant to DBR. This finding was supported by The Communication Authority of Kenya (2016) which stated that mobile telephone had a mobile penetration level of 90% in Kenya. This finding shows in the near future almost 90 percent of the population will have access to mobile phones.
Digital Birth Registration was deemed to be effective. Quantitatively, 54 (68%) of the respondents had used DBR and 25 (32%) had used both DBR and CBSCR systems. Of those who had used both DBR and CBSCR 23 (90%) stated that DBR was more effective compared to CBSCR while 2 (10%) still could not comprehend it since it is still new. In qualitative interviews the respondents attributed effectiveness of DBR to its ability to provide real time registration for children while still in hospital, reducing time for receiving birth certificates, improving data quality by enabling civil registration to be more accurate and linking to vital statistics in real time.

This sentiment was resonated by another respondent saying:

“I have used both DBR and CBSCR to registering for my children. I think DBR is much better though it is still new, it is less time consuming. It enables me to register for my child’s birth while I’m still in the hospital and I do not have to go to the assistant chief’s office. The only thing I do is to go and collect the actual birth certificate otherwise the whole process is completed while I am still in the hospital”.

Commenting on the same aspect of effectiveness, one staff reported that,

“DBR is effective because it enables civil registration to provide accurate vital statistics for planning, ensuring that children have access to birth certificates, link vital statistics to health care, and linking birth registrations into school systems. It has also increased coverage of births registrations, enhanced timeliness of submission of vital statistics, improved utilization of vital statistics, and reduced of late registration”.

Since the study was aimed at evaluating DBR, knowing the effectiveness of DBR was vital to this study. In order to understand the effectiveness of DBR, the researcher sought to interview the government officials who are responsible for Vital Birth registration Kwale County in order
to get their perceived success story of DBR. The response by the government official was crystal clear that DBR was effective as he states that;

‘The Technical Assessment of this project provides technical recommendations to help the CRD realize the CRVS Vision for Kenya by resolving process limitations, strengthening systems and utilizing current initiatives within legal constraints. These recommendations draw on the technical considerations identified in the Current Landscape Assessment. By looking at the key components of the current landscape, the technical recommendations present a holistic view of the potential to help the Government of Kenya realize Civil Registration Department’s Vision of creating to be a comprehensive and reliable source of civil registration records and vital statistics’.

From the preceding opinion, the researcher found that digital birth registration was effective in contributing to the vision of Kenya to strengthen the Civil Registration Department. One of DBR objectives is to centralize civil registration records and vital statistics, a review of project documents shows that Kenya has 47 counties and 285 districts. The sub-location is the smallest administrative unit, each with an assistant chief overseeing a population of that given area. By May 2014, the CRD has 107 registration regions/offices, each comprised of a district or group of districts, headed by a local District Civil Registration Officer (DCRO) to provide services in that region. By May 2014, there were 7,825 assistant Chiefs and 3,412 health institutions supporting the civil registration systems in Kenya.

The study found that the works of 7825 assistant Chiefs was all paper based. This meant that the introduction of DBR eliminated the paper-based work from various sub-location and all birth registration are digitalized and all centralized at one main server.

Whether there Was Increased Birth Registration

The researcher sought to find out whether the introduction of DBR resulted in increase in birth registration in Kwale County. In order to obtain adequate and accurate information on this, the researcher requested project documents from both Plan International and the Registrar’s Office.
A review of digital birth registration documents showed that there was an increase in birth registration in Kwale since its introduction. The increase in birth registration was attributed to DBR as the data shows an increase of 8% of birth registration from baseline as illustrated in Table 4.5.

Table 4.4: Expected Birth Registration

<table>
<thead>
<tr>
<th>Year</th>
<th>Expected Birth</th>
<th>Registered Birth</th>
<th>Registration Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>30281</td>
<td>17078</td>
<td>56.4%</td>
</tr>
<tr>
<td>2012</td>
<td>29514</td>
<td>15435</td>
<td>52.3%</td>
</tr>
<tr>
<td>2011</td>
<td>28764</td>
<td>14008</td>
<td>48.7%</td>
</tr>
<tr>
<td>2010</td>
<td>28037</td>
<td>13457</td>
<td>48%</td>
</tr>
</tbody>
</table>

Further to the review of project documents, the researcher sought to find if the increase in birth registration was as a result of DBR. The study found that DBR significantly contributed to increased birth registration. The respondent added that:

‘‘There is no doubt that DBR has played a significant role towards increase in birth registration in this county’’

Since the introduction of DBR, it can be noted that there was increased birth registration resulting to increased demand for birth registration services, improved service delivery at the government level supported by appropriate technology and strengthened policy influence as a result of community awareness, evidence-based lobby and advocacy, and increased number of children accessing their right to registration immediately after birth. Another respondent attributed the increase in birth registration to DBR stating that:

Before the introduction of DBR, a parent had to go to the Assistant Registrars’ office to notify on her child’s birth, some parents had to travel long distances and the bureaucracy at the Registrar’s office discouraged a number of them to do birth registration. This is why we are implementing this project, since the introduction of DBR, there has been drastic increase in birth registration compared previous years’’.
Summary of Key Findings

Study findings revealed the following:

1. Mobile phone usage was relevant in digital birth registration and mobile penetration was at 90 percent which meant that almost every mother has access to a mobile phone which enables her to use DBR in the delivery ward.

2. A number of mothers were satisfied by DBR which also played a pivotal role in increasing birth registration in Kwale County.

3. Digital birth registration mitigated the challenges related to delayed registration, eliminated long distances between societies and registration offices, reduced the high costs incurred during travelling, complicated paper-based processes and bureaucracy.

4. After the introduction of DBR, the actual birth registration increased by about 8% and that the respondent’s level of education had no direct impact on reason why some of their children do not have birth certificates.

Summary

This chapter has presented the major findings derived from analysis of data collected on the evaluation of digital birth registration project. Findings were presented using bar charts and tables for easier understanding and direct quotes from participants have also been included for illustration. Data was analyzed as per every item appearing in the data collection tool and SPSS analysis software was used to analyze the data.
CHAPTER FIVE
DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

Introduction
This section discusses the key data findings of the study, provides conclusions arrived at and recommendations. The deductions and recommendations obtained are engrossed on addressing the objectives of the study. The researcher aimed at evaluating the effectiveness of digital birth registration and was guided by four objectives which included determining the relevance of digital birth registration, analyzing the effectiveness of digital birth registration in accounting for every child at birth, determining whether there was increased birth registration and suggesting strategies that could be used to enhance digital birth registration based on the findings.

Discussion of Key Findings

Relevance of Digital Birth Registration
Objective one of this study was to determine the relevance of digital birth registration. In order to understand the relevance of DBR and to answer this question, it was important to explore what relevance is. According to Shapiro, (2006), the relevance of a project focuses on measuring whether the project is in line with what was stipulated in the project document while meeting the local needs and priorities as well as donor procedures and the national government goals and objectives.

In light with the preceding definition, the researcher sought to find whether DBR was relevant. The study found that DBR was relevant as it responded to section 53 of the 2010 Kenya Constitution which states that, every child has a right to a name and nationality from birth. DBR was responding to this by ensuring that every child was registered immediately after birth while the mother was still in the maternity ward.
A further review of the DBR project document showed that this project was relevant. The findings show that the Civil Registration Services (CRS) 2013-2017 Strategic Plan aimed at achieving 100-percent registration coverage for births. With DBR implementation, the findings showed that it was inevitable that DBR could contribute toward realization of this goal.

The researcher sought to compare how digital birth registration was working in other countries before coming to a conclusion that DBR was relevant in Kenya. According to UNICEF (2013), the civil registration service in Sierra Leone had been called “ineffectual” and “in crisis”. In Sierra Leone, as one of the impoverished countries in West Africa, the introduction of digital birth registration in 2008 saw a remarkable change in civil registration. Drawing from the success stories in Sierra Leone and Kenya on DBR, it is crystal clear that DBR is relevant and has a potential of aiding the civil registration department to achieve 100 percent birth and death registration.

Kenya has shifted its services from paper based to digital platforms, citing examples from the recently launched E-Citizen, this is evident that Kenya is shifting all the government services to digital and birth registration is not left behind. In this regard, DBR is inevitably relevant not only to the civil registration department but to the national goals of Kenya.

The penetration of Information Technology in Kenya doubtlessly contributes to the relevancy of DBR. CAK attributed that mobile penetration in Kenya is at 90%. Duffus (2014) shared the same opinion by stating that there are billions of cellphones found in the pockets of people everywhere from Afghanistan to Zimbabwe, and they form an integral part of the daily lives of many of us. So it should come as no surprise with these amazing advances in technology and such wide-reaching networks that the humble mobile phone has come to play a vital role in development. The ongoing views and research findings without doubt show that the use of mobile phones in DBR is a relevant way of birth registration.
Effectiveness of Digital Birth Registration;

The second objective of this study aimed at analyzing effectiveness of digital birth registration in accounting for every child at birth. In order to understand whether DBR had been effective, it was important to understand what effectiveness is. Anderson (2005) defined effectiveness as the measure of degree to which an activity archives its purpose within the stipulated time frame.

Having understood what effectiveness is, the conceptual framework of this study identified four intervening variables that determine the efficiency of DBR. They include effective use of technology, effective community sensitization by Plan International, training of midwives and nurses on how to capture birth information and Government of Kenya policies on birth registration. The study found that these four intervening variables were critical in the effectiveness of DBR.

The intervening variables of the conceptual framework were critical in understanding the effectiveness of DBR. One of the variables was strengthened Government of Kenya polices on birth registration. The study found that, by the Kenyan law, the birth registration process must begin with a local agent within three and six months of the event, correspondingly. However, the study found out that the policies were not strengthened as some people can reach adulthood without birth certificates. With DBR, the study found out that this policy of birth registration within three and six months will be achieved since the whole process is conducted in the delivery room.

The study set the effective community sensitization by Plan International as one of the key factors which would bring about the desired results of DBR. The study found that most women who participated in the evaluation exercise all the women stated that they were given adequate information about DBR. This sensitization about DBR was no doubt the key towards the effectiveness of the project. UNICEF (2009) stated that the successes of a strategy needs to
prioritize sensitization and change in attitudes of the frontline mothers in registering socially children. Therefore, interventions for reaching out to register child birth need to focus on sensitization.

The ability of DBR to provide real time registration for children while still in hospital and reducing time for receiving birth certificates, qualifies it to be efficient as it enables children to be registered before leaving the hospital. The long distances which were mentioned earlier as one of the barriers to why most children do not have birth certificates have been eliminated. Within a short span a child would have been registered by the Civil Registration Department. All this effectiveness cannot be achieved without the inclusion of the midwives and nurses. Since the midwives and nurses play a key role during child delivery, the midwives and nurses have been identified as major players for the intervening variables as they are primarily responsible for collecting the vital data in their jurisdiction and registering.

One of the respondents said that;

``I have used both DBR and CBSCR to registering for my children. I think DBR is much better though it is still new, it is less time consuming’’.

The respondent states that it enabled her to register her child’s birth while still in the hospital and did not have to go to the assistant chief’s office. Commenting on the same aspect of effectiveness, one staff reported that;

``DBR is effective because it enables civil registration to provide accurate vital statistics for planning, ensuring that children have access to birth certificates, link vital statistics to health care, and linking birth registrations into school systems. It has also increased coverage of births registrations, enhanced timeliness of submission of vital statistics, improved utilization of vital statistics, and reduced of late registration’’.
Digital birth registration was effective in contributing to the vision of Kenya to strengthen the Civil Registration Department. A review of project documents shows that 107 registration regions/offices and 7,825 assistant Chiefs and 3,412 health institutions supporting the civil registration systems in Kenya. All the works of 7825 assistant Chiefs is paper based which may be the reason why there has been a lot of delay in issuing birth certificates which end up discouraging a number of mothers to acquire birth certificates for their children. With the introduction of DBR, the paper work was eliminated and birth registration made more effective and efficient no more waiting and travelling long distances. The effectiveness of DBR has also been seen through its contributions towards increase in birth registration as highlighted in the third objective of the study.

Whether there Was Increased Birth Registration

The third objective of this study was designed to determine whether there was increased birth registration. The study found out that since the project inception in 2012, there had been a significant positive contribution in birth registration. DBR had played a key role in contributing towards civil registration and ensuring that every birth was registered within the shortest time possible.

A review of the project baseline shows that in 2010, the actual birth registration in Kwale was 13,457 and in 2012, actual birth registration rose to 17,078. Interview with the local authority confirmed the increase in birth registration and state that, there has been a gradual increase in birth registration in this district despite the project being a pilot conducted in few selected health facilities. The sentiments by the local chief concur with what UNICEF 2013 published about Sierra Leone before and after the introduction of digital birth registration in 2008. The country now is doing remarkably well in civil registration.
It is possible that birth registration can actually increase. According to UNICEF (2013), the rate of birth registration of children increased dramatically from 12 percent in 2006 to 31 percent in 2011. This improvement was promoted by a range of advocacy and programmatic actions, digital birth registration and national birth registration campaigns and strengthening institutions.

The same opinion was shared from the experience in Brazil. According to UNICEF (2013), national birth registration rates had also improved in Brazil, increasing from 64 percent in 2000 to 93 percent in 2011. The increase in birth registration in Brazil was been attributed to the financial incentives to all maternity hospitals that kept advanced birth registrations post their premises allowing new parents to start the registration process while still at the hospital. The incentive in Brazil is the same concept being used in DBR, of aiming that a child is registered before leaving the hospital.

The study found that DBR significantly contributed to increased birth registration. The respondent added that;

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‘‘There is no doubt that DBR has played a significant role towards increase in birth registration in this county. Since the introduction of DBR, it can be noted that there was increased birth registration resulting to increased demand for birth registration services, improved service delivery at the government level supported by appropriate technology and strengthened policy influence as a result of community awareness, evidence-based lobby and advocacy, and increased number of children accessing their right to registration immediately after birth’’.
```

Strategies that Could be Used to Enhance Digital Birth Registration

The fourth objective of the study was to suggest strategies that could be used to enhance digital birth registration based on the results. The respondents suggested that adequate training of the whole value chain of DBR on how to use this system was necessary in order to strengthen the civil registration process not only in Kwale but also in the entire country. These findings concur with Shanmugaratnam (2011) who stated that individual differences and strengths also need to
be considered and decided when planning professional development sessions, since inadequate or inappropriate training can yield poor results. Therefore, adequate training is necessary particularly when new technology is being integrated in the civil registration process.

Both the project manager and government official revealed that there was need for continued support from the service providers and other stakeholders as DBR requires the support from Plan International and the Government of Kenya. DBR requires mobile phones and Large Area Network (LAN) among other resources for it to be successful.

The mothers suggested that civil registration should discard the traditional methods of birth registration, embrace DBR as a means of birth registration. These findings were in line with Culp (2012) who stated that for anyone whose didactic beliefs and practices are traditional, there is an occurrence different and much more complex barrier for technology integration. In order to incorporate technology into civil registration, the very nature of their practices would have to change. This recommends that the whole value chain of civil registration should embrace change and expose them to training that could help them acquire the skills they would need to integrate technology in civil registration.

Conclusions

The aim of this study was to conduct an evaluation of digital birth registration project in Kwale in order to determine the effectiveness in enhancing birth registration hence the possibility of adopting it as a way of birth registration in Kenya. From the findings, a number of factors need to be considered in order to come up with tangible inferences attached to the effectiveness of DBR. However, since it was a pilot project, DBR contributions were felt since the project implementers could monitor every activity at all the piloted health centers which were offering DBR services.
Witter (2000) indicated that the intervening variables will determine desired results for any project. In relation to the preceding sentiments the high use of technology, community sensitization, training and policies in birth registration will determine the desired results for DBR. These intervening variables work in harmony towards the effectiveness of DBR in birth registration.

Before introduction of DBR project, birth registration was done through community based system of civil registration which was based on paperwork, encompassed by travelling long distances, hence low turnout on birth registration. DBR project had exposed the capacity of birth registration Kwale County and opened other avenues through which they could easily access national statistics information that is useful for national planning.

DBR enables centralization national statistics for national government as stipulated. In addition, DBR project a number of mothers to reduce the long travelling distance to go and register for the birth of their children. All the paperwork is conducted while in the maternity ward. Moreover, DBR project made use of appropriate technology which everyone was conversant with and it also made use of sustainable energy such as solar power which made it user and eco- friendly and it can be used in the most remote areas of the country provided there is network system for phones.

Drawing lessons from other countries such as Pakistan and Sierra Leone where DBR had been implemented, DBR has a potential of being adopted as a means of birth registration as it has proved to be relevant to what the government of Kenya intends to do with the civil registration. DBR is contributing to the realization of the following agendas of the Government of Kenya. The Government of Kenya’s agenda includes two key focus areas namely: implementation of Vision 2030 and Constitution of Kenya 2010.
Information Technology infrastructure development is key for DBR adoption as a way of birth registration in Kenya. Moreover, information technology has to work hand in glove with civil education on the importance of birth registration for every child.

The proof aspects of the conceptual framework identified the potential to harness technology usage to strengthen the civil registration process. DBR was launched in Kwale County with the intention of empowering remote communities to digitally initiate the registration process using mobile phones. The study shows that the DBR pilot took advantage of Kenya’s extensive mobile phone network coverage. To ease initiation of the birth registration process, Community Based Organizations used mobile phones to relay details of births directly to the Civil Registrar.

Recommendations

Based on this study’s findings, the following are the recommendations of the study;

1. The Government of Kenya (GoK) in conjunction with the telecommunication service providers should increase the network coverage to some remote areas and help to install more solar power in the health facilities. This is due to the fact that some areas have weak network coverages and some healthy facilities do not have the solar powers to last them longer in the event of power fluctuation.

2. The government and other stakeholders should put systems in place that would ensure that every child born in Kenya is registered without any challenges. The study found out that there were challenges such as long distances and bureaucracy at the Registrar’s office which discouraged a number of mothers to follow up on their children’s birth registration.

3. Sensitization programs need to be carried out to encourage mothers to know and to embrace the use of DBR as a way of birth registration. This is because the interview with the Project staff
revealed that initially at the beginning of the project, some mothers were not conversant with registration using mobile phone.

Areas for Further Studies

This study recommends that further research be conducted in order to;

1. Identify factors which contribute to either decrease or increase in birth registration. This would assist in comprehending, and introducing new knowledge on the effectiveness of DBR as pointed out by Cook (2004), that project interventions do not exist in vacuum. There are a number of factors which are considered before concluding whether a project was effective or not.

2. The study only focuses on the effectiveness of DBR, the future studies should assess the sustainability of the DBR.

3. Since the researcher did not conduct focus group discussion for women, the study further recommends similar study, including focus group discussion for women be conducted, which will bring out their experiences

4. Lastly, this study proposes a study to be carried out on how DBR should register children who are above 5 years and did not have birth certificates upon birth.
REFERENCES


Dear Respondents

RE: AN EVALUATION OF DIGITAL BIRTH REGISTRATION PROJECT: A CASE OF COUNT EVERY CHILD PROJECT IN KWALE COUNTY, KENYA

My name is Zvidzai Matinha from Daystar University in School of Human and Social Sciences pursuing a Master of Arts in Monitoring and Evaluation currently. I am conducting an evaluation of digital birth registration project: a case of count every child project in Kwale County, Kenya. This study will help project implementers (Plan International), stakeholders and the government of Kenya in assessing DBR before rolling out to other counties. Your answers will be treated with confidentiality.

Thank you for participating in this study.

Sincerely

Zvidzai Matinha
Monitoring & Evaluation Student,
Daystar University
A Digital Birth Registration (DBR) Evaluation Questionnaire guide for Mothers

SECTION I: INTRODUCTION AND CONSENT

My name is Zvidzai Matinha a final year MA in monitoring and evaluation student at Daystar University conducting An Evaluation of Digital Birth Registration project. A Case of Count Every Child Project in Kwale County, Kenya. You have been randomly selected to participate in the survey.

The information received will be treated confidentially. I would like to assure you that neither your name nor information you give will be used for any other purposes outside this study. Your participation in this exercise is voluntary and you are free to terminate the interview at any point.
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<td>What is your age bracket</td>
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<td>What is your highest Educational Qualification?</td>
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<td>How long have you been living in Kwale</td>
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<td>1-2 years</td>
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<td>Above 5 years</td>
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<td>4</td>
<td>How many children do you have?</td>
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<td>More than 3</td>
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<td>Do they all have Birth Certificates?</td>
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<td>If Yes, how did you acquire them?</td>
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<td>If No: why? Kindly give reasons why they do not have</td>
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<td>Were you given adequate information on DBR?</td>
<td>Yes</td>
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<td>No</td>
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<td>8</td>
<td>Have you use both Digital Birth Registration (DBR) and Community-Based System of Civil Registration (CBSCR)</td>
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<td>9</td>
<td>If yes is there any difference</td>
<td>yes</td>
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<td>If yes kindly share the differences</td>
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Kindly share your experiences of DBR.

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*Thank you for your participation*
Appendix B: In-depth Interview Guide

Civil registration department officer and Project manager

Introduction

Good morning/good afternoon I am Zvidzai…. (As I introduce myself)

I wish to thank you for this opportunity to discuss a few issues on the Digital Birth registration project. I would like to learn from you the effectiveness, efficiency, appropriateness and your perceived impact of the project. I will be keen to record any lesson learnt, success stories, challenges that may have been experienced. Information you give will be used to assess and document project’s achievement since its inception.

Your participation in this exercise is voluntary. You can choose to answer or not to answer any questions and non-participation or participation itself will not have any adverse consequences on you. Information you will give will be treated as confidential and will not be used against you as an individual.

Consent

Do I have your permission to continue? YES/NO (if NO, thank the respondent and move on)

Warm up: / tell us what you know about Digital Birth registration in Kwale

1: As an official in this place, how have you been involved in the Digital Birth registration? (Probing for participation in project design, coordination meetings, oversight, orientation, training, supervision, reporting, etc.)

2: What do you consider as contributions and benefits of this project? (In this question, probe what Digital Birth registration has achieved,

3: Kindly discuss with me the effectiveness, efficiency and appropriateness of the project intervention? (Probing for any perceived impact, capacities built and lesson learnt, successes, difficulties, strength and weakness, future directions.)

4: In your own experience, what do you perceive is working well and is not working well in this project?

5 What have been the challenges/constrains in this project and how have they been managed?

6: If there is an opportunity to start this project all over again, are there any components you may suggest be done differently? (Recommendations for future)
Appendix C: Daystar University Authorization Letter

27th January 2016

National Commission For Science, Technology and Innovation
8th - 9th Floor, Utalii House
off Uhuru Highway, Nairobi
P. O. Box 30623, 00100
Nairobi KENYA

Dear Sir/Madam,

**RE: ZVIDAI MATINHA (13-0261)**

The above named is a student in the Master of Arts, Monitoring and Evaluation program at Daystar University Nairobi Campus. He is about to complete his coursework for the Master’s program, and is required to do research as part of his final requirements.

The topic of study is *An evaluation of digital birth registration: A case study of Plion International (Nairobi)*. His proposal has been passed and approved by the Department of Development Studies.

He is hereby authorized by the University to carry out his study by collecting data from the field. He requires your authorization to facilitate the same.

Thank you in advance for your willing to give this opportunity. We are truly grateful for your partnership in this, and for your organization’s contribution in the education of Daystar University students.

If you have any queries, please do not hesitate to contact me.

Yours faithfully,

[Signature]

[Stamp]

Ref: 31/2015

2 Peter 1:19 KJV
Appendix D: Plan International Introduction Letter

5th February 2016

DAYSTAR UNIVERSITY
Nairobi Campus
P. O. Box 44400-00100,
Nairobi, Kenya

Dear Sir/Madam,

REF: ZVIDZAI MATINHA (13-0261)

The above named is a student in the Master of Arts, Monitoring and Evaluation program at Daystar University Nairobi Campus. He has been granted permission to conduct his research in Plan International touching on an evaluation of Digital Birth Registration.

If you have any queries, please do not hesitate to contact me.

Yours Faithfully,

Michael Warui,

Interim Regional IT Manager | Plan International Region of Eastern and Southern Africa (RESA) & Country IT Manager | Plan International Kenya
Appendix E: Research Permit

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Reference No: NACOSTI/P/16/55188/9649

Zvidzai Matinha
Daystar University
P.O Box 44400-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “An evaluation of digital birth registration project: A case of count every child project in Naivasha County, Kenya,” I am pleased to inform you that you have been authorized to undertake research in Nakuru and Kwale Counties for the period ending 17th June, 2017.

You are advised to report to the County Commissioners and the County Directors of Education, Nakuru and Kwale Counties before embarking on the research project.

On completion of the research, you are expected to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. STEPHEN K. KIBIRU, PHD.
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nakuru County.

The County Director of Education
Nakuru County.

The County Commissioner
Kwale County.
OFFICE OF THE PRESIDENT
MINISTRY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Email: cdkwale@yahoo.com
Telephone: Kwale 4105
When replying please quote
Ref. No. ADM.15/7/4CC/VOL.1/111
and date

All Deputy County Commissioners
KWALE

RE: RESEARCH AUTHORIZATION
ZVIDZAI MATINHA

The above subject matter refers.

This is to inform you that Zvidzai Matinha of Daystar University has been authorized to undertake research on: “An evaluation of digital birth registration project: A case of count every child project in Kwale County, Kenya” for a period ending 17th June, 2017.

The researcher will be expected to report to you and the Director of Education before commencing the research.

Kindly take note and offer the necessary assistance.

A. L. Olinga
FOR: COUNTY COMMISSIONER
KWALE COUNTY

C.C.

Zvidzai Matinha
Daystar University
P.O. Box 44400-00100
NAIROBI

5th September, 2016
### Appendix G: Anti-Plagiarism Report

**Zvidzai 2**

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   <1%

8. **The Practice of Health Services Research, 1993.**  
   Publication  
   <1%

9. **Submitted to UC, Irvine**  
   <1%
27th January 2016

National Commission For Science, Technology and Innovation
8th - 9th Floor, Utalii House
off Uhuru Highway, Nairobi
P. O. Box 30623, 00100
Nairobi KENYA

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If you have any queries, please do not hesitate to contact me.

Yours faithfully,

[Signature]

Daystar University
Department of Development Studies
Nairobi, Kenya

Re: Development Studies

2 Peter 1:19 KJV

...until the day dawned and the daystar arose in your heart...