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TOPIC: **Civil Registration and Demographic Data:  
A Comparative Study of  
Context, System and Data Output  
In Kenya and the Netherlands**

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*“Numerous steps can and are being taken to improve registration and many make-shift interim improvements can be made. However, real progress can be made only when governments are prepared to make the basic policy decision that adequate civil registration and vital statistics are essential for national well being and economic and social progress”*  
(eds in Bogue et al, 19993:3)

## **Abstract**

The aim of this study is to describe and explain; context, system and data output with respect to civil registration in Kenya and the Netherlands. The study is structured around the United Nations (2001) theoretical framework on 'Principles and Recommendations for a Vital Statistics' System as well as edits in Bogue et al (1993 edits) on civil registration data method in 'Sources of Demographic Data' chapter of 'Readings in Population Research Methodology'

The relevance of this study is that countries require comprehensive demographic data to inform national policy and research. Massive data collected in civil registration should be utilized for production of demographic data to guide planning, implementation and evaluation of health programs and projects especially those identified in Millennium Development Goals. Poor countries which also bear the highest disease burden need comprehensive data to inform interventions but this is either inadequate or non-existent. Lack of comprehensive civil registration data has made the poor countries rely on survey estimates to provide fertility and mortality indicators. These indicators are prone to fluctuations caused by sampling errors. Civil registration data must therefore be available to ratify survey estimates. This study identifies how context and system factors interact to influence the quality of data generated by civil registration.

Data for this study is from published secondary literature in civil registration and primary data based on in-depth interviews. Since civil registration is mainly a government administration function, most literature in civil registration is in unpublished internal government reports. Such unpublished reports used in this study are available in CBS in the Netherlands and department of civil registration in Kenya respectively.

A major conclusion of this study is that production of comprehensive demographic data by civil registration requires a government's demonstrated commitment in integration of civil registration into administration and governance policies at individual, local agencies and at the national levels. The study reveals that these policies should focus on making the law on civil registration comprehensive, responsive and enforceable; developing an organization and administrative structure that legally incorporates roles and responsibilities of relevant government agencies while providing for overall coordination, supervision and monitoring. The policies should also provide stringent administration of civil registration data method including exploiting comparative advantage of various government agencies in achieving the legal and demographic purposes of civil registration. Such administrative provisions include competences in collection and compilation of civil registration data, control of quality of data derived from civil registration records, competencies in production and regular dissemination of data derived by civil registration.

The findings may not be entirely new but they remain news in countries struggling with incomplete and stalled civil registration data method.

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### List of acronyms

UN	United Nations
UNSD	United Nations Statistics Division
UNICEF	United Nations Children Fund
UNDP	United Nations Development Program
W H O	World Health Organisation
H D I	Human Development Index
H P I	Human Poverty Index
M D G	Millennium Development Goals
C B S	Central Bureau of Statistics
G O K	Government Of Kenya
UBR	Universal Birth Registration
UNESCAP	Economic Commission for Asia and the Pacific
UNECA	United Nations Economic and Social Commission for Africa
AIDS	Acquired Immune Deficiency Syndrome

# 1 INTRODUCTION

A country's social economic development is derived from universal quantified indicators that differentiate the various stages of demographic, health and human development transitions. Consider the following; Demographic transition is founded on tracking changes in fertility and mortality (D. Kirk 1996); The epidemiological transition is measured by health status, specifically by infant mortality, life expectancy and leading causes of death (Omran 1998); Human development is measured by indicators of quality of life including; life expectancy, probability of surviving beyond age 40 and total fertility rates (UNDP 2005). These quantified indicators have necessitated establishment of data sources that provide comprehensive, accurate and timely data to inform the countries' research and development processes. In most countries of Europe, civil registration and population register system of population counting are used as sources of data (Euro Stat 2003). A characteristic of these data sources is that they are inbuilt in basic administration of the population where data collection and utilization form part of the daily lives of the population at the individual and national level. In Africa such data sources that penetrate daily lives of the population are lacking or inadequate (Lancet, 2007).

The United Nations Statistics Division has long recognized the importance of civil registration in production of complete, accurate and timely demographic data to help national governments alleviate social economic inequalities and thereby steer national social development progress (UNSD 2001:1). Subsequently UNSD has made efforts to encourage national governments to establish, manage, operate and maintain civil registration data methods through provision of financial and technical support. Bogue et al (1993) has utilized reports by the UNSD (1987) on improvement of civil registration in developing countries in a comparative study of major data methods. Bogue et al (1993) observes that civil registration and other data sources should be fully developed in order to serve growing and varied needs of research and development. The authors submit that none of the three data sources, census, surveys and civil registration can fulfill all data needs on its own and their complementary roles should therefore be strengthened. It has however been observed that improvement of civil registration as a data source has either not started in many countries or has altogether stagnated in those countries that attempt to establish the system(Bogue et al(1993),lancet 2007). This study focuses on a comparative analysis of context and system of production of demographic data by civil registration and how they influence the quality of civil registration generated data out. According to United nations recommendations on vital statistics(2001), civil registration and vital statistics is a responsibility of national governments and that the system must operate in away responsive to the social cultural milieu of the country. The system provides legal records to guide administration and access to individual human rights. United Nations recommends utilization of data generated by civil registration for production of demographic data to aid social development planning (UN2001). United Nations further recommends gradual development of civil registration for production of demographic data from basics to more advanced data sets according to country's data needs and capacity to produce the data. System of civil registration on the other hand refer to the core enablers of civil registration which the United Nations identify as characteristics of civil registration , legal framework, organization, human resource capacity, technological capacity and the quality of generated data . In this study administration and individual level relevance are examined as unit enablers of civil registration and demographic data to enable consolidation of their location in civil registration and demographic data. The two units are discussed in United Nations recommendations as themes in organization and this mainstreaming ,this study posits has reduced the weight of administration and individual level relevance in civil registration in actual implementation of the recommendations .

## 1.1 Civil registration

United Nations Statistics Division defines civil registration as “continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population as provided through a decree or regulation in accordance with the legal requirements in each country” (UN 2001:301). UNSD further defines civil registration data method to refer to “the procedure employed in gathering the basic information on the incidence of vital events and their characteristics which occur to the population of a country within a specified time period ,upon which vital records with legal value are prepared and vital statistics based” (UNSD 2001:302).

United Nations notes that the uniqueness of civil registration lies in the fact that, not withstanding the valuable analytical purpose of other data sources, none of the other data methods can meet the legal purpose of safeguarding the individual human rights with respect to social status and benefits simultaneously with demographic purpose (UNSD 2001:309). Although many countries have some system of civil registration, improvement of this data method has been slow and erratic causing the United Nations to prioritize improvement of civil registration data method, a millennium challenge (UN2001:42).

United Nations recommend that a system of civil registration should include all ‘institutional, legal technical settings needed to perform the civil registration function in a technical, sound and coordinated and standardized manner through out the country taking in to account cultural and social circumstances particular to a country’( UNSD 2001:306).

This study considers the social cultural political and economic context of civil registration, institutional, legal technical settings as the factors of civil registration and demographic data in Kenya and in the Netherlands.

In Kenya, civil registration is still incomplete notwithstanding the more than 40 years of improvements through focused programs and projects. For instance, Kenya is one of the countries in Sub Sahara Africa countries which have less than 50 percent of births registered and also one of countries where 40 percent of deaths that occur go unreported (UNECA, 2008).

In the Netherlands, civil registration is a component of population register system of population accounting, which is the default source of population statistics (CBS Netherlands 2000). Civil registration data method is used together with migration statistics to update the population register of the Netherlands.

## 1.2 Relevance of the study

Civil registration is a basis for providing comprehensive continuous and universal indicators of development including infant mortality rate, maternal mortality, life expectancy and causes of death. Despite this importance, production of demographic data by civil registration data is confronted by improvements that are slow and erratic (Bogue et al 1993:3, Lancet 2007). Although Kenya has established a system of civil registration for legal and demographic purpose, legal records have not been fully utilized in production of demographic data. This comparative study of civil registration and generation of demographic data between Kenya with the Netherlands aims to sheds more light on how to increase the effectiveness of civil registration in production of adequate demographic data. At the same time the study sheds light on constraints facing civil registration its and demographic data output in Kenya and other countries with similar political social cultural and economic conditions.

### **1.3 Research question**

This comparative study answers the following research question; what comparisons can be made regarding context, system and final data output in civil registration between Kenya and the Netherlands? Subdivided questions in this study are

What is the context and system of civil registration and demographic data like in Kenya and the Netherlands?

What influence does context and system have on the quality of data generated by civil registration in Kenya and the Netherlands?

### **1.4 Objectives**

The aim of this study is to describe and explain context and system of production of demographic data by civil registration through a comparative analysis of production of demographic data by civil registration in Kenya and the Netherlands

Specifically the study describes the context and system of civil registration in Kenya and in the Netherlands and the state of data generated; compares how context and system of civil registration shape demographic data outcome in Kenya and in the Netherlands and draw useful recommendations in improvement of civil registration data method.

### **1.5 Structure of the report**

This report is divided in to six chapters. Chapter one provides an introduction and literature review leading to the justification of the study, the study question and study objectives. Chapter two dwells on the United Nations theoretical framework on improvement of civil registration data method in developing countries (UN, 1999) reinforced by edits of population research methodology by Bogue et al (1993). Chapter three covers conceptual framework as well as definition of concepts and how they are operationalized in this study, overview of the study areas, data sets and sources and collection. Chapter four is about study findings Kenya while chapter five is on findings Netherlands .Chapter six provides a comparative summary of findings, conclusions, recommendations and discussions.

### **1.6 Literature Review**

One may find it difficult to begin a study of production of demographic data by civil registration without reviewing the work of United Nations which is the cradle of this system. In 1959, United Nations commissioned a study on the potential of population register and similar systems in production of demographic data (UN 1969). This study concludes that for countries without established systems of civil registration, establishment efforts should be made, meanwhile, other interim data sources should be sought to inform country's health policy and epidemiological studies (UN 1969, 1973). One notable reason for recommending use of other interim data sources was that the costs of establishment management and maintenance of civil registration was too high for countries(1969,1973). Years latter, the international leading demographic and health survey have become equally expensive and beyond poor countries nation budget, with a typical survey costing an estimated one to two million us dollars (DHS 2008). To carry out a demographic and health survey pooling of international funding is made to reach the required budget which expand with growing data needs while still retaining the traditional data sets. Furthermore, some of the data collected by demographic and health surveys is also collected in civil registration for

administrative and legal purpose than and utilization of this data in production of demographic data would not invite repulsive higher costs. In its recommendations on vital statistics (2001), United Nations reemphasises the importance of civil registration as a source of demographic data and presents extensive details on roles and responsibilities in collection, compilation, analysis and presentation of data derived by civil registration. In these recommendations, however, although United Nations touches on administrative settings that enable production of demographic data by civil registration, this is mainstreamed in legal and organisation framework (UN 2001: 63-73, 323-377). Further more during introduction, United Nations provides leeway for governments to put in place own administrative settings to ensure effectiveness and efficiency in production of demographic data by civil registration (UN2001:9). The leeway is important to accommodate different types of national administration but whatever administrative setting, it is important to put in place a model of key actors that enable civil registration to fulfil legal, administrative, and demographic purposes

World advocacy for strengthening production of demographic data by civil registration continues at international and international levels. A collaboration of Health Metrics Network, World Health Organisation and the Lancet Health Journal has published a series of who counts authored by professionals in health and statistics. Philip W.Setel et al (2007) in 'who counts? 1' notes that sound recording of vital statistics and cause of death are public goods that enable progress towards Millennium Development Goals and other development goals that need to be measured. The authors concede that stagnated development of production of demographic data by civil registration require long term goal of comprehensive development of the systems. The authors' key message is that the persistent failure to establish, support and sustain civil registration systems and to ensure that causes of death are accurately known in the world in the world's poorest countries is a 'scandal of invincibility' for which affordable remedies exist and need to be implemented. To underline the level of stagnation of civil registration as a source of demographic data, Philip W.Setel et al (2007) demonstrate the poor state of birth and death registration in poor countries. The authors note that 79 percent of about 48 million unregistered births in the world are found in South Asia and Sub Saharan Africa. In Africa, the authors further points that only Mauritius and Seychelles have complete registration of births and deaths, while some significant progress are observed in South Africa, Madagascar and Zimbabwe. With this kind of scenario, the authors express scepticism on how much longer support for efforts to expand immunization and confront AIDS Tuberculosis and Malaria will last if counting the lives saved and providing direct evidence of reduction of deaths due to the causes in afflicted poor countries remains undone.

In 'who counts?2', Prasanta Mahapatra et al (2007) submit that stagnation in development of civil registration as a source of demographic data is associated with failure by governments to prioritize civil registration systems as well as lack of recognition of civil registration as a key component of development infrastructure by development partners. To illustrate the damage caused by this low prioritization of civil registration data, the authors point out that, in the era of increased accountability, evidence based monitoring and evaluation of public health programs is more preferred and says that civil registration is the only data method with capacity to provide continuous and comprehensive indicators. Authors identify stimulation of political commitment, responsive legal framework nurtured public trust, assigning roles and responsibilities in civil registration, development of human resource data base and modernisation of data storage and retrieval through computerization as the way to

kick start and sustain a system of civil registration that provides comprehensive timely demographic data.

This Network collaboration expresses concern over inadequacy of civil registration system predict that system inadequacy limits the afflicted country's ability to plan, implement and evaluate interventions to improve health status of their population. Table 2 below shows how the Health network collaboration locates civil registration in achievement of some Millennium Development Goals (MDG).

### 1.1: Demographic MDG indicators best sourced by civil registration

Indicators	Data supplied from Civil Registration
Prevalence of underweight children <5	Births
Proportion of 1-year-old children immunized against measles	Births
Proportion of births attended by skilled health personnel	Births
<5 mortality rate	Births, deaths by age (and sex and causes of deaths)
Infant mortality rate	Births, deaths by age (and sex and causes of deaths)
Maternal mortality ratio	Births, deaths by age, sex, causes of deaths
Death rates associated with malaria	Deaths (by age and sex), causes of deaths
Death rates associated with tuberculosis	Deaths (by age and sex), causes of deaths

*Adapted from HMN (2007): a presentation on improving civil registration and vital statistics*

At country levels several efforts have been pursued to improve civil registration and demographic data. In Indonesia the efforts focus on development of an organic legal framework with clear regulation and administration policy that are responsive to the cultural and minority challenges, enhance public information communication while providing for compulsory permanent continuous and universal civil registration Joseph Carney (2002)

In 1994 UNESCO hosted a conference on strategies for accelerating the improvement of civil registration and vital statistics (UNECA 1994) which resolved to ensure civil registration transits from a passive to an active system through harmonization of laws related to civil registration, increasing public awareness on importance of civil registration and vital statistics and closer coordination and cooperation among key

agency. The resolutions in this conference also underlined the need for increased prioritization of civil registration activities in member countries (UNECA 1994).

In Philippines there has been concern that despite the legal basis for compulsory registration of vital events, there is evidence of significant under registration as well as delayed registration both of which compromise the quality of data derived by civil registration. Obstacles in improvement of civil registration in Philippines include lack of awareness on the importance of civil registration difficult terrain and topography existence of minority tribal groups and varying cultural beliefs and practises. The Philippine put in place administrative strategy to increase availability and accessibility of registration services by establishing primary registration units closer to the local population and extending civil registration to previously tribal and religious groups that were previously excluded for civil registration (Salvador A.Aves, 2004). In so doing Philippine moved a step forward to institutionalise civil registration through practical administrative strategies and even with similar geographical and population obstacles, progress is realised.

In Denmark civil registration was established in 1968 where all persons living in Denmark are registered. Data from civil registration in Denmark is available for research in epidemiology. The civil registration system is continuously updated through births deaths and migration. Information on death is only available if a death occurred in Denmark. To evaluate the completeness of civil registration system births, deaths and migration data is compared with the population of the country at a given time. The civil registration system is integrated in to national governance in that at a birth, a person is assigned a personal number that subsequently links to other national registers in the person's life transitions. While no external studies have been done to establish the quality of civil registration in Denmark there is internal acceptance that the data from civil registration is of high quality due to constant use in administration at all levels and internal quality control mechanisms(Carsten et al 2006)

In South Africa improvement of production of demographic data by civil registration is done at two levels demonstrated benefits of civil registration at individual level, improvement of processing time during declaration of occurrence of events and computation of the coding of causes of death (Mavimbela 2001)

In Ethiopia, Tilaye (2007) gives an over view of gender statistics and the status of civil registration and vital statistics in Ethiopia. According to this author, the importance of civil registration for legal administrative and statistical is gaining acceptance. However, civil registration data is not readily available to respond to the legal administration and statistical purposes. Although civil registration activities like production of legal documents is done when, where and for whom needed, there is no harmonized country wide system of civil registration. The country identifies lack of legal, organisation and administrative framework to institutionalize civil registration as major obstacles to establishment of a civil registration system .civil registration in Ethiopia has no statistical use (Tilaye Geressu 2007).

In Ghana the civil registration system is considered inadequate. Estimation of mortality is made using indirect methods from data obtained in census and surveys. Small projects that obtain data from a small population over a long period are also common. One of such projects is the cape coast project that aimed at estimating infant child and adult mortality rates (Jain 1982). The author notes that the arbitrary selection of the study villages and the smaller size of the survey population result to

random fluctuations in the calculated rates making it difficult to use these results to generalize for the whole population(Jain 1982)

In Kenya, estimates for fertility and mortality are made from census and survey data as civil registration is also considered inadequate. For instance estimation of HIV AIDS preference is made using indirect method of curve fitting using surveillance data from 24 sites across the country (Republic of Kenya 2005, b). The curve is said to vary according to the initial assumptions as to whether preference is declining or not. Since most sites were said to indicate declining preference, an assumption used in the estimation is that of declining trend. It is also submitted that if the assumption is that of increasing preference, then the preference estimates will be different. The results of this indirect estimation are also reported to be prone to sampling errors especially due errors associated with sample size (Republic of Kenya 2005, b). Although civil registration data is considered incomplete the government has put strategies for improvement.

A study on strategy for rapid improvement of civil registration data method was done from 1978 to 1984 and published in 1989(Gill and Rono, 1989). The study is an action research that covers 10 percent of the country's population and five out of 45 districts of Kenya. From this study it emerges that improvement of civil registration is possible because completeness of birth and death registration in these project districts reaches 75 percent high (Gill and Rono 1989:1). This project strengthened the organisation structure of civil registration data method, developed a strategy for awareness and publicity and initiated a framework for Data processing (Gill and Rono 1989). However, the gains made in this project became unsustainable and completeness of birth and deaths registration reverted to an all low of 40 percent and 65 percent respectively by 2004(Department of civil registration 2004, b). A JSTOR review of this project submits, *“That while the project design was right, the lack of expected impact was an inevitable result of attempting to introduce a system where a certain level of administrative penetration in to every day life is necessary before the desired level could be attained* (JSTOR, 1991).

In 2004 the department of civil registration in Kenya undertook a self evaluation study on the impact of awareness and publicity campaigns for improvement of civil registration data method in five districts of western Kenya (Department of civil registration 2004,a). The findings of the study though still unpublished indicate that the level of awareness of the need to register births and deaths in the population is high (90 percent) but completeness of registration is 40 percent in birth registration and 65 percent in death registration. The findings revealed apathy due to lack of immediate individual need for birth registration and relatively high completeness of death registration due to stringent enforcement of the law on births and death registration in relation to death registration(Department of civil registration 2004,a) . This study focused on the impact of efforts to improve civil registration data method at individual level but did not examine the influence of institutional legal technical factors in completeness of civil registration data method.

In the Netherlands two reports on the population register system of counting which describe and explain the population registers system of population counting (Brekel, 1977) describes and explains the legal foundation of population register system of population counting, the organization and administration as well as the nature of demographic data derived. Brekel (1977) states that the population register system of population counting is updated by civil registration and migration statistics, and that population register is one of the two sources of data in Netherlands, the other being the census. Report on Dutch population statistics (Prins 2000), provides a summary of the legally founded organization of population register data method, how civil registration is embedded in population register the administrative provisions for ensuring completeness of population register data and the analytical techniques used to deal with shortcomings of data like delayed reporting. The author has also outlined the

individual level relevance of civil registration created through linking civil registration data method to population register system of population counting (Prins 2000).

This literature review provides the reported status of civil registration and demographic data in different countries. It is notable that each presentation is done by country members. These reports are presented in conferences for improvement of civil registration and form the basis for United Nations resolutions for vital statistics systems. No universal independent study has been undertaken to establish completeness of civil registration systems in various countries. The reports also illustrated how governments have made efforts to overcome geographical and population related obstacles through established legal organisation and administrative strategies at individual, regional and nation level

## 2 THEORETICAL FRAMEWORK

### 2.1 Introduction

United Nations Statistics Division has made comprehensive recommendations on production of demographic data by civil registration (UN 1969, 1973, 1998, 2001). Most of These recommendations are based on self-reports from developed and developing member countries during international regional conferences and meetings. One notable exception source of resolutions is the study done in from 1959 by the United Nations to establish the potential of population register and similar systems in production of demographic data (UN1969). This study elicited shortcomings of register based data methods and recommended development of other interim data as improvements of population register and similar data methods continue (UN1969). One method identified for continued improvement is the civil registration data method (UN 1973, 2001).

From the nineties, the United Nations has used international regional conferences where progress in improvements in generation of demographic data by civil registration is presented together with challenges encountered by member countries. Such conferences include Buenos Aires in (1991), Damascus and Beijing in (1993) Addis Ababa (1994) Rabat (1995) Bangkok (1999) Santiago (2000) Yaoundé (2003) and Accra (2004). The conference reports have formed the foundation of the revised principles and recommendations for a vital statistics system published in 2001(UN2001).

UN (2001) focuses on settings that enable collection, compilation analysis presentation and dissemination of demographic data derived from civil registration. The settings according to United Nations include legal technical institutional and the social cultural environment of a particular country (UN 2001, 306). United Nations places the responsibility for establishment, operation and maintenance of civil registration on national government noting that this provides a basis for sound administration of a country, protection of confidentiality while utilizing data derived to alleviate social and health inequalities (UN2001). United Nations points that this role requires commitment, leadership and direction at the highest level (UN2001, 41). The role of government in civil registration therefore relies on the political dispensation of a country. Making civil registration responsive to the social cultural environment leads to social cultural context. But it is also recognised that as much as culture shapes behaviour in the short run, in the long run behaviour of social actors redefine culture in the long run(Hammel:1990). Social economic development enables this long run cultural transition and this makes economic context of a country an important consideration in civil registration and demographic data generation. UN (1987) recognises that a certain level of social development is a requisite for a functional civil registration to generate adequate demographic data. The environment of civil registration directs the system of generation of demographic data by civil registration in a country. According to UN (2001, 306), the system constitute all legal technical and institutional settings to enable efficient and effective functioning of civil registration. Specifically, a system of civil registration includes the characteristics of civil registration founded on a legal and organisation framework. Further, this system produces individual legal documents that are also used to derive demographic data. The data derived has set standards to provide for the two disparate purposes of civil registration, legal and demographic. The quality of data generated by civil registration determines its usefulness in policy and research (UN2001:237). United Nations recognises that production of legal records and demographic data feedback in to the national government in helping address civil and human rights of the population as well as informing economic planning and analytical applications(Un2001:40). Although the role of administration of civil registration and the role of individual are discussed by United Nations these roles are mainstreamed in legal and organisation framework. Furthermore, United Nations has recommended that countries adopt administrative settings suitable for their own countries

without providing clear guidelines on essential actors in a functional civil registration. One finds countries with established civil registration systems with legal and organisation framework but which have persistent incompleteness.

In Edits by Bogue et al, (1993) some self reports from UNUNESCAP regional conference have also been used in a comparative analysis of three major data surveys, census, surveys and civil registration (Bogue et al et al 1993:3). Table 1 below is part of the comparative analysis of data sources in Bogue et al (1993).

### 2.1: comparison of three major data sources

Criteria	Data collection method		
	Census	Civil registration	Sample survey
Topical details richness and diversity of subject matter	Moderate	Weak	Strong
Accuracy	Moderate	Strong	Moderate
Precision (absence of sampling errors)	Strong <sup>a</sup>	Strong <sup>a</sup>	Weak
Timeliness of data	Weak	Strong	Strong
Geographical detail (subgroups etc )	Strong	Strong	Weak
Obtaining information at risk	Strong	<sup>b</sup>	Strong
Ease of organisation in developing country	Moderate	Weak	Strong

Source: Adapted from Bogue et al, 1993:23: Readings in Population Research Methodology

Due to the legal and demographic purposes of civil registration data method, demographic data derived from civil registration is required to be complete, accurate, timely and disseminated in such a way that confidentiality of the individual source of the data is maintained (Bogue et al 1993:3, UNSD 2001:546-549). Development of civil registration in developing countries to achieve these twin purposes has been slow and erratic despite decades of development (Bogue et al 1993:3). Civil registration data in developed countries also noted to exhibit serious shortcomings despite many years of development although these shortcomings are mild compared to the inadequacy of this data method exhibited in developing countries (Bogue et al 1993:3-30).

In Bogue et al (eds,1993) the shortcomings in completeness ,accuracy ,timeliness of civil registration data are attributed to the two disparate purposes of civil registration resulting to two set of standards of data quality. Subsequently, the authors note that evaluation of civil registration data has higher standards of data than standards applied to other data sources like census and surveys.

Bogue et al (1993) also examine obstacles in improvement of civil registration data method reported by countries. These include obstacles that relate to geography, transport, and literacy of the population as well as system factors. The authors classify the obstacles as follows; first relatively intractable problems relating to geography, transport, communication, cultural and the nature of the population; second, problem solvable but requiring additional national or outside technical assistance funds, related to the technical aspects like human resources, plan and equipment and supplies management; third, solvable problems which are institutional including legislation, organisation and administration.

Recognizing the challenge of overcoming the obstacles in improvement of civil registration data method, Bogue et al (1993) observes“*Improving civil registration system is more analogous to creating a whole nationwide continuous local government operation. It is boundless not only in time but in the manner that it is intertwined with numerous other governmental functions*” (Bogue et al et al 1993:3-32);

This study submits that stalled improvements in production of demographic data by civil registration systems are due to lack of a model of context and system of civil registration rather than heterogeneous organization of civil registration. A model of civil registration and

demographic data should focus on the entwined functions of civil registration rather than the specific government agency carrying out the functions. This means a model that includes collection, compilation analysis and dissemination of data within the primary function of creation, issue and preservation of individual legal documents. This study compares to different systems of civil registration using a model of context system and outcome as defined as factors of civil registration and demographic data.

## **2.2 Civil registration and demographic data**

### **2.2.1 Context**

UNSD recognises that improvement of production of demographic data by civil registration is influenced by political, social cultural and economic contexts. The individualized nature of demographic data in civil registration and regulation of use of this data leads UNSD to recommend that the role of establishment management and operations of a system of civil registration be undertaken by a national government (UNSD 2001:1). UNSD also recognises the role of national governments in establishment management and maintenance of civil registration. Further, this world body encourage national governments to demonstrate commitment, leadership and direction in civil registration improvement (UNSD, 1969, 1973, 2001:40-41). While highlighting obstacles of civil registration data method in developing countries, Bogue et al (1993:3-30) notes that some obstacles that emanating from Geography and population characteristics can only be tackled through long term social development. The authors further argue that demographic characteristics of a population like low literacy levels and high proportion rural, poorly developed transport, and communication infrastructure have been identified as hindrances in production of comprehensive accurate timely demographic data by civil registration (UNSD, 1987 cited by Bogue et al 1993). Bogue et al (1993:3-32) at the same time posit that real progress in production of demographic data by civil registration method is only achievable when a national government is prepared to make a basic policy decision that adequate system of civil registration is essential for national well being as well as economic and social progress .

### **2.2.2 Characteristics of Civil registration data method**

United Nations Statistics Division defines as civil registration method “the method employed in gathering the basic information on the incidence of vital events and their characteristics which occur to the population of a country (or area) within a specified period of time period , upon which vital records with legal value are prepared and vital statistics based” (UNSD 2001:302). Further UNSD(2001) says this method is different from other data methods because it is legally universal, compulsory, continuous and permanent and that data derived from the method has legal authority (UNSD ,2001:302).

### **2.2.3 System of civil registration**

United Nations Statistics Division (2001) define a system of civil registration as” a system of civil registration includes all institutional ,legal technical settings needed to perform the civil registration functions in a technical sound coordinated and standardized manner through out the country taking in to account the cultural and social circumstances to the country (UNSD,2001: 305). The universal recommended objectives of a system of civil registration are as follows. First, to ensure that the recording of vital events in civil registration is complete, timely and accurate and that mechanisms to provide statistical records to statistical authorities are developed and maintained (UNSD, 2001:42, a). Second, to ensure the

production of vital statistics to meet users' needs with stated quality standards and predetermined timetable (UNSD, 2001:42, b). third, to ensure positive impact on the public and on the staff of involved agencies so that all aspects of collection, operation and dissemination of results fully comply with legal and ethical standards for protecting confidentiality of individual information and have the requisite public support (UNSD, 2001:42, c).fourth to ensure the development and maintenance of cost effectiveness within the defined content and quality requirements (UNSD, 2001:42, d). The institutional legal technical settings recommended to enable civil registration system achieve objectives include the following;

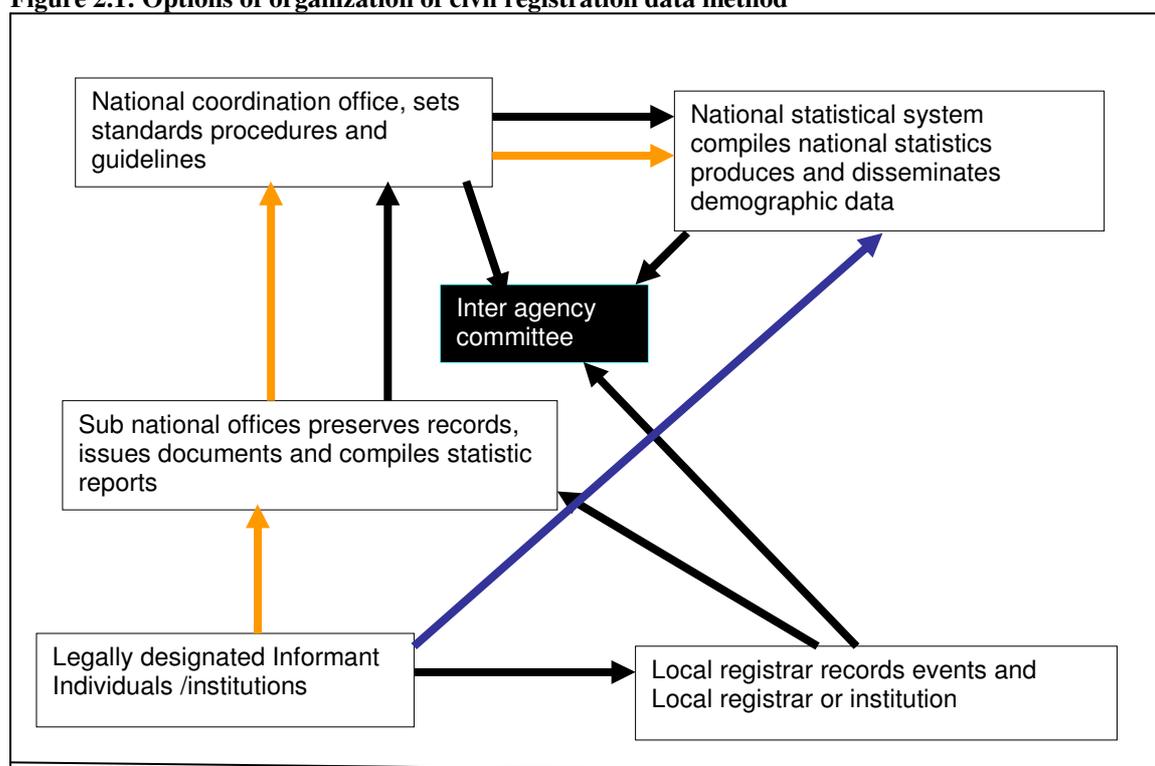
a) Legal framework

United Nations recommends that a country enact legislation and mechanisms of enforcement to institutionalize production of demographic data by civil registration (UNSD, 2001:63-66,327). Further UNDS recommends that the law should also clarify the events that must be registered; designate informants; define the administrative structure; the roles of different agencies ; timeliness for registration of different types of events and for production of demographic data; use of data by agencies and penalties for failure to comply with the law. At the same time UNSD recommends regular updates of the legislation to make it responsive to new developments (UNSD, 2001:327). In Bogue et al (1993:3-27) some observations are made regarding civil registration legislations in developing countries. Concerning time allowed for registration Bogue et al (1993:3) posits that the maximum time period allowed between occurrence and compulsory registration should be based on social cultural and economic characteristics of a country but which facilitate prompt and accurate registration of events. Bogue et al (1993:3-27) submit that the shorter the period of time allowed to elapsed between the occurrence of an event and the stricter the enforcement of the requirement , the more accurate the information obtained from registration is. Other observations, in Bogue et al (1993), are on state of the law on civil registration in developing countries. The authors note that in some countries, laws are not specific enough to deal with all aspects of the civil registration system while other countries have several systems of civil registration each having comprehensive law of its own and sometimes also conflicting with each other. Still, in other countries, the authors report that the laws on civil registration do not have detailed implementation guidelines to facilitate harmonized interpretation nationally while in other countries the laws on civil registration were cumbersome and perceived to frustrate reporting of events (Bogue et al 1993:3-34).

b) Organization

Organisation refers to the structure of the system of civil registration system that guarantees effectiveness and efficiency in management, operations and maintenance of the system. United Nations Statistics Division recommends that the organisation of civil registration data method takes in to considerations the country's political, judicial and administrative structures incorporate the collaborating of agencies responsible for different civil registration activities in a country (UNSD, 2001: 329-339). Bogue et al et al (1993:-25) proposes that local registration offices (primary registration units) located in a way that ensures accessibility of registration services which is important for completeness of registration of vital events.

**Figure 2.1: Options of organization of civil registration data method**



*Based on United Nations Statistics Division recommendations (1999)*

Visualizing the UNSD recommendations on organisation of civil registration data method (UNSD, 2001:66), three options of organisation structure are proposed as shown in different colours above. The Black arrows indicate an organisation where administration of civil registration is placed within civil registration administration with different agencies involved in different activities and necessitating the formation of an inter agency committee to nurture inter agency collaboration. The Orange arrow indicates an organisation where the agency responsible for production of demographic data by civil registration is not responsible for carrying out actual registration of these events. The blue arrow indicates an organisation where administration of civil registration data method is placed directly under the national statistical services.

#### b) Administration

United Nations Statistics Division underline the need for integration and coordination in the civil registration system, among official agencies concerned with registration of vital events and compilation of individual statistical reports on the one hand and those that use this data for administrative or analytical purpose for social development progress on the other hand UNSD (2001, 340-349). The integration and coordination include establishment and enforcement of national guidelines on civil registration that incorporate internally agreed definitions and standards ,harmonization of registration and follow up to ensure uniform process and practices are followed at every level throughout the country(UNSD 2001,68,72). Further UNSD (2001, 350-362) recommends diligence in recruitment, retention, supervision and motivation of civil registration personnel, a recommendation also supported in Bogue et al (1993:3). In Bogue et al (1993:3), it is recommended that establishment of local registration

offices (primary registration units) correspond to the lowest government agency, and in such way that the offices ensure accessibility as well as promoting completeness and timeliness of registration. In Bogue et al(1993) and UNSD(2001), it is observed that establishment of these local offices should take in to consideration; population size of an area ,staff resources available, accessibility ,literacy levels of the area population, degree of simplicity of procedures and quality and adequacy of basic documents (Bogue et al 1993:25,UNSD1999:364-371). For effectiveness in production of demographic data by civil registration method, Bogue et al recommend commitment by governments to make basic policies that link civil registration to the health economic and social progress of a country. In reference to efforts to improve civil registration data method as a preferred source of demographic data, Bogue et al (1993:3-35) state,

“ ..real progress can be made only when governments are prepared to make the basic policy decision that adequate registration and vital statistics are essential for national well being and economic and social progress “  
That means translating national policy of civil registration data method to individual level relevance.

#### **d) Individual relevance of demographic data by civil registration**

United Nations has designated individuals as legal informants responsible for reporting of occurrence of events to the local registrar as well as characteristics of these events. United Nations recognises the informant as witness in occurrence of events in absence of evidence (UNSD 2001: 372-373). The individual by this designation becomes the source of legal and demographic information in civil registration. In Bogue et al et al Edits (1993) how individuals are distributed in a country, their levels of literacy and motivation to provide information on occurrence of events affect the over all quality of civil registration derived demographic data(Bogue et al et al 1993:3-27). Individual level relevance is therefore operationalized as reported how the government manages individual level perceptions, attitudes and practices in to achieve a universal continuous compulsory and permanent system of civil registration data generation. The effectiveness of system of civil registration is evident in the quality of demographic data derived.

#### **e) Legal Records**

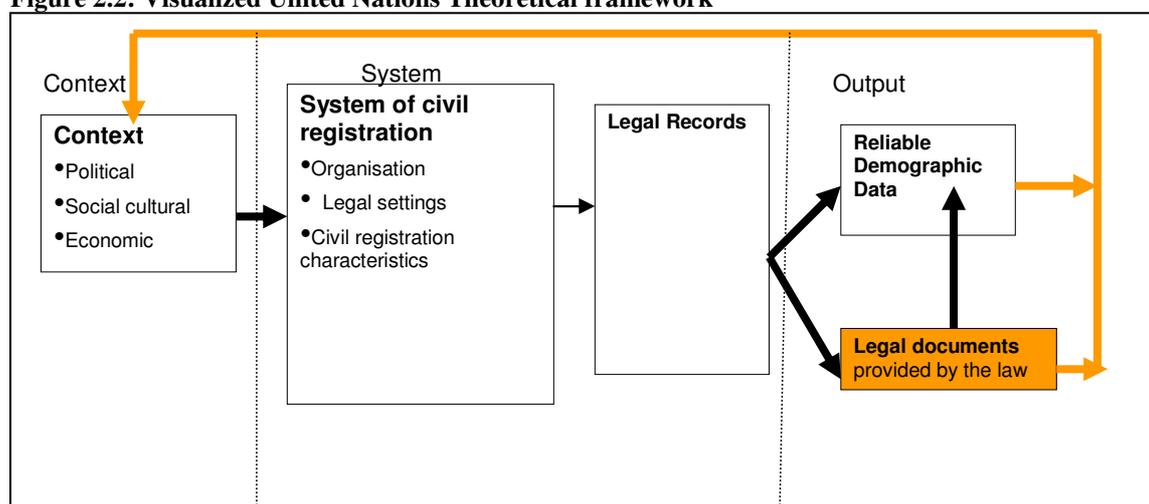
United Nations states that the fundamental role of government is to design and implement administrative and legal procedures for civil registration to enable the government attend to the human rights of the population and to utilize information it (government) holds for production of demographic data that support social economic planning and analytical applications (UNSD, 2001:40). Bogue et al (1993:3) states that adequate vital statistics, in the traditional sense are derived from civil registration system and the individual documents that it produces .The authors also note that the value of legal records provided by the law is the main driving force of civil registration at individual level, while recognizing that usefulness of these records as a source of demographic data as” becoming increasingly recognized” Bogue et al 1993. (Lancet 2007) submits that developed countries civil registration systems record vital events and also derive regular vital statistics. In contrast Lancet(2007) low and some middle in come countries record vital records but face challenges in production of timely demographic data on births deaths and causes of death although “premature mortality is most severe in these countries as well as a where the need for robust evidence to back decision making most critical” (Lancet 2007:4)

#### **2.2.4 Quality of demographic data by civil registration**

All the legal, organisation, and civil registration method settings are needed to produce demographic data that meets both legal and demographic purpose. The universal standards of demographic data derived by civil registration are; completeness of coverage of events and population, accuracy, and, timeliness in reporting, registration processing and dissemination (UNSD, 2001:546-550). Also noted as important in quality of data is provisions of guidelines and procedures for data quality control to ensure timely receipt of statistical reports, editing and querying (, Bogue et al 1993, UNSD 2001).

In recognition that achieving desired completeness may not be easy, UNSD encourages national government to process civil registration data regularly however incomplete, alongside other data from other sources as a strategy for correcting inadequacies and incompleteness, noting that incomplete or deficient civil registration data is better than no information at all (UNSD 2001:21). While giving this encouragement UNSD warns that regardless of method to process demographic data from civil registration records and statistical reports, the completeness and accuracy of the final data out put cannot supersede the completeness and accuracy of method from which this data is derived(UNSD,2001:234) . Figure 2.2 shows a summary of the theoretical framework of production of demographic data by civil registration.

**Figure 2.2: Visualized United Nations Theoretical framework**



*Based on United Nations Statistics Division (1999) resolutions on improvement of civil registration and vital statistics in developing countries*

### 2.2.5 Summary of theoretical framework

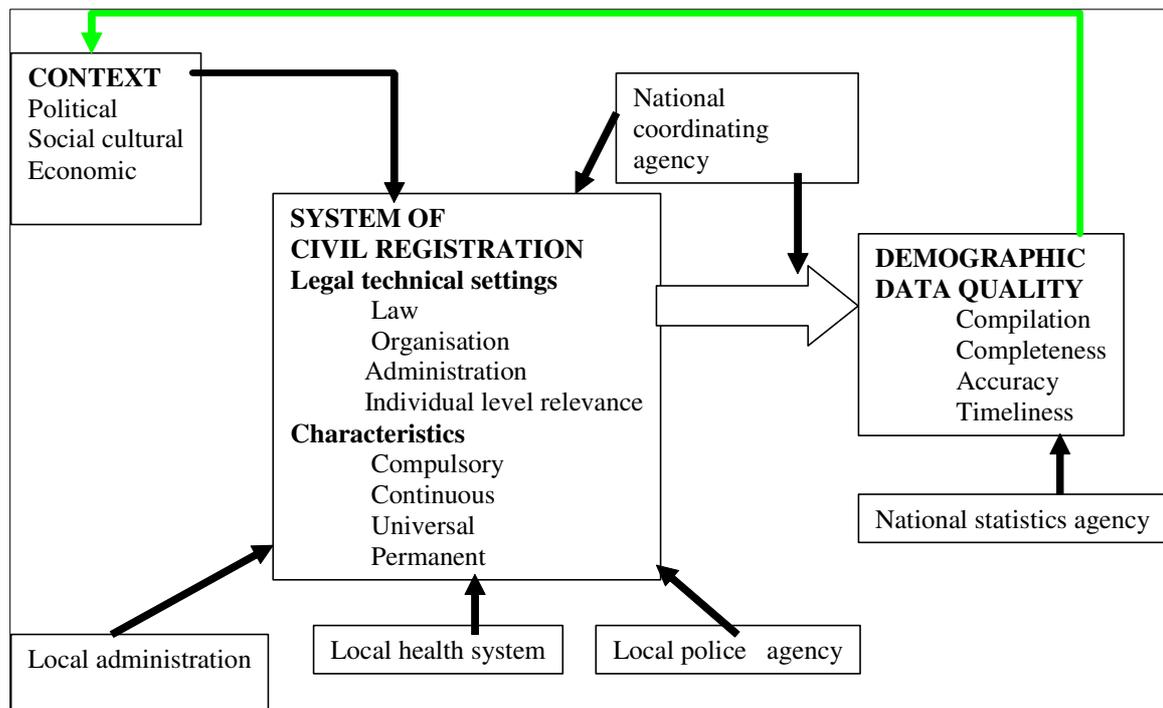
This illustration is derived from the description of the theoretical frame work. The out put relating to legal documents is marked in orange to denote its importance in deriving demographic data by civil registration although this out put is not the focus of this study. The out put of civil registration feed back in to the political social cultural and economic conditions of a country by providing demographic data for planning health interventions and by providing individual legal documents which form foundation for access to individual human and civil rights of a country’s citizens. This twin feedback to the country has been recognised to provide a unique advantage of civil registration over other data methods (Bogue et al, 1993:3-23, UNSD, 2001:309-311, Lancet, 2007:3).

The twin purpose of civil registration data method (legal administrative and demographic) is only achievable where a system of civil registration functions. The system includes the organisation, administration, legal framework, characteristics of civil registration and the standard of data out put. The legal framework defines civil registration, institutionalizes the organisation and details out administration provisions. The organisation and administration settings determine the final outputs. For data on civil registration to meet the twin purpose, it has been recommended that it meets the criteria of completeness, accuracy .timeliness and availability the latter which should occur without compromising the confidentiality of the

individual data source. The system of civil registration creates and preserves individual records from where individual demographic data and legal documents are derived. All individual data is aggregate to provide the national civil registration demographic data. In this study emphasis is laid on the context, system and data output. The context concerns the political social cultural and economic settings of a country, the system concerns the legal technical and institutional settings that act as enablers in production of demographic data by civil registration and data outcome is defined within the universal standards sets for data derived by civil registration. Although the legal purpose of civil registration is important in understanding civil registration and demographic data, this out put is only alluded in legal technical settings while, more attention is paid to those legal technical and institutional settings that impact on production of demographic data . These included; the characteristics of civil registration, the law, organization, administration, individual level relevance and quality of data derived by civil registration. The conceptual model of study is presented below.

### 2.3 Conceptual model of study

Figure 2.3 Conceptual framework of study



#### Explanation of the model

The model for this study is based on the framework discussed in the chapter 2, derived from United Nations Statistics Division's resolutions on improvement of civil registration and vital statistics (UNSD 2001) The model examines the interaction of political social cultural and economic environment of civil registration, the system that combines institutional legal technical settings in Production of legal records ultimately production demographic data is derived. This conceptual framework locates administration and individual level relevance as

factors as well as the key actors in civil registration. United Nations describes administration of civil registration within organisation structure but this study treats administration as a factor on its own. At the same time the management of individual level relevance of civil registration is discussed under various themes in Bogue et al (1993) and in UN (2001) but this study treats it as a factor of consideration. Lastly Bogue et al (1993) decry lack of universal model of civil registration and blames this on the various government agencies under which civil registration functions is located. United Nations (2001) provides alternative organisation of civil registration. This study links context, system and data output in civil registration and also locates key functions that need to be integrated. Explanation of the concepts in the study conceptual mode is as earlier done. In this study it is proposed that data derived by civil registration is utilized to inform the political social economic settings of the country.

### **3 DATA METHODOLOGY**

#### **3.1 Introduction**

This comparative study answers the following research question; what comparisons can be made regarding context, system and final data output in civil registration between Kenya and the Netherlands? Subdivided questions in this study are

What is the context and system of civil registration and demographic data like in Kenya and the Netherlands?

What influence does context and system have on the quality of data generated by civil registration in Kenya and the Netherlands?

The aim of this study is to describe and explain context and system of production of demographic data by civil registration through a comparative analysis of production of demographic data by civil registration in Kenya and the Netherlands

Specifically the study describes the context and system of civil registration in Kenya and in the Netherlands and the state of data generated; compares how context and system of civil registration shape demographic data outcome in Kenya and in the Netherlands and draw useful recommendations in improvement of civil registration data method.

This methodology chapter is about how the study achieves the set objectives. The data methodology include; the conceptualization, Operationalization, description of the study area and the required data sets and methods of collecting the data

#### **3.2 Study Design**

This study is descriptive and explanatory in that it describes elements and factors of production of demographic data by civil registration in Kenya and the Netherlands is, as well as explaining how these elements and factors shape production of data by civil registration method.

#### **3.3 Data source**

The study utilized published secondary data on improvement of civil registration, by United Nations Statistics Division (2001); Bogue et al, (1993) and Lancet (2007). Since civil registration is mainly a system of governance and national administration, most information on trends is found in government internal reports that may not be published. Secondary data is thus, from published and unpublished government reports on civil registration in the two countries. Additional primary data is used based on in-depth interviews to get a deeper understanding of practical strategies for sustainable civil registration method in the Netherlands.

#### **3.4 Hypothesis for this study**

This study postulates that civil registration demographic data output depends on the type of system of civil registration in a country, with a strong system of civil registration being more likely to yield more complete, accurate and timely data from the legal records than a weak system of civil registration does. In this study, quality of demographic data is the dependant variable while system and context of civil registration are the independent variables. A strong system of civil registration is a system that has political social cultural and economic support while a weak system of civil registration is a system that has limited political social cultural and economic support. The concept of a system and context are operationalized in the next section

### 3.5 Operationalization of key concepts

The key concepts in this study are; civil registration method, system of civil registration, data quality, Kenya, Netherlands. These concepts have been derived from the United Nations recommendations on improvement of data derived by civil registration (UNSD, 2001), from Edits in Bogue et al (1993) on civil registration data method and from papers presented during a WHO collaborated launch of a strategy for improvement of production data by civil registration (Lancet 2007). This chapter further explains how these concepts have been used in this study.

#### 3.5.1 Context:

##### a) Political setting

Civil registration is a highly individualised government function and is therefore affected by the political social and economic settings of a country. United Nations recognises this role of national governments in establishment, operations and management of civil registration, rationalised by the individualized nature of the information collected and stored and regulation of use of such information (UN, 199:1). Bogue et al 1993 observes that for real progress to be made in improvement of civil registration, governments should demonstrate commitment through policies that make civil registration essential to national well being and economic and social development (Bogue et al 1993:3-32). Bogue et al further observes *“improving a registration system is analogous to creating a whole nationwide continuous local government operation. It is boundless not only in time but in the manner that it is intertwined with numerous other government's functions”* (Bogue et al 1993:3-32).

##### b) Social setting

Different countries of the world have different cultural settings and these influence civil registration in different ways. It has been reported that largely illiterate and rural population groups may hinder achievement of completeness of registration coverage because they may lack motivation to register fail to comply with the law delay registration and in extreme cases resist registration and falsify information (Bogue et al 1993:3-31). Incentives in food and child allowances were reported to have dramatically improved completeness of registration in Sri Lanka and New Zealand (Bogue et al 1993:3-34) Availability of social security system in developed countries have been linked to universal civil registration while lack of such systems in developing countries has been linked to lack of individual need for registration (Gill and Rono 1989:1)

##### C) Economic setting

As noted above, civil registration thrives in countries with social security system and stagnates in countries without social security systems. Improvement of social economic conditions of the population has been envisaged to improve the nature of the population and subsequently completeness of registration (Bogue et al 1993:3-31). In countries where there are competing demands for limited funding resources, civil registration has been reportedly to be lowly prioritized (Bogue et al 1993). Countries in the UNESCAP region reported that this low prioritization impacted on administration of civil registration due to insufficient number of registration units and dependence on non government officials in recording of events who were also not remunerated.

### 3.5.2 System of civil registration

#### **a) Civil registration Method**

Civil registration is defined as the continuous permanent compulsory and universal recording of the occurrence and characteristics of vital events pertaining to a population as provided by a decree or regulation, in accordance with the legal requirements of a country (UN, 2001).

Although civil registration concerns itself to births deaths and marriages and other matters related to these events, this study is about registration of births and deaths and related matters.

United Nations defines a birth as the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy which after such separation breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered a live birth (UNSD 2001:57) and further recommends that “all live born infants should be registered and counted as such irrespective of gestation age or whether alive or dead at the time of registration and if they die any time following birth they should also be registered and counted as deaths (UNSD 2001:57)”.

United Nations also define death as permanent disappearance of all evidence of life at any time after live birth has taken place) Post-natal cessation of vital functions without the capability of resuscitation (UNSD 2001:57).” Foetal death (dead foetus) is further defined by United Nations as death prior to complete expulsion from its mother the product of conception, irrespective of the duration of pregnancy; the death indicated by the fact that after such a separation the foetus does not breathe or show any signs of life such as beating of the heart pulsation of the umbilical cord or definite movement of voluntary muscles and further notes that this includes all termination of pregnancy other than live births as defined earlier (UNSD 2001:57)

Characteristics of civil registration data method are explained by the definition of terms continuous, compulsory, universal and permanent from the United Nations definitions (UN, 2001).

According to the United Nations (2001:320), Continuous; means that civil registration is a timeless establishment and this study will describe how this realised in Kenya and the Netherlands.

Compulsory has been defined as the term implies that it is obligatory for each birth, death and migration event that occurs to country’s population is registered (UN2001:317). The study will be interested in the mechanisms in Kenya and the Netherlands that provide for compulsory registration of the stated events.

Permanent has been used to refer to the same scenario that provide for continuity in that civil registration is meant to be entrenched in administration and governance (UN2001:320).

Universal has been used to point that civil registration must cover the whole country its population to whom the events occur. Universal has therefore been used in relation to geographical and population coverage (UN2001:319). The study will compare this completeness between Kenya and Netherlands.

Civil registration has a twin purpose; one; administrative and legal, and two; statistical, demographic and epidemiological (UN, 2001). The two purposes have been noted to place the additional demands on the quality of data derived from civil registration, to be complete, accurate and timely a demand not extended to other data sources like surveys and census (Bogue et al, 1993). Many countries have civil registration systems but achieving the prescribed standards of complete accurate and timely data presents a challenge in production of demographic data.

United Nations describes a system of civil registration as “a system of civil registration include all institutional, legal technical settings needed to perform the civil registration function in a technical, sound and coordinated and standardized manner through out the country taking in to account cultural and social circumstances particular to a country”( UNSD 2001,306). The settings explained in the theoretical framework are legal, organisation, administration, data quality and individual level relevance of civil registration. These settings are operationalized as follows in this study;

### **c) Legal technical settings civil registration**

#### **Legal framework**

In this study legal framework is as provided for in United Nations (2001:327). It refers to the responsive enforceable and up to date legislation and mechanism for enforcing this legislation. The legislation should provide the rules and regulations for civil registration, organisation and administrative structure, roles and obligations for different agencies involved in civil registration , timelines for collection of information and production of demographic data authorization of use of civil registration data , types of events that must be registered , their definitions, designation of informant for each type of event ,procedures for late registration, designation ,duties and responsibilities of registrars, storage and preservation of records confidentiality clause of information and protection of privacy of individuals penalties for non compliance.

#### **Organisation**

The organisation of civil registration is important in ensuring achievement of universal continuous compulsory and permanent features of the system. Operationalization of organisation of civil registration include whether civil registration is centralized or decentralized. As defined in UNSD (2001), a centralized system has a central agency that directs coordinates and monitors nationwide civil registration work. This central agency further exercises both administrative and technical direction over the network of sub national and local registration as well as liaison with other agencies involved in civil registration activities offices.

Decentralized system are as defined in UNSD (2001:333-334) in that a model law is outlined and its regulations upon which laws guiding civil registration in all divisions are embedded ; and a national regulatory organisation should also be in place that ensures harmonization of procedures ,guidelines in civil registration and production of demographic data .

#### **Administration**

Administration is operationalized as mechanism for enforcement of the legal framework through out the country (UN 1969, 1973, 2001) facilitated by settings to perform the civil registration function in a technical, sound and coordinated and standardized manner through out the country (UN2001). Administration is also the basic policy decisions a government has made at individual and national level to the effect that adequate registration and demographic data are essential for national well being and economic and social progress as recommended in Bogue et al,(1993:3-32).

#### **Individual level relevance**

As noted earlier individuals play a crucial role of informant with implications on completeness, continuity and universal nature civil registration data method and on the completeness, accuracy and timeliness of demographic data by civil registration.

Individual relevance is operationalized as perceptions, motivations and practices towards their role of informant (Bogue et al 1993). The study elicits administrative settings that reinforce individual role of informant.

### 3.5.3 Quality of Data

Data derived from civil registration has been recognised to have legal authority since this data is compiled from individual legal records. The compilation process is important towards meeting the standards of full completeness, accuracy and timeliness as described in the theoretical framework (Bogue et al 1993:33, UN1999:319). Quality of data therefore views compilation, completeness, accuracy and timeliness of data.

## 3.6 Study Areas

The two areas of study are Kenya and the Netherlands. Each country presents different social cultural, institutional legal technical setting of civil registration and also varying reported quality of final demographic data output.

Kenya is one of the countries in East Africa. It shares international boundaries with Ethiopia and Sudan (North), Somali and Indian Ocean (East), Tanzania (South) and Uganda (West). The country is a republic with a president as a head of state and an estimated population of 37,953,838 occupying 569,250 square kilometres (see figure 3.2 below). Kenya is considered a developing country (UNDP 2007): In its 2007 Human Development Report, United Nations Development Program (UNDP) places Kenya at position 148 out of 177 countries from which the Human Development Index (HDI) is calculated. According to UNDP (2008), HDI provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and enrolment at the primary, secondary and tertiary level) and having a decent standard of living (measured by Purchasing Power Parity (PPP), income). According to UNDP (2008) Kenya has a HDI of 0.521, adult literacy of 73.4 percent combined enrollment ratio of 60.6 percent and a Purchasing Power Parity equivalent of \$ 1240. UNDP also calculates a Human Poverty Index (HPI) measure for poor countries. According to UNDP (2007), the Human Poverty Index for developing countries (HPI), focuses on the proportion of people below a threshold level in living a long and healthy life, having access to education, and a decent standard of living. According to UNDP (2004), adult illiteracy in Kenya (15 years and older) was 26.4 percent, while the probability of not surviving past age 40 was 35.1 percent. Further, UNDP (2004) reports that percent of children aged 0 to five years who are under weight for age was 20 percent while the percent of people without access of an improved water source was 39 percent (UNDP 2004). These indicators earn Kenya a HPI of 30.8 and places the country at position 60 out of 108 countries from which HPI measure was calculated (UNDP 2004).

**Figure 3.1: Map of Kenya**



Source: *the world fact book; Kenya 2008*

**Figure 3.2: Map of Netherlands**



Derived from Permanent Mission of the Kingdom of the Netherlands to the United Nations website, (2008),

According to the Permanent Mission of the Kingdom of the Netherlands to the United Nations website, (2008), Netherlands is one of the Western European countries with a population of 16.5 million occupying 41,528 square kilometres. The website also says that the country is governed through a constitutional monarchy and is divided into 12 provinces. Further the website notes that the Kingdom of Netherlands also includes two overseas territories; Netherlands Antilles and Aruba in the Caribbean and that Economically, Netherlands is a highly industrialized country (Permanent Mission of the Kingdom of the Netherlands to the United Nations website, 2008).

According to UNDP (2008) Netherlands has a HDI of 0.953, percent combined enrollment ratio of 98.4 percent and Purchasing Power Parity of \$32684 place the country at position 9 out of 177 countries from which this index was calculated (UNDP 2004).

### 3.7 Data collection methods

#### 3.7.1 Literature Content analysis

The study is based on content analysis of United Nations Recommendation (2001) on improvement of civil registration and vital statistics and also edits in Bogue et al (1993:3) on Population Research Methodologies volume 1. There is also content analysis of reports on civil registration improvements in Kenya and in the Netherlands. The purpose of this content analysis is to elicit significant factors of civil registration and demographic data in Netherlands and Kenya. Literature content analysis is used it makes it possible to model factors of civil registration and demographic data based on operational guidelines, procedures, and implementation reports.

#### 3.7.2 In-depth interview

##### a) Introduction

The aim of the in-depth interviews is to obtain in-depth understanding of the factors of civil registration and demographic data from implementing officers in the Netherlands in order to enrich literature content analysis. Appendix 8 shows the in-depth interview guideline used for this study.

##### b) Sample selection

This in-depth interview targeted technical and management level staff of Statistics Netherlands who have long experience working with Population Register based data in production of population statistics.

##### c) Thematic areas

Development of themes was based on deductive theory as postulated (Babbie 2007). Based on the theoretical framework described in chapter two, an in-depth interview guideline was developed and this formed the basis of in-depth interviews.

#### **d) Schedule**

The interviews took place for two days from 11.30 o'clock to 3.00 o'clock excluding the lunch break from 12.30 pm to 1.30 pm. The time was based on the premises that the staff needed time in the early morning to attend to usual office work and also before close of office to lap up the day in their offices.

#### **d) Informed consent**

The planning of the data collection included request for interviews from the identified staff accompanied by a summary of areas of concern in civil registration to enable ample preparation for the interview. During interviewing consent was also sought for recording with justification that it was important not to lose any information and therefore necessary to record the interviews. The interviewees did not object to recording. In addition to discussion all civil registration, there was also demonstration of the procedures in compilation and analysis of data as well as the procedures and guidelines on authorization of data use.

#### **e) Analysis**

Data collected was transcribed and coded according to themes derived from the theoretical framework. Each theme was assigned a color so that same color in transcribed interview indicated presence of assigned theme in the responses. Red was used for legal framework, orange for organization, yellow for administration, and green for data quality, blue for confidentiality, light purple for individual level relevance and grey for challenges.

### **3.8 Ethical issues**

Confidentiality of individual data is protected by legislation and enforcement guidelines at CBS Netherlands in such a way that individual data is utilized in production of demographic data without significant breach of confidentiality requirement. One of the measures to protect confidentiality is limiting unlawful access to individual level data. Request for interview was sought with the support of supervisors of the study using procedures laid down to protect this confidentiality. In-depth interviews were based on informed consent and a guideline on the data to be collected was provided with the request for interview (see appendix 9). Important also in in-depth interview guidelines was a pledge that data collected will be solely used for master thesis, a copy of which will be availed to the two agencies.

## 4 FINDINGS: KENYA

This section sets to answer the research question; what are the factors of production of demographic data by civil registration and in Kenya? How have these factors shaped production of demographic data by civil registration?

### 4.1 Context

Kenya transitioned to a republic with a president as a head of state from 1964 after colonization by the British from 1920. The government has many different systems of civil registration including, civil registration, Registration of adult (age 18 years and older), migration services, refugee services, marriages and divorce, national health system and the national taxation system, census and surveys framework. The systems operate independently (Republic of Kenya 2006a) and except for the census and survey frameworks, the rest are mainly used to provide data for identification purpose.

Civil registration was started in Kenya by British government during colonization of Kenya in the beginning of 19th century. When Kenya acquired political independence, efforts were made to tailor civil registration to the identification needs of the post colonial dispensation (Gill and Rono, 1989). In 1989 the civil registration function was elevated in to a government department (Republic of Kenya, 2005)

Social culturally, Kenya has 42 different ethnic groups, and 30 percent of the adult population (age 15 years and older) is illiterate. Human rights advocacy campaigns that started in the 90s have improved public awareness on the importance of birth and death registration to the individuals, communities and the nation (Republic of Kenya 2005). The role of international organizations like UNFPA, UNICEF has been significant in helping all communities appreciate the importance of birth registration. Fear of conflict with the law has enabled improvement of registration of deaths to a national average of 65 percent (department of civil registration 2004b).

Economically, Kenya is a developing country (UNDP, 2007). The social welfare is still fledgling and has not produced enough incentives to support improvement of civil registration. Where search incentives occur it is at a latter date and this has contributed to delay in registration. Kenya can be divided in to three ecological zones; the coast; the interior and the western region (Kenya, 2007). Kenya's coastal region extends for 480 km (298 miles) along the Indian Ocean from the Somalia border in the north and Tanzania in the south. Beyond the coastal plain, a plateau rises gradually to the central Highlands in the south and extends through Ethiopia in the north. This vast arid and semi-arid zone is agriculturally unproductive and therefore sparsely populated. This area is Kenya at its most remote with few roads, only a smattering of villages and huge tracts of land that remains unmarked. Because ground water and rainfall are sparse in this region, only pastoral nomads inhabit the area. The nomads are always on the move, eternally searching for water for themselves and their subsistence cattle. The Aberdare Mountains and Mount Kenya border the Rift Valley to the east while to the west is the Mau Escarpment. Rich volcanic soil coupled with frequent rain (courtesy of easterly air masses meeting the Aberdares) makes this region of Kenya very fertile. As a result, these eastern Highlands have long been intensively cultivated by Europeans and Kenyans alike. This region of south-central Kenya was popularized during the colonial days by Europeans who settled there and dubbed it the Highlands. This region of the country is characterized as a gentle

plateau running the length of the country. On transport infrastructure, Kenya has a reported highway network of 63800 kilometers with 88868 as paved and the rest as unpaved. The country has four international airports and four sea ports. Kenya also has 2652 km of railway (Kenya, 2007).

## 4.2 System of civil registration in Kenya

The settings that guide civil registration method in achieving the legal and statistical mandate include an organization structure, legal framework and administration settings that incorporate civil registration implementation guidelines, duties and responsibilities of different agencies and computerization status. Each of these settings is examined below.

### 4.2.1 Characteristics of Civil registration

Civil registration and demographic data in Kenya are difficult to describe because most of the reports and literature on civil registration is grey (not published). This section is based on content analysis of published literature as well as the unpublished internal government documents which are available in the civil registration national office in Kenya.

Civil registration in Kenya has come along way. Before independence, civil registration was a preserve of the European and American settlers and the few educated African elites in urban areas (Gill, Rono 1989). At independence the government of Kenya set to establish compulsory continuous and permanent civil registration through out the country. The law on Births and Deaths Registration was revised in 1968 and in 1972 to provide for compulsory registration of all births and deaths occurring in Kenya (Births and Deaths Registration Act 149, Kenya). An elaborate organisation structure was established with an expanded administrative capacity to provide for universal registration through out the country (Gill and Rono: 1989). From 1978 further efforts were put in place to strengthen civil registration through publicity and awareness programs, reorganization of the national coordination office, training of local registrars , national data compilation and publication (Gill and Rono: 1989). The present function of civil registration in Kenya is defined in a website of the department responsible for civil registration to include registration of births and deaths, preservation of births and deaths records, issuance of birth and death certificates and production of birth and death statistics (<http://www.births.go.ke/>).

### 4.2.2 Legal technical settings

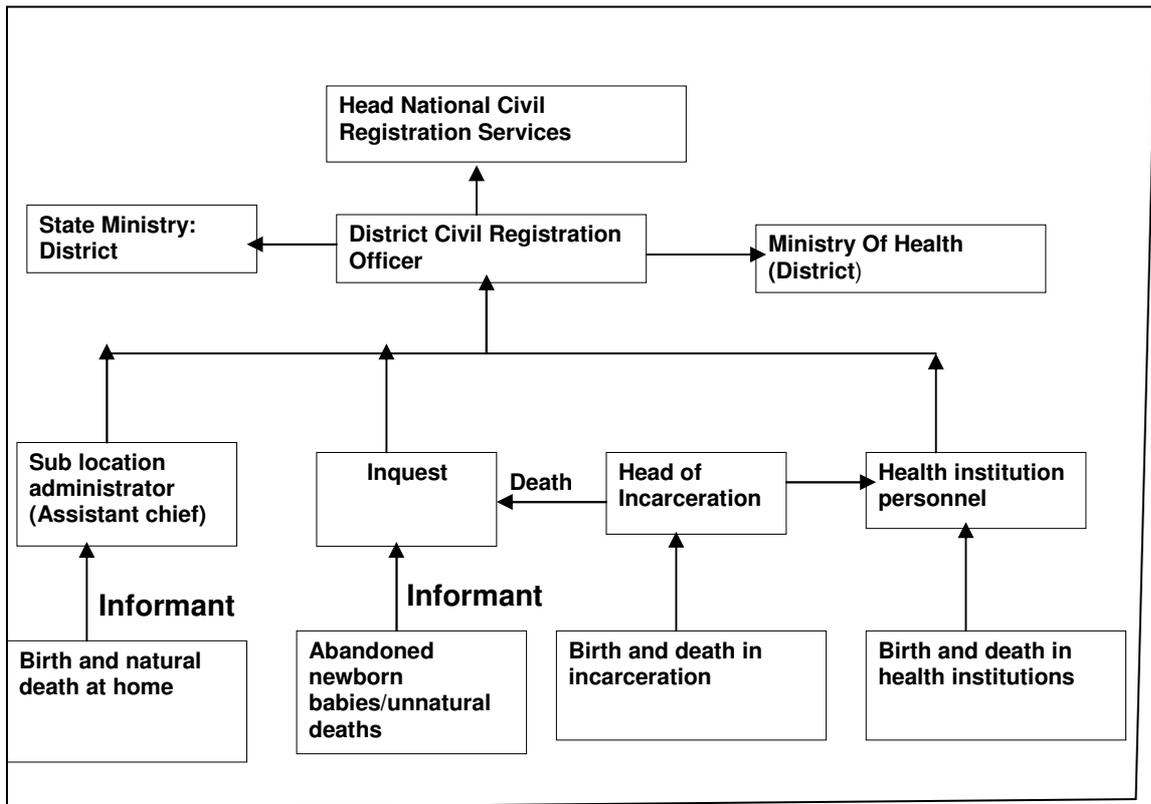
In these sections the findings include organization, legal framework administration and individual level relevance.

#### a) Organization of civil registration

Civil registration in Kenya is centralized .The responsibility for overall directing, coordinating and monitoring civil registration function with regard to registration of births and deaths and other matters related therein rests with a Department of Civil Registration (Republic of Kenya 2003b). The department of civil registration does not deal directly with collection of information but works with other government agencies that have administrative structures at the lowest level of government (Internal Government Report 2004-2008). Table

4.1 below illustrates the structure of civil registration in Kenya (Internal Government Report 2002)

**Figure 4.1: Structure of civil registration data method in Kenya**



Based on a country report on civil registration in Kenya presented at a east and South Africa regional universal birth registration conference in Kenya in 2005

### Explanation of organization structure

The parents, next of kin, contracting parties, a witness or the person who has full knowledge of the occurrence of the event are the legally designated informants in civil registration (Births and Deaths Registration Act 149 Kenya). Where a birth or a death occurs in incarceration, the head of that institution is the legally designated informant but in practice the head of such institution reports to the nearest health institution (Births and deaths registration Act 149 Kenya). Reporting of exposed newborn baby of an apparent age of 7 days is done by any person who finds such an exposed newborn baby to the Justice System nearest to the informant (Births and deaths registration Act cap 149 of Kenya). A death that occurs at home under unclear circumstances or where the kin consider the death to be of unnatural cause is subjected to the criminal justice system for inquest (Births and Deaths Registration Act 149 of Kenya).

Recording of all other births and deaths that occur at home is done by *assistant chiefs* who are the heads of sub locations. Sub locations are lowest level of government and act as primary registration units in the country. The sub location officers are administratively under a different agency, the Ministry of State for Provincial Administration and National Security. The hospitals, maternity and nursing homes, clinics, rural health units and similar institutions are under the Ministry of Health and are primary registration units for all births and deaths occurring in health institutions.

## b) Legal framework

Kenya has had a law governing registration of births and deaths since 1928 which however discriminated registration on the basis of population groups. This law has undergone reviews to provide for continuous, compulsory, universal, permanent and timely registration of all births and deaths occurring in Kenya irrespective of color or creed of the population to whom events occur (Births and Deaths registration Act 149 Kenya).

The Act provides Responsibilities, procedures and guidelines in registration of births and deaths, definition of terms, what to register, where, when and to whom to register, procedures for issuance of copies of records and public access to records, compilation and sharing of births and deaths summaries with Ministry Of Health. The Act also stipulates penalties for failure to comply with the law (Births and deaths registration Act cap 149 Kenya).

The Births and Deaths registration Act 149, Kenya also stipulated the period of reporting births and deaths. According to this Act;

Live births shall be reported for registration not later than three months from the date of occurrence. A grace period of six months from the date of occurrence is provided within which a birth may be registered without attracting a penalty. A live birth is defined as a "complete expulsion or extraction from its mother of a product of conception, after 28 weeks of gestation, which after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached" (Births and Deaths registration Act 149, Kenya). A still birth refers to a complete expulsion or extraction from its mother of a product of conception, after 28 weeks of gestation, which after such separation, does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached (Births and Deaths Registration Act 149 Kenya).

Death shall be reported within one month from the time of death. A grace period of three months is provided within which declaration of a death may be effected without a penalty. Death in this Act is defined as the "permanent disappearance of all evidence of life at any time after live birth has taken place" (Births and Deaths Registration Act 149 Kenya).

The law also defines and ranks the informant who reports the event for registration and gives information to be recorded in a register. The first informant is the parents, in default, owner of the houses where the birth occurs or authority of an institution where the birth occurs and in default any person who has full knowledge of the occurrence of the birth. In Practice the authority of a health institution where a birth occurs is a recognized first informant. In reporting occurrence of a death the law emphasis on medical certificate of cause of death but also provides for verbal autopsy where a medical authority does not attended to the deceased person or seen the body . Where death is considered to have resulted from unnatural cause, a judicial inquiry is used to certify the cause of death (Births and Deaths Registration Act 149 Kenya).

## c) Administration

Administration regards procedures and mechanism established to ensure civil effective performance of civil registration functions.

The structure of civil registration explains the practice of civil registration in Kenya. When a birth occurs an informant declares the birth to the local registration assistant who fills in a register of birth(see appendix 1) with information on ; name of a child if known, date, type of birth and outcome of birth (whether live or dead), name, age residence, previous births, and marital status of the mother, name of the father if mother is married to father , place of occurrence ,type, name ,date ,and signature of the informant ,date , and place of declaration

and signature of the local registrar , date , area, registration number of birth and name and signature of the registering officer . For a birth occurring in health institution the health institution personnel fills in a birth register with similar information as the register for birth that occurs at home (Births and Deaths Registration Act 149 laws of Kenya).

When a death occurs at home an informant declares the death to the local registration assistant who fills in a register of death(see appendix 2) with information on ; name of deceased , date of death , age, residence, occupation , place of occurrence , cause of death type, name ,date ,and signature of the informant ,date , and place of declaration and signature of the local registrar , the cause of death is also filled in for a death occurring at home by verbal autopsy(Births and Deaths Registration Act 149 , Kenya).

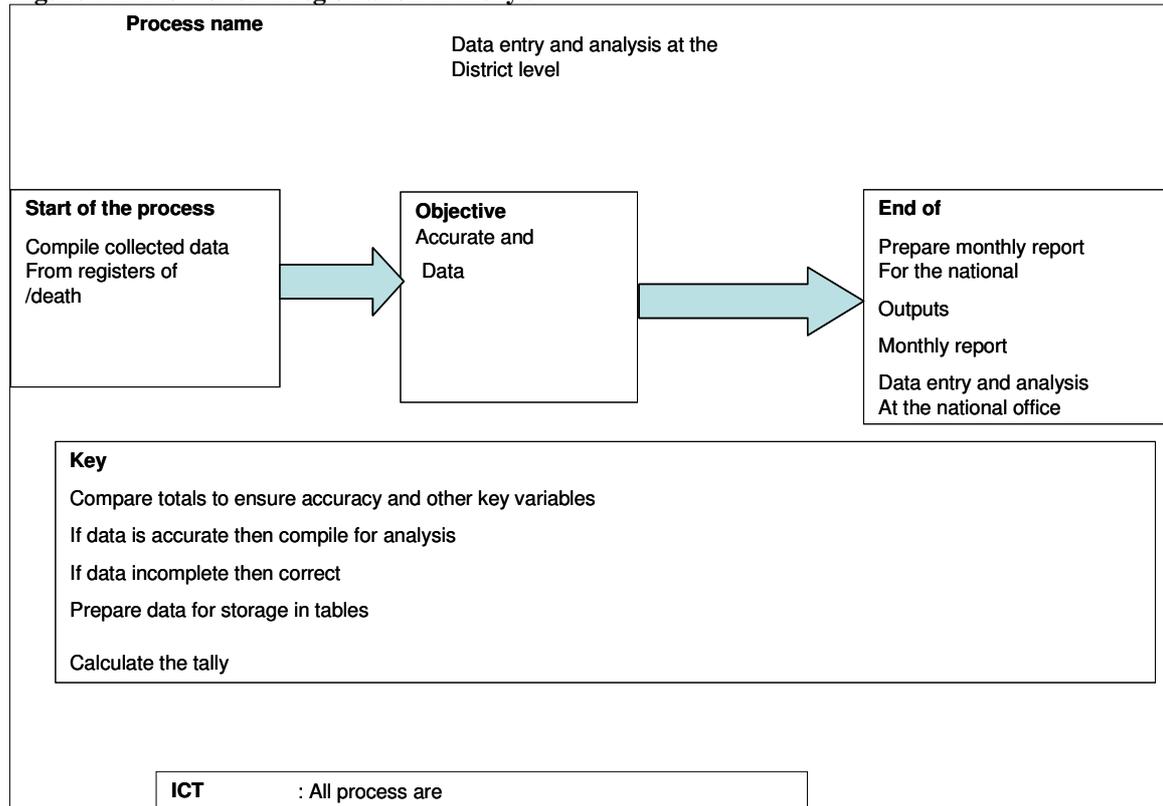
When a death occurs under suspicious circumstances or through a crime, this death is reported to the security office which undertakes initial investigations and collects the body for further inquest in to the cause of death (Births and Deaths Registration Act 149, Kenya). For a death occurring in health institution, a death register is filled(see appendix 3) with information from the hospital records including ;name of deceased , date of death , age, residence, occupation , place of occurrence, immediate cause of death and underlying cause of death ,name title and signature of the certifying doctor . Up to three causes of death may be given for a death that occurs in hospital (Births and Deaths Registration Act 149, Kenya).

In the communities that dispose the body immediately after death, disposal may take place before declaration of the death to the authority. In other nomadic areas, the community relocates from the place when a person dies, leaving the body behind. In other words although it is obligatory to get a disposal permit before disposing the body this is not always followed. The same form for declaring the death also indicates the cause of death. When a death occurs in a health institution a doctor or medical personnel with delegated authority certifies the death and the cause of death in a duplicate form. A burial permit is issued at the hospital.

Each primary registration unit submits, by the mid of every subsequent month, all registers of births and deaths that have been reported in each unit, to the office of the civil registration at the district level (Gill and Rono 1989:10, 16). Here there is a check on each and all registers to ensure each register is correctly and completely filled in. In case of incorrect or incomplete entries the primary registration area assistant is advised to correct the information where possible or to pursue the informant and get the correct information (Gill and Rono 1989:204). When the register is accepted for registration, the date of receipt is recorded in the space provided the corresponding registry number is assigned (Gill and Rono, 1989; 189). After registration any entry found erroneous can only be corrected through a rigorous process of proof of new details. Alterations are made without erasing the original details to ensure tracking of changes. After registration the original register is stored at the district for future references while the duplicate is sent to the national office of civil registration for back up.

The registered of birth is also used to compile and tabulate aggregate data on births occurring in the district while the registered of death is used to compile aggregate data on deaths by causes, sex, and age group of the deceased. The cause of death is compiled according to the record in the death register and no further coding is done. This compilation of data on births and deaths is also done in duplicate. The original is held in the district office and a copy is submitted to the national office for further processing (Gill and Rono 1989:337-351). Figure 7 below illustrates the flow of registration of births and deaths in Kenya

**Figure 4.2: Flow of civil registration in Kenya**



Source: (ICT project Ufanisi 2002): Internal government report, Kenya)

The persons responsible for recording occurrence of births and deaths are employees of the government. Recording of births and deaths that occur at home is done by local administrator known as assistant chiefs (Gill and Rono 1989). The assistant chiefs are primarily charged with the responsibility of coordinating and supervising government programs at the lowest level of governance. Recording of births and deaths that occur in Health institutions is charged to the health personnel of an institution where the event. At district regional and national levels, the government has established a civil registration cadre with key skills and competences in handling civil registration (Republic of Kenya, 2001). This cadre of civil registration is responsible for management, operation and maintenance of civil registration functions through out the country. The function includes records management, issuance of birth and death certificates, and production of vital statistics, public education, and training of local registrars.

Civil registration data method in Kenya is paper based with limited use of computers in compilation of internal reports (Republic of Kenya, 2002). Only one record is created in duplicate for both legal and statistical use. A record is not linked to any other record of the same individual. This means that even where a person whose birth is registered dies the death is not linked to the birth of the deceased. A Proposed policy to integrate primary population registration systems is aimed at computerized linkages of systems of population registration in the country and civil registration is one of those targeted systems Kenya (Republic of Kenya 2006).

d) Individual relevance of civil registration to civil registration in Kenya

At individual level Accessibility, acceptability and availability of civil registration services have been noted as crucial in determining civil registration data outcome in Kenya (Gill and Rono 1989:1). The importance registration of events is different for different events and among different segments of the population within the same population locality. In a survey

carried out to assess the impact of civil registration publicity and awareness programs since 1994, (Department of Civil Registration: 2004) one of the findings was that reporting of deaths is high due to fear of conflicts with government administration. However from the survey findings respondents did not know that the same law applied for registration of births. Subsequently there were reported delays in registration of births

### 4.3 Quality of Demographic data

Quality of data derived by civil registration method can be examined from collection compilation and presentation. Items collected in civil registration have been covered earlier and this section examines civil registration data processing and the resultant quality. The procedures for processing of demographic data by civil registration are detailed in Gill and Rono (1989:10) and this section lifts these procedures to facilitate description of civil registration data processing.

#### 4.3.1 Compilation

The registered birth document is used to derive aggregate data on births occurring in the district by sex, place of occurrence, age and marital status of the mother. The registered death document is also used to derive aggregate data on causes of deaths by sex, and age group of the deceased. The cause of death lifted is as recorded in the death register and no coding is done. For harmonized compilation of verbal autopsies, uniform verbal autopsy templates are used through out the country with a provision to add other cases reported but not found in the template.

Examples are given below on table 4.1 and 4.2 on some data sets from district an annual civil registration report for the year 2006/2007 (internal government reports)

**4.1: Tabulated births data Kenya 2007**

Age group	In Health institution				At Home				Not stated		Total
	Married		Not married		Married		Not married		Not stated		
	Male	females	Male	Females	Males	Female	Males	Female	Male	female	
>15 yrs	0	0	0	1	1	1	2	0	0	0	5
15-19	84	71	26	25	79	62	35	26	0	0	408
20-24	287	275	28	38	267	278	47	33	0	0	1253
25-29	210	211	6	9	260	246	14	23	0	0	979
30-34	121	117	4	4	165	196	13	17	0	0	637
35-39	70	65	4	3	147	132	6	7	0	0	434
40-44	25	16	0	0	53	66	5	2	0	0	167
45-49	2	1	0	0	14	9	0	1	0	0	27
50+	0	0	0	0	0	1	1	0	0	0	2
Total	799	639	68	80	987	991	123	109	0	0	3796

*Based on Mbeere district annual report Kenya 2006-2007*

**4.2; Tabulated Deaths Data Kenya 2007**

Causes of death	1yr		1-4		5-14		15-24		25-34		35-44		45-54		55-74		75+		total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	f		
Diarrhea	1	1		1					1										4	4
TB	1	1		0	1	2	0	3	2	7	4	11	3	6	2	5	3	55	55	
Cancer	1	0		0	0	0	0	1	1	1	0	1	1	13	5	6	4	34	34	
Malaria	28	20	10	6	4	3	1	4	7	7	7	6	6	5	13	9	26	26	188	
meningitis	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	
Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Asthma	0	2	0	0	0	0	0	1	0	0	1	1	0	0	3	4	5	10	27	
Measles	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Prematurely	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	
Malnutrition	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	
Anemia	6	3	1	0	1	0	0	0	1	0	1	1	0	0		1	1	2	18	
Heart	1	0	1	0	0	0	0	0	0	1	0	0	2	0	2	0	1	3	11	

Pneumonia	37	36	12	13	5	6	3	4	6	4	5	2	10	3	17	6	19	20	198
Aids	2	2	0	0	1	3	2	2	3	13	13	9	5	4	3	0	1	1	60
RTA	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	4

*Based on a annual civil registration report from a Mbeere district in Kenya*

Table 4.1 is a summary of births that occurred in a rural district in Kenya in 2007 grouped according to place of occurrence, the age group and, marital status of the mother. It is worth noting that this analysis is different from analysis done by the ministry of health in relation to marital status of the mother. The ministry defines four categories of marital status (married, widowed, divorced, and single) while civil registration method defines two categories married and not married (MOH Kenya 2005-2007). This may create a difference in births within marital category where births to wither widowed or divorced women may be misclassified in the twp categories of civil registration data method. Variables like education of the mother are included in the health information system but excluded from civil registration data method data collection.

Table 4.2 is a summary of deaths that occurred in the same rural district of Kenya classified according to age group and sex of deceased as well as cause of death. This is a comprehensive tabulation that captures the basics of mortality. However the age groups used in tabulation are different from those used by the national statistical system and those used by ministry of health. The ministry of health and the national statistical system use the five year category except for the ages zero to one and one to four years of completed age (CBS 2001, MOH, 2005). At the same time no coding of causes of death is done at the processing stage in civil registration while the ministry of health uses the international classification of causes of death (MOH, 2005). Compare the summary of deaths in table 4.2 with a summary of mortality and morbidity by ministry of health shown below

#### **4.3 Distribution of deaths by causes and age categories Kenya 2005**

Cause of death	Less than 1 year old	1-4 year olds	Older than five years	Total
1 Pregnancy, childbirth and the puerperium	0	0	683	683
2 Certain infectious & parasitic diseases	0	2	3052	3054
3 Diseases of the respiratory system	0	0	976	976
4 Diseases of the blood and blood-forming organs	1	0	596	597
5 Injury, poisoning and certain other consequences of external causes	305	149	323	777
6 Endocrine, nutritional and metabolic diseases	0	2	520	522
7 Diseases of the digestive system	0	1	213	214

There is difference in data processing between civil registration and other sources of data which may present challenges in comparison of data across sources.

#### **4.3.2 Completeness**

Completeness of registration coverage in Kenya is assessed based on expected births or deaths. The expected births and deaths are computed by multiplying the area population with the crude birth rate or crude death rate derived from the latest census. Based on this assessment, completeness of coverage of births and deaths occurring in Kenya is estimated at 40 percent and 65 percent respectively (Department of Civil Registration 2004 b). Some districts, especially where registration of births and deaths is well established, have estimated completeness of over 75 percent. At the same time completeness in the arid areas of northern Kenya which is inhabited by nomadic pastoralists ranges at 20 percent to 50 percent for births and 10 percent to 30 percent for deaths (Department of Civil Registration 2004 b).

In computing completeness of registration of births and deaths, registered events are compared to events expected to occur to this population. It is worth noting that the numerator in this case is not part of the denominator because events are registered where they occur irrespective of the residence of the individual to whom the event occurs. For instance, a birth that occurs in one district is registered in that district although the mother may only have visited the district of registration to access health care. Equally a death is registered in a district where it occurs irrespective of the residence of the deceased. Processing of completeness therefore tend to underestimate completeness of registration of events in some areas mainly rural and over estimate events in urban areas due to difference in health and transport infrastructure . Three districts provided observed deaths for the year 2007. One is a provincial (regional) administration centre with a larger referral hospital; the other is a rural district with private sector investment in health sector while the third is a rural district with poor transport, communication and poor distraction of health care facilities which are also ill equipped. Since these districts are neighbors, it is likely that residents of the rural district with poor and inadequate health care facilities will access the better developed resources of the neighboring provincial (regional) administration centre. At the same time it is possible that residents of the regional centre may seek private health care services at the neighboring rural district and vice versa. All this is not taken in to consideration during analysis of data. Using data from these three districts and population projections from CBS Kenya the following level of completeness has been computed for the three districts (see appendix for a comprehensive computation).

#### **4.4: completeness of birth registration three districts Kenya, 2007**

##### **completeness Births registration**

district	expected Births	Registered	completeness
Embu	12280	9125	74%
Meru south	8750	5778	66%
Mbeere	8134	3899	48%

*Source: Compiled using population projections from CBS Kenya, and registered births Kenya02007*

#### **4.5: completeness of death registration, three districts Kenya 2007**

##### **Completeness death registration**

district	Registered deaths	expected deaths*	completeness
Embu	2353	5035	47%
Mbeere	773	3243	24%
Meru south	1434	3534	41%

*Source: Compiled using population projections from CBS Kenya, and registered births Kenya02007*

### 4.3.3 Accuracy of data

The purpose of civil registration data method in Kenya is explicitly stated in the department's vision thus *"to be a comprehensive source of personal legal records and vital statistics"* (<http://www.births.go.ke/>).

Registers of births and deaths are used for production compilation of demographic data and it is presumed that the care taken to ensure accuracy, consistency and completeness of a register is translated to accuracy of derived data. Tabulation of births data consist of place of occurrence, age group and marital status of the mother and sex of the child which make tracking of errors and interpretation of results difficult (see tables 4. 1 and 4.2) compilation of many variables together create a loophole for incorrect tallying. Further, processing of data at the national office is done based on the tabulated summaries compiled at the district level with no reference to the registers from whence the data was derived.

### 4.3.4 Timeliness

From the previous description of the legally and administrative duration of declaration, transmission, registration and compilation; there are institutionalized delays that amount to one year.

## 4.4 Factors that influence civil registration data in Kenya

### 4.4.1 Political social cultural and economic factors

Contextual factors refer to the whole environment of civil registration data method in Kenya. In this study it included the political, social and economic context of civil registration.

The many systems of civil registration operate disparately and are present competing prioritization. The system for adult registration, migration and taxation systems are more highly prioritized, civil registration compared to civil registration (Republic of Kenya 2005). Although awareness on the importance of civil registration ranks high in the population this does not translate in to high completeness of registration because of delays in reporting ,transmission of data (Department of civil registration 2004,a). Lack of reliable transportation from primary registration units to the district civil registration offices lead to delay in transmission of completed forms (Republic of Kenya 2005). Lack of adequate incentives for early reporting of births also hampers completeness of birth and death reporting by informants

### 4.4.2 Characteristics of civil registration

The Births and Deaths Registration Act (cap 149, Kenya) and policy on functions of government (Republic of Kenya 2008) have made civil registration compulsory, continuous, covering the whole country and where records made during civil registration are permanently kept.

### 4.4.3 Legal framework

As noted previously, The Birth and Death Registration Act, 49 of Kenya was enacted in 1928 to provide for registration of births and deaths and other matters. The act has institutionalised civil registration data method in Kenya and massive data is collected and preserved for legal purpose. Efforts have also been made to derive demographic data from the legal records of births and deaths and such data was published last in 1989 by the Registrar General Kenya

(Gill and Rono 1989). Although the legal framework provides penalties for failure to comply with the law, no one has faced penalties for failure to register but those who apply for late registration pay charges for delay (Gill and Rono 1989). The law is also silent on the responsibilities of other agencies in civil registration and is also weak in providing for confidentiality of individual data.

#### 4.4.4 Organization of civil registration

To improve civil registration data method, three ministries are involved in civil registration, one at coordination level and two at the level of collecting information and transmitting the same to the civil registration offices at the district (Department of civil registration, 2001). Kenya also adopted a community based system of registration where events are reported where they occur and where responsibility of reporting events is extended to other key informants like the village elders and the traditional births attendants (Republic of Kenya, 2005). The coordinating ministry is not involved in data collection Gill and Rono (1989). The Ministry of Health and Ministry of State for Provincial Administration and National Security are responsible for collecting data on births and deaths. There are regional variations on the effectiveness of this collaboration which impacts on effectiveness of data transmission to the district civil registration office. It is worth noting that the duties and responsibilities of these other agencies are not legally specified in the law on civil registration but are based on sector wide collaboration across government ministries. At the same time each of these other agencies has their primary duties and it has been observed that civil registration activities are treated as extra duties of these agencies (Gill and Rono, 1989:14).

#### 4.4.5 Administration

Administration include all the provisions made to operationalized the structure and the legal framework as well as ensuring that civil registration data is used exclusively for the well being of the population of the country.

As described earlier the law on birth and death registration provides that every birth that occurs in Kenya must be registered immediately after occurrence and not latter than six months from the date of such occurrence (Births and deaths registration Act 149 Kenya). There is a period of six months allowed for declaration of an event (Births and Deaths Registration Act 149, Kenya). Even where events are timely declared at the primary registration unit level, it may take another six months to submit the same to the district office of registration due to delays at the local registrar caused by lack of reliable transportation to the district registry. Late registration of events especially of births is prevalent and since late registration data is not factored in the annual demographic data reports, this widens completeness gap (Department of civil registration 2004b)

Availability and accessibility of civil registration services affect utilization of civil registration services in the same way availability and accessibility of health services have been shown to affect utilization of health care in (Gatrell 2002:2). In Kenya, primary registration units have been established in all the country's sub locations and all levels of public health care facilities to capture births and deaths where and when they occur ( Republic of Kenya 2005). While health care units have official hours of operations the office of the assistant chief is not defined in many areas and sometimes the assistant chiefs' record births and death from their homes which hamper availability of registration services and stand on the way of completeness of registration of events.

The persons responsible for recording occurrence of births and deaths are employees of the government (Gill and Rono 1989). At the data collection level assistant chiefs and health personnel are responsible for recording of births that occur at home and in health institutions respectively. At higher levels of government, the government has established a civil registration cadre with key skills and competences in handling civil registration (Government of Kenya, 2001 scheme of service for civil registration officers). However there is still a skills gap in eliciting information from respondents and in analysis of data derived from civil registration as well as computer user skills (internal Government of Kenya report 2006, c). This shortcoming in skills leads to content errors of individual records, limited processing and availability of demographic data

#### 4.4.6 Individual level relevance in civil registration

At the individual level in Kenya there has been improvement in birth and death registration due to increased awareness campaigns by government and international organizations. However the improvement is still low since by 2004 birth registration was only 40 percent complete while death registration was only 65 percent complete (Department of civil registration 2004 a). There are no immediate gains associated with registration of a birth immediately it occurs as most of the gains come at the age of early childhood education primary school enrollment. Mainstreaming registration of births to child health has not fully taken effect. While national immunization coverage was at 80 percent in Kenya in 2004 (MOH Kenya), birth registration was only 40 percent complete (Department of Civil Registration 2004b). Death registration on the other hand is fairly well enforced. According to a survey on impact of civil registration publicity and awareness program on the population, compulsory reporting of deaths is well obligated to leading to a higher completeness in registration than in birth (see earlier).

#### 4.4.7 Data outcome

The quality of data from civil registration varies widely. The national average completeness has been estimated at 40 percent and 65 percent births and deaths respectively (Internal government report 2004(b)). However there are wide variations with some regions recording over 90 percent completeness while others record as low as 23 percent completeness in birth (Internal government report 2004(b)). Tabulation of data at the district is done composing 4 variables for birth and three for death (see table 4.1 and 4.2 ). In case of an error it is not possible to back to the original form when simple tally sticks are used. This makes the tallying sheet complex, prone to processing errors and difficult to interpret. Further more the whole process is paper based tedious and difficult to verify (Internal government report 2004(b)).

#### 4.5 Summary

The government of Kenya has made progressive steps in improvement of civil registration in the country including the following. The government has established a legal framework for registration of births and deaths and appointed a national ministry to coordinate civil registration activities in the country. The history of civil registration in Kenya created a perception of exclusiveness from ordinary population and this had hampered progress.

However Massive awareness campaigns by government in collaboration with international and national non governmental organizations have changed this perception. This has resulted to an average national registration completeness of 40 percent and 65 percent for births and deaths respectively. The poor infrastructural development and weak embedment of civil registration to basic administration policies continue to hamper completeness of civil registration data method

Among the factors closely associated with civil registration in Kenya are legal framework, structure of civil registration, administration and individual level factors. The legal framework for civil registration in Kenya is comprehensive although it does not explicitly address roles of different agencies involved in civil registration while it is also silent on confidentiality of individual information.

The organization structure of civil registration in Kenya is also comprehensive and brings together three different ministries with one taking the coordination and supervisory role. This organization is not legally binding but based on sector wide collaboration of government agencies.

The administrative provisions include the role of informant, human resource and technological capacity, availability and accessibility of civil registration services to the population to improve convenience of reporting events, enforcement of birth and death registration law and data quality control. The government of Kenya has put in place prudent procedures in recruitment of local registrars involved in data collection from respected occupations at the community level and also established a staff cadre in civil registration based on skills experience and competences. However there has been reported need for capacity building in analytical skills, computer users skills and in relating with the public. The individual level factors arise from the individual nature of data collected in civil registration. Although registration is a legal requirement it is clear something more is required to nudge informants to report events immediately they occur. Such happens in deaths reporting because of fear of conflict with the law enforcement agencies.

## 5 FINDINGS NETHERLANDS

### Introduction

Netherlands is the other country of study. This section describes the factors of civil registration and demographic data production in the Netherlands. Data for this section is from published literature, internal documents as well as findings of in-depth interviews held at statistics Netherlands with key staff.

### 5.1 Context of Civil registration in the Netherlands

Kingdom of the Netherlands to the United Nations website, (2008), Netherlands is one of the Western European countries, governed through a constitutional monarchy. Netherlands is ranked as a highly developed country with a comprehensive system of welfare, highly structured government functions, including well distributed transport, health and administration structure

### 5.2 System of civil registration in Netherlands

As earlier described the system include all legal technical settings that make production of demographic data by civil registration and viable. The settings related to characteristics of the civil registration and the legal technical settings. These are explained further

#### 5.2.1 Civil registration characteristics

Civil registration in the Netherlands is a constituent of the population system of population accounting. This system was introduced in Netherlands in 1850 by a Royal Decree of 1849 which used the country's census of 1849 as a starting point (Brekel 1977). According to Brekel (1977), the population register is the main source of demographic data in the Netherlands and this is made possible by the integration of population system of accounting to the national statistics system (Central Bureau of Statistics, CBS) Netherlands, which was established in 1899 under the ministry of home affairs. The CBS Netherlands is responsible for compiling annual official counts of population for each municipality which is subsequently used for enforcement of legal and administrative regulations. Such regulations include municipal law, electoral law, and law regulating financial relations between central and local authorities (Brekel 1977). A law was proposed for centralization of the whole system of population registration under the responsibility of a central government (Brekel 1977) but Prins (2000) notes that this law was rejected and independence of municipalities upheld noting that the population was not comfortable with a single organization holding all personal details of the whole Netherlands population. Brekel (1977) notes that the essence of civil registration in Netherlands is that once a birth is registered, the personal identification given follows the registrant from cradle to grave. Prins (2000) emphasis that the registration of vital events and simultaneous inclusion in a municipal register is crucial for once stays in the Netherlands. Further Prins (2000) and warns that it is theoretically not possible to survive in the Netherlands outside the population register system of accounting.

#### 5.2.2 Legal technical settings

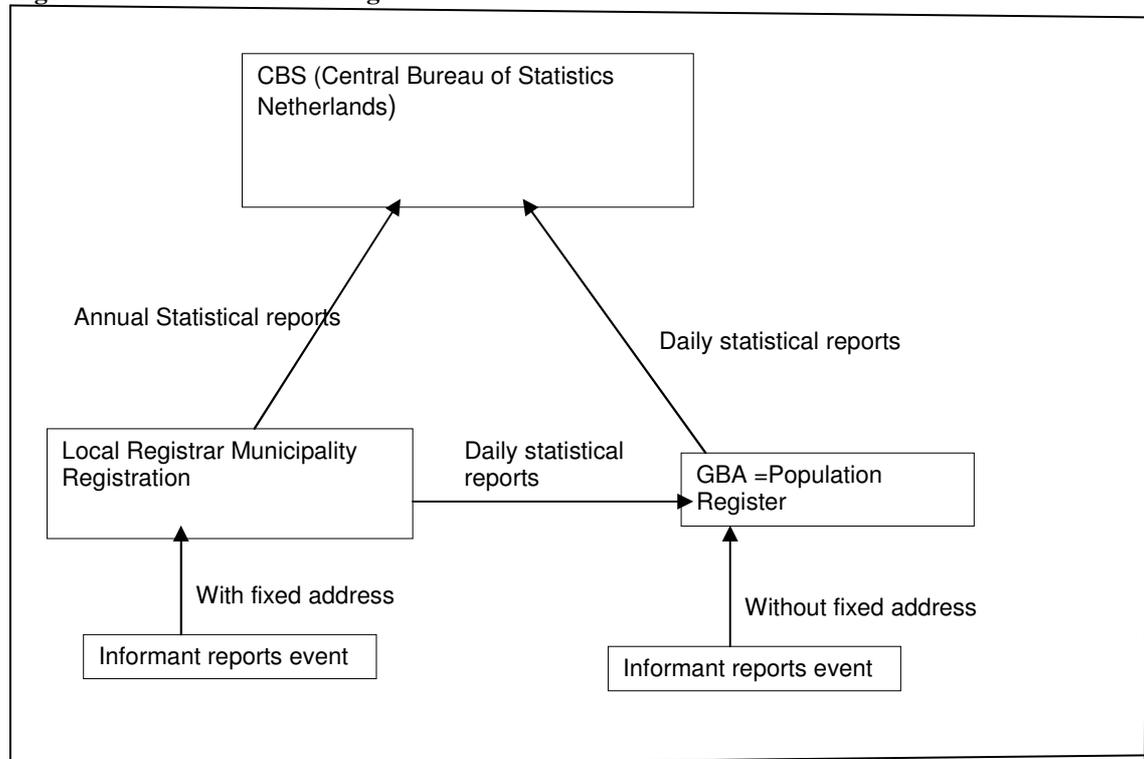
### Organization

Civil registration is embedded to municipality population register .Each municipality is responsible for registration and compilation of a statistical report for each event that occurs in

their jurisdiction and forwarding the same to CBS Netherlands. A computerized system that facilitates transmission of statistical reports from all municipalities to the central bureau of statistics was established in 1994 (Prins 2000)

The structure of production of demographic data by population system of population accounting is shown below.

**Figure 5.1: Structure of civil registration data in the Netherlands**



Source: Compiled from literature and interviews at statistics Netherlands 2008

### Explanation of the structure of civil registration

This explanation is derived from findings of in-depth interview with key staff of population statistics.

Informants report events to the municipality of residence. The municipality updates its population register and also compiles a statistical report which is transmitted to CBS Netherlands through an electronic data interchange. CBS Netherlands then compiles population statistics on a monthly basis although mortality data is sometimes published every two weeks (Prins: 2000).

### Legal framework

As noted earlier, civil registration is embedded to the population system of population accounting. The legal framework governing the Netherlands system of population accounting was introduced in 1850 following a Royal decree of 1849 (Brekel 1977). The Royal Decree became the Population Registers Act of 1887. This Act provides the statutory basis including criteria for inclusion in and removal from registers, the nature of the particulars to be entered, the collaboration between the municipalities, the legislation concerning the population's notification duties and the setting up of the government inspectorate of population registers which supervises implementation of regulations (Brekel 1977:5). According to this author, a

Royal Decree of 1936 amended the population registers Act of 1887 to change the unit of registration from household to individual. The Royal Decree became effective from 1940 and subsequently the Municipality Population Register consists of collection of personal cards.

The legal procedures and guidelines provide that an informant is legally required to report occurrence of events according to the set time limit. A birth that occurs in the Netherlands must be declared within three working days after occurrence. Two types of births are distinguished Live and still birth. According to Euro stat (2003), Netherlands is among the countries that define live birth according to the World Health Organization (WHO) definition. The WHO defines live birth as “the complete expulsion or extraction from its mother of a product of conception irrespective of the duration of pregnancy which after such separation breathes or shows other evidence of life such as beating of the heart, pulsation of umbilical cord or definite movement of voluntary muscles whether or not the umbilical cord has been cut or the placenta is attached” (Euro Stat 2003:2.3). Brekel (1977: Annex 8) defines still birth as “a product of conception having shown no symptoms of life (respiration, heart action, muscular contraction) after expulsion”.

Information collected regarding a birth include ;date of birth, municipality of birth and of residence ,religious affiliation ,nationality , medical assistance at the time of birth , single or plural birth , marital status of the mother , date of marriage , number of children from both subsisting and previous marriages, date of the previous birth from subsisting marriage . Information is also collected concerning parents on; municipality of birth and of residence, parents’ date of birth, religious denomination, occupation and occupational status. For still birth additional data collected include duration of pregnancy, the fetal length and weight.

A death must be declared without delay and this is possible because a coroner only gets permit to bury after presenting death reports from where the death occurred. The definition of death in Netherlands is according to United Nations definition. The UN defines death as “permanent disappearance of all evidence of life at any time after live birth has taken place (postnatal cessation of vital functions without capability of resuscitation)” (Euro Stat 2003:3.3, UN1999: Glossary). Data on death is collected in two forms. In one form the data collected include ; date of birth , sex ,marital status ,date of death, municipality o f residence, nationality ,number of orphaned children in case of death of the head of a family and for married persons the birth date of the widowed partner in marriage. A confidential form is also prepared that further includes information on causes of death (Brekel 1977).

## Administration

When a birth occur a parent or in default an occupant of the house where the baby was born and in default a doctor or midwife who assisted in the delivery is obligated to report this birth to the municipality of residence of the parents. For a child that is still alive at the time of declaration, a personal card is made for this child for inclusion in the municipality population register. If a child is born in another municipality other than the residential municipality of the parents, this personal card is transferred to the municipality of parent(s) residence immediately. The information concerning the birth of the child is filled in birth registration cards. This card must be forwarded to central bureau of statistics every month. A birth is reported in form in appendix4

When death occurs at home a family or duty doctor is called to certify the death. The doctor fills in two forms one to confirm the death and the other with details on cause of death and related matters. The latter form on cause of death is a strictly confidential document of the Public Health Service Chief Office and is used for health statistics. To protect this confidentiality, the document is sealed and enveloped with the name and address of the deceased person on it, and left with the body together with the other form confirming the death. A coroner, a close relative or an occupant of the house where the deceased died

delivers these two forms to the municipality where the death occurred and in return receives a body disposal permit.

The personal card of the deceased is sent to CBS Netherlands together with the confidential document on cause of death and related matters. These two documents are combined to produce mortality statistics. It is worth noting that the data on cause of death is processed according to the latest International Classification of caused of Death (ICD 10). In case of still births and early deaths within seven days after birth, there is a special section in this public health document that indicates the duration of pregnancy, the fetal length and weight.

The registration function in Netherlands is undertaken by municipalities. All municipalities are obligated to prepare a statistical report of every birth and every death that occurs in their municipality and to transmit this report to statistical Netherlands. All municipalities transmit statistical reports to statistical Netherlands using GBA (Gemeentelijke Basis Administratie persoonsgegevens) which is the system of electronic data interchange in the Netherlands which was introduced in 1994(Prins 2000). The system is said to be a comprehensive, decentralized and cohesive. Under this system, municipalities retain their own population register and no one body and are allowed to choose their own hardware and also to develop their own soft ware using harmonized guidelines formulated by the Ministry of Interior . Further this system links all municipalities and is maintained by central and local government. For each demographic event, the GBA sends an electronic message to central bureau of statistics Netherlands; for example when a couple marries an electronic card message for the bride and the groom is sent to central bureau of statistics separately. CBS Netherlands use the Personal identification number (PIN) to link the event as marriage. Statistics Netherlands has 8 authorizations for receiving demographic data.

The data received at CBS, is checked for errors omissions and inconsistencies. Where possible incorrect data is corrected by imputation using other data from the GBA electronic message and with keen to ensure the corrections serve the demographic purpose. Where there are repeated errors statistics Netherlands alerts the concerned municipality. Another check is on consistency of messages; there is an established trend of electronic messages received from each municipality. If at any point the variation is too wide, this alerts statistics Netherlands on a possible discrepancy and which is then corrected. Another check is on the number of births and deaths received daily and monthly. Again it is expected that this number should not vary much and if this happens, it is taken as a sign of missing data. A

After these checks data is compiled and published as aggregates. This is done to ensure that an event is not traced back to the individual who experienced that event. Processing of causes of death is done using the World Health Organization (WHO) recommendations on international classification of the course of deaths.

Netherlands has used computerized system of population accounting for a long time. At the beginning it is reported that some municipality had computer facilities for population register but which were of different types while other used less advanced techniques like punch cards while yet others administered their files by hand(Brekel 1977). In 1968 Netherlands initiated a program of standardized and harmonized computerization (Brekel 1977). In 1994 what is known as the GBA system was introduced which means a basic register of population within a system of registers. According to Prins (2000), this automated system is fully decentralized yet comprehensive and cohesive.

### 5.3 Quality of data

This section examines procedures in compilation, completeness accuracy and timeliness of register based demographic data and most are discussed above in data processing.

#### 5.3.1 Compilation

Compilation of data is done in aggregates so as to protect the confidentiality of the individual data source. The presentation of data is computerized under the theme Population (CBS 2008). The web has step by step instructions to get to the type of data a user needs and in desired format. The tables below are an illustration of data derived from the theme Population in (CBS) Netherlands concerning Births and mortality in the Netherlands. Table 5 and 6 below are examples of tabulated data from statistics Netherlands

5.1: Distribution of Male Deaths by main primary cause of death, sex and age

Subjects	All causes of death number	1 Infectious and parasitic diseases number	2 Neoplasms number	4 Endocrine, nutritional and metab. number	7 Diseases of the circulatory system number	8 Diseases of the respiratory system number	17 External causes of injury and pois. number
Age							
0 year	468	11	3	5	3	4	8
1 to 5 years	96	6	24	6	2	9	18
5 to 10 years	56	3	19	2	5	3	14
10 to 15 years	60	1	20	1	5	1	16
15 to 20 years	155	2	24	2	8	3	99
20 to 25 years	247	5	22	1	14	1	163
25 to 30 years	244	3	32	10	22	4	123
30 to 35 years	349	7	57	7	62	5	147
35 to 40 years	585	6	129	10	106	18	203
40 to 45 years	864	19	234	26	187	20	201
45 to 50 years	1433	29	510	47	344	32	219
50 to 55 years	2265	35	912	71	599	69	208
55 to 60 years	3666	53	1663	123	955	134	175
60 to 65 years	4755	53	2267	131	1279	237	164
65 to 70 years	6055	61	2790	161	1712	398	171
70 to 75 years	8405	115	3540	199	2580	759	173
75 to 80 years	10820	125	3833	296	3443	1350	217
80 to 85 years	11508	160	3169	301	3960	1705	311
85 to 90 years	8336	118	1805	240	2917	1371	213
90 to 95 years	3920	64	584	95	1323	718	142
95 years or older	1007	16	119	28	324	180	47

Source: statistics Netherlands 2006.

5.2: Distribution of Births by age and marital of mother 2006

Births; birth order, TFR and age mother				
Subjects	Live births	Live births	Live births	Live births
Subjects	Total births	Marital born children	live marital born children	Non-marital live born children
Subjects	Total births	live children	born children	Total non-marital live born children
Age mother	Periods	absolute	absolute	absolute
Younger than 20	2006	1859	226	1633

years				
20 to 25 years	2006	16344	7347	8997
25 to 30 years	2006	49342	31206	18136
30 to 35 years	2006	70987	47564	23423
35 to 40 years	2006	39951	26110	13841
40 to 45 years	2006	6328	3875	2453
45 years or older	2006	246	154	92

Source statistics Netherlands, 2006

According to an internal report by Prins (2000) and findings of in-depth interview with staff at CBS Netherlands, publishing of data as shown above is done six weeks after the end of the month. A trend has also been observed that at the time of publishing 1 percent of births and deaths and 5 percent of migration data is delayed or missing. To provide for this, births and deaths data is inflated by 1 percent while data on migration is inflated by 5 percent. The latter are referred to as inflation factors. Table 7 below illustrates the inflation factors per event by the number of weeks between the end of the month when the event occurred and day of publication (Prins 2000).

### 5.3: distribution of completeness factors Netherlands 2000

Number of weeks	4	6	8	10	12
Item					
Corrections entries	106	103	102	101	101
Corrections removals	108	103	102	101	101
Emigration	102	101	101	101	100
Immigration	112	105	103	102	101
Inter municipality changes of					
Residence	101	100	100	100	100
Live births	102	101	101	101	101
Mortality	102	101	101	101	100

Lifted from Prins 2000 (Dutch statistics based on population register)

### 5.3.2 Completeness

Completeness of data is verified using the total number of events compiled annually and the number of certificates of births, deaths as well as residence permits issued. Births and death certificates have serial numbers that start at the beginning of the year and end on 31<sup>st</sup> December of that year. The last serial number on the certificate is expected to correspond to the number of events submitted to statistics Netherlands. Where there is a discrepancy, the list submitted to statistics Netherlands is checked against certificate serial numbers and corrections are made. At the end of the year also, all municipalities are obligated to submit to statistics Netherlands their population as at 31 December of each year broken down in to initial population births deaths and migration. Each of the data submitted by a given municipality should correspond with what CBS has compiled from events received every day from that municipality.

### 5.3.3 Accuracy

Before Netherlands stopped taking censuses, the census data was compared with data from the population register and the difference was noted to be negligible as noted by one key informant the “*difference would be 600 persons for a population of over ten million*” and that is how the population register gained reliability as a comprehensive source of data

### 5.3.4 Timeliness

Data on births and deaths has been noted is very timely. Data on migration has been singled out for delays due to administrative procedures. It is noted that at the early weeks of registration migration data suffers delay but that after the 12<sup>th</sup> week migration data is as good as births and deaths data . Prins (2000) notes that this trend is evidence that delays in transmission of migration data is related to the procedures the municipalities follow in registration of migration (Prins 2000).

## 5.4 Factors that influence civil registration in the Netherlands

Several factors have enabled the success of civil registration in the Netherlands key being the link with the Municipality Population Register which is the cornerstone of administration and governance in the Netherlands (Prins 2000).

### 5.4.1 Political, social cultural and economic factors context

These are background factors that influence the system of civil registration that produces demographic data. They are political, social and economic and each is outlined below.

In the Netherlands the population register has penetrated all administrative facets at individual, community and national level which means Government has made the population register the basis for governance (Van den Brekel 1977). However it is reported that this kind of highly organized system needs careful guarding against abuse against certain sections of population (Lancet 2007:1). Netherlands experience of invasion of a foreign power and subsequent use of the population register system of population accounting against a section of population may have led to the change in unit of registration from a household to an individual from 1940 through a Royal Decree on population accounting of 1936 (Van den Brekel 1977). The importance of population register in governance and administration is captured by (Den Brekel 1977) who notes that once a personal card is created at the birth of a child , “the card follows the individual during entire life from cradle to grave” (Van den Brekel 1977:3).

Socially, the government has linked the population register to provision of all services and benefits and long stay in the Netherlands while not in the population register has been considered as highly unlikely (Prins 2000). Further Prins 2000 note that the Dutch government uses the population register network for provision of services and benefits in both public and private life and which make it obligatory for any one living in the Netherlands for long to seek registration. Civil registration has been noted as the main method of updating the population register to provide the require completeness of population register data.

Economically, Netherlands is a highly developed country with a high quality of life for the population. The country is ranked 9<sup>th</sup> by the United Nations Development program (UNDP).

This highly developed facilitates the welfare services provided to parents after the birth of a child until the child reaches 18 years or 24 years in case the child is in school. Disposal of a body is highly organized and the link between this disposal of the body and registration of a death ensures completeness in death registration. Employment, education and housing are also linked to the population register which makes it possible to capture migration data effectively though there are hitches with internal migration. The municipalities strive to ensure registration of local migration because the total population of a municipality is one of the key criteria in national resources allocation by the central government as well development regional social development.

#### 5.4.2 Characteristic of civil registration

Characteristics of civil registration in the Netherlands are captured in Brekel (1977) and Prins (2000). According to these authors, civil registration together with migration updates each municipality population register on a continuous basis (Brekel 1977). Each Municipality registers maintain all collected personal information on a permanent basis. When an event is registered, a statistical report is compiled immediately. The legal statute on population system of population accounting and the practice in Netherlands make civil registration compulsory, continuous universal and permanent.

#### 5.4.3 Legal framework

The legal mandate for population register based system of continuous population accounting has been instrumental in the rapid transition of civil registration in the Netherlands starting with the royal decree of 1849 (Prins 2000, Van den Brekel 1977). It is also indicative that the law has remained dynamic and responsive to emerging needs as demonstrated by regular amendments to entrench organization and administration procedures and guidelines as conditions demanded (Van den Brekel 1977). The legal mandate therefore provides a positive environment for the system of deriving register based demographic data

#### 5.4.4 Organization

Entrenchment of civil registration in population register system of counting leads to prioritization of civil registration by the national government. Civil registration is used to update the municipality population register. The decentralized nature of population registers system provides for accessibility of services to the population within reasonable distance of their abode. Further more, municipalities collect the information, keep what is useful for them and share the rest with other users. Each agency of government then does what is best at; municipality in collection and administration of population register at the local level and CBS Netherlands in production of regional and national demographic data.

#### 5.4.5 Administration

In this study administration is relates to all the provisions to operationalized the legal and organization framework. Population register system of population counting is strongly embedded in administration, governance and social development of the Netherlands population (Prins 2000).

Each of the informants must report an event occurring to them because of the immediate benefits, and the grave consequences of failure to report. At individual level it is the material benefit like the child benefits, burial permit in case of death and permit in case of migrants (Prins 2000).

Births are reported immediately because a parent receives an allowance for each child below 18 years and also for students below 24 years (Prins 2000). During in-depth interview one key informant said “it is advantageous to register a birth than not to register because it has financial benefits “while another quips “failure to report a birth is stupid and it is like stealing from your self “(In depth interview report 2008)

To sustain confidentiality of the information on cause of death there is controlled access of this form even within statistics Netherlands “only 10 out of 35 people here are allowed to access these forms and these are also sworn to privacy “ one informant disclosed during the in depth interviews .

The period for reporting is also short and this ensures promptness of information from the informant and eliminates recall bias or possibility of manipulation of information. Timeliness of reporting ensures timely transmission of data to statistics Netherlands because all events registered by each municipality are transmitted to the CBS every day. Timely transmission leads to timely compilation and publishing of data although the reporting timeline is short, delayed registration is also considered albeit with penalties and this is especially common in migration.

In terms of availability and accessibility, Netherlands is well connected by roads and railway. During in-depth interviews on civil registration in the Netherlands it emerged that there are 453 municipalities across the country and that every member of the population has easy access to the municipality of residence. Even where the services may be far, the necessity of registration nudges informants in reporting. In case as noted in the registration process above, where an event occurs in a different residence from that of residence, it is still reported and then transferred to the municipality of residence.

According to the in-depth interview, the staff working in civil registration (population register) undergoes proficiency examinations on the legal procedures and guidelines in population register and other user skills. At the CBS, the staff involved in coding of cause of death is either trained as medical personnel or in coding of causes of death. The rest of the staff has various competencies in demography, statistics and health. Since 1994, the population register system of population counting in the Netherlands is highly computerized under the basic register GBA is electronic data interchange (Prins 2000).

#### 5.4.6 Individual level relevance

Through out this section there has been illustration of individual and agency benefits in reporting births, deaths and migration occurring to them. There is evidence that civil registration has been fused in to daily lives of the population of Netherlands and therefore becomes the rational way to act. In reporting a birth, a parent stands to benefit materially and the child is recognized as part of population Netherlands. An illustration of this is that when a birth occurs to parents in an asylum or refugee camps, the child is entered in to the population register and a card created. While the parents are not yet part of the population register, the child is part of the population register and therefore a resident of the Netherlands. From Birth

to death, this initial registration will resurface in all transitions and in accessing services and benefits. One key informant in in-depth interviews noted that theoretically, it is not possible to live in the Netherlands for long without getting in to the population register. As a migrant the same applies, access of services and benefits is tied to personal card number. After death a body may not be disposed without a disposal permit. A coroner or the relative or occupant of the house where the deceased dies must get this disposal permit at the municipality by submitting the death reports to the municipality. For the municipalities, their population counts are derived through this population register system. This population counts and other information is used to allocate finances to municipalities from the central government. For statistics Netherlands ,since it is the nationally mandated to provide all national and regional statistics to the government to inform planning , their role is made easier in that municipalities do the data collection while statistics Netherlands concentrate on compilation, analysis and publication .

#### 5.4.7 Data outcome

Control of receipt of statistical reports is crucial in ensuring completeness, accuracy and timeliness of data. According to Prins (2000), in the Netherlands this is done at two levels; for individual statistical reports and transmission of statistical reports from all the municipalities. When a statistical report is received at statistics Netherlands it is checked for errors, missing information or inconsistencies Prins (2000). According to informants in the in-depth interview it is possible for a statistical report to be consistent but still inaccurate and gives an example that when a date of birth recorded is wrong like 23<sup>rd</sup> may 2008 instead of 19<sup>th</sup> may 2008, and reported on 25<sup>th</sup> may 2008, the statistics report is considered consistent although inaccurate. Where possible some incorrect data is imputed using other data in the statistical form, for instance, sex if not stated, can be imputed using the name of registrant to give an idea of the sex. This correction Prins (2000) notes is only done for the benefit of demographic data. Incorrect entries on matters such as citizenship are however are not imputed. Persistent errors, missing information and other inaccuracies for a particular municipality also show in reports of trend. In this case, statistics Netherlands may decide to return incorrect data to the concerned municipality for correction. When this happens, such errors, missing information and inconsistencies have been noted to decline in subsequent reports from affected (Prins 2000).

All data received from municipalities are checked and a trend is established. When number of statistical reports is too low compared to the established trend, statistics Netherlands consider this as a warning of missing reports and the concerned municipalities receive queries. Statistics Netherlands compiles monthly summaries of births deaths and migration and these are expected to fall within an established pattern. Again discrepancy observed in the pattern alerts statistics Netherlands on a need to confirm with the municipalities concerned.

The established trend of statistical reporting has made it possible for statistics Netherlands to calculate a factor of delay and incorporate this to published data as shown earlier.

These control mechanisms existed even before computerization but it is noted that computerization increased the timeliness of the mechanism.

### 5.5 Findings in-depth interview Netherlands

#### 5.5.1 Introduction

The in-depth interviews were part of data methodology in the comparative study of civil registration and demographic data in Kenya and the Netherlands. The aim of the in-depth interviews was to obtain a deeper understanding of civil registration and demographic data in

the Netherlands from implementers own point of view to reinforce literature content analysis findings.

These in-depth interviews elicited strong national government commitment to civil registration with practical strategies that make it appealing at all levels of administration and governance. The law describes the structure of civil registration while the structure is operationalized by effective administration that results to willingness at all levels to comply with the law. The system ensures production of comprehensive reliable demographic data for legal administrative and demographic use.

### 5.5.2 Compilation of data

Compilation of data was based on coding of themes linked to the factors known, from literature content analysis, to influence civil registration and demographic data. Use of themes was based on deductive theory (Babbie 2007:2). By use of expected themes based on literature content analysis in-depth interviews were proceeded to find out whether these themes appear in the practical experiences of civil registration data method.

### 5.5.3 Coding of in-depth interview

#### 5.4: Distribution of codes by color and themes

Colour	Assigned theme
Red	Legal framework
Orange	Organization
Yellow	Administration
Green	Data quality
Blue	confidentiality
Magenta	Individual level relevance
Purple	computerization
Grey	Challenges

### 5.5.4 Results

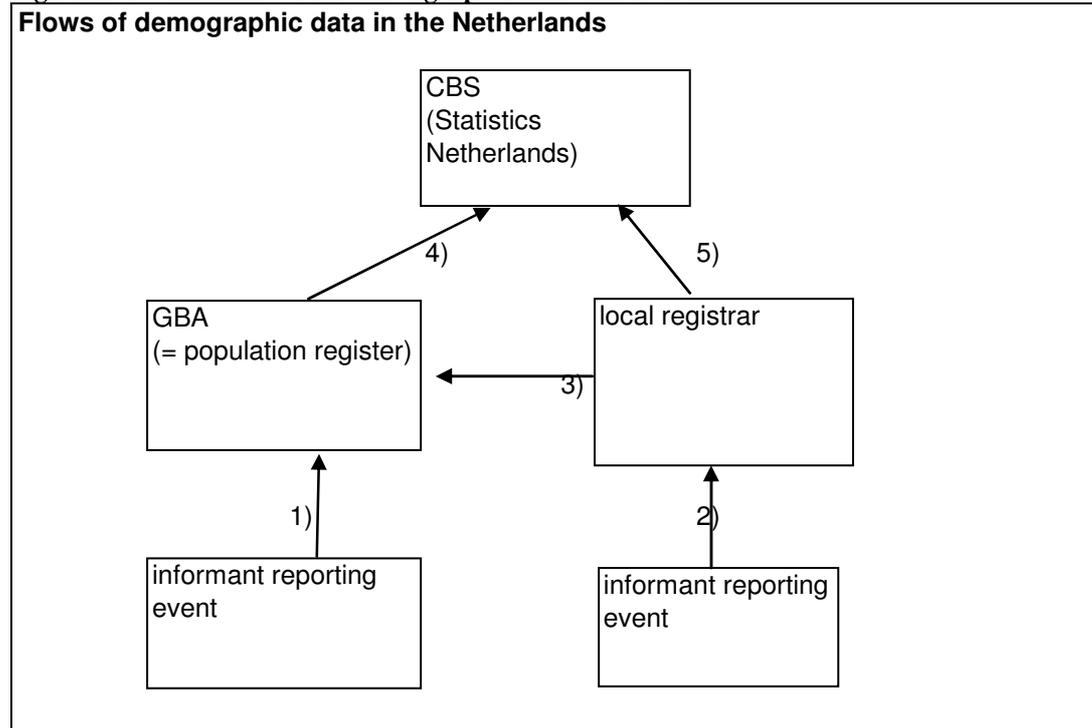
#### Legal framework

Civil registration is firmly grounded on a legal framework that provides guidelines of registration, interaction of agencies and use of data. In all interviews the role of legal obligations kept coming up in answer to why on the processes” obligatory to register a birth, death or migration to the municipality”, *“One, it is obligatory for them to provide data to statistics Netherlands”, “No but the law was changed five years ago. If you are part of a study; and the agency doing study requests to know your disease how long and if you die whether they can find out your cause of death and you agree”.*

#### Organization

Another theme that derived from the interviews is organization of civil registration in the Netherlands indicating that it starts at informant level, and then moves to municipality then population register and to statistics Netherlands. That data gets to statistics Netherlands in two ways, daily through population register and monthly as municipality reports. One of the interviewees gives an illustration of this structure as shown below.

**Figure 5.2: Illustrated Flow of demographic data Netherlands**



1. Changes of address, immigration, emigration.
2. Births (including still-births), deaths, marriages, divorces, registration of partnership, causes of death.
3. Live births, deaths, marriages, divorces, registration of partnership.
4. Live births, deaths, marriages, divorces, registration of partnership, changes of address, immigration, emigration.
5. Still-births, causes of death.

Central bureau of statistics Netherlands 2008

### Administration

The administration of civil registration in the Netherlands is embedded to the population register system of population counting as noted in the above organization structure. Through out the interviews it emerged that there is stringent administration of population register system, incentives to ensure informants comply with the law and sanctions for those who fail to comply with the law. During in-depth interviews an officer said “, *it is obligatory for them to provide data to statistics Netherlands*”; *One cannot bury or cremate a body without a burial permit*. “.....*Migration also because to get services like driving license I have to be registered in that municipality where I am getting the drivers license*”

The essence of these in depth interviews was to gain deeper understanding civil registration system production of demographic data in the Netherlands. From the interviews, population register emerged as a default source of the Netherlands statistics “*At the municipality every agency that uses data must be authorized to collect data. For example the military will collect data for all those who attain age 18 to enable invitations to join the military. The police will also be authorized to get identification data*”.

Various mechanisms were pointed to efforts to ensure comprehensive, accurate data published within set timelines. Describing why civil registration data is considered adequate, an officer submitted “... *at this time, Netherlands was taking census and the difference between census*

*numbers and population register numbers was minimal and on this basis, the register data is considered good” we also confirm if the number of certificates issued for births, deaths and migration correspond to the number of reported events”.* To explain completeness and accuracy of death registration, an officer said *“Because we compare the two forms used in death registration to check if the total of registered deaths should correspond....”* Recurrence of the phrase *“we compare.....to ensure the data is corresponding “emerged from all interviews therefore giving validation of quality control measures.*

From the informant to the government there is a keen interest in ensuring events are registered and there are also some accruing benefits. The incentives include financial gains, authority to carry out a crucial function like disposal of body and access to services. At agency level, the municipality’s funding from central government is pegged among other considerations, to the population of the municipality and thus the motivation for municipalities to civil registration. CBS has the burden of collection of data taken up by municipalities leaving the agency more time to concentrate compilation, analysis and publication of national statistics. Central government uses data from statistics Netherlands to allocate budgetary and other development resources to the municipalities. When one interviewee is asked about challenges in civil registration responds;” *for us is all advantages “.*

There was an emphasis of having a functional system before attempts to computerization. One officer posits that *“Computerization requires that you already have very good data in paper form”.* *“The transition then becomes smooth to a computerized system”.* It also emerged that computerization helps in editing and detection of errors. It also emerged that computerization makes transmission of statistical reports from the municipalities to CBS Netherlands faster.

The views about environment is based on a see learn and infer. The work environment appeared secure and adequate. Each staff is able to create his or her space in a shared office environment. Coffee dispenser was supplied and the beverage is free of charge. The staff portrayed enthusiasm about their work creating an impression of motivated human resources. This view may be clouded by the third world background of the interviewer.

### 5.5.5 Summary

The establishments of the population register system of population counting through a Royal Decree, regular legal reviews and updates by civil registration demonstrate government commitment in policy to establishment and development of civil registration. In the Netherlands the population register has penetrated all administrative facets at individual, community and national level which means Government has made the population register the basis for governance

Netherlands government uses the population register network for provision of services and benefits in both public and private life and which make it obligatory for any one living in the Netherlands for long to seek registration. Civil registration has been noted as the main method of updating the population register to provide the require completeness of population register data

The legal mandate for population register based system of continuous population accounting for the population statistics has been instrument in the rapid transition of civil registration in the Netherlands starting with the royal decree of 1849. It is also indicative that the law has remained dynamic and responsive to emerging needs as demonstrated by regular amendments to entrench organization and administration procedures and guidelines as conditions demanded

Demographic data derived by civil registration is processed and disseminated within a schedule. The latter is facilitated by correction factors that have been developed to manage delayed reports and thus incompleteness of data

## **6 CONCLUSION:**

### **6.1 Introduction**

This section concludes the findings of this study that describe and explain context and system of production of demographic data by civil registration in a comparative analysis of Kenya and the Netherlands.

Specifically the study describes the context and system of civil registration in Kenya and in the Netherlands and the state of data generated; compares how context and system of civil registration shape demographic data outcome in Kenya and in the Netherlands and draw useful recommendations in improvement of civil registration data method

The study is structured around the United Nations (2001) theoretical framework on improvement of civil registration and vital statistics in developing countries as well as Bogue et al (1993 edits) on improvements of civil registration data method in developing countries.

Civil registration is a basis for providing comprehensive continuous and universal indicators of development including infant mortality rate, maternal mortality, life expectancy and causes of death. Despite this importance, production of demographic data by civil registration data is confronted by improvements that are slow and erratic (Bogue et al 1993:3, Lancet 2007). Although Kenya has established a system of civil registration for legal and demographic purpose, legal records have not been fully utilized in production of demographic data. This comparative study of civil registration and generation of demographic data between Kenya with the Netherlands aims to sheds more light on how to increase the effectiveness of civil registration in production of adequate demographic data. At the same time the study sheds light on constraints facing civil registration its and demographic data output in Kenya and other countries with similar political social cultural and economic conditions.

This study was designed as a descriptive and explanatory to answer the question what comparisons can be made regarding context, system and final data output in civil registration between Kenya and the Netherlands?

Data for this study was from published secondary literature on improvement of civil registration data method in developing countries, internal government reports and primary data based on findings of in depth interviews undertaken Central Bureau of Statistics in Netherlands. Most civil registration reports in Kenya used in this study are not published but are available in civil registration offices in Kenya. These reports have been used and described as internal government reports.

### **6.2 Comparison of civil registration data method**

### **6.3 Similarities**

There are certain similarities, although remote, on civil registration data method between Kenya and the Netherlands.

Both countries have established civil registration systems which date back to more than 100 years ago (Gill and Rono 1989, Brekel; 1977). The civil registration systems in the two countries is coordinated and supervised by popularly elected government for the benefit of the population. Government commitment in improvement of civil registration data method in the two countries can also be observed with the establishment of a legal and organisation structure for civil registration.

Both countries have elaborate administrative setting to ensure accessibility and availability of civil registration to the population with agencies closest to the population recording occurrence of events as and when they occur.

In the two countries at one point in their history there was an abuse of registration system by foreign invading authority to commit human rights against segments of the population. In Kenya the colonial government used a similar identification system to restrict movement of African natives (Gill and Rono 1989) while in the Netherlands, the Nazi authority used the population register system to locate and commit autocratic transgressions against the Jews population (Lancet 2007:1). Such experience requires that measures are put in place to protect confidentiality of individual information from each country

## 6.4 Differences

### Introduction

This section examines the differences in civil registration data method in Kenya and in the Netherlands including the context and systems which include; organisation, legal, administrative and quality of final demographic data outcome

#### 6.4.1 Social economic differences

Geographically, Netherlands is in Europe while Kenya is in sub Saharan Africa. Netherlands is ranked 9<sup>th</sup> (United Nations Human Development Index, 2005) while Kenya is ranked 168<sup>th</sup>. According to WHO, Netherlands is among the countries submits to it comprehensive population health data population while Kenya is among developing countries that submit data based only on estimates (WHO 2003, Lancet 2007).

#### 6.4.2 Difference in System of civil registration

The United Nations (1999) defines a System of civil registration “a system of civil registration includes all institutional, legal technical settings needed to perform the civil registration functions in a technical, sound, coordinated and standardized manner through out the country taking in to account the cultural and social circumstances to the country” (UN1999: 305). The following differences have been observed in this study between the system of civil registration in Kenya and in the Netherlands.

In Kenya Civil Registration data method is one of many systems of population registration, relies on loosely defined sector wide collaboration for data collection, is not integrated to the national statistical system and lacks data processing capacity. Civil Registration in the Netherlands is integrated in to the population register system of population accounting and stringently enforced legal framework.

In Kenya, a central government ministry is charged with the responsibility of coordination and supervision all civil registration activities in the country. However this ministry does not have a local network to facilitate information gathering and relies on other two ministries to record occurrence of events through out the country. The relationship between the coordinating and supervising agency on the one hand and the agencies carrying out the

recording of births and deaths on the other is not legally binding. Migration is operated as a separate unit from birth and death registration and the two have no operational links except belonging to the same ministry. There is also no link between the national agency for civil registration and the country's central bureau of statistics. At the same time the national agency for civil registration has inadequate technological capacity to derive demographic data from the registers of births and deaths.

In The Netherlands the civil registration system is a component of the population system of population counting and is decentralized to the municipalities and integrated to CBS Netherlands. The municipality register is updated by civil registration and migration. The collaboration among the agencies involved in this system of population accounting including specific duties and responsibilities are laid out in a legal framework.

Although both Kenya and the Netherlands have a legal framework for civil registration the context and content differs.

In Kenya the Birth and Death Registration Act provides for registration of births and deaths and related matters only. Although the responsibility for registration of births and deaths was de-linked from the Registrar General in 1989, This Act still recognises the Registrar General as responsible of registration of births and deaths (Births and deaths registration Act 149 of Kenya) because it has not been amended to reflect the change of administration. This Act is also silent on the duties and responsibilities of other agencies involved in registration and only specify the duties of registrar and the informant (Births and deaths registration Act 149 of Kenya). The Act does not protect confidentiality of individual records as it exposes the record to public scrutiny, upon payment of a fee (Births and deaths registration Act 149 of Kenya).

In the Netherlands civil registration is carried out within the context of Population Register Act which provides for; the criteria for inclusion in and removal from registers, the nature and particulars to be entered, the collaboration between the municipalities, the legislation concerning the population's notification duties and the setting up of the government inspectorate of population registers (Brekel 1977. This law also provides how collected data is used and specifies authorization for such use (Prins 2000)

In Kenya civil registration is one of disparate population registration systems and is administered vertically by the department of civil registration. In the Netherlands civil registration is embedded in population register and integrated to the national statistical systems to enable the national statistical system take responsibility of production of demographic data.

In Kenya an informant has a total of six months within which a birth should be reported to the recording authority and three months for reporting a death. There are also at least thirty days before the recorded event is submitted to the district civil registration office while the preparation of the register for data compilation takes another minimum of three weeks. In total there may be an official lag of eight months between occurrence of an event and production of data.

In the Netherlands a birth must be reported three working days after occurrence while a death must be reported immediately. Migration must be reported within three weeks of arrival to the Netherlands and also before departure. Compilation and publication of the data is done six weeks after the end of the month implying a six week lag.

This difference in the reporting of events in the two countries is because reporting period in each country is designed to accommodate various factors like transport, remoteness of some areas and the need for universal registration which vary according to the social development

of a country. The delay in reporting may have an impact on accuracy and timeliness of the final demographic data.

In Kenya a birth is registered at the place of occurrence and this is where the birth record is maintained. The details recorded are the minimum recommended by United Nations 1999. Only one record is created in duplicate for both legal and statistical use. The record is not linked to any other record on the individual. Even where a person whose birth is registered dies and although the records may be in the same registry the two events are not linked. In the Netherlands when a birth occurs, it is reported to the municipality of residence of the parents. Where a birth occurs outside this municipality, the created record is transferred to the municipality resident of the parents. Data collected is comprehensive and provides a link between the child and the parents through a personal number. Once this personal card or record is created it becomes the default reference record for this individual till death.

When a death occurs at home an informant declares the death to the local administrator (assistant chief) and makes a verbal autopsy as well. In the communities that dispose the body immediately after death, disposal may take place before declaration of the death to the authority. In other nomadic areas, the community relocates from the place when a person dies, leaving the body behind. In other words although it is obligatory to get a disposal permit before disposing the body this is not always followed. The same form for declaring the death also indicates the cause of death. When a death occurs in a health institution a doctor or medical personnel with delegated authority certifies the death and the cause of death in a duplicate form. A burial permit is issued at the hospital.

In the Netherlands, when a death occurs at home a doctor confirms the death and also fills in a confidential form on the cause of death. A relative, a coroner or a person occupying the house where the person dies delivers the forms to the municipality in exchange of a disposal permit. The same applies when a death occurs in a hospital. Sometimes two doctors may confirm a death, a family doctor as well as a duty doctor.

Although Kenya has a system of civil registration individual relevance is still limited. There is no basic policy that links civil registration to day to day administration and governance of the population and therefore to stimulate significant individual level of civil registration. Limited individual relevance of civil registration hinders universal civil registration and completeness of demographic data output.

In the Netherlands civil registration is embedded to the municipal population register system that penetrates the individual, agency and national lives of the population of Netherlands thereby leading to universal civil registration and comprehensive accurate and timely demographic data output. In the Netherlands the government has thus demonstrated commitment in policy that population register system is essential to the national well being economic and social development,

#### 6.4.3 Quality Demographic Data out put

The loosely defined organisation of civil registration has been an obstacle to completeness of civil registration. Lack of adequate human resource and technological data processing capacity coupled with lack of integration to the national statistical system has hindered full utilization of the civil registration records for the production of accurate and timely demographic data. The loose organisation of civil registration in Kenya has led to inadequate utilization of the political and administrative structures of the government to derived demographic data from civil registration data method.

In the Netherlands the linking of civil registration to municipality population register and the CBS Netherlands has ensured that each agency takes responsibility in activities where such agency has comparative advantage in civil registration for production of demographic data and other purposes . Reports and interviews held in the Netherlands indicate that though no external audit has been done on data derived from civil registration, there is strong conviction that this data is of very high quality. The shortcomings are addressed by factors developed over time

In Kenya data on births and deaths is derived from the legal registers and compiled in to summaries. The data on births is tabulated according to place of occurrence, age group and marital status of the mother and sex of the child. The four variables used to tabulate data on birth make it difficult to edit and track for errors and inconsistencies. Data on deaths is also compiled from the legal death register and aggregates compiled according to month, cause of death age group and sex of the disease and also in 10 year age groups except for deaths of infants below one year old and those from 1 to four completed years. Compilation of the data on causes of death is as reported on the legal form and there is no further coding. As is the case with births tabulation of deaths by age group sex and cause of death is also complex and prone to errors which are however difficult to trace. Kenya recognises production of data by civil registration as a key government function and this data is compiled regularly across the country and submitted to national office. However, although there has not been any independent evaluation on the quality of civil registration data, the country considers the data incomplete and is never disseminated.

In the Netherlands, here is a mechanism for editing and querying in place to ensure data is complete in individual statistical reports and as aggregates. Data is processed from individual statistics reports and it is always possible to track back discrepancies to the particular statistical reports and to identifying the source of such discrepancies.

The purpose of civil registration is to produce personal legal records and also to use these legal records to derive demographic data. It has been recommended that Confidentiality of the data is guaranteed without the same confidentiality deterring use of this data for demographic purpose (UNSD 2001).

In Kenya, confidentiality of civil registration data is not legally protected exclusive in law. For instance, under the Births and Deaths Registration Act, the register is open for public scrutiny upon application and payment of a certain fee (Births and Deaths Registration Act 149 Kenya). Data compiled from individual registers is however done in aggregate using many variables in a single tabulation and it is not possible to link the data with the individual register from which this data was derived.

In the Netherlands confidentiality of population register data is explicitly provided for in the Population Register Act which also includes guidelines on the use of such information. The staffs of population register are sworn to protect the confidentiality of individual information. In case of a death, only the public health section processing cause of death has access to the individual data on cause of death and even in the section, only limited personnel has this access. Publishing of data is done in a way that de-links the individual records from which data was derived from the published data.

## 6.5 Summary

Kenya and the Netherlands have some remote similarities in the system of civil registration from which demographic data is derived. These include establishment management and operation by popularly elected governments, legal and organisation framework and administrative provisions to provide for accessibility of registration services.

The similarities are noted as remote because there differences in the way the two countries operate the system of civil registration. Netherlands has entrenched civil registration to population system of population accounting and this makes civil registration an integral part of administration and governance. Data derived from civil registration is therefore comprehensive and published regularly

Kenya on the other hand civil registration is one of the many disparate systems of population registration which is also de-linked to the national statistical system. This has made it difficult for Kenya to utilize the massive civil registration records produced daily for the production of demographic data as defined in the country's civil registration function.

## 6.6 Conclusion

This conclusion has demonstrated similarities and differences, between Kenya and Netherlands, in generation of demographic data by civil registration

This is the overview of the political social cultural and economic environment of civil registration and demographic data.

Kenya transitioned to a republic with a president as a head of state from 1964 after colonization by the British from 1920. The country is ranked as a developing country and has many different and disparate systems of civil registration including, civil registration, Registration of adult (age 18 years and older), migration services, refugee services, marriages and divorce, national health system and the national taxation system, census and surveys framework.

The government of Kenya has made progressive steps in improvement of civil registration in the country including the following. The government has established a legal framework for registration of births and deaths and appointed a national ministry to coordinate civil registration activities in the country. Although the history of civil registration in Kenya had created a perception of exclusiveness from ordinary population which hampered improvement efforts, massive awareness campaigns by government in collaboration with international and national non governmental organizations have changed this perception. This has resulted to an average national registration completeness of 40 percent and 65 percent for births and deaths respectively. Lack of institutionalization of duties and responsibilities of agencies responsible for civil registration in a legal framework, limited data processing capacity and lack of integration with the national statistical system continue to hamper efforts to utilize civil registration records for production of demographic data. At the same time it has been demonstrated in this study that lack of integration of civil registration data method to daily lives of the population in Kenya continue to hamper universal civil registration which is important for completeness of derived demographic data.

In this study it has also been shown that the establishments of the population register system of population counting through a Royal Decree and regular update through civil registration illustrate commitment by the Netherlands to utilize civil registration for production of demographic data. It has also been demonstrated in this study that the Netherlands government uses the population register network for provision of services and benefits in both public and private life and which make it obligatory for any one living in the Netherlands for long to seek registration. Civil registration has been noted as the main method of updating the population register to provide the required completeness of population register data

This study identifies factors that influence civil registration and also the quality of final data output in Kenya and in the Netherlands.

Among the factors closely associated with civil registration in Kenya are legal framework, structure of civil registration, administration and individual level factors. The legal framework for civil registration in Kenya provides basic guidelines and procedures in civil registration. However the law on civil registration in Kenya does not explicitly address the issue of confidentiality of individual identity or define the interagency collaboration in civil registration. The structure of civil registration in Kenya is also comprehensive and brings together three different ministries with one taking the coordination and supervisory role. This organization is not legally grounded but based on sector wide collaboration of government agencies. The roles of supporting ministries are therefore not legally obligatory.

The administrative provisions include the role of informant, human resource and technological capacity, availability and accessibility of civil registration services to the population to improve convenience of reporting events, enforcement of birth and death

registration law and data quality control. The government of Kenya has put in place prudent procedures in recruitment of local registrars involved in data collection from respected occupations at the community level and also established a staff cadre in civil registration based on skills experience and competences. However there has been reported need for capacity building in analytical skills, computer users skills and in relating with the public. The individual level factors arise from the individual nature of data collected in civil registration. Although registration is a legal requirement it is clear something more is required to nudge informants to report events immediately they occur. Such happens in deaths reporting because of fear of conflict with the law. This is not so with the birth registration although the same law applies. Initially, low registration was associated with low literacy levels and lack of awareness on requirement for registration of births and deaths. Kenya has now 73.6 percent literacy level and a combined enrollment level of 60.6 percent and in 2004 while internal evaluation of knowledge attitudes and practices in civil registration put awareness at 90 percent but registration completeness at 40 percent

In the Netherlands the population register has penetrated all administrative facets at individual, community and national level which means Government has made the population register the basis for governance basis for governance. Population registers are on the other hand updated by civil registration and this link reinforces civil registration in the Netherlands. The establishments of the population register system of population counting through a Royal decree and regular responsive updates and amendments by civil registration illustrate government commitment in policy to establishment and development of civil registration. Netherlands government uses the population register network for provision of services and benefits in both public and private life and which make it obligatory for any one living in the Netherlands for long to seek registration. Civil registration has been noted as the main method of updating the population register to provide the require completeness of population register data

The legal mandate for population register based system of continuous population accounting has been instrument in the rapid transition of civil registration in the Netherlands starting with the Royal Decree of 1849. It is also been demonstrated that the population register law is dynamic and responsive to emerging needs as demonstrated by regular amendments to entrench organization and administration procedures and guidelines on collection and use of individual data .

Demographic data derived by civil registration is processed and disseminated within a schedule. The latter is facilitated by correction factors that have been developed to manage delayed reports and thus incompleteness of data

## **6.7 Recommendations**

This study has demonstrated that organisation of civil registration that is not founded on a legal framework and which is not integrated with a national statistical system impedes universal civil registration hampers utilization of civil registration records in production of adequate demographic data to inform policy and research . Lack of adequate human resource and technological data processing capacity hinders full utilization of the civil registration records for the production of accurate and timely demographic data.

At the same time the study has demonstrated that civil registration that is embedded to daily lives of the population by a structure that has; legal foundation, and which utilizes comparative advantages of various government agencies in a legally coordinated way is effective in delivering a complete, accurate and timely default demographic data source for administration, planning and research. Production of demographic data by civil registration

has also been shown to benefit from integration of civil registration system with the national statistical system of a country.

Government commitment in policy and practical strategies to ensure civil registration method realizes comprehensive accurate and timely data is required. In this regard it has emerged that the legal framework on civil registration must be comprehensive and responsive to the needs of the population with roles, responsibilities at individual and agency level clearly defined. The structure of civil registration should reflect the interagency collaboration and legal obligations. While the legal framework and organisation structure lay the foundation, it is the stringent administration of civil registration data method that ensures continuous sustainable improvements in production of demographic data by this method. Enforcement of the law and establishment of incentives targeting individuals and agencies reinforce compliance with the law at all levels and contributes to universal civil registration and comprehensive demographic data outcome.

The other recommendation is that it is important that the population feel safe while giving their personal information to the government by an assurance that the government or any other invading authority will not use the information against law abiding individuals.

The study has also revealed a need for competencies in processing and analysis of data derived from civil registration and also to disseminate the data in a user friendly manner. This reinforces findings from previous studies on improvement of civil registration in developing countries.

It has also been demonstrated that production of demographic data by civil registration should incorporate editing, evaluation procedures and a strict schedule for publishing data to sustain desired quality of demographic data output.

The critical role of effective administration of civil registration has emerged strongly in this study, reinforcing previous observations that commitment to long term improvement in civil registration requires governments demonstrate commitment in policy to embed civil registration to national well being, economic and social progress.

The findings of this study indicate the importance of further research to develop a universal model of improvement of civil registration data method that emphasis utilization of comparative advantage of varied government agencies.

## 6.8 Discussion

Studies in production of demographic data by civil registration are hampered by the limited published reports on country experiences. Published reports on civil registration are based on self report by countries and this may reflect an emic perception of those making the reports about data derived by civil registration. For instance countries in Europe consider their civil registration adequate while countries in Africa consider their civil registration as incomplete. No external evaluation has been made on the completeness of civil registration in countries Netherlands uses analytical methods to complement for delays in reports which would otherwise lender published data incomplete. There is always a review of published reports to accommodate data that is reported rate. Self reported progress on data derived by civil registration is an input of United Nations recommendations on vital statistics (2001).

For this study Kenya data is derived from published and unpublished reports on civil registration. This requires insiders with access and understanding of civil registration and demographic data in Kenya but also invites vulnerability to subjective view.

Data for study on the Netherlands is derived from literature by CBS personnel and in depth discussions with personnel of this same agency and the findings are made within this context of study. The reports are authored by staff of CBS Netherlands and meant for internal use. The in-depth interviews are carried out with personnel of CBS and this has enriched understanding of the location of civil registration in generation of demographic data from

municipal population register, which may not be obtained in published works. Although careful planning of in-depth interviews were done, it is difficult to rule out subjectivity in the final findings.

In-depth interviews requests were made stating that the aim of the study was to compare civil registration in the Netherlands with civil registration in Kenya and the findings of this study are made in that context.

In this study there is detailed literature content analysis of published literature and references of unpublished internal government documents which though available in the government offices is not published and findings and conclusions in this study are made within this context.

An emic perspective of civil registration may be noted because of the background of the student doing the in civil registration data method although scientific procedures have been followed in the study.

Two important issues emerge from this study and which are not entirely new, first a need for a country to demonstrate commitment to improvement of civil registration through embedding civil registration data method to basic administration policy; second the need to publish data derived by civil registration regularly with definition of limitations must be emphasised as a way of tracking improvements in data. According to world health organisation 68 developing countries do not provide demographic data as required and majority of them are in Africa. In Africa, only South Africa is able to publish data derive by civil registration method. More studies are still needed to determine why despite holding massive legal civil registration records, utilization of these records for production of demographic data still lags behind.

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# Appendices

## Appendix 1 Form B1, Kenya

FORM B1

REPUBLIC OF KENYA  
THE BIRTHS AND DEATHS REGISTRATION ACT  
(Cap. 149)

ORIGINAL

**ACKNOWLEDGEMENT OF BIRTH NOTIFICATION (FOR PARENTS)**

Serial 0823803

1. NAME OF CHILD: \_\_\_\_\_  
First name                      Other name                      Father's (surname or tribal) name

2. DATE OF BIRTH: Day \_\_\_\_\_ month \_\_\_\_\_ year \_\_\_\_\_ 3. SEX: \* Male  Female

5. NATURE OF BIRTH: \* Born alive  Born dead  †

7. NAME OF MOTHER: \_\_\_\_\_  
First name                      Maiden name                      Father's (surname or tribal) name

I certify that the above information has been notified and recorded.

17. DATE \_\_\_\_\_ 18. REGISTRATION ASSISTANT FOR: \_\_\_\_\_ 19. NAME AND SIGNATURE \_\_\_\_\_  
Day month year                      (state sub-location or health institution)

† See Instruction III (b) on the cover.  
 Note.—To obtain a birth certificate, present this notification to the District Registrar of Births where this birth occurred.

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FORM B1

REPUBLIC OF KENYA  
THE BIRTHS AND DEATHS REGISTRATION ACT  
(Cap. 149)

ORIGINAL

**REGISTER OF BIRTH**

Serial 0823803

1. NAME: \_\_\_\_\_ 2. DATE OF BIRTH: \_\_\_\_\_  
First name                      Other name                      Father's (surname or tribal) name                      Day                      Month                      Year

3. SEX: \* <sup>1</sup> Male  <sup>2</sup> Female  4. TYPE OF BIRTH \* <sup>1</sup> Single  <sup>2</sup> Twin  Other, specify \_\_\_\_\_ 5. NATURE OF BIRTH \* <sup>1</sup> Born alive  <sup>2</sup> Born dead

6. PLACE OF BIRTH \_\_\_\_\_  
Sub-location or Estate and town or health institution                      /                      District

7. NAME \_\_\_\_\_ 8. AGE \_\_\_\_\_  
First name                      Maiden name                      Father's (surname or tribal) name

9. IS MOTHER MARRIED TO FATHER? \* Yes  No  10. RESIDENCE \_\_\_\_\_  
Sub-location or Estate and town                      District

11. PREVIOUS BIRTHS TO MOTHER: No. born alive \_\_\_\_\_ No. born dead \_\_\_\_\_

12. NAME \_\_\_\_\_  
First name                      Other name                      Father's (surname or tribal) name

13. NAME \_\_\_\_\_  
First name                      Other name                      Father's (surname or tribal) name

14. CAPACITY OF INFORMANT \* <sup>1</sup> Parent  <sup>2</sup> T.B.A. \*  <sup>3</sup> Midwife  <sup>4</sup> Medical Attendant  Other, specify \_\_\_\_\_ <sup>5</sup>

I certify that to the best of my knowledge the information given above is correct.

15. DATE \_\_\_\_\_ 16. SIGNATURE \_\_\_\_\_  
Day month year

17. DATE \_\_\_\_\_ 18. REGISTRATION ASSISTANT FOR: \_\_\_\_\_ 19. NAME AND SIGNATURE \_\_\_\_\_  
Day month year                      (state sub-location or health institution)

20. DISTRICT \_\_\_\_\_ 21. REGISTRATION NO. \_\_\_\_\_

22. DATE \_\_\_\_\_ 23. NAME \_\_\_\_\_ 24. SIGNATURE \_\_\_\_\_

\* Cross the appropriate box, thus (x).  
 † If mother is not married to father, do not insert the name of father.

FORM D1 REPUBLIC OF KENYA DUPLICATE  
 THE BIRTHS AND DEATHS REGISTRATION ACT  
 (Cap. 149)  
**PERMIT FOR BURIAL**

Serial **B** N<sup>o</sup> 420601 HOSPITAL No. \_\_\_\_\_

1. NAME OF DECEASED: \_\_\_\_\_  
First name                      Other name                      Father's or husband's\* (surname or tribal) name

2. SEX†: Male  Female  3. AGE: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_ 4. DATE OF DEATH: \_\_\_\_\_  
Years or Months or Days                      Day    month    year

6. USUAL RESIDENCE: \_\_\_\_\_ / \_\_\_\_\_  
Sub-location or Estate and town                      District

After making due inquiry as to cause of the death of the above-named deceased person, I hereby authorize the interment of the body.

14. DATE: \_\_\_\_\_ 15. REGISTRATION ASSISTANT FOR: \_\_\_\_\_ 16. SIGNATURE \_\_\_\_\_  
Day    month    year                      (state name of health institution)

PERMIT ISSUED TO (Name) \_\_\_\_\_ ID No. \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
 Note.—To obtain a death certificate, present this permit to the District Registrar of Deaths where this death occurred.

---

FORM D1 REPUBLIC OF KENYA DUPLICATE  
 THE BIRTHS AND DEATHS REGISTRATION ACT  
 (Cap. 149)  
**REGISTER OF DEATH**  
 (for use in Health Institutions and by Medical Practitioners)

Serial **B** N<sup>o</sup> 420601 HOSPITAL No. \_\_\_\_\_

1. NAME \_\_\_\_\_  
First name                      Other name                      Father's or husband's\* (surname or tribal) name

2. SEX†: Male  Female  3. AGE \_\_\_\_\_ 4. DATE OF DEATH \_\_\_\_\_  
Years or Months or Days                      Day    month    year

**DECEASED** 5. PLACE OF DEATH \_\_\_\_\_ / \_\_\_\_\_  
Sub-location or Estate and town or Health institution                      District

6. USUAL RESIDENCE: \_\_\_\_\_ / \_\_\_\_\_  
Sub-location or Estate and town                      District

7. OCCUPATION \_\_\_\_\_

**MEDICAL CERTIFICATION** 8. CAUSE OF DEATH:  
 IMMEDIATE CAUSE: Disease or condition directly leading to death (a) \_\_\_\_\_  
DUE TO  
 ANTECEDENT CAUSES: Morbid conditions, if any, which gave rise to the immediate cause (a) \_\_\_\_\_ (b) \_\_\_\_\_  
DUE TO  
 stating the underlying condition last (c) \_\_\_\_\_  
 OTHER SIGNIFICANT CONDITIONS: Contributing to the death but not related to (a) \_\_\_\_\_

9. CERTIFICATE: I certify that:  
 Tick as appropriate (a) I attended the deceased before death; or  
 (b) I examined the body after death; or  
 (c) I conducted a post-mortem examination of the body, and that the above information is correct to the best of my knowledge.

10. NAME \_\_\_\_\_ 11. TITLE \_\_\_\_\_  
 12. DATE \_\_\_\_\_ 13. SIGNATURE \_\_\_\_\_

**REGISTRATION ASSISTANT** 14. DATE \_\_\_\_\_ 15. REGISTRATION ASSISTANT FOR: \_\_\_\_\_ 16. SIGNATURE \_\_\_\_\_  
Day    month    year                      (state name of health institution)

**REGISTRAR** 17. DISTRICT \_\_\_\_\_ 18. REGISTRATION No. \_\_\_\_\_  
 19. DATE \_\_\_\_\_ 20. NAME \_\_\_\_\_ 21. SIGNATURE \_\_\_\_\_

\*If deceased was a married woman, husband's name could be put in brackets.

FORM D2  
**REPUBLIC OF KENYA**  
**THE BIRTHS AND DEATHS REGISTRATION ACT**  
 (Cap. 149)  
**ORIGINAL**

**B** Serial No. **019086** **PERMIT FOR BURIAL**

1. NAME OF DECEASED: First name \_\_\_\_\_ Other name \_\_\_\_\_ Father's or husband's\* (surname or tribal) name \_\_\_\_\_  
 2. SEX†: Male  Female  3. AGE \_\_\_\_/\_\_\_\_/\_\_\_\_ 4. DATE OF DEATH \_\_\_\_/\_\_\_\_/\_\_\_\_  
Years or Months or Days Day month year

5. USUAL RESIDENCE: \_\_\_\_\_  
Sub-location or Estate and Town District

After making due inquiry as to the cause of death of the above-named deceased person, I hereby authorize the interment of the body.  
 13. DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_ 14. REGISTRATION ASSISTANT FOR: \_\_\_\_\_ 15. NAME AND SIGNATURE \_\_\_\_\_  
Day month year (state sub-location)

PERMIT ISSUED TO (Name) \_\_\_\_\_ ID. No. \_\_\_\_\_ SIGNATURE \_\_\_\_\_  
 Note.—To obtain a death certificate, present this permit to the District Registrar of Deaths where this death occurred.

FORM D2  
**REPUBLIC OF KENYA**  
**THE BIRTHS AND DEATHS REGISTRATION ACT**  
 (Cap. 149)  
**ORIGINAL**

**B** No. **019086** **REGISTER OF DEATH**  
 Serial No. **019086**  
 (for use by Assistant Chief)

1. NAME \_\_\_\_\_  
First name Other name Father's or husband's\* (surname or tribal) name

2. SEX†: 1 Male  2 Female  3. AGE \_\_\_\_/\_\_\_\_/\_\_\_\_ 4. DATE OF DEATH \_\_\_\_/\_\_\_\_/\_\_\_\_  
Years or Months or Days Day month year

5. PLACE OF DEATH \_\_\_\_\_  
Sub-location or Estate and town District

6. USUAL RESIDENCE \_\_\_\_\_  
Sub-location or Estate and town District

7. OCCUPATION \_\_\_\_\_

8A. NATURAL CAUSES‡  
 Malaria  Anaemia  Cancer   
 Pneumonia  Jaundice  Urinary Obstruction   
 Measles  Childbirth/Pregnancy  AIDS   
 Tetanus  Sudden death  Other known cause, specify \_\_\_\_\_  
 T.B.  Alcoholism   
 Malnutrition  Asthma

I am satisfied after inquiry that the above-mentioned death is not one to which section 386 or 387 of the Criminal Procedure Act (Cap. 75) apply. An external examination of the body has/has not been made by a medical practitioner.

8B. UNNATURAL CAUSES‡  
 Accident‡  
 Poisoning  Motor Vehicle  Other known cause, specify \_\_\_\_\_  
 Attack by animal or snake  Drowning   
 Suicide  House fire

I certify that the provisions of Cap. 75 have been observed.  
 Name \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_  
(Police Officer or Magistrate)

9. Name \_\_\_\_\_  
First name Other name Father's or husband's (surname or tribal) name

10. CAPACITY OF INFORMANT‡  
 Relative  Village elder  Other, specify \_\_\_\_\_

11. DATE \_\_\_\_/\_\_\_\_/\_\_\_\_ 12. SIGNATURE \_\_\_\_\_  
Day month year

13. DATE \_\_\_\_/\_\_\_\_/\_\_\_\_ 14. REGISTRATION ASSISTANT FOR: \_\_\_\_\_ 15. NAME AND SIGNATURE \_\_\_\_\_  
Day month year (state sub-location)

16. DISTRICT \_\_\_\_\_ 17. REGISTRATION No. \_\_\_\_\_  
 18. DATE \_\_\_\_/\_\_\_\_/\_\_\_\_ 19. NAME \_\_\_\_\_ 20. SIGNATURE \_\_\_\_\_

\*If the deceased was a married woman, husband's name could be written.  
 †Delete inapplicable. ‡Cross the appropriate box thus (x).  
 GPK (L)

## Appendix 4

Computed expected births for three districts using regional age specific fertility rates as standard

Embu 2007				
age group	projected female popn	ASFR(National)	ASFR(Eastern)	births
10-14	21991	0.00193	0.00258771	57
15-19	19957	0.0987	0.1323352	2641
20-24	15278	0.1816	0.24348603	3720
25-29	12430	0.169	0.22659218	2817
30-34	9810	0.13179	0.17670168	1733
35-39	7931	0.0897	0.12026816	954
40-44	6306	0.03864	0.05180782	327
45-49	5144	0.00458	0.00614078	32
sum				12280

Meru 2007South				
age group	projected female popn	ASFR(National)	ASFR(Eastern)	births
10-14	15669	0.00193	0.00258771	41
15-19	14219	0.0987	0.1323352	1882
20-24	10886	0.1816	0.24348603	2651
25-29	8857	0.169	0.22659218	2007
30-34	6990	0.13179	0.17670168	1235
35-39	5651	0.0897	0.12026816	680
40-44	4493	0.03864	0.05180782	233
45-49	3665	0.00458	0.00614078	23
sum				8750

Mbeere 2007				
age group	projected female popn	ASFR(National)	ASFR(Eastern)	births
10-14	14566	0.00193	0.00258771	38
15-19	13219	0.0987	0.1323352	1749
20-24	10120	0.1816	0.24348603	2464
25-29	8234	0.169	0.22659218	1866
30-34	6498	0.13179	0.17670168	1148
35-39	5254	0.0897	0.12026816	632
40-44	4177	0.03864	0.05180782	216
45-49	3408	0.00458	0.00614078	21
sum				8134

Appendix 5

Computed expected deaths for three districts of eastern Kenya using national age specific death rate as standard and registered deaths 2007

	ASDR/1000	popn Embu		popn Mbeere		Meru South	
age group	Standard (national ASDR)	total	expected deaths	total	expected deaths	total	expected deaths
a)	Mi	Ni(ebu)	Mi*Ni(ebu)		Mi*Ni(Mbe)		Mi*Ni(MS)
0-4	27.1	36135	979	23228	629	25333	687
5-9	5.1	41547	212	26703	136	29125	149
10-14	2.45	45223	111	29065	71	31702	78
15-19	3.2	40220	129	25865	83	28203	90
20-24	6.5	28712	187	18504	120	20157	131
25-29	12.8	22834	292	14727	189	16037	205
30-34	18.5	18299	339	11796	218	12849	238
35-39	23.7	14929	354	9622	228	10481	248
40-44	24.6	12197	300	7854	193	8559	211
45-49	20.9	9971	208	6420	134	6996	146
50-54	21.6	8017	173	5166	112	5628	122
54-59	26.8	6322	169	4074	109	4438	119
60-64	31.8	4409	140	2840	90	3094	98
65-69	41.3	3677	152	2369	98	2581	107
70-74	59.2	3359	199	2166	128	2359	140
75-79	87.3	3456	302	2232	195	2429	212
80+	143.8	5493	790	3540	509	3856	554
TOTAL			5035		3243		3534

Municipality reporting .....

(Municipality in which the report of birth is made)

Certificate number .....

(Under which the child is entered in the register of births in the municipality)

Legitimate birth or illegitimate birth

Marital status of the mother .....

Day month and year of report .....

Day month and year of birth .....

Religious denomination of the child .....

Nationality of the child .....

Municipality in which the child is entered in the population register..... (If the child born belongs to the population of another country the name of the country should be mentioned)

Obstetrical assistance

The medical practitioner:

(Name and Christian name)

.....

\*Was present at delivery

\*Attended after delivery and furnished assistance

The mid wife:

(Name and Christian name)

.....

\*Was present at delivery

\*Attended after delivery and furnished assistance

\*Delivery occurred without qualified obstetrical assistance (in this case the reason for the absence of such assistance should be briefly stated)

Name of hospital or clinic .....

The child is

\*A single birth

\*One of multiple births consisting of .....boys and ....girls reported as live births (see certificate(s), no(s).....\*

Number of children ,reported as live births or as dead, born from the mother before the birth of the child now reported .....

Number of children ,reported as live births or as dead, born during the present marriage before the birth of the child now reported .....

Day month and year of the birth of the previous live born child from the present marriage ... ..

Day month and year on which the present marriage has been contracted ... ..

Information about

Father

Mother

Municipality where entered in the population register

Municipality of birth

Day month and year of birth

Religious denomination

Occupation

Occupation status

Employer

employee

Employer

employee

Adapted from Brekel 1977(ANNEX 5: Enumeration card for a live birth)

\* Strike out if not applicable

Appendix5.

Form C3 (male infant)

English translation of Enumeration card for an infant reported as dead: Netherlands

Form C4 (female infant)

- Aa . Municipality reporting .....
- Ab. Certificate number .....
- (Under which the infant is entered in the register of death of the municipality)
- Ac. Legitimate birth or illegitimate birth
- Marital status of the mother
- Ad. Day month and year of report .....
- Ae. Day month and year of birth .....
- Ca. Municipality in which the mother is entered in the population register.....
- Ai. Obstetrical assistance
- The medical practitioner:
- (Name and Christian name) \*Was present at delivery
- ..... \*Attended after delivery and furnished assistance
- b. The mid wife: \*Was present at delivery
- (Name and Christian name) \*Attended after delivery and furnished assistance
- .....
- \*Delivery occurred without qualified obstetrical assistance (in this case the reason for the absence of such assistance should be briefly stated)
- Aj. Name of hospital or clinic .....
- Cb. The infant is
- \*Still born
- \*Born alive
- Ak. The infant is
- \*A single birth
- \*One of multiple births consisting of .....boys and ....girls reported as live births (see certificate(s), no(s).....)
- Al. Number of children ,reported as live births or as dead, born from the mother before the birth of the child now reported .....
- Am. Number of children ,reported as live births or as dead, born during the present marriage before the birth of the child now reported .....
- An. Day month and year of the birth of the previous live born child from the present marriage ... ..
- Ao. Day, month and year on which the present marriage has been contracted ... ..

Information about

Father

Mother

Ap. Municipality where entered in the population register

Aq. Municipality of birth

Ar. Day month and year of birth

As. Religious denomination

At. Occupation

Au. Occupation status

\*Employer

\*Employer

\*employee

\*employee

Adapted from Brekel 1977(ANNEX 6: Enumeration card for an infant reported as dead)

Appendix 6

C2. Enumeration card for a person who has died in the municipality and for whom no personal card has been received at the time when the notification of death is forwarded or for whom no personal card exists: Netherlands

Sex .....male/female  
Municipality of death .....  
Certificate number .....  
Day month and year of birth .....  
Day month and year of death .....  
Municipality of residence .....

Adapted from Brekel 1977(ANNEX 7): Enumeration card for who has died in the municipality and for whom no personal card has been received at the time when the notification of death is forwarded or for whom no personal card exists.

## Appendix 7

Confidential death certificate by virtue of articles 5 and 6 of the act of 1<sup>st</sup> June 1865, statute book 60: Netherlands

Intended for the medical officer for the central bureau of statistics, The Hague

Municipality of death	.....
Place of death	* in /not in hospital (including sanatorium ,lunatic asylum etc)
Post mortal examination	Autopsy : taken place /will follow/will not take place In order to verify the diagnosis no/the following other examinations are or have been made (e.g. materials operations, histological of bacteriological examination, grow test).....
Deceased	
Sex	*Male /female
Age	Under 7 days Born on .....at ..... (Date ) (time) Died on .....at ..... (Date) (time) Pregnancy duration ..... (weeks) Birth weight ..... (grams) Length of foetus ..... (centimetres) 7 days -2 months: ..... (days ) 2 months to 1 year: ..... (Months) 1 Year and over: ..... (Years )
Number of children born of the deceased woman	* .....Live born children .....still born children

Appendix 7 continued ...  
Approximate interval  
between beginning of the  
disease and death

. Natural death

a. decease ,directly leading to death

and c . disease which has led to the cause of death stated under a(in case of more diseases , state the underlying cause last

1a.....  
as a consequence of /due to  
1b .....  
As a consequence of /due to  
1c.....

secondary disease and other particular still existing at death and contributing to the death but not related to the

2.

disease named under 1a-1c

Violent death (for natural and still born resp. see D,F

Cause

way in which and circumstances under which resp. the violent death happened of the lethal injury was caused

<sup>2</sup> Suicide /manslaughter accident

.....(e.g. rider of a motor cycle hit by automobile , fall from stairs , thrown overboard by collision ; electric shock during vacuum cleaning ,during digging struck by falling earth ,etc )

Nature of the injury

in case of accident ,place of occurrence

.....(e.g. fracture of base skull, crushed chest ,etc )

.....(e.g. at home ,in industrial place , on street , on board , on land , on the beach ,etc

Still born

(For natural death and violent death see D.E. resp)

Sex

\* male / female

Duration of Pregnancy

.....( weeks)

Cause of death

.....

Complication during pregnancy and delivery

.....

Definition of still born : By still born is understood a product of conception having shown no symptoms of life (respiration , heart –action , muscular –contraction ) after the expulsion.

Remarks ( Mention here any particulars not yet given under D, such as localisation and nature of tumours (benign and malignant resp.), indication for operation, etc and other explanations ,necessary or valuable for the classification of the cause of death in accordance with the international list

(translation in Dutch as forwarded to you by the chief medical office )

NB. If this confidential death certificate has been issued by the municipality coroner , mention the name of the medical attendant

Name of the physician: .....

Certifying in the function of: .....

\*Medical attendant

\* Municipal coroner

Name .....

Physician designated by the officer of the Court Of Justices

Place of settlement: .....

Appendix

7

continued...

Explanation

To D, When completing the form state in those cases of natural death, where there is more than one cause of death, under 1a the disease having directly led to death and under 1b and 1c the disease which have led to the cause of death mentioned under 1a, stating at the end (under 1c) the primary cause of which the subsequent course of the disease was the result (see examples).

Avoid using insignificant terms, which merely give an indication as to symptoms (e.g. cardiac asthma, cardiac insufficiency, uraemia, paralysis etc) but always give accurate and complete description (see example 4). See also G. Remarks

Example 1

- a. pulmonary embolism
- b. operation for pancreatitis

Example 2

- 1. Bronchopneumonia  
chronic myocarditis  
Influenza

Myocardial degeneration

2.Chronic rheumatoid arthritis

Example 3

- 1. Volvulus

Example 4

- 1. a Uraemia

---

<sup>2</sup> Strike if not applicable

Chronic constipation  
Congenital mega colon  
2. Stone in Kidney

Retention of Urine  
Hyperplasia of prostate  
2. Diabetes mellitus

## Appendix 8

### In-Depth Interview guides

Compilation: statistics Netherlands (receipt and processing of data

Control of receipt of statistical reports

Editing and action on errors, omissions and inconsistencies

Presentation of data

### **Analysis**

Estimating geographical and population coverage

Estimating level of accuracy

Dealing with delayed registration

Dealing with confidentiality requirements

What makes this statistical process work well?

Challenges in production of data by civil registration and way out?

### **Dissemination**

Timelines of dissemination

Format of data dissemination

Challenges and way out?

## **Management of population statistics**

### **Interviews at statistics Netherlands**

Description of the relationship between the legal and statistical function of population register the role of statistics Netherlands

Duties and responsibilities of agencies

Communication and coordination of key agencies

Data Quality control mechanisms to ensure completeness, accuracy and timeliness

Availability of data to other users

- 1 Overall government support and commitment
- 2 Challenges of management and operation of population register

Appendix 9: Letter of request for in-depth interviews at statistics Netherlands  
Mr. Joop Garssen  
Re: Request for in-depth interview on civil registration in Netherlands

Dear Sir,

My name is Nancy Wanjiku Kariuki. I work for the Kenya Civil Service in the Ministry of Migration and Registration of Persons, in the Department of Civil Registration. Currently I am enrolled as a student of the Master in Population Studies at the University of Groningen. In my master thesis, I have elected to do a comparative analysis of civil registration method of demographic data production between the Netherlands and Kenya. In this master thesis, Professor Leo Van Wissen and Dr. Fanny Janssen are my supervisors and they have suggested you as a valuable contact for my data collection. I am interested in a deeper understanding of collection, compilation and analysis of births, deaths and migration data.

The government of Kenya has developed a policy proposal that seeks to realize an effective affordable and sustainable civil registration that will fulfill both legal and demographic purpose. Nudged by these ongoing efforts, I have chosen to base my master thesis on what an effective affordable civil registration method should be like. In my comparative study, I wish to;

1. Illustrate the prevailing state of civil registration in Kenya and the Netherlands ,
2. Explain the background and immediate factors that are associated with the prevailing state of civil registration
3. Draw out theoretically and practically founded suggestions towards an affective, affordable and sustainable civil registration method.

This study will use data from existing literature on civil registration from both Kenya and the Netherlands. To get a deeper understanding of the structure of civil registration in the Netherlands I wish to hold in-depth interviews with key knowledgeable persons involved in its operations and management (both at Statistics Netherlands and at the Municipality of Groningen). Specifically I wish to obtain from the interview;

1. Enforcement of the legal framework of civil registration and ensuring universal compliance.
2. How the relationship among the key agencies is sustained
3. Management of the effect of delayed registration on data output.
4. How to sustain completeness, accuracy and timeliness while maintaining confidentiality of individual records.
5. I also wish to use some data on births, deaths and migration for 2004, and, using the local criteria, to test for completeness, accuracy, timeliness and availability.

According to my data collection plan, I would hope to do the interviews and descriptive statistics at Statistics Netherlands from 10<sup>th</sup> to 13<sup>th</sup> June 2008. Would that fit you?

Please find attached specific areas of Births, deaths and migration data that are of interest to my study  
Nancy W.Kariuki