CENTRALIZED BIRTH REGISTRATION AND CITIZEN INFORMATION SYSTEM - A STUDY OF KADUNA NORTH LOCAL GOVERNMENT

Hayatu M.[1], Mu'azu A.A.[2], Mohammed Ibrahim[3], Musa Abdullahi[4]

[1, 2, 3, 4]Department of Computer Science, Kaduna State University, Kaduna, Nigeria.

Authors Email Addresses: murtala.hayatu@kasu.edu.ng [1], abubakarmuaz11@gmail.com [2], mohammed.ibrahim@kasu.edu.ng [3], muabdullahi2010@gmail.com [4]

ABSTRACT
Birth registration is a fundamental step towards good governance and a vital element in the fostering of democratic processes. Not only does the process of registration allow effective administration and bring children to the notice of decision-makers, it is the official and positive recognition of a new member of society, who is entitled to all the rights and responsibilities of a valued citizen. The present method of processing and issuance of birth certificate has over the years in Kaduna North local government(LG) and medical centers been associated with certain weakness which may include wrong entry of child's data, misplacement of entries record, time wastage and also open door for people to forge certificate and claim to be members of another society. However, with the emergence of digital identity as the preferred method of providing citizens with access to officially-recognized identification, this study will exploits the functionality of computer system, software applications and the internet technology to proposed a system for centralizing, capturing of child data, processing, securing as well as speeding-up the issuance of birth certificate in Kaduna North (LG). Consequently, the proposed system provides an accurate digital platform for entering and saving of child's data in a secure database as well as the timely issuance of birth certificate.

Keywords: Birth, Death, Registration, Status

INTRODUCTION
To guarantee every child a fundamental right, United Nations Convention on the Rights of the Child as well as the number of international treaties required every child to have a name and right for nationality at birth (Kabadi et al., 2013). The child who is not registered at birth is in danger of being shut out of society, denied the right to an official identity, a recognized name and a nationality. In 2000, an estimated 50 million babies more than two fifths of those born were unregistered. These children have no birth certificate, the 'membership card' for society that should open the door to the enjoyment of a whole range of other rights including education and health care, participation and protection (Marta, 2002).

This work examines the situation of children who are denied a fundamental human right and who, in legal terms, do not exist. With no document to prove how old they are or even who they are, they are likely to join the millions facing discrimination and the lack of access to basic services such as health and education. Without proof of age and identity, they may lack the most basic protection against abuse and exploitation. An unregistered child will be more attractive 'commodity' to a child trafficker and does not have even the minimal protection that a birth certificate provides against early marriage, child labor or detention and prosecution as an adult. In later life, the unregistered child may be unable to apply for a passport or formal job, stand for elective office or vote. The 'invisibility' of unregistered children makes it more likely that the discrimination, neglect and abuse they experience will remain unnoticed.

In today's world, with massive population movements, organized child trafficking and illegal adoption networks, and increased targeting of civilians in warfare, birth registration is more essential than ever.

But the importance of registration or the lack of it, goes beyond the individual. Without strong civil registration systems, it is virtually impossible to plan or implement effective development strategies. Unregistered children who do not show up in the data are often overlooked in social development planning. They are completely invisible when important policy and budget decisions are made, without proper birth registration, a country cannot even be certain of its own birth or death rate (Marta, 2002).

However, despite the need for strong civil registration, in many countries the Civil Registration and Vital Statistics (CRVS) process is fragmented and decentralized, making it difficult to standardize registration forms and procedures or to foster coordination among registrar offices and other government ministries (Kabadi et al., 2013). Therefore, the effect of the decentralization process of birth registration need to be addressed in a bottom-up approach, starting from the local government authorities to the government at the centre. Hence, this study will focus on the centralization of birth registration in Kaduna North Local Government Area by exploiting the capabilities of computers, software as well as internet technology to develop a centralized database system for the registration and distribution of birth certificate.

MATERIALS AND METHODS

Preliminaries
There are many reasons why births remain unregistered, including: Social and cultural beliefs and attitudes, Remote areas, Economic barriers, Poor infrastructure, Alternative documents and naming ceremonies, Lack of office staff, Equipment and training, Legal and political restrictions, War, Fear of discrimination and persecution, Conflict and unrest or simply the fact that there is no system in place.

Centralized Birth Registration and Citizen Information System - A Study of Kaduna North Local Government

Retrospective registration may be necessary where there is a backlog of children whose births have gone unregistered. In Nigeria, the Government gave the right to hospital and Local government to register the birth certificate. In Senegal, the government is facilitating retrospective registration through free local court hearings and the number of unregistered children has fallen considerably as a result. In Sierra Leone, the government gave the National Office of Births and Deaths special permission to issue birth certificates to children overseen. In Bolivia, there was a successful three-year amnesty for the free registration of 8 young people aged between 12 and 18. Statelessness, or lack of effective nationality, impacts the daily lives of some 11-12 million people around the world. Perhaps those who suffer most are stateless infants, children, and youth. Though born and raised in their parents' country of habitual residence, they lack formal recognition of their existence.

Birth Registration Process
In every country, civil registration provides the demographic data used by governments to track the size, differentials and trends of their population (Oliha, et al,.2019). Although the registration of births in Nigeria is compulsory, only small proportions are actually registered, several sources consulted by the Research Directorate indicate that the national average for birth registration stands at about 30 percent. Low registration rates in Nigeria have been attributed to a number of factors, including lack of awareness of current legislation and of the importance of birth registration, limited number of registration centers, limited financial resources and a lack of effective registration infrastructures since 1992, the National Population Commission (NPC) has been responsible for the registration of births in Nigeria (Nigeria 29 July 2008). If an individual is not born in a hospital (e.g., is born in a house), then there will not be anyone present to register them with the NPC; however, the parent can obtain a sworn affidavit from their local government; stating that the child was born in that local government area (ibid.). The sworn affidavit can then be taken to the NPC, which will register the child and issue a birth certificate (ibid). According to the official, in Nigeria, certain hospitals, and local governments may issue birth certificates; however, these certificates must be taken to the NPC for registration (ibid.). Individuals born before 1992 may also obtain an NPC birth certificate (ibid.). When registering with the NPC, these individuals must present a sworn affidavit from their local government and must undergo an interview (ibid.). Therefore, birth certificates issued by the NPC that indicate that an individual was born before 1992 are valid (ibid.).
The NPC reportedly issues a standard birth certificate (ibid.). The official could not provide specific details about the format of the birth certificates during the telephone interview; however, he said that the birth certificate includes "standard" information, such as the individual's name, place of birth and date of birth (ibid.).
The website of the NPC indicates that birth registration is free and that children should be registered with them within the first sixty days of birth (Nigerian). Upon registration, the parents may be asked for the following information: Child's name, Date of birth, Place, Type of birth, Birth order, Ethnicity, Place of residence and Parent's name. According to the website, there are several locations at which birth registration takes place including Local Government Areas.

Birth Certificate in Cases of Adoptions
In the United State and Canada, when a person is legally adopted, the government will seal the original birth certificate, and will issue a replacement birth certificate noting the information of the adoptive parents, and the adoptive names of the child, in those cases, adopted individuals are not granted access to their own original birth certificates upon request. Laws vary depending on state or province. Some places allow adopted people unrestricted access to their own original certificates, where as in others the certificate is available only if the biological parents have given their permission. Other places do not allow adopted people access to their own original birth certificates under any circumstances.

System Development
To develop a new system, there is need for the study of the existing system to analyze its weaknesses and develop new system to strengthen its gaps.

Analysis of the Existing System
The existing system is totally manual, since for every issuance, the issuance organization will get a copy of birth certificate and the detail of the child will be entered with pen. A copy of the certificate is given to the parents of a child while the registrar's office has their own copy for save-keeping in an archive. One person can have a number of different birth certificates due to the lack of central system, and can easily change his/her local government indigent or age for selfish reasons. Also, when a need arises to make a reference to a particular record, the whole files have to be searched serially. This will take a very long time, and most of the time, the file might get damaged or completely lost. Invariable, there is a lot of data misplacement and losses encountered in the existing system.

Proposed System Design
Sommerville (2008) explain system analysis as the process of defining the architecture, components or activities, modules, interfaces and data for a system to certify the specified requirement on the system. Also, system analysis can be considered as the collection of various components to work together for the accomplishment of a task. In this regard, the system can be designed to simplify the process of keeping personal's records as well as to ensure an authenticated, efficient and accurate computation of birth certificates. To achieve this, the following steps must be accomplished.

● **Use Case**
Unified Modeling Language (UML) use case diagrams are used to describe the main processes and functionality of the centralized birth registration System. The purpose of having use case diagram is to identify the scope of the system.
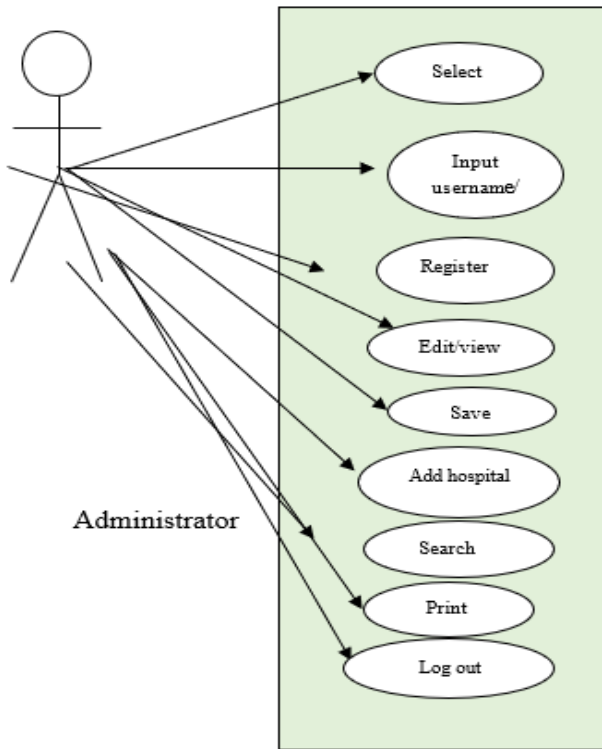
Centralized Birth Registration and Citizen Information System – A Study of Kaduna North Local Government

Figure 1: A use case diagram for the whole system

From the Figure 1, the system will comprise the Administrator that interact the system interface. In the system interface enable the administrator to select services, input username, register users, Edit/View, save, add hospital, search, print and logout from the service.

● **Activity Diagram of the Proposed System**
Activity diagrams describe the workflow behavior of a system. Activity diagrams are similar to state diagrams because activities are the state of doing something (Donald, 2013). The diagrams describe the state of activities by showing the sequence of activities performed.

System Specification
System specification comprises of the following:
a. Input specification
b. Output specification
c. Software and hardware specification

Thus, it comprises of the input layout, screens layout and dialogue design and output documents (reports).

Input Specification
This comprises the description of the input data items and their component; i.e. record layout. And all these data items or field are the input data to be process by the computer; which are:
 • Certificate relation
 • Place of birth and death relation

 • Parentage relation
 • Registration relation
 • Local government ward relation

Output Specification
This comprises of all the screens such as reports on registered of the birth certificate, all other related output screens, and printed paper for the personal document for the reference of the date of birth.

Database of the Proposed System
Database design is the process of producing a detailed data model of a database. This logical data model contains all the logical and physical design choices and physical storage components needed to generate a design in the data definition language which can be used to create a database. However, the term database design could be used to apply to overall process of designing not just the structure of the database but the forms and queries used as part of the overall database application within the database management system (DBMS) (Elmasri & Navathe 2006). The DBMS is used by this system and is a popular free access MYSQL as it can be seen from the installation of WAMP (Window Apache MYSQL and PHP).

● **Entity Relation Diagram**
The ER diagram is a semantic data modeling tool that is used to accomplish the goal abstractly describing or portraying data. Abstractly described data is called a conceptual model. The ER diagram models data as entity and relationships, and entities have attributes. The ER diagram is shown in Figure 2 below;
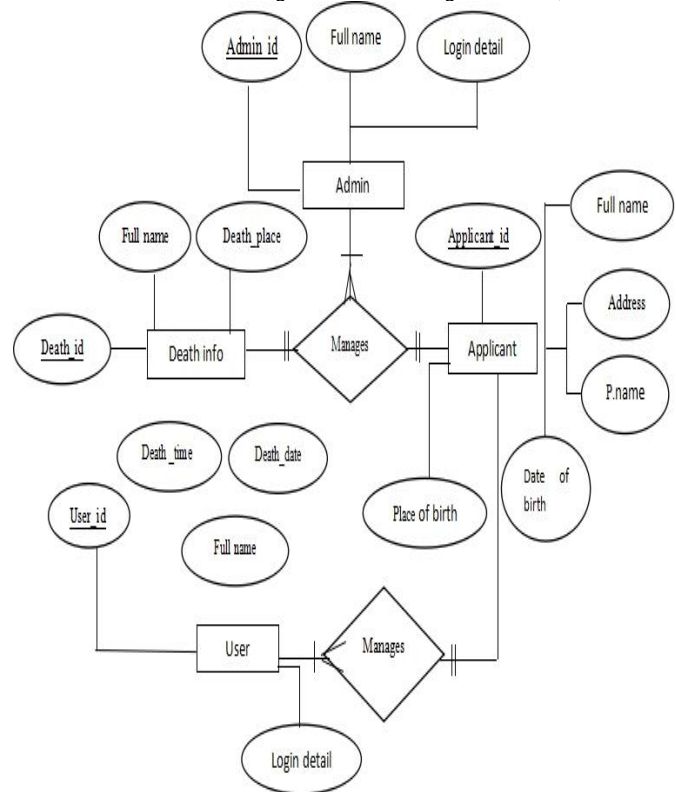

Figure 2: ER Diagram

Centralized Birth Registration and Citizen Information System - A Study of Kaduna North Local Government

- **Data definition table**

The data definition table is a table in which information of the database management system is contained. The database comprises of four (4) tables which are; birth information, death information, administration information and user information.

RESULT

The result of the study can be visualize through system implementation and analysis of the interface.

System Implementation

Generally, the implementation of a system refers to the transformation of the system specification designed, from the originally obtained requirement into program codes. The implementation of this system involved the writing of programs using PHP and MYSQL database.

The system was designed and programmed to validate input and to handle errors, appropriate error messages are prompted screen shots as part of implementation will be shown.

User Characteristics And Maintenance

Users should be able to operate a computer. Users should be familiar with navigating a Web browser like Internet Explorer, Firefox etc. Users should be familiar with general process of birth registration. The management should provide a tight security to this package from viruses, warms, Trojan-horse and other physical hazards by lunching a powerful and latest anti viruses and hardware security.

Features of the System

- **Home page**

This provide description of the system, link to LOGIN (i.e. administrator and users) to access it as shown in Figure 3.
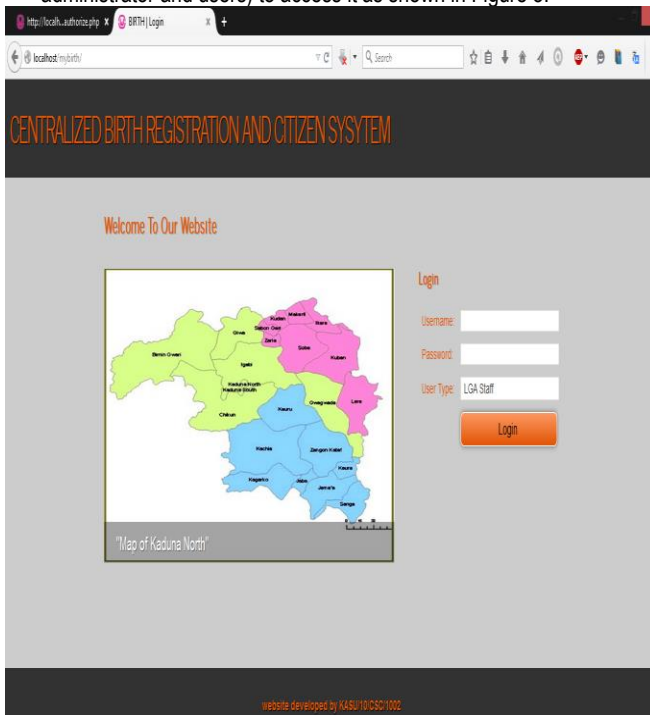

Figure 3: System login page.

- **Birth Registration Page**

The registration page contains a form where the admin or the user will use to add and register a new birth into the database. The form can be used to add personal information record directly by filling in the fields in the form of the Figure 4.
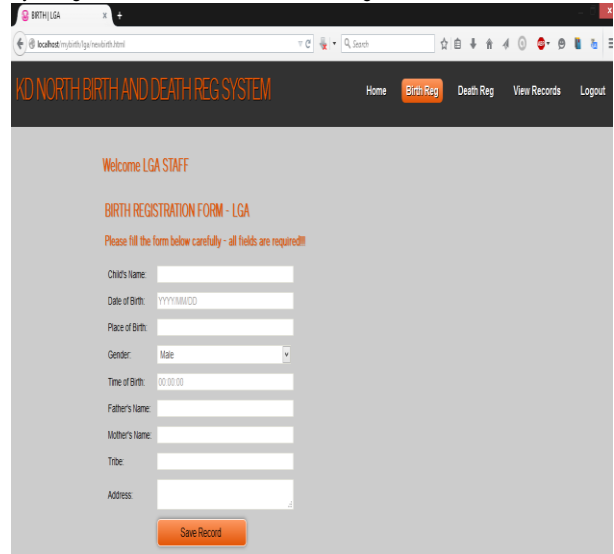

Figure 4: Birth registration page.

- **Death Registration Page**

The registration page contains a form where the admin will use to add and register death details into the database. The form can be used to add personal information record directly by filling in the fields in the form of Figure 5 below.
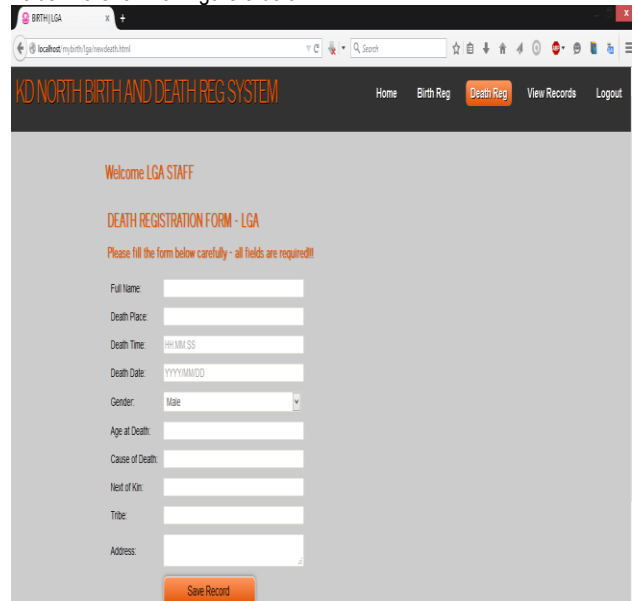

Figure 5: death registration page.

- **View records Page**

By completing the registration stage and saving the records, the admin will view the record before printing it as shown in Figure 6 below.
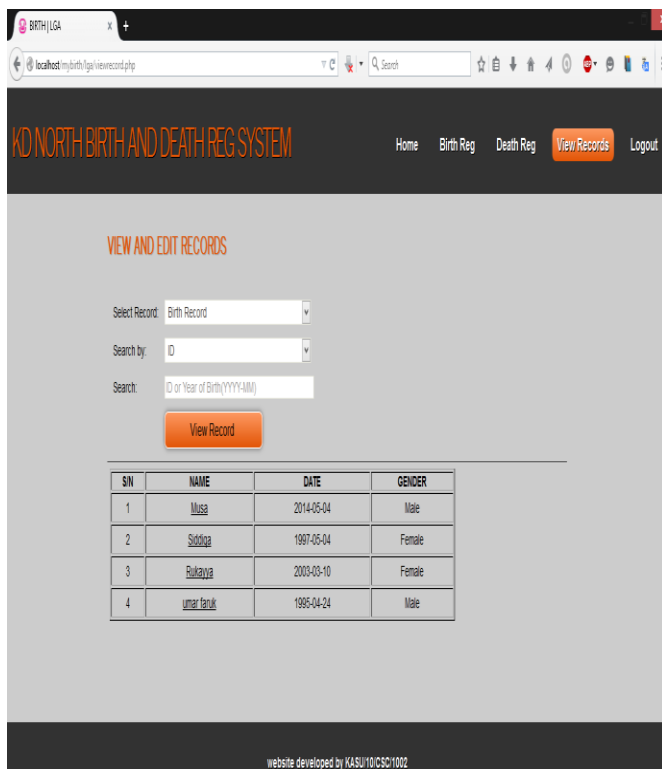
Centralized Birth Registration and Citizen Information System - A Study of Kaduna North Local Government

Figure 6: view records page

● **Birth Certificate**

This step enable the user or administrator to print the birth certificate from the record saved in the system database. Details information about the registered person can be print on the paper as birth certificate in the form of Figure 7.
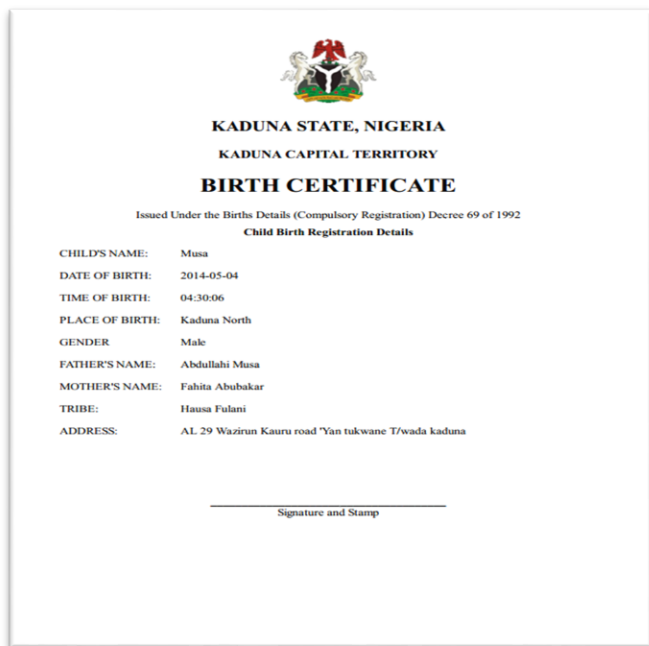

Figure 7: Birth Certificate

● **Death Certificate**

This is the actual death certificate that the admin can generate from the form that has been filled which include all the necessary information of the person's death registered that can be print on the paper as birth certificate.
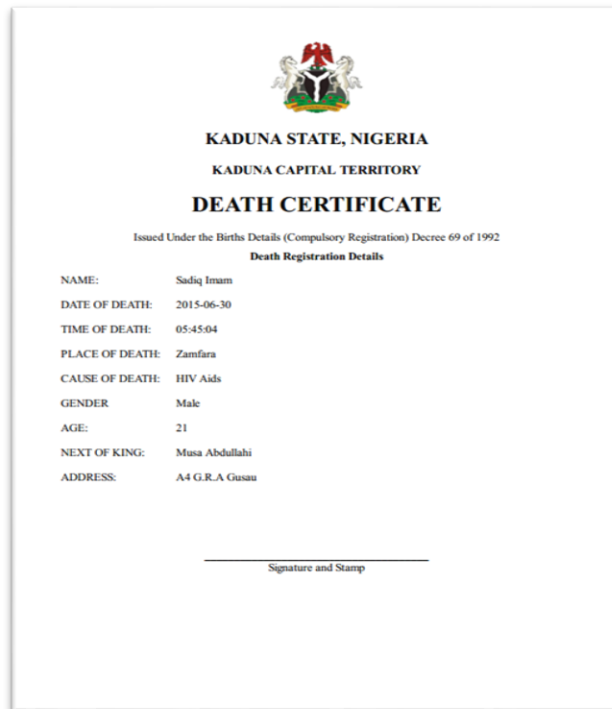

Figure 8: Death Certificate

Conclusion

The proposed system undoubtedly had a direct significance to the research under study, by centralizing the birth registration into a database system. This system will surely lead to grade improvement of the birth registration activities of Kaduna North Local Government of Kaduna State. Indeed, most of the problems normally encountered with old method of birth and death registration are now solved with the new centralized system. Thus, the versatility of computer is portrayed, with this package; which allows its capability to handle both database and interface activities together and very efficiently.

REFERENCES

Cf. Mercer, John, (2009). The Birth Record/Certificate Is Commonly Known to be The Foundation Of (and the 'breeder document') For All Identity Documents.

Craig Grannell, (2007). The Essential Guide to CSS and HTML Web Design, United State of America 987654321: Mac World,pc Advisor Publishers.

Donald B. 2003 UML Basics, Part II: Activity Diagram. Accessed online at http://www.ibm.com/developerworks/rational/library/content/RationalEdge/sep03/f_umlbasics_db.pdf

Elmasri and B. Navathe (2006). Fundamentals of Database system, 5th Edition, Pearson Education, Inc Publisher.

Immigration and Refugee Board of Canada. Nigeria: Birth

Centralized Birth Registration and Citizen Information System - A Study of Kaduna North Local Government

Registration Process. Available from: www.unhcr.org/refworld/docid/48d22377d.html. [Last accessed on 2010 February 20].

JamesJ.Huges http://www.changesurfer.com/Hlth/homebirth.htmt (accessed 15 July 2011).

Jennifer Niederst Robbins, (2007). Learning Web Design, Third Edition, United State of American O'Reilly Media, Inc, 1005 Gravenstein Highway North, Sebastopol, CA 95472 Publishers.

Kabadi, G., Mwanyika, H., and Savigny, D. d. (2013). Innovations in monitoring vital events: mobile572phone sms support to improve coverage of birth and death registration: a scalable solution.

Marta (2002) Director, UNICEF Innocenti Research Centre "Birth Registration, Right from the Start" Innocenti Digest, No.9, Italy.

Ralston, et al (2000) Encyclopedia of computer Science 4th Ed, Nature Publishing Group

Matern J. (2009) Sep: 13 (5):660-6. Reviewing performance of birth certificate and hospital discharge data to identify births complicated by maternal diabetes, maternal and child health. Journal, PubMed result.

Plan (2005) Universal Birth Registration – A Universal Responsibility, United Kingdom.

Plan Philippines (1999) The Unregistered Children Project, Philippines.

Radda Barnen (1999) 'Survey on Assessing the Potentials of Idirs to handle a Vital Registration System' in Addis Ababa- An Action Research Conducted to find Alternatives for the Age Determination of Young Offenders Being Done by Hospitals.

Sommerville (2008) Software Engineering, 8th Ed. Published by Pearson Education Limited Singapore

UNICEF, (2005). The 'rights' start to life. A statistical analysis of birth registration, New York, United Nations Children's Fund.

F. O. Oliha, E. P. Ebietomere and G. O. Ekuobase (2019). An Electronic Birth Record Management System for Nigeria, Nigerian Journal of Technology (NIJOTECH) Vol. 38, No. 3, pp. 763 – 768.