ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

ASSESSMENT OF THE ENVIRONMENTAL FOUNDATION FOR COMMUNITY HEALTH WORKERS PROJECT IN RWANDA

BY

TUYISENGE MARIE LOUISE

JUNE, 2019

ADDIS ABABA, ETHIOPIA

ASSESSMENT OF THE ENVIRONMENTAL FOUNDATION FOR COMMUNITY HEALTH WORKERS PROJECT IN RWANDA

BY

TUYISENGE MARIE LOUISE

ID NO: SGS/O418/2010A

A THESIS SUBMITED TO ST.MARY'S UNIVERISTY, SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION IN PROJECT MANAGEMENT

JUNE, 2019

ADDIS ABABA, ETHIOPIA

ST.MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

FACULTY OF BUSINESS

ASSESSMENTOF THE ENVIRONMENTAL FOUNDATION FOR COMMUNITY HEALTH WORKERS PROJECT IN RWANDA

BY

TUYISENGE MARIE LOUISE

APPROVED BY BOARD OF EXAMINERS

_____	_____
Dean, Graduate Studies	**Signature**
_____	_____
Advisor's Name	**Signature**
_____	_____
External Examiner	**Signature**
_____	_____
Internal Examiner	**Signature**

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Tiruneh Legesse (Asst.Prof.). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Tuyisenge Marie Louise

_____ _____

Name Signature

St. Mary's University, Addis Ababa **JUNE, 2019**

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate studies for examination with my approval as a university advisor.

_____ _____

Advisor Signature

St. Mary's University, Addis Ababa **JUNE, 2019**

TABLE OF CONTENTS

ACKNOWLEDGMENT

My special thanks and appreciation go to my beloved family, Prudence Sebahizi, my husband and Bahizi Alvin &Bahizi Alvaro, our sons. You have been my financial support, real love**,** care and motivation.

Foremost, I am wholeheartedly thankful to my supervisor, Tiruneh Legesse (Asst.Prof.) whose encouragement, guidance and support from the initial to the final level enabled me to develop an understanding of the subject.

I would like to thank the lecturers of St. Mary's university for their commitment as well as the all staff of Master's program for the availability of suitable curriculum.

My appreciations are extended to Narcise Kalisa, my brother-in-law for his support. Thanks to my parents, brothers, sisters and aunts for their prayers.

Also my word of gratitude goes to the Rwanda Biomedical Center (RBC) staff, more specifically to Beatrice Mukamana and Cathy Mugeni, for their support in data collection. I highly appreciate and thank the Community Health Workers for making time available to fill out the questionnaire survey and their supervisors for having accepted to be interviewed.

Lastly, I extend my acknowledgments to all of those who supported me in any respect during the completion of the project and my classmates especially Nininahazwe Pacifique for their encouragements and moral support.

Above all, I am indebted to the Almighty God for keeping me breathing.

TUYISENGE MARIE LOUISE

LIST OF ABBREVIATIONS AND ACRONYMS

ASM:	Animatrice de Santé Maternelle
BBC:	Behavior Change and Communication
CBF:	Community Based provision for family Planning
CBNP:	Community Based Nutrition Program
CCM:	Community Case Management
CHP	Community Health Project
CHW:	Community Health Worker
CHSP:	Community Health Strategic Plan
C-PBF	Community Performance Based Financing
DHS:	Demographic and Health Survey
EDPRS:	Economic Development and Poverty Reduction Strategy
EH:	Environmental health and Hygiene
FP:	Family Planning
HC:	Health Center
MNH:	Mother and Newborn Health Program
MDGs:	Millennium Development Goals
MoH:	Ministry of Health
PHC:	Primary Health Care
RH:	Reproductive Health
RBC:	Rwanda Biomedical Center
RCHMIS:	Rwanda Community Health Management Information
SPSS:	Statistical Software for Social Science
WHO:	World Health Organization

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Countries across the globe are striving to achieve universal health coverage. There is a massive shortage of 4.25 million health workers in Africa and Asia, while the distribution of existing health workers within countries is inequitable (World Health Organization, 2006). The report recognized shortages of professional health workers as one of the key ingredients in the growing crisis of providing health services, particularly in low income countries. In Rwanda, the Economic Development and Poverty Reduction Strategy' main objectives in the health sector are to maximize preventive health measures and build the capacity of Community Health Workers to provide quality and accessible health care services for the entire population. The overall objective of this study was to assess the environmental foundation for community health workers project in Rwanda. A descriptive research design and mixed approach were used. Quantitative data was collected from 354 Community Health Workers while qualitative data was collected from 10 supervisors. The survey was limited to 5 districts, selected based on their performance. First, the study revealed that Community Health Workers are largely dominated by women .The majority of Community Health Workers have less education completed their primary education and low capital. Secondly, the study showed that Project has national Policy and plans which influence the Community Health Workers performance, the implementation of mechanisms of performance based financing mechanisms through Community Health Workers cooperatives as a variable potentially influencing the performance and motivation of the Community Health Workers, and as a core strategy set in place to ensure the sustainability of the project. Thirdly, the study indicated that Community Health Workers Project face many challenges including geographical inaccessibility, insufficient materials, stock out of medicine, performance based financing coming at irregular rhythm and still not enough as an incentive for Community Health Workers, high responsibilities. Finally, the study recommended to the Government to improve the supply chain, to explore sustainable financial incentives for Community Health Workers and to consider social cultural belief during the recruitment of new Community Health Workers.

Key Words: Community Health Workers, World Health Organization, Performance Based Financing, Economic Development and Poverty Reduction Strategy

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Countries across the globe are striving to achieve universal health coverage. There is a massive shortage of 4.25 million health workers in Africa and Asia, while the distribution of existing health workers within countries is inequitable (World Health Organization, 2006). The principle of Primary Health Care (PHC) was introduced in the Declaration of Alma-Ata in 1978 (World Health Organization, 1978). PHC had already been promulgated for over three decades as a global strategy for ensuring essential health care for all people. The 2006 World Health Organization report recognized shortages of professional health workers as one of the key ingredients in the growing crisis of providing health services, particularly in low income countries (WHO, 2006). The severe healthcare worker shortage in many parts of the world is among the barriers that need to be addressed to improve primary health services (Koberand Damme, 2004).

The global policy of providing primary level care was initiated with the 1978 Alma Ata Declaration. The countries signatory to the declaration considered the establishment of a Community Health Worker (CHW) programme as synonymous with the primary health care (PHC) approach. Shortages in human resources for health and evidence that CHWs can significantly contribute to the health of the population by effectively delivering key interventions in primary and community health care have led to a renewed interest in CHW programmes in Low and Middle Income Countries (Bhutta, Lassi, Pariyo et al.,2010). Community Health Workers can make a valuable contribution to community development, and more specifically can improve access to and coverage of basic health services to communities. The use of CHW has also been one of the strategies to address the shortage of health workers, particularly in low income countries (Lehman and Sanders, 2007).

However, the review by Lehman and Sanders (2007) showed that although there are some trends, global generalizations about the performances of community health workers are difficult as the topic area and program profiles, structures, focus areas and implementation arrangement are extensive and diverse.

The Government of Rwanda also adopted this initiative. In 2010, the country developed a seven-year programme (2010-2017) to guide all sectors and governmental institutions towards achieving the development targets by 2018 instead of 2020. The programme was built on four major pillars: (I) Governance, (II) Justice, (III) Economic Development, and (IV) Social Welfare. Under social welfare, the programme clearly emphasizes the need to "decentralize good health services up to the village level through a network of Community Health Workers.

The 2010 Demographic and Health Survey (DHS) data and several evaluations, such as Health Sector Strategic Plan II external evaluations and health situation analysis and main gaps done in 2011, suggest that Rwanda is on track to achieve national health targets. These include international commitments such as the United Nations Millennium Development Goals (MDGs). Community-based interventions have been widely viewed to have significantly contributed towards current health achievements (MoH, 2013)

Rwanda's Community Health Programme has been community-driven since its inception as it was located at the lowest administrative level (the 'cellule' by then). There were 12,000 CHWs in 2005. That number has grown to 45,000 today with each village having 3 CHWs– a male, a female and one Animatrice de Santé Maternelle (ASM) (MoH, CHP Strategic Plan). The Community level is a formal part of the national health strategy coordinated by the Rwanda Biomedical Center (RBC) via district hospitals and health centers (LSTM, 2016).

However, despite current important achievements, like in many African countries, the CHW programme in Rwanda still faces significant challenges that hinder the delivery of the quality of the comprehensive package of services. These challenges range from low capacity of CHWs, to insufficient resources to sustain routine community health activities.The challenges of lack or inadequate training, inadequate supply systems, lack of enough equipment, lack of upgraded infrastructures to deliver more health services to the community. By addressing these challenges, the CHW Programme will significantly contribute to the achievement of the national health targets described in the HSSP III 2012-2018.

1.2. Statement of the Problem

The use of community health workers has been identified as one strategy to address the growing shortage of health workers, particularly in low-income countries. Evaluation of community health workers' performance in general, is the focus of much attention at this time, as many countries invest in them as a strategy for the achievement of the Millennium Development Goals (Haines et al., 2007).

The Economic Development and Poverty Reduction Strategy (EDPRS) used an analytical framework to identify four thematic areas where health is in the eight foundation areas. EDPRS' main objectives in the health sector are to maximize preventive health measures and build the capacity of Community Health Workers (CHWs) to provide quality and accessible health care services for the entire population in order to reduce malnutrition, infant and child mortality, and fertility, as well as the control of communicable diseases .EDPRS recognizes that the problem of access to primary health care is not only a health sector issue, rather a multi-sector challenge that proposes all sectors to work in synergy to deliver a comprehensive community health package with full community participation through CHW cadres (MoH,2013).

The EDPRS uses an analytical framework that puts health at the Centre of key issues and dimensions of poverty. The framework highlights the point that health conditions of the most disadvantaged, contrasted to the wealthiest groups, result in complex relationships between health and poverty: If poverty leads to a poor health condition, a poor health condition in turn contributes to monetary poverty. Moreover, it is widely known that poor health and nutritive conditions are key to poverty.

Health Sector Strategic Plan III 2013-2018 identifies the community health network as a key health infrastructure that contributes greatly to the delivery of health services to the majority of the population. It further states that introducing community health service delivery close to the population "fundamentally breaks barriers" for improved access to care and increased services utilization. The role of individuals and communities in addressing health issues at community level is vital with regard to the promotion of healthy lifestyles and fostering positive behavior change. Building on the spirit of voluntarism for health promotional activities that has characterized community health workers, the Ministry of Health seeks to

scale up their numbers in order to equitably cover all villages and then build their capacity to improve their performance, thus increasing accessibility to health care services.

The implementation of the CHWs concept in Rwanda is marked by unanswered questions of long term sustainability and program effectiveness. The challenges of lack or inadequate training, inadequate supply systems, lack of enough equipment, lack of upgraded infrastructures to deliver more health services to the community. Some studies have shown the topographical challenges and the need to cover large distances hamper CHW performance. Mukanga et al., in a study on CHWs working in child health, found that households residing 1 to 3 km from a health facility were 72% more likely to utilize CHW services compared to households residing within more than 3km of a health facility (Mukanga D, Tibenderana JK, Peterson S, Pariyo GW, Kiguli J, Waiswa P, et al; 2012). CHWs commonly cite a lack of supervision and support as a barrier in performing their responsibilities (Nsabagasani, Sabiiti, Kallander, Peterson, Pariyo & Tomson, 2014). Nevertheless, a large body of literature, including the studies on pay-for-performance schemes have shown the monetary and non-monetary rewards, as well as career opportunities can improve provision of public services (for example Ashraf, N., Bandiera, O., & Jack, B. K. ,2014).

Despite the vast experience with CHWs the burden of disease continues to increase in magnitude and diversity .This put to question the performance and thus effectiveness of CHWs as one of the key strategies of health care delivery. It is because of the above mentioned points that the study attempts to examine factors that influence the performance of CHWs in Rwanda.

1.3. Research Questions

The study focused on the following research questions:

i. How the health policy influencing the performance of the Community Health Workers project in Rwanda?
ii. What are the environmental factors that influence the performance of the Community Health Workers project in Rwanda?
iii. What are the opportunities that should help the Community Health Workers project to sustain in Rwanda?
iv. What are the challenges that affect the CHWs project in Rwanda?

1.4. Objectives of the Study

1.4.1. General objective

The main objective of the study was to assess the environmental foundation for community health workers project in Rwanda.

1.4.2. Specific objectives

The study aimed to achieve the following objectives:

i. To assess the health policy that influence the performance of CHWs in Rwanda
ii. To determine the environmental factors that influence the CHWs performance in Rwanda.
iii. To assess the opportunities which should help the CHWs project to sustain in Rwanda.
iv. To examine the challenges affecting the CHWs project in Rwanda.

1.5. Definition of Terms

Community: A group of people living in the same defined area sharing the same basic values, organization and interests (Rifkin et al, 1988).

Community Health workers: CHWs should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers"(Bhutta ZA, Lassi ZS, Pariyo G, Huicho L.,2010).

Environmental factors: An identifiable element in the physical, cultural, demographic, economic, regulatory, or technological environment that affects the survival, operations, and growth of an organization. (www.businessdictionary.com**)**

Economic factors: The set of fundamental information that affects a business or an investment's value (Ibid).

Performance: The act of performing; of doing something successfully, and using knowledge as distinguished from merely possessing it. A performance comprises an event in which

generally one group of people (the performer or performers) behaves in a particular way for another group of people (Armstrong, 2009).

Socio-cultural factors: A set of beliefs, customs, practices and behavior that exists within a population (www.businessdictionary.com).

Primary health care (PHC) is essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation (Bryant 2002). PHC aims at bringing health care as close as possible to where people live and work, and can be attained through a fuller and better use of the community resources person.

1.6. Significance of the Study

The Alma-Ata Declaration of 1978 is a major milestone of the twentieth century in the field of Public Health. It identified primary health care (PHC) as the key to the achievement of the goal of "Health for All".

The implementation of the CHWs concept in Rwanda is marked by unanswered questions of long term sustainability and program effectiveness. Despite the vast experience of CHWs, relatively little scientific evidence is available to answer basic questions notably the determinants influencing the performance of CHW. There are few studies that have investigated the linkage between environmental, cultural, health systems, economic factors in relation to performance of CHW. Therefore there is need to conduct a research on factors influencing the performance of community health workers project in Rwanda. The findings will be useful to support Ministry of Health and Community Health workers for decision making on CHWs project and will help to achieve Rwanda vision 2020 target.

1.7. Scope and limitations of the Study

The study focused on assessing the environmental foundation for community health workers project in Rwanda. Due to limited time and financial constraints, the study was limited in geographical location and time scope.

1.7.1. Geographical Scope

Rwanda country is located in east-central Africa, total area: 10,169 sq mi (26,338 sq km) with the population: 12,337,138. The country has 30 districts divided in 4 provinces and Kigali City.

The study was conducted on 5 districts, meaning one district from each province and one from Kigali city. The 5 Districts were selected based on their performance during the 2017-2018 evaluation of performance contracts "Imihigo" (NISR, 2018). The selection considered a mixture of the best, medium and least performing to allow a better understanding of both success and failure factors .Those 5 Districts covered the necessary information regarding to assess the environmental foundation for community health workers project in Rwanda.

1.7.2. Time Scope

This study covered the period from 2015-2018, because the period of 3 years is enough to get accurate data for the researcher to assess the environmental foundation for community health workers project in Rwanda.

1.8. Organization of the study

This research paper is organized into five chapters. The first chapter contains the general introduction of the study giving the background to the study, the statement of the problem, research hypothesis, and objectives of the study, its significance and scope. The second chapter particularly focuses on the literature review, covering the literature related to the topic by different authors. The third chapter discusses of the methodology that was used in the process of carrying out the research, sampling techniques, documentation and questionnaires. The fourth chapter is about research findings, the analysis and interpretation of the data collected. The fifth chapter deals with the summary, conclusion and recommendations of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

This chapter gives an overview of Community Health Program (CPH) in Rwanda, describes the concept of performance of Community Health workers, internal and external factors for community health workers project.

2.1.1. The Concept of Performance of Community Health Workers

In the 1970s, the importance of community health workers was originally affirmed by the World Health Organization. After the Alma Ata Declaration of 1978, many countries in sub-Saharan Africa began to institutionalize CHW programs as a strategy to extend primary health care to impoverished rural and urban populations and to address the relationship between poverty, inequality and community health (Newell 1975; Standing and Chowdhury 2008; Cueto 2004). Currently, many actors in the field of global health are reaffirming the crucial importance of community health workers (CHWs) trained to provide primary health care and promote healthy behaviors for their own communities in achieving public health goals in the context of poverty and weak health systems. For instance, the year 2011 saw the emergence of the Frontline Health Workers Coalition, a coalition not of workers themselves, but of international organizations seeking to make better use of them. Though there is considerable debate over the value and activities that should be assigned to CHWs, major global health development institutions proclaim *'' No Health Without Health Workers",* identify massive global shortages of CHWs, and call for innovative and evidence-based Policy that improve recruitment and retention of community health workforces (WHO 2006; Watt et al. 2011; Bhutta et al. 2010).

The Millennium Development Goals (MDGs) have renewed global attention on human resources management in the health sector and strengthening of health systems. There is some recognition that the present underperformance of health systems and their progress is the result of a legacy of chronic under-investment in human resources (Chen et al, 2004). Responses to this health human resources crisis' have been focused upon quantity and distribution of health workers (HW), their incentives, retention and issues of migration and their effects upon global distribution of HWs (Dolea et al., 2010; Pena et al., 2010; Vujicic

et al., 2004). Motivation and performance of existing HWs is equally important, yet much less attention has been given to these areas particularly the social.

Over the past couple of decades, studies have shown that community health workers (CHWs) can help reduce morbidity and mortality in settings that have traditionally lacked access to health care (Haines AS, Lehmann D, 2007). The intermediation of CHWs in healthcare delivery is widening as they are crucial in increasing universal access to healthcare provision and the attainment of the Millennium Development Goals (Evans and Etienne C,2010).The roles of CHWs can as well be described as: home visits, environmental sanitation, provision of water supply, first aid, treatment of minor and common illness, nutrition counseling, health education and promotion, surveillance, maternal health, family planning, child health, communicable disease control, community development, referrals, record keeping and data collection (Lehmann & Sanders, 2007).

Community health workers performance is complex and there are multiple factors that influence Health Workers'willingness to apply themselves to their tasks and be successful in delivering health services (Franco, Bennett, Kanfer, 2002). Individual HW performance relates to competencies and resource availability; however, motivation to deliver health services is also integral to performance and is underpinned by the organizational structure, the socio-cultural environment and individual characteristics of the HWs (Henderson and Tulloch, 2008). Most research on HW performance has occurred in high-income countries, whereas little attention has been given to HW performance in developing countries (Anyangwe and Mtonga, 2007). CHW performance is described not as an attribute of the individual, but rather as a result of the transaction between organizational factors (organizational culture, support structures, resources and processes), social factors (community expectations, social values and peer pressure) and the individual (Franco, Bennett,Kanferet al., 2004). Social factors, or cultural and community influences, are distal determinants of motivation (Franco LM, Bennett S, Kanfer R, Stubblebine P; 2004).
Lehman et al. (2008) review and Mullei et al. (2010) study identified infrastructure as contributing to improving attraction and retention of rural HWs. None of these authors referred to social factors. Dussault (2006) mentioned socio-cultural environment as a broad factor for poor retention. Dieleman et al. (2003) in Vietnam identified the community's respect as an important factor for HW motivation. Haines and colleagues (2007) identified

three determinants of the success of a CHW programme. These include: community factors such as location, support, respect, health beliefs, national socioeconomic and political factors, including corruption and political will and health system factors such as remuneration, training and supervision (kalyangoand colleagues, 2012). CHWs require supportive supervision, clearly defined roles with specific tasks, locally relevant incentive systems that combine monetary and non-monetary incentives, recognition, training opportunities, community and policy support, and strong leadership (Mathauer and Imhoff, 2006). All of these factors can play a role in the length of time a CHW serves thus affecting their performance. Social demographic characteristics, such as age, sex, marital status and education level, greatly influence performance of CHWs.

In the case of Rwanda, the Government envisages a community that is organized, self-motivated, hardworking, forward-looking, and has the ability to exploit local potential with innovations geared towards sustainable development (Community Development Policy , 2008). This explains why the Rwanda government spending on health has increased since 2005: 8.2% in 2005, 9.1% in 2007, and 11.5% in 2010 (HSSP II Situation Analysis Report, MOH). The level of government spending on health in 2010 was within the reach of the Abuja declaration targets for national budget allocations to the health sector (15% by 2015). Therefore, as more health interventions shift to the community level, greater advocacy is needed to improve community health financing.

2.1.2. Internal factors

2.1.2.1. Health System Factors (Practice and Policy)

The role community groups and other community structures can play in the CHW program needs to be clearly established (Sauerborn et al., 1989). Walt et al. (1989) note that some community structures, such as village health committees, have been weak, inactive, and ill-equipped to engage in the process of supporting and generating demand for CHW programs. The formation of community structures specifically focused on CHWs appears to have a strong role in generating demand for CHW services as well as in increasing the level of respect a community may have for CHWs (Marsh and colleagues, 1999; Wagner, 2012).

A recent report on the efficacy and sustainability of World Vision‘s long- standing Community Care Coalitions supports the contribution of CCCs as critical platforms for the coordination of services within communities. Among other things, the CCCs have been effective in creating and sustaining demand for health services (Wagner, 2012). Community structures are key to supporting the CHW and giving her legitimacy in the community.

Figure 1.The structure and responsibilities of the CHP

<table>
<tr><td>  Ministry of Health</td><td>Policy formulation
Coordination and Advocacy
Resource mobilization
Capacity building
Quality assurance</td></tr>
<tr><td>  District</td><td>Coordination and management
Administrative support
District planning
Supervision and capacity building
Reporting</td></tr>
<tr><td>  Health centre</td><td>Oversight of all community health activities
Collation and review of data
Quarterly supervision to CHWs
Monthly meeting at Health centre with CHWS
Provision of supplies</td></tr>
<tr><td>Cell Coordinator  </td><td>Oversight and supervision of all CHWs in the Cell
Collation of monthly reports
Support to HCs</td></tr>
<tr><td>ASM
 
MNH
CBPFP
Health promotion</td><td>  </td><td>Binômes
 
iCCM
CBPFP
Health promotion
TB DOTs</td></tr>
</table>

Source: MOH, Comprehensive Evaluation of the CHP in Rwanda, 2016

The major program components are described in detail here below:

- **Recruitment of CHWs**

Community health workers are meant to be elected in the community by the community, most of the time during the Umuganda (Umuganda is a monthly community meeting - although it may take place in other fora that bring people together in the village).The Health Centre proposes and supervises the elections and the executive committee of the village organizes them. The day of the elections, those who are interested in becoming CHWs present themselves to the community and the community elects the candidate of their choice by lining up behind her/him. Qualifications to become a CHW require the following: ability to read, write and calculate; having completed at least primary level education; being aged between 20-50 years; willing to accept volunteer status; being resident of the village he/she is elected to serve; not being a local leader or a remunerated health worker at a health facility; being honest, reliable, and trusted by the community (MOH, 2015).

- **Training of CHWs**

After recruitment, new CHWs receive an induction training at health centre. After this induction training, they are entitled to conduct health promotion activities in the community and CHWs receive trainings on the various community health activities that they will need to carry out.

- **Service packages offered by CHWs**

Assistantes Maternelles de Santé and Binômes jointly carry health promotion and BCC activities on hygiene and sanitation, early seeking care behaviour, breastfeeding, infant and young child feeding, birth spacing and family planning (FP).

- **Supervision of CHWs**

CHWs are supervised at two levels. At cell level, they are supervised by cell coordinators, usually one Binôme and one ASM who are experienced CHWs. These cell coordinators are not paid and provide the same services as other CHWs in addition to their role of cell coordinators. Cell coordinators supervise completeness and accuracy of CHWs register and collect CHWs requisition for medicines and materials. Their role in data reporting and coordination is described in the sub-sections below. At HC level, CHWs are supervised by the in-charge of CHWs, who is responsible for reinforcing the competencies of CHWs and for ensuring proper functioning of the supply chain. Their role in data reporting and

coordination are described in the sub-sections below. Guidelines state that cell coordinators should supervise their colleagues once per month, while the HC should visit each CHW at least once every three months. In addition, each district hospital has dedicated staff allocated to oversee the CHP. In-charge of CHWs at District Hospitals are expected to visit all in-charge of CHWs at HC in their area once a month.

- **Community Health Information System**

Two Health Information Systems have been set in place for CHWs: the Community Health Information System (SISCOM - System information Sanitaire Communautaire) which is a paper-based system and the RapidSMS system, which is a mHealth system.

- **Community Performance Based Financing(c-PBF)**

In 2006, Rwanda set up a facility-based PBF strategy. Consequently, indicators on which health providers had control over improved significantly, but the progress for those indicators that depended on decisions made at community level was slower (Basinga, P., Gertler, P.J., Binagwaho, A., Soucat, A.L., Sturdy, J. and Vermeersch, C.M., 2011).Driven by the agenda of accelerating the reduction of child and maternal deaths, the MoH, with the support of the Global Fund and the World Bank, implemented the community-PBF strategy in 2008. Initially, financial incentives only covered indicators for quality of reporting (timely submission of monthly CHWs cooperative reports to the HC, completion and accuracy of the CHWs cooperative reports (Shapira G., 2016).

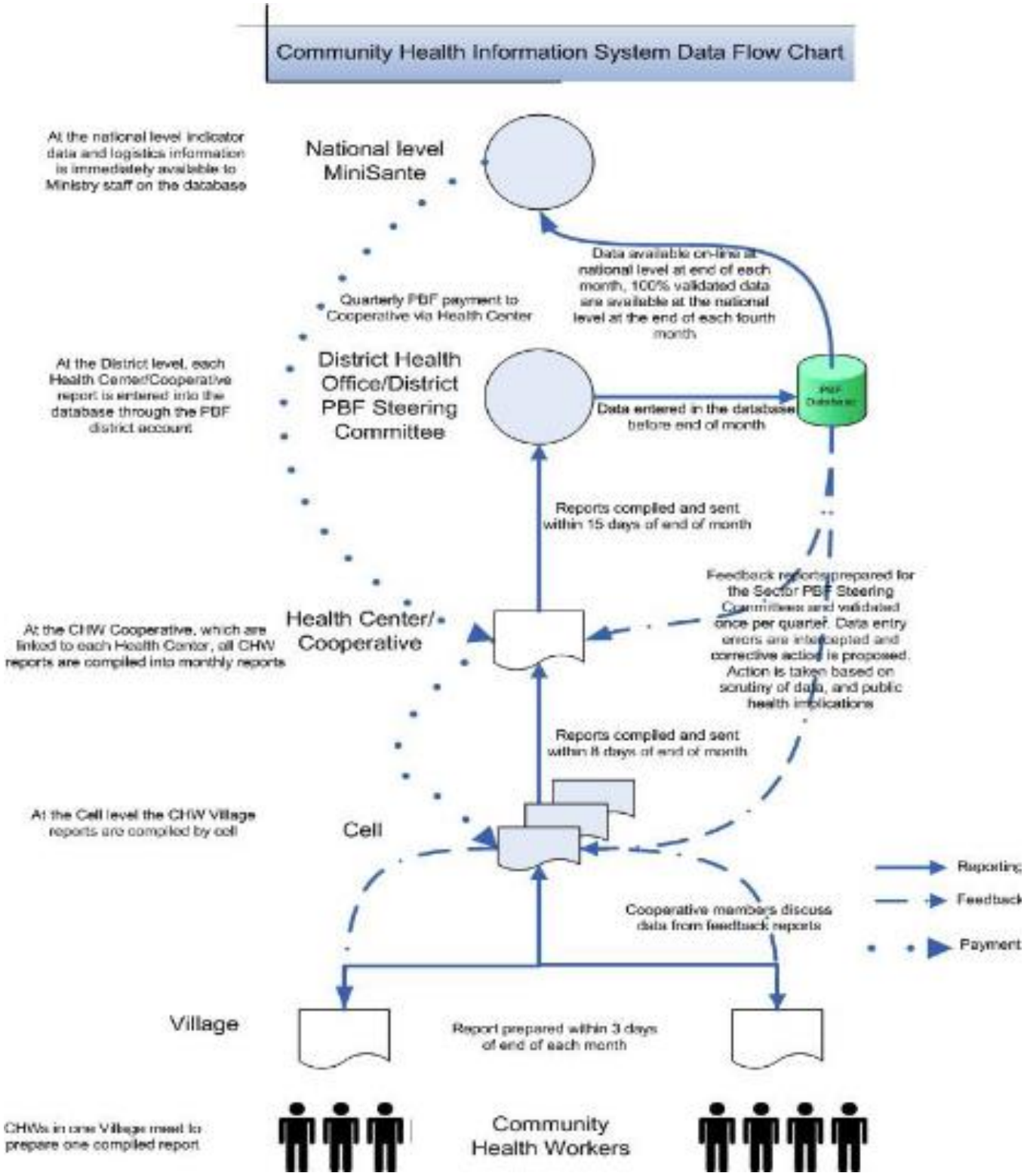
- **Community Health Workers Cooperatives (CHWC)**

The idea of putting CHWs together into cooperatives started in 2006 with the aim of organizing all the CHWs in each health sector under one umbrella. As of June 2012, there were 450 CHW cooperatives formed in all the health center catchment zones working closely with health centers.CHWs work under their cooperatives to generate revenue to sustain their work and ensure that they achieve certain levels of performance as determined through indicators.

- **Supply of health materials and drugs**

The supply chain for community health commodities is fully integrated into the national supply chain system for health commodities. CHWs complete their stock cards and transmit them to their cell coordinators (MSH, 2016).

Figure 2.Community Health Information System Data Flow



Source: Community PBF Guidebook, 2009

2.1.3. External factors

2.1.3.1. Social-Cultural factors and performance

The performance and motivation of CHWs are influenced by various inherent characteristics of CHWs, such as their age, gender, ethnicity, and even religion, which affect how they are perceived by community members and their ability to work effectively (Kartikeyan and colleagues, 1991). The question of who CHWs were and are in terms of gender, age and status, finds many different answers in the literature that reflect the diversity of CHW programs (WHO, 2007). Studies have also differed on whether socio-cultural factors are important determinants of CHWs' effectiveness (Lehmann and Sanders 2007). Understanding how the socio-cultural factors influence CHWs'performance in conducting their targets is therefore of paramount importance primarily for the adoption of evidence based level one health care service (Ndedda Crispin, Annah, et al., 2012).

Social hierarchies can also form a barrier to CHW performance. According to Abbott L, Luke N; 2011, female community based distributors faced challenges in influencing behaviour of women with a lower social status. While in another setting in India, accredited social health activists are in demand by all castes and religious groups (Srivastava, Prakash,Adhish et al.; 2010).

The role of gender, education, training, feedback and monitoring system, and incentives and career prospects, economic resource base and political commitment will largely determine the amount of attention they receive in the design and implementation of CHW schemes (Haines et al., 2007). For example, while it is obvious that good training is essential for CHWs, the contents and duration of training could be decided only along with decision on the range and nature of services to be offered by them, and the level of education that they already possess. It has been highlighted that in general there has been a lack of performance due to inadequate capacity of training institutions and lack of capacity of trainers to understand the local community structure (Global HealthTrust, 2003).

Most countries CHWs have education up to primary level education, with 8 to 10 years of schooling, The Study showed that CHWs with higher educational qualifications have opportunities for alternative employment and therefore migrate from one job to another (Brown, Malca, Zumaran, & Miranda, 2006).It has also been highlighted that those with higher education could learn and enhance their skill in the diagnosis of common illness (Ande, Oladepo, &Brieger, 2004) and thereby deliver better care to the community

Comments on age are even less frequent in the literature, although mature age (between 20 and 45 years are reported to be a criterion in a number of cases (WHO, 2007). Studies over time have shown that older CHWs are more respected in their communities (Bhattacharyya, et al., 2001). Simkhada et al, 2007 report that effect of age on performance of health care services is unclear) and inconsistent across studies (Babalola and Fatusi, 2009).

The gender issue is to a very large extent influenced by wider societal practices and beliefs, and gender relations more generally. Few studies have looked at how gender and its roles influence the performances of CHW (Furuta and colleagues, 2006). In other communities, resistance from husbands was identified as a key barrier to the participation of women in health related activities. (Boerma et al., 2006).

The sex of the CHW has been shown to influence uptake of services in different contexts. In Afghanistan, Viswanathan et al. reported a preference for female CHWs for the delivery of reproductive health services compared to male CHWs, because the norm was that women should not interact with men outside the family (Viswanathan , Hansen , Hafizur et al;2012). Hill et al. suggested that having only male community based surveillance volunteers (CBSVs) working in maternal and neonatal health in Ghana might have limited the scope of the intervention, as families may not want the CBSVs to physically help putting babies in the skin to skin position or help with breastfeeding attachment (Hill , Manu , Tawiah, et al; 2008).

The level of formal education tends to increase the level of general knowledge and hence may positively influence the ability of an individual to deliver. While Lower level of education is associated with low delivery of health care services (Oumaet and colleagues. 2005). It is well established that health educators who obey their own health messages are more likely to have impact on delivery of health service (Mulindwaet al., 2000). The churches provide roughly 50% of Papua New Guinea‘s education and health services; the influence of Christianity also extends to government services, however, with most government HWs identifying as Christian (Kelly A, 2009). The role of religious faith inspires a need to do good and take care of those who are suffering and has been described as ‘’a culture of service’’ that influences the practices of HWs in Papua New Guinea (Jayasuriya et al.,2011).

In Rwanda, qualifications to become a CHW include the following: ability to read and write, aged between 20-50 years, willing to volunteer, living in the local village, being honest, reliable, and trusted by the community; and be elected by the village members. Each village should elect two women and one man (MOH, 2013).

2.1.3.2. Physical factors and performance of CHWs

The working environment in health care comprises of two major components, namely, physical and psycho-social. During early days of development of health organization, physical environment in work place was given importance and was considered as a predominant determinant of employees 'performance.

Earlier studies examined the effect of illumination, temperature, noise, and atmospheric conditions on performance of the workers (Bennett, Chitlangia, Pangnekar; 1997). The proximity of CHWs and health facilities to their clients could affect utilization of CHW services. Four studies referred to difficulties of CHWs in reaching communities because of flooding, which hampered their performance (Azadet al., 2010).The amount of work that a CHW's catchment area entails depends on the number of households each CHW is responsible for, the target group within the family (e.g. all family members, children only, women only, as well as the geographic distribution of those households).

Access to resources at the workplace is not only a requirement for providing good quality health services, it is also a factor stimulating the workforce (Adzei and Atinga, 2012). Modern working equipment creates a much more stimulating work environment than working with dilapidated equipment. Mathauer and Imhoff(2006) argue that shortage of supplies and resources is considerable challenge at many health facilities, in particular in rural areas in Africa.

The distance covered by CHW to offer health services and the availability of transport options can have a significant impact on appropriate and timely delivery of health services (Furuta and Salway, 2006). Despite general acknowledgements of its importance, time and distance covered by a CHW is hardly considered in studies (Kabir 2007, Gage and Guirlene 2006). Experience across countries varies with two critical commonalities that is the optimal population size that a CHW could cover and the optimal range of services that a CHW could

deliver (Prasad and Muraleedharan, 2007). Countries Sri Lanka a CHW covers as low as 10 households offering a set of MCH related services (UNICEF, 2004) On the other hand, there are countries such as India, where a CHW covers about 1000 households (UNICEF, 2004).

2.1.3.3. Economic factors and performance of CHWs

Economic hardship could influence willingness to go an extra step to perform some duties, health-seeking behaviour, and could lead to stress of CHWs. A lack of financial or material compensation for services rendered could lead to an inability of CHWs to provide for their family and is particularly exacerbated in areas of pervasive poverty (Maes and Kalofonos, 2013). Poverty could also prevent people from seeking health services in general, because of the expense incurred for accessing the services (Sadler and colleagues, 2012).

The studies that exist highlighted that economic incentives, primarily through supplementary income from the sale of medicines and other health related products, can improve performance of CHWs, and dissatisfaction with earnings can be a main reason for dropping out (Alamet al., 2011). Financial incentives were considered critical in sustaining the CHW programme in Tanzania. This finding is also supported by a study done in South Africa, which concluded that non- monetary incentives served as enablers while monetary incentives were the real incentives (Kironde and Klaasen, 2002).

According to Shapira (2016), Rwanda set up a facility-based PBF strategy in 2006. Consequently, indicators on which health providers had control over improved significantly, but the progress for those indicators that depended on decisions made at community level was slow (antenatal care utilization of modern contraception). Driven by the agenda of accelerating the reduction of child and maternal deaths, the Ministry of Health, with the support of the Global Fund and the World Bank, implemented the community-PBF strategy in 2008. Initially, financial incentives only covered indicators for quality of reporting (timely submission of monthly CHWs cooperative reports to the HC, completion and accuracy of the CHWs cooperative reports).

The performance based financing for Community Health is an innovational financing approach aimed at accelerating health results by focusing on high impact community level health interventions. This innovation is thought to be the first of its kind in the world. The

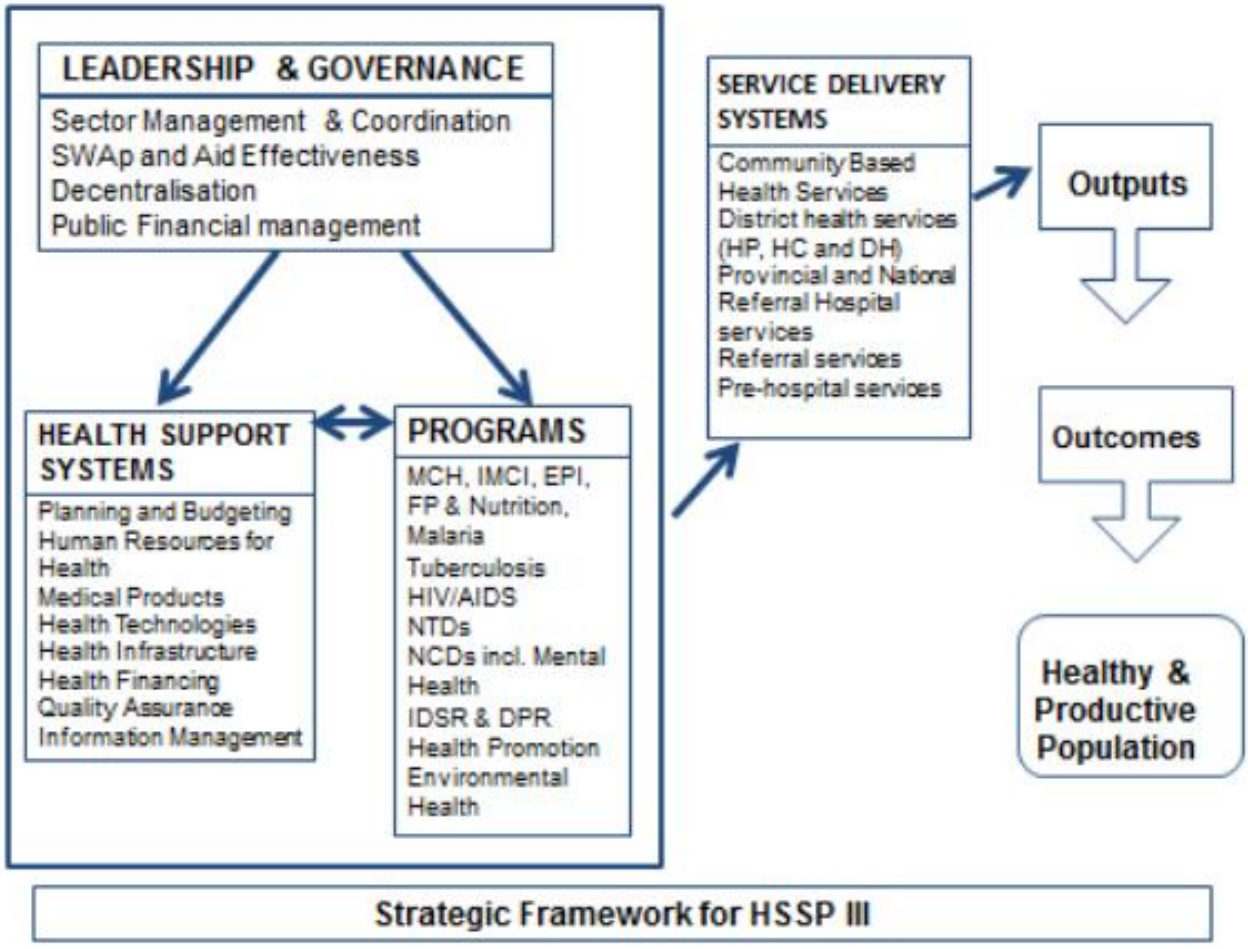
CPBF was launched in an attempt to improve the health of the communities by raising selected health indicators to reach the national targets faster. C-PBF improves performance of CHWs through motivation to rise agreed upon performance indicators (External Evaluation HSSP II 2009-2012, Report). An improved form of payments for CHW cooperatives is made when a proof of the agreed level of performance has been reached. A document about implementation of community PBF (management/regulation) was developed and provided to the system actors. Based on this document, the Sector Steering Committee at sector level oversees the implementation and approves payment to the CHW Cooperative after reviewing the levels performance. Data for different indicators are entered at district level through a web-based database (RCHMIS) after quarterly approval by committee with feedback. The CHWs receive financial compensation through performance based financing, or PBF, for delivering a certain number of health services. Thirty percent of the total PBF funds are shared among CHW members while 70% is deposited in the collective funds of CHW cooperatives (National community strategic plan, 2013).

CHWs are also involved in income generating activities under the umbrella of their cooperatives. Therefore CHWs are accountable for two main activities: generating and investing funds from the cooperatives and working on health activities to achieve certain targets (MOH, 2013).Guided by the CPBF regulations, the CHWs receive 30% from the total amount transferred by the Central MOH while 70% goes to the CHWs Cooperatives to contribute to income generation activities. Profits generated by cooperatives are shared among cooperative members depending on the internal rules and regulations governing individual cooperatives. It is assumed that overtime, as CHW cooperatives receive income and invest in the cooperative activities, they will grow and later become self-sustaining over years. Extra caution is needed to avoid CHWs spending more of their time on income projects over their mandated health activities. There is thus a need to strike a balance as it not really known how much time CHWs spend on health and other activities.

The MOH in collaboration with partners, developed an on-line tool (web-based) called “Community Health Worker Cooperatives Financial tool (CHWCF)” whose primary function is to track financial flows within cooperatives in order to: advise the cooperative members, carry out financial audits, perform supervision based on the database information, monitor PBF fund flows to cooperatives, and legal registration(MOH,2013).

Another potentially important aspect to consider is the fact that community health workers are volunteers who only spend a portion of their time on providing health services in their communities. It could be that they are intrinsically motivated to serve their communities and therefore are less likely to respond to financial incentives. Previous studies have shown that pro social preferences might lead health providers to exert effort even in the absence of supervision and extrinsic rewards (Reinikka and Svensson 2010; Leonard and Masatu 2010).

Figure 3.The Role of CHWs in the Health Sector Strategic Plan III Conceptual Strategic Framework



Source: MOH, National Community Health Strategic Plan, 2013

2.2. Ministry of Health Policy and Plans

The Health Sector Policy , which openly refers to Vision 2020 and EDPRS2 as its foundation documents, presents the CHP as a fundamental pillar of the model adopted in Rwanda to ensure the right to health for all citizens. The Policy also openly refer to task shifting as a successful strategy to ensure an effective and efficient division of labour at all levels of the system, and hence better access to services for the population.

"The initiation and implementation of community health services has increased outreach and brought health services closer to the people. Implementation of the integrated community health services package which was initiated in 2005 has been one of the successful innovations in integrated decentralization of health services. The Rwandan health system has greatly benefited from task shifting in which CHWs are delivering primary health services at the community level'' (MOH, 2014).

The Rwanda Community Health Policy , issued in 2008 and subsequently updated in 2015, provides the orientation for the implementation of community health activities nationwide, and presents a vision of "holistic community health care services so as to guarantee the well-being of the entire population of Rwanda (MOH, 2015).The Policy illustrates the guiding principles that underpin community health and sets its objectives as follows:

1. Strengthen capacity of decentralized health structure to improve community health service delivery
2. Strengthen community participation in community health activities
3. Improve the monitoring and evaluation systems and coordination at central, district, HC and Community levels
4. Strengthen the motivation of CHWs to improve health service delivery

The National Community Health Strategic Plan (CHSP) (2013-2018) describes in detail the program design, coordination mechanisms, the package of services to be delivered at community level, and proposes a logframe for monitoring the plan. It also attempts to present an estimate of the program costs for the period 2013-2018.The pyramid of implementation of the CHP is shortly described below:

In each of the 14,873 villages of Rwanda, 1 ASM (female) and 2 Binômes (1 male and 1 female) are trained and deployed to provide community health services (approximatively 45.000 CHWs in total);

- Villages are clustered in cells. There are approximatively 2,150 cells in Rwanda. For each cell, two cell coordinators, who are senior CHW, supervises all the CHWs of his/her catchment area;
- HCs are the primary point of contact with the formal health system for the population, at sector level. They serve a number of cells/villages. In the 480 HCs of Rwanda, in-charge of CHWsare appointed to coordinate all community health activities within the HC catchment area, and to provide capacity building and supportive supervision to CHWs. For each HC, there is also one Cooperative set up which groups the CHWs of the area.HCs report to District Hospitals.
- 30 administrative Districts of Rwanda has 42 DHs. At District level, a focal person for the CHP is appointed at District Hospital level and oversees all the activities of CHWs in the District.
- At central level, the Ministry of Health is the primary government entity in charge of implementing and monitoring the community health policy and strategy. The Rwanda Biomedical Centre (RBC) is instead in charge of the day to day oversight, coordination and implementation of the activities.

2.3. Empirical review

The performance of CHWs is influenced by a variety of factors as shown in the table below. These factors are the result of an extensive review of literature by Kok et al. (2014), which had the purpose of identifying intervention factors influencing CHWs motivation and performance. The main factors are as listed in the table below: Trust, Supervision, Training, Workload, Clarity on CHW tasks/roles, and Compensation.

Table 2.1: Determinants of CHW Performance.

Factors	Descriptions
Trust	The helping relationship between CHW and community involves building trust on both Sides of the relationship (Glenton et al., 2013). In a review of literature on effectiveness of CHWs programs to improve adherence to antiretroviral therapy, Kenya et al. (2007) reported that building trust is a key ingredient to successfully conduct CHWs programs. CHWs that serve communities in which they live in were reported to be more trusted by the community, which can affect their occupational performance tasks (Kok et al., 2014).
Supervision	The central purpose of implementing regular supervision is to ensure that roles and responsibilities are properly exercised by CHWs, and to enhance CHWs functioning. If correctly done, adequate supervision could result in high CHWs motivation, by helping them to reach the highest possible performance level (Hill et al., 2014). Martinez et al. (2008) found that effective supervision by health workers and support from community leaders leads to increased credibility and external recognition, as well as the feeling of being part of the team. On the other hand, if done poorly or conducted by inadequately trained evaluators, supervision may harm motivation and good performance of CHWs (Moetlo, Pengpid, &Peltzer, 2011; Chanda et al., 2011). It is clear from the existing literature that CHWs motivation depends on the quality of supervision; however, few studies have focused on elements of effective supervisory performance (Kok et al., 2014).
Training	The literature suggests that adequate training has significant effect on CHWs' motivation and sustainability of CHW programs. In a systematic review of literature regarding factors influencing performance of CHWs, it is reported

	that training in a friendly environment by highly qualified trainers enhanced CHWs' motivation, performance and job satisfaction (Kok et al., 2014).
Workload	CHWs' performance may suffer from low motivation due to high workload resulting from high CHW population ratio. Several studies indicated that excessive workload was significantly associated with increased loss to follow up and poor performance among CHWs (Alam et al. 2012; Rahman et al., 2010).
Clarity on CHW tasks and roles	A lack of clarity on CHW tasks often leads to unrealistic expectations (e.g., asking for goods or money, demanding treatment in spite of a negative test) especially from people in the community, resulting in lowered motivation and performance of CHWs (Kok, et al., 2014).Therefore, prior to intervention's initiation, efforts should be made to ensure that communities have realistic expectations about the scope and knowledge of CHWs (LeBan et al., 2014).
Compensation	There are pay models to compensate CHWs including volunteer-based and paid models. However, it is clear from the existing literature that fair compensation is one performance-influencing factor (Davis, 2013; Dower et al., 2009; Kok et al., 2014). A combination of financial incentives (e.g., fixed pay, regular and irregular allowances, performance-related pay) and non-financial incentives (e.g., tangible rewards such as continuous training, feedback, frequent supervision and supplies) can lead to better performance, accountability and quality of work among CHWs (Kok et al., 2014; Crigler et al., 2013).

Source: Minnesota Department of Health. (2016). Community Health Workers

2.4. Summary of the Literature

Previous studies found that CHW retention rates are higher in programmes which selected CHWs based on past performance and CHWs who are trusted members of the community and better reflect the linguistic and cultural diversity of the population served.

The economic context and its influence on the performance of CHWs were highlighted in a number of studies. They related mainly to livelihoods and willingness to volunteer, and requested compensation for services rendered. A lack of financial or material compensation for services rendered could lead to an inability of CHWs to support their family and is particularly exacerbated in areas of pervasive poverty. The willingness to become a CHW could be influenced by the wish to earn an income or the hope of being compensated eventually, especially in situations where there is high unemployment or fewer opportunities. Rwanda community health workers project has four main objectives: (1) strengthen the capacity of decentralized structures to allow community health service delivery; (2) strengthen the participation of community members in community health activities; (3) strengthen CHW motivation through CPBF to improve health service delivery; and (4) strengthen coordination of community health services at the central, district, health center, and community levels (MOH, 2015).

From the reviewed literature there is no conclusive tidy package of incentives which is successfully tailor made to motivate CHWs to continue performing. Rather, a complex set of factors affects CHW motivation and attrition, and how these factors play out varies considerably from place to place. There are a limited number of studies evaluating the factors which influencing the performance of community health workers project.

Studies on the role of supervision and technical support, monitoring and evaluation; communication and leadership area covered by community health worker are limited. The question of the factors should sustain a long-term CHW project and to retain CHWs requires additional investigation. The role of beliefs, traditions and norms; religion, gender, economic, environmental factors, knowledge of community health worker and the service they offer; motivation and privacy and confidentiality have not been fully explored.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design

According to Jacobsen (2014), after the research question is identified, the next step is to define the study approach to be used in by the study.

The study used a descriptive research which involves gathering data that describe events and then organizes, tabulates, depicts, and describes the data collection (Glass & Hopkins, 1984). Descriptive research is defined as a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the "what" of the research subject rather than the "why" of the research subject. A descriptive design and mixed approach (quantitative and qualitative) were used in this study for assessing the environmental foundation for community health workers project in Rwanda. According to Kothari (2009), descriptive research is used when the problem has been well designed. On the quantitative dimension, structured questionnaires were used to survey on environmental factors. This approach was most appropriate for this study because of its ability to elicit a diverse range of information.

3.2. Population of the Study

According to Polit and Beck (2004:290), the target population is the aggregate of cases about which the researcher would like to make generalizations. Ringrose (1986) postulates that population denotes all the potential participants from which the sample is drawn. In this study, the population was composed by community health workers in Rwanda.

However, due to time and financial constraints, this survey was limited to 5 districts, i.e. one district from each province of the country and one from Kigali city. The 5 Districts were selected based on their performance during the 2017-2018 evaluation. The selection considered a mixture of the best, medium and least performing districts to allow a better understanding of both success and failure factors. They were visited to collect the necessary information about environmental foundation for community health workers project in Rwanda**.**

Table 3.1. Population of the study

PROVINCE	SAMPLED DISTRICT	PERCENTAGE OF PERFORMANCE	THE RANK OF PERFORMANCE BY PROVINCE	NUMBER OF CHWs
Eastern	Rwamagana	84.5%	1st /7	1422
Western	Ngororero	71.9%	3rd/7	654
Northern	Gicumbi	76.3%	3rd/5	1923
Southern	Kamonyi	59.3%	5th/8	951
Kigali City	Nyarugenge	65.1%	3rd/3	1023
Total				**5973**

3.3. Sampling frame

The target population of the study was all 5973 Community Health Workers who are working in the above mentioned districts. Due to the fact that we could not reach all the 5,973people, we made a sample among this population. Our research used a stratified random sampling by geographical area. This is a procedure that starts with stratification of items, and then followed by sampling (Kombo& Tramp, 2006). According to Mugenda and Mugenda (2003), stratified random sampling involves selecting subjects in such a way that the existing subgroups in the population are more or less reproduced in the sample.

3.4. Sample size

Neuman (2000) argues that, the main factors considered in determining the sample size is the need to keep it manageable enough. This enabled the researcher to derive from it detailed data at an affordable cost in terms of time, finances and human resources (Mugenda and Mugenda, 2003).

According to Mugenda and Mugenda (2003), social science research applies the following formula to determine the sample size

$$n = \frac{z^2 pq}{d^2} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots Equation\ (i)$$

Where:

n= the desired sample size if the targeted population is greater than 10000

z= the standard normal derived at the required confidence level

p= the proportion in the target population estimated to have characteristics being measured.

q=1-p

d= the level of statistical significant set.

If the estimate of the proportion of the target population assumed to have the characteristics of interest is not provided, then 50% should be used. Therefore with the proportion of the target population being .50, then the z- statistics is 1.96. Consequently, the sample size will be;

$n = \frac{(1.96)^2(0.50)(0.50)}{(0.05)2}$ **= 384**

If the target population is less than 10000, the sample size determined using the following formula;

$$nf = \frac{n}{1 + n/N}$$

Where;

*n*f = the desired sample size, where the population is less than 10,000.

n = the desired sample size where the population is more than 10,000.

Therefore the sample size for the study will be;

$nf = \frac{384}{1+384/5973}$ **= 361**

Table 3.2.Sampling using stratified sampling technique

District	**Number of CHWs**	**Sample Size**
Rwamagana	1422	86
Ngororero	654	40
Gicumbi	1923	116
Kamonyi	951	57
Nyarugenge	1023	62
TOTAL	**5973**	**361**

3.5. Techniques of data collection

In this research, the following data collection techniques were used:

Documentary techniques

According to Bailey (1987:188), documentation includes all references and sources that offer to the reader a way to retrace his research. This means any written materials that contain the information about the phenomenon under the study. In this study, books, quarterly and annual reports, memorandum, internet and other documents necessary in collecting data were used.

Questionnaires

The questionnaire for this study was produced in English as the school language and translated into Kinyarwanda (the official language of Rwanda), due to the fact that most community health workers are much more conversant in the mother tongue. The questionnaire was composed of closed-ended questions. Closed-ended questions are easier and quicker to answer, and it is simpler to make comparison of answers from different study respondents. Closed-ended questions help the researcher to ensure fewer confused answers, and coding answers is easier for analysis (Reja et Al., 2003). Questionnaires used to collect particularly quantitative data. There was no space for personal identification information such as name, phone number or physical address of the participants to prevent discomfort.

Interview Guide

The responses from interview were from the supervisors of CHWs at district and health Centre level. According to Grawitz (2000:131), an interview is a scientific investigation using a verbal communication process, in order to acquire information in relation to the fixed aim of the research. A dialogue conversation or consultation are used to gain information. In this study, the interview was structured wherein the questions were prepared in advance.

3.6. Methods of data analysis

The data collected from the respondents through questionnaire were processed. This implied, editing, coding, classification and tabulation. The data were summarized and analyzed with computer software of descriptive statistics (SPSS version 22). The data gained from interview and document review was analyzed contextually as per the research basic questions.

3.7 Reliability

Reliability estimates the consistency of the measurements or more simply, the degree of uniformity of the results obtained from repeated measurements. "Reliability is essentially about consistency" (Adams, et al, 2007). Data consistency was checked the reliability test (Cronbach's Alpha methods) using the SPSS package. The alpha should be at least 0.70 or higher to retain an item in an adequate scale (Garson, 2006). The Cronbach's Alpha Test was conducted on all ordinal measurement scales with a threshold of 0.70. As shown in table below, the value of the Cronbach's Alpha for seven dimension of all variables was found to be above 0.7 which is an indication of acceptability of the scale for further study.

Table 3.3 Reliability Statistics/Cronbach's Alpha coefficients of the variables

Variable	Cronbach's Alpha	No of items
Structure and Human Resource	0.771	8
Information System and Flow	0.761	5
Finance	0.729	4
Health Policy	0.768	4
Public Relations	0.762	4
Economic	0.750	3
Physical and Geographical	0.751	5
Over all	0.845	33

Source: Own Survey, 2019

3.8 Validity

Validity refers to the degree to which an instrument measures what it is supposed to be measuring (Polit & Hungler 1989; De Vos et al 2005). In this study, construct and content validity was used to assess the validity of the instruments by means of assessing the adequacy, appropriateness, inclusiveness and relevancy of the questions. It has been reviewed by the academic advisor and clarified to respondents by physical presence during the data collection.

3.9. Ethical Considerations

The researcher observed ethics in the process of data collection and presentation. The researcher explained the purpose and objective of study to respondents. The data collection

tools were administered in a conducive environment. The respondents were assured of total confidentiality and that the information were collected for only research purpose. Authorization to carry out the study was obtained from St. Mary's University.

CHAPTER FOUR

RESULTATS AND DISCUSSION

This chapter presents the data collected from both primary and secondary sources. Primary sources were collected from Community Health Workers. Interviews were conducted with ten (10) supervisors of Community Health Workers at District and Health Center level. Questionnaires were distributed to 361 Community Health workers but out of these, 354 questionnaires (i.e. 98%) while 7 questionnaires were never returned. Therefore, our analysis is based on the 354 respondents' data.

4.1 Socio-Demographic Characteristics of study respondents

Table 4.1.1 Demographic Characteristics

Item	Category	Frequency	Percent
Sex of CHWs	Male	114	32.2
	Female	240	67.8
	Total	354	100.0
Age of CHWs	20-29 Years	15	4.2
	30-39 Years	85	24.0
	40-49 Years	153	43.2
	50 + Years	101	28.5
	Total	354	100.0
Marital Status of CHWs	Single	10	2.8
	Married	260	73.4
	Widowed	67	18.9
	Separated/Divorced	17	4.8
	Total	354	100.0

Source: Own Survey, 2019

The above table 4.1 indicates socio-demographic data. As depicted on the table, the distribution of the respondents based on sex is 114 (32.2%) of the total male respondents CHWs. The percentage of female respondents constitutes the largest part 240(67.8%) of the total sample. This is particularly due to the fact that there are 2 women and 1 man CHWs in each village (ASM is woman,Binôme are 1 woman and 1 man).

The distribution of respondents based on age category revealed that the majority (43.2%) of the respondents fall within the age range of 40-49 years. The remaining respondents, 28.5%, 24.0% & 4.2% fall under the age of 50+years, 30-39 years & 20-29 years categories respectively. This indicates that the community health workers project mainly requires the involvement of people with experience and maturity, who can perform well and also trusted by the members of the community.

As regards to the marital status of the Community Health Workers , the data collected showed that the majority of the respondents 260 (73.4%) were married and the remaining respondents, 18.9%, 4.8% & 2.8% were widowed, separated/divorced & single respectively. Like in the previous paragraph, this may be attributed to the fact that the Rwandan Community tend to respect and trust people who are married.

Table 4.1.2 Socio-economic Characteristics

Item	Category	Frequency	Percent
Level of education of CHWs	Primary	182	51.4
	Not completed secondary	73	20.6
	Secondary	28	7.9
	Vocational School	67	18.9
	University	4	1.1
	Total	354	100.0
Occupation of CHWs	None	36	10.2
	Farmer	278	78.5
	Formal employment	2	.6
	Casual Labor	36	10.2
	business	2	.6
	Total	354	100.0
Monthly income in RWF of CHWs	5,000 – 10,000 ($5.6-11.2)	120	33.9
	10,001 – 20,000 ($11.2-22.4)	138	39.0
	20,001 -30,000 ($22.4-33.6)	53	15.0
	30,001 – 40,000 ($33.6-44.8)	33	9.3
	40,001 – 50,000 ($44.8-56)	7	2.0
	Above 50,000 (Above $56)	3	.8
	Total	354	100.0
For how long have you been practicing as a CHW	Less than six months	7	2.0
	six months -1Year	18	5.1
	1 -2 Years	33	9.3
	3 Years or more	296	83.6
	Total	354	100.0
What is your position as Community Health Worker	ASM	114	32.2
	Binôme	240	67.8
	Total	354	100.0

Source: Own Survey, 2019

Regarding the education level of the Community health workers, the data collected show the community health workers level of education is low. The majority (51.4%) of respondents

have a primary level education, 20.6% did not complete their secondary and 18.9%, 7.9% attended vocational school and secondary respectively. Only 1.1% of the respondents completed their University studies**.** Item (2) Table 4.1.2 above shows that the majority (78.5%) of CHWs are farmers. This category is followed by 10.2% who have no occupation, 0.6%ho are casual labor, 06% formal employment and .6% are involved in small business. The result shows the majority of CHWs are farmers. This is a pure reflection of the Rwandan society. The country lacks significant natural resources and more than 85% of its labor force is engaged in subsistence farming.

Respondent profile regarding the monthly income revealed that (39.0%) of the respondents fall within the range of RWF 10,001-20,000. The remaining respondents, 33.9%, fall within the category of 5,000-10,000 Rwandan Francs, 15% have a monthly income which ranges between 20,001-30,000 Rwandan Francs, and 2% and 8 30,001-40,000, 40.001-50,000& above50, 000 respectively. This indicates that the income of community health workers is very law. The amount was converted in US Dollars for easy understanding (1 Rwandan Francs is equivalent to USD 0.00112).

Distribution of respondents with regard to years of practicing as a community health worker showed us that the majority of the respondents 296 (83.6%) have been practicing as CHWs since 3 years or more. The remaining 9.3%, 5.1% &2.0% are CHWs for 1-2 years, six months -1year & less than six months respectively. This indicates that the majority CHWs have the experience of 3 years or more which is related to the time scope of this study. As it can be seen from same table above, the majority of the respondents 240 (67.8%) were Binôme while 114(32.2%) were Assistante Maternelle de Santé (ASM). This indicates that our sample was quite representative as each village has 3 CHWs. One CHW, named *Assistante Maternelle de Santé* (ASM) is in charge of maternal and newborn health and the other two CHWs are Binôme (MOH, 2015).

4.2 Internal Environment

Table 4.2.1 Structure and Human Resource

Table 4.2.1.1 Structure

Item	Category	Frequency	Percent
The selection of community health workers is done objectively	Strongly Agree	323	91.2
	Agree	27	7.6
	Moderately Agree	3	.8
	Disagree	1	.3
	Total	354	100.0
I got appointment letter when this job started	Strongly Agree	4	1.1
	Agree	6	1.7
	Moderately Agree	5	1.4
	Disagree	134	37.9
	Strongly Disagree	205	57.9
	Total	354	100.0
There is good collaboration and respect of the hierarchy in our project activities	Strongly Agree	272	76.8
	Agree	71	20.1
	Moderately Agree	7	2.0
	Disagree	2	.6
	Strongly Disagree	2	.6
	Total	354	100.0

Source: Own Survey, 2019

The respondents were asked to confirm whether the selection of community health workers is done objectively. As it can be seen from item (1) Table 4.2.1.1 above, the majority of respondents or 98.8% answered strongly agreed or agree. So, we can say here that the selection of community health workers is done objectively. According to the Ministry of Health, qualifications to become a CHW include the following: ability to read and write; aged between 20-50 years; willing to volunteer; living in the local village; to be honest, reliable, and trusted by the community; and be elected by the village members. Each village should elect two women and one man (MOH, 2013).

When asked whether they received appointment letter before taking the job, the respondents or 95.8% said that they did not get appointment letters before starting the job. This shows

that there is no official appointment letter between government and the CHWs before starting the job. As it can be seen from the same table item (3), respondents were asked whether there is good collaboration and respect of the hierarchy in the project activities. Their answers showed that 76.8% strongly agree. This indicates that most of CHWs agree that there is good collaboration and respect of the hierarchy in the project activities and it implies an important motivation factor for all project members.

Table 4.2.1.2 Training

Item	Category	Frequency	Percent
Before starting ,I received adequate trainings relevant to the work I am doing	Strongly Agree	222	62.7
	Agree	90	25.4
	Moderately Agree	22	6.2
	Disagree	16	4.5
	Strongly Disagree	4	1.1
	Total	354	100.0
I have attended adequate refresher Course in the last 3 years (2015-2018)	Strongly Agree	255	72.0
	Agree	72	20.3
	Moderately Agree	14	4.0
	Disagree	8	2.3
	Strongly Disagree	5	1.4
	Total	354	100.0
In the last 3 years (2015-2018) I admire the trainings that I attended for performing my duties as CHW	Strongly Agree	257	72.6
	Agree	75	21.2
	Moderately Agree	15	4.2
	Disagree	3	.8
	Strongly Disagree	4	1.1
	Total	354	100.0
Who trained you as a Community Health Worker?	Health center	234	66.1
	District Hospital	12	3.4
	Ministry of Health	107	30.2
	Other	1	.3
	Total	354	100.0

Source: Own Survey, 2019

When the respondents were asked whether "before starting, I received adequate trainings relevant to the work I am doing", the majority of respondents 62.8 strongly agreed, 25.4% Agreed, 6.2% moderately Agree, 5.6% Disagree or Strongly Disagree. This shows that CHWs received adequate trainings to enable them do their job. This confirms what Uta L. and David S. say "For CHWs to be able to make an effective contribution, they must be carefully selected, appropriately trained and – very important – adequately and continuously supported. Large-scale CHW systems require substantial increases in support for training, management, supervision and logistics. Weaknesses in training, task allocation and supervision need to be addressed immediately. CHWs represent an important health resource whose potential in providing and extending a reasonable level of health care to underserved populations must be fully tapped" (Uta L. and David S., 2007).

According to Item (2) Table 4.2.1.1 as can be seen, the majority of the respondents or 92.3% agreed that they attended adequate refresher course in the last 3 years (2015-2018), including 72.0% who strongly agree and 20.3 % who only agreed.

Item (3) Table 4.2.1.1 as it can be seen that 257 or 72.6%respondents strongly agree &75 or 21.2% agree with the statement asked whether in the last 3 years (2015-2018) I admire the trainings that I attended for performing my duties as CHW ,15 or 4.2% moderately agree ,4 or 1.1% strongly disagree,3 or .8% disagree.

Participants of the study were asked who trained them as a Community Health Worker. As it can be seen from the table above item (4), respondents provided their answer as 66.1%, Health center, 30.2% Ministry of Health, 3.4% District Hospital, 0.3% other. We can say that the CHWs are mostly trained by Health center and sometimes by the Ministry of Health. Not only CHWs are trained, but also they are supervised to ensure that they are doing their work properly. According to the US Department of Health and Human Services, a successful community-based outreach program (e.g., in-home visits) requires competent supervision and additional training to ensure that CHWs stay within the scope of their practice and understand what would be expected of them in an emergency situation (US Department of Health and Human Services, 2011).

4.2.2.3 Supervision

Item	Category	Frequency	Percent
There is regular supervision by pertinent people and authorities	Strongly Agree	234	66.1
	Agree	77	21.8
	Moderately Agree	27	7.6
	Disagree	10	2.8
	Strongly Disagree	6	1.7
	Total	354	100.0
I get enough supervision	Strongly Agree	203	57.3
	Agree	78	22.0
	Moderately Agree	54	15.3
	Disagree	13	3.7
	Strongly Disagree	6	1.7
	Total	354	100.0
Who is mainly involved in supervising you?	Cell	16	4.5
	Health center	337	95.2
	others	1	.3
	Total	354	100.0

Source: Own Survey, 2019

The previous three tables show that over the last three years, CHWs have received trainings before starting their job, received refresher trainings and more importantly admired the trainings that they received. This is in line with what USAID which said when it indicated that effective training of new CHWs, as well as training for existing CHWs in new topics and skills, ensures that health workers have the capacity to provide quality health education and services to their target populations (USAID 2015).Participants of the study were asked whether there is regular supervision by pertinent people and authorities. The Majority of respondents or 87.9% answered that they either agreed or strongly agreed with this assertion, so there is regular supervision.

From the above table, item (2), respondents asked whether I get enough supervision. Accordingly, 79.3% of respondents answered that they agreed or strongly agreed. This indicates that not only CHWs get supervision, but also that they get enough supervision. CHWs are supervised by health centers which are in turn supervised by district hospitals on

a quarterly basis. The two institutions work in close collaboration to assess the implementation of community activities by CHWs; identify gaps and discuss solutions with the in-charge of CHWs (RGB, 2017).

In addition, although high-quality training can lead to improved performance and quality of services, training alone is not enough and other factors such as close supervision are critical to the effectiveness of CHWs (US Department of Health and Human Services, 2007).Asked who is mainly involved in supervising CHWs, the majority of respondents or 95.2% answered Health center.

Table 4.2.2 Information on System

Item	Category	Frequency	Percent
I admire the means used to record my reports	Strongly Agree	262	74.0
	Agree	77	21.8
	Moderately Agree	12	3.4
	Disagree	3	.8
	Total	354	100.0
The frequency of submitting reports is appropriate	Strongly Agree	283	79.9
	Agree	62	17.5
	Moderately Agree	5	1.4
	Disagree	4	1.1
	Total	354	100.0
Documenting and disseminating reports are relevant for stakeholders as reference and input for decision making	Strongly Agree	267	75.4
	Agree	68	19.2
	Moderately Agree	15	4.2
	Disagree	2	.6
	Strongly Disagree	2	.6
	Total	354	100.0
I share my reports with other Community Health Workers before submitting	Strongly Agree	294	83.1
	Agree	56	15.8
	Moderately Agree	2	.6
	Disagree	2	.6
	Total	354	100.0
There is timely and regular feedback from supervisors on my performance	Strongly Agree	282	79.7
	Agree	55	15.5
	Moderately Agree	8	2.3
	Disagree	4	1.1
	Strongly Disagree	5	1.4
	Total	354	100.0
Where do you take your reports?	Cell	105	29.7
	Health Center	202	57.1
	Ministry of Health	1	.3
	All of the above	46	13.0
	Total	354	100.0

Source: Own Survey, 2019

As it can be observed on Table 4.2.2 item (1) above, when the respondents were asked to confirm whether they admire the means used to record their reports, 95% agreed or strongly agreed that.

According to the Ministry of Health (2013), at the end of each month, the CHWs who work in the same village, meet to consolidate data from their individual registers and fill out a village level CHW monthly report form. The CHWs' supervisor at the health center compiles all villages and cell reports together and sends district facility-level monthly report forms to the District Hospital. The data manager at the district Hospital enters each HC-level consolidated monthly report form to allow electronic data submission to the central MOH level. At National level, the Health Information System Unit merges the data from all districts and maintains a national database of health statistics. CHWs countrywide have been supplied with mobile phones for *RapidSMS* which is a new innovation for rapid reporting on maternal emergencies to central level in order to facilitate the process.

Respondents were also asked whether the frequency of submitting reports is appropriate. According to the data collected, the majority of the respondents or 97.4% answered that they are agreed or strongly agreed with the statement. From the same table item 3, respondents were asked whether they are documenting and disseminating reports are relevant for stakeholders as reference and input for decision making. Accordingly, the majority of respondents or 94.6% strongly agreed or agreed. Thus it can be said that reports are relevant for stakeholders as reference and input for decision making.

As indicated in table 4.2.2(item4), 98.9% of the total respondents strongly agreed or agreed that they share their reports with other Community Health Workers before submitting. Item (5), respondents were asked whether there is timely and regular feedback from supervisors on their performance. Accordingly, 95.2% of their response is placed on strongly agreed or agreed. Since the answer is positive, said it can be confirmed that CHWs get timely and regular feedback from supervisors.

Interviews conducted with participants both at the health center and district level revealed that CHWs receive supervisory visits and that such visits are essential for continuous capacity building as they discuss and receive feedback support and clarifications on some issues from their supervisors.

From item (6), respondents were asked where do you take your reports, they provided their answer as 57.1% Health Center, 29.7% Cell, 13.0% All of the above, 0.3% Ministry of Health. The above table show that Health Centers are working closely with CHWs

particularly in training, supervising and receiving the reports. Further, CHWs work with the cell which is a small administrative entity very close to the community. According to Liverpool School of Tropical Medicine (2016), the cell coordinators collect the CHWs form monthly and organize meetings at cell-level to compile and discuss the data and ensure its validity and accuracy. Cell coordinators then submit CHW reports to the HC, where these reports are compiled by the in-charge of CHWs. The HC organizes a meeting at the end of the month. It can be attended by all CHWs, the board of CHWs cooperative and the person in-charge of CHWs at the HC.

Table 4.2.3 Finance

Item	Category	Frequency	Percent
I receive cash payment on what I do for the community	Strongly Agree	150	42.4
	Agree	80	22.6
	Moderately Agree	84	23.7
	Disagree	24	6.8
	Strongly Disagree	16	4.5
	Total	354	100.0
The payment is adequate for the work that I do as CHW	Strongly Agree	18	5.1
	Agree	20	5.6
	Moderately Agree	78	22.0
	Disagree	126	35.6
	Strongly Disagree	112	31.6
	Total	354	100.0
Payment is motivating enough to perform beyond call of duty	Strongly Agree	71	20.1
	Agree	37	10.5
	Moderately Agree	62	17.5
	Disagree	124	35.0
	Strongly Disagree	60	16.9
	Total	354	100.0
Payment is attractive for new entrant CHW	Strongly Agree	91	25.7
	Agree	73	20.6
	Moderately Agree	60	16.9
	Disagree	79	22.3
	Strongly Disagree	51	14.4
	Total	354	100.0

Source: Own Survey, 2019

As it can be observed on the above table, on the question whether CHWS receive cash payment on what they do for the community, 150 or 65% &80 or 22.6 % strongly agree & agree,84 or 23.7% moderately , 16 or 4.5%& 24 or 6.8% strongly disagree &disagree . This result shows that there is cash payment on what CHW do for the community. This is a result of the Pay-for-performance schemes which have been increasingly introduced in the health

care systems of Sub-Saharan African countries and low- and middle-income countries more generally (Miller and Babiarz, 2013; Witters et al. 2012). In Rwanda, Community health workers were integrated into the Performance-Based Financing (PBF) scheme in 2009. The objectives of the CHW incentives strategy were to improve the quality of data reported at the sector level, increase utilization of key maternal and child health services and improve the motivation and behavior of CHWs. (Rusa et al. 2009).

Asked whether the payment that they receive is adequate for the work that they do, as it can be observed in the above table 4.2.3 item(2), 112 respondents or 31.6%& 126 or 35.6% said that they strongly disagree &disagree,78 or 22% moderately , 18 or 5.1%& 20 or 5.6% strongly agree & agree.

This result shows that the payment given to Community Health Workers is not adequate for their work. This is coupled with other challenges in getting this payment. According to MoH (2013), the challenges are: delay in transfer of funds (from central to CHW cooperatives, profound delays are seen at the level of HC to CHWs cooperatives), verification of data at the community and cell level before it reaches sector levels, data analysis difficult for generating payments orders and calculating payment for some indicators due to: data not always on time and funds not always on time.

Item (3) of Table 4.2.3 as can be seen 184 or 51.9% replied strongly disagree or disagree, 62 or 17.5% moderately, 108 or 30.6% replied agree or strongly agree. This indicates the payment is not motivating enough to perform beyond call of duty.

Item (4) Table 4.2.3 Payment is attractive for new entrant Community Health Worker. Find out 46.3% of CHWs have strongly agreed or agreed, 16.9% moderately agreed, 36.7% strongly disagreed or disagreed. This result shows there new entrants are not too much attracted by the payment, the delay or non-payment of promised stipends appears to have a more serious impact on their motivation.

4.3 External Environment

Table 4.3.1 Health Policy

Item	Category	Frequency	Percent
The health policy facilitate the performance of CHWs	Strongly Agree	209	59.0
	Agree	86	24.3
	Moderately Agree	38	10.7
	Disagree	14	4.0
	Strongly Disagree	7	2.0
	Total	354	100.0
The package of services to be delivered at community level are enough	Strongly Agree	217	61.3
	Agree	100	28.2
	Moderately Agree	29	8.2
	Disagree	4	1.1
	Strongly Disagree	4	1.1
	Total	354	100.0
Policy is enriched based on inputs given by CHWs and other stakeholders	Strongly Agree	272	76.8
	Agree	70	19.8
	Moderately Agree	8	2.3
	Disagree	1	.3
	Strongly Disagree	3	.8
	Total	354	100.0
Policy is neutrally designed to facilitated the services of CHWs	Strongly Agree	201	56.8
	Agree	84	23.7
	Moderately Agree	45	12.7
	Disagree	16	4.5
	Strongly Disagree	8	2.3
	Total	354	100.0

Source: Own Survey, 2019

The Community Health Policy was developed mainly to guide and strengthen the provision of Community health services in order to achieve the national and international health targets. The Ministry of health has policy in place that integrate and include CHWs in

health system planning and budgeting and provides logistical support to sustain district, regional and/or national CHW programs (USAID, 2011; MoH, 2013).

As can be seen in the Table 4.3.1 (item 1) above, respondents were asked whether the health policy facilitate the performance of CHWs. They provided their answer as 59% strongly agree, 24.3% agree, 10.7% moderately agree, 4% disagree and 2% respondent replied as strongly agree. This indicates that most of CHWs confirm this statement.

It can be seen from the same table ,item (2) that 61.3% of respondent strongly agree, 28.2% agree, 8.2% moderately agree, 2.2% disagree or strongly agree. This result shows that the package of services to be delivered at community level is enough.

As it can be seen, 96.6% of respondents strongly agree or agree with the statement that policy is enriched based on inputs given by CHWs and other stakeholders. This indicates policy is enriched based on inputs given by CHWs and other stakeholders. Others respondent 2.3% moderately agree and 1.1% strongly disagree or disagree.

Findings from Item (4) of the above Table 4.3.1 show that out of the total respondents, 201or 56.8% said that they strongly agree, 84 or 23.7% agree,45 or 12.7% moderately agree,16 or 4.5% disagree,8 or 2.3% strongly disagree . This indicates that policy is neutrally designed to facilitate the services of CHWs. The National Community Health Strategic Plan (CHSP) (2013-2018) describes in detail the program design, structure; program components, responsibilities, coordination mechanisms, the package of services to be delivered at community level, and proposes a log frame for monitoring the plan.

Table 4.3.2 Public Relations

Item	Category	Frequency	Percent
The community appreciate my work by thanking me after serving them	Strongly Agree	290	81.9
	Agree	51	14.4
	Moderately Agree	4	1.1
	Disagree	3	.8
	Strongly Disagree	6	1.7
	Total	354	100.0
The community appreciate my work by giving me cash payment	Strongly Agree	10	2.8
	Agree	5	1.4
	Moderately Agree	3	.8
	Disagree	60	16.9
	Strongly Disagree	276	78.0
	Total	354	100.0
The community respect me when I am attending them	Strongly Agree	259	73.2
	Agree	71	20.1
	Moderately Agree	12	3.4
	Disagree	8	2.3
	Strongly Disagree	4	1.1
	Total	354	100.0
In the last 3 years, there have been some cultural beliefs in the community that are in conflict with organization's policy	Strongly Agree	116	32.8
	Agree	70	19.8
	Moderately Agree	63	17.8
	Disagree	58	16.4
	Strongly Disagree	47	13.3
	Total	354	100.0

Source: Own Survey, 2019

As it can be seen in Item (1) of Table 4.3.2, 290 or 81.9% strongly agree, 51 or 14.4% agree, 4 or 1.1% moderately agree, 3 or 0.8% disagree, 6 or 1.7% strongly disagree. This result shows the community appreciate CHWs work by thanking after serving them. This is very motivating factor if we remember that CHWs are not well paid as shown above.

Item (2) of Table 4.3.2 shows that 276 or 78% strongly disagree with this assertion, 60 or 16.9% disagree, only 3 or .8% moderately agree, 5 or 1.4% agree, 10 or 2.8% strongly agree. Most of respondents disagree with this statement because by nature CHWs are volunteers, hence not paid by the members of their community for their services and use the materials from government.

Item (3) of Table 4.3.2 shows that most of respondents agree that the community respect them. 259 or nearly three quarter of the respondents 73.2% strongly agree, 71 or 20.1% agree, 12 or 3.4% moderately agree, 8 or 2.3% disagree, 4 or 1.1% strongly disagree.

Findings from Item (4) in the above Table 4.3.2 show that out of the total respondents' 161or almost one third of the total population 32.8% say strongly agree, 70 or 19.8% agree, 63 or 17.8% moderately agree,58 or 16.4% disagree,47 or 13.3% strongly disagree. . This indicates that in the last 3 years, there have been some cultural beliefs in the community that are in conflict with organization's Policy . Interviews with supervisors revealed these challenges are particularly related to the religion, age, sex. For instance, the born again Christians don't like using family planning methods, sometimes adult people find it difficult to communicate with young CHWs or the opposite sex on sexual and reproductive health related issues.

Table 4.3.3. Economic

Item	Category	Frequency	Percent
It is important to be a member of the CHWs cooperative	Strongly Agree	245	69.2
	Agree	79	22.3
	Moderately Agree	16	4.5
	Disagree	9	2.5
	Strongly Disagree	5	1.4
	Total	354	100.0
I got some opportunities from CHWs' cooperative in the last 3 years (2015-2018)	Strongly Agree	205	57.9
	Agree	85	24.0
	Moderately Agree	35	9.9
	Disagree	15	4.2
	Strongly Disagree	14	4.0
	Total	354	100.0
There are some economic factors that hinder my performance	Strongly Agree	97	27.4
	Agree	82	23.2
	Moderately Agree	60	16.9
	Disagree	67	18.9
	Strongly Disagree	48	13.6
	Total	354	100.0

Source: Own Survey, 2019

Findings from item (1) of Table 4.3.3 shows that out of the total respondents 245 or 69.2% strongly agree, 79 or 22.3% agree, 16 or 4.5% moderately agree, 9 or 2.5% disagree, 5 or 1.4% strongly disagree with this statement that it is important to be a member of the CHWs cooperative .This statement shows that respondents agree that that it is important to be a member of the CHWs cooperative. Regarding the case of Rwanda, when cooperatives received payments through the CPBF program, a maximum of 30 percent could be immediately distributed to cooperative members while the rest had to be invested in income-generating activities of the cooperatives. Revenues from these entrepreneurial activities, in turn, could be reinvested or distributed as dividends to the members (Gil S. and colleagues, 2017). The performance-based financing expert will support the management and coordination of CPBF program activities, including follow-up to ensure that performance-

based payments are made in the right amount, at the right time, for the right CHW cooperatives (MoH, 2013).

Item (2) of the Table 4.3.3 shows that 205 respondents or slightly a half of the respondents 57.9% strongly agree, 85 or 24% agree, 35 or 9.9% moderately agree, 15 or 4.2% disagree, 14 or 4% strongly disagree that they got some opportunities from CHWs' cooperative in the last 3 years (2015-2018). This result shows the CHWs got some opportunities from cooperative CHWs in the last 3 years (2015-2018).

According to item (3) Table 4.3.3, it can be seen that 97 respondents or slightly more than a quarter of the respondents 27.4% strongly agree, 82 or 23.2% agree, 60 or 16.9% moderately agree, 67 or 18.9% disagree, 48 or 13.6% strongly disagree. This indicates that there are some economic factors that hinder my performance.

According and al., a lack of financial or material compensation for services rendered could lead to an inability of CHWs to provide for their family (Maes K, Kalofonos I; 2013).

Poverty of the community could also influence the work of CHWs. Maes et al. reported that a food crisis not only affected CHWs, but also led to lack of food among clients causing distress to CHWs (because they saw their clients suffering) .The lack of supplies directly impacts CHWs' ability to fulfill their primary responsibilities, lack of financial support to cover costs of transport, and more generally lack of incentives, are a main obstacle to carry out their activities .CHWs are constrained to balance their volunteering activities as CHW and their income generating activities.

Table 4.3.4 Physical and Geographical

Item	Category	Frequency	Percent
My work environment is safe and free from hazards	strongly Agree	300	84.7
	Agree	50	14.1
	Moderately Agree	4	1.1
	Total	354	100.0
The time and distance for households are not hardly	Strongly Agree	99	28.0
	Agree	78	22.0
	Moderately Agree	79	22.3
	Disagree	56	15.8
	Strongly Disagree	42	11.9
	Total	354	100.0
Necessary materials are available and appropriate working conditions	Strongly Agree	241	68.1
	Agree	67	18.9
	Moderately Agree	32	9.0
	Disagree	13	3.7
	Strongly Disagree	1	.3
	Total	354	100.0
Materials and supplies are sufficient	Strongly Agree	161	45.5
	Agree	76	21.5
	Moderately Agree	67	18.9
	Disagree	33	9.3
	Strongly Disagree	17	4.8
	Total	354	100.0
Infection control strategy guidelines are available	Strongly Agree	219	61.9
	Agree	64	18.1
	Moderately Agree	26	7.3
	Disagree	20	5.6
	Strongly Disagree	25	7.1
	Total	354	100.0

Source: Own Survey, 2019

There are the difficulties related to the geographical accessibility of some areas. Rwanda is part of the highlands of Eastern and Central Africa, with a lot of hills. The country has three distinct geographical regions. Western and north-central Rwanda is made up of the mountains and foothills of the Congo-Nile Divide, the Virunga volcano range, and the northern highlands. This region is characterized by rugged mountains intercut by steep valleys. Rwanda's center, mountainous terrain gives way to the rolling hills that give the country its nickname, "**Land of a Thousand Hills**." The area is also referred to as the central plateau. Further East lies a vast region known as the "eastern plateaus," where the hills level gradually into flat lowlands interspersed with a few hills and lake-filled valleys. (Randall Baker, 1970). This geographical situation of the country affects the performance of CHWs if you consider that they have to travel long distances to reach the needy.

Findings from Item (1) in the above Table 4.3.4 shows that out 300 respondents or 84.7% strongly agree with the statement, 50 or 14.1% agree, 4 or 1.1% moderately agree. This result shows that the work environment is safe and free from hazards.
Respondents were asked whether the time and distance for households are not hard to reach. Accordingly, of the total respondents'99 or 28% strongly agree, 78 or 22 % agree, 79 or 22.3% moderately agree, 56 or 15.8% disagree, 42 or 11.9% strongly disagree. Interviews with participants revealed that North and West provinces have the difficulties in travelling which are caused by many mountains in their regions.

On Item (3) of Table 4.3.4, it can be seen that 87% strongly agree or agree, 9% moderately agree, 4% disagree or strongly disagree. This result shows that necessary instruments are available with working conditions. From the same table, Item (4) it can be observed that 67% of the respondents strongly agree or agree with the statement on whether materials and supplies are sufficient; 18.9% moderately agree, 14.1% disagree or strongly disagree.
On Item (5) of the table above, it can be seen that 80% of the respondents strongly agree or agree, 7.3% moderately agree, 12.7% strongly disagree or disagree. This result shows that Infection control strategy guidelines are available. CHWs have guidelines on all current interventions, the tools and guidelines prepared by the Community Health Desk and it is responsible for ensuring that these materials are well developed and disseminated in time.

4.4 Others Questions

Table 4.4.1 One Response

Item	Category	Frequency	Percent
Who pays in cash for what you do for the community?	Ministry of Health	349	98.6
	Non -Governmental Organization	3	.8
	Others	2	.6
	Total	354	100.0
What kind of payment do you receive?	Salary	2	.6
	Allowance	322	91.0
	Intensive training and refresher courses	10	2.8
	Recognition by the community	19	5.4
	Others	1	.3
	Total	354	100.0
Which of the following incentives do you think would motivate you the most as a CHW?	Salary	206	58.2
	Allowance	49	13.8
	Intensive training and refresher courses	83	23.4
	Recognition by the community	16	4.5
	Total	354	100.0
What opportunities did you get from Cooperative CHWs?	A loan	4	1.1
	Support from other members	94	26.6
	Building friendship	233	65.8
	Other	23	6.5
	Total	354	100.0
How many households do you cover in a week?	Less than 3	29	8.2
	3-5	94	26.6
	6-10	122	34.5
	More than 10	109	30.8
	Total	354	100.0
How do you move from household to household during your visits?	By foot	350	98.9
	Using a bicycle	3	.8
	Using motorbike	1	.3
	Total	354	100.0
What is your daily coverage in kms during your visits?	Less 3km	191	54.0
	3-5 km	120	33.9
	5-7 km	32	9.0
	Above 7 km	11	3.1
	Total	354	100.0

Source: Own Survey, 2019

Item (1) respondents were asked who pays in cash for what you do for the community. 98.6% of respondents answered they are paid by Ministry of Health. Item (2) as can been seen 322 or 91% replied allowance. This result shows that the kind of payment for CHWs is allowance.

Respondents asked which of the following incentives you think would motivate you the most as a CHW. 58.2% mentioned salary, 23.4% intensive training and refresher courses, 13.8% allowance, 4.5% recognition by the community. This indicates that the majority of CHWs need to get salaries.

Item (4), the table above shows the opportunities CHWs get from their Cooperatives. 233 or 65.8% said that they were able to build friendship, 94 or 26.6% said that they got Support from other members, 23 or 6.5% other, and only 4 or 1.1 got a loan.

The respondents were asked how many households they cover in a week. 34.5% covered 6-10 households, 30.8% more than 10 households, 26.6% 3-5 households and 8.2% covered less than 3 households

From item (6) the table above, respondents were asked how you move from household to household during their visits.98.9% of respondents answered that they travel by foot. This result shows that almost all of them move from household to household by foot.

Item (7) above presents the distance covered by CHWs in kms during their daily visits. Data collected suggests that 54% cover less than 3km, 33.9% between 3 and 5 km, 9% cover between 5 and 7 km, and 3.1% above 7km. This result shows that the majority of CHWs do short distance during their households visit.

Table 4.4.2 Multi Responses

Multiple response refers to the situation where the respondents are allowed to tick more than one answer option for a question. This section indicates the questions which multi response were possible.

Item	Category	Number	% of cases
Which training did you attend as a community Health worker	Community Health Management Information (CHMIS)	340	96.3%
	Nutrition Program (NP)	320	90.7%
	Environmental health and Hygiene (EH)	314	89.0%
	Family Planning (FP)	305	86.4%
	Reproductive Health (RH)	267	75.6%
	Behavior Change Communication (BCC)	265	75.1%
	Community Performance Based Funding(C-PBF)	236	66.9%
	Community Case Management (CCM)	219	62.0%
	Mother and Newborn Health Program (MNH)	214	60.6%
What mostly hinders your movement during your visits?	Slippery/muddy	256	73.1%
	Rugged terrain	187	53.4%
	Long distances	88	25.1%
	landslides during rainy season	79	22.6%
	Rivers	25	7.1%
	None of the above	23	6.6%
	Wild animals	11	3.1%
What are the two major challenges to complete duties as a CHW?	Small allowance and not coming on time	125	35.9%
	Hard work , much responsibilities	112	32.2%
	Long distance to health center without transport Facilities	87	25.0%
	No regular salary	67	19.3%
	Materials are not sufficient for delivering service	59	17.0%
	No uniform and equipment during rainy season	52	14.9%
	No office for delivering the services	43	12.4%
	No intensive training	29	8.3%
	Low level behavior of the people during the sensitization	16	4.6%
	Missing people during the visit	14	4.0%
	To take the pregnant women at health center during night	12	3.4%
	Slippery/muddy, Rugged terrain during the visit	11	3.2%

Source: Own Survey, 2019

Respondents were asked which training they attended as community Health worker. As shown on the table above, the majority of the respondents received the different training courses at a satisfactory level, as 96.3% of respondents attended a training on Community Health Management Information (CHMIS), 90.7 % on Nutrition Program (NP),89% on Environmental health and Hygiene (EH) . As the result shows, the CHWs attended some training at a low level. 66.9% of the respondents were only trained on Community Performance Based Funding(C-PBF), 62% on Community Case Management (CCM). Mother and Newborn Health Program (MNH) training is at the last rank or 60.6 % of the respondents as this service is delivered by *Animatrice de santé maternelle*(ASM) who are in charge of maternal and newborn health .

As summarized on table 4.4.2 item (2), respondents were asked what mostly hinders their movement during their visits. Nearly three quarter of the respondents 73.1% mentioned slippery/muddy, 53.4% rugged terrain, 25.1% long distances, 22.6% landslides during rainy season**,** 7.1% rivers, 3.1% wild animals and 6.6% none of the above. This indicates that the biggest hindrances of CHWs movements while conducting their visit are slippery/muddy and rugged terrain.

From item (3) the same table above, respondents were asked the two major challenges to complete their duties as CHW. They mentioned 12 different challenges. The biggest challenges mentioned by respondents are small allowance and not coming on time (35.9%), hard work, much responsibilities (32.2%) and long distance to health center without transport facilities (25%).

4.5. Discussion from the Interviews

In addition to data from the survey, interviews were conducted with the CHWs' supervisors at Health center and district level from 5 districts. The main objective of these interviews was to obtain in depth knowledge of the environmental foundation for community health workers project in Rwanda. The interview was structured and focused on their roles in CHWs project, explained the importance of CHWs project for the community and for the country, of the support of Health centers and the District in the success of CHWs, the identification of health policy that influence Performance of CHWs in the county. The interviews were also aimed at clarifying the environmental factors that influenced the Performance of CHWs in the last 3 years (2015-2018). In addition supervisors at Health Center were asked questions about the opportunities that helped the CHWs project to sustain and the challenges that affected the CHWs project in Rwanda.

All Health center's supervisors have the responsibility to coordinate all community health activities within the Heath Center catchment area. This includes sensitization, mobilization, collecting and analyzing the data on monthly activities. They are also requested to submit monthly reports to the district, inventory and distribution of materials to CHWs,to train the CHWs and ensure supervision of CHWs. Supervisors at District level are in charge for coordination and management, administrative support, District action plan, supervision and capacity building, reporting to the Rwanda Biomedical Centre (RBC)

The researcher asked the respondents if there is a benefit of the CHWs project for the community and for the country. All of them replied that the CHW project has the benefits for the community and country as:

- It sensitizes and mobilizes the community for using health services at HC or hospitals. For instance, they promote the use of treated mosquito nets and sensitize the community about immunisation, HIV voluntary counselling and testing and timely payment of Community-Based Health Insurance.
- The CHW Project ensures the health promotion and BCC activities on hygiene and sanitation, early seeking care behaviour, breastfeeding, infant and young child feeding, birth spacing and family planning (FP).
- CHWs educate and screen the community for Gender-Based Violence (GBV).
- CHWs identify Tuberculosis (TB) suspects in the community and refer them to the HC for sputum examination.

- CHWs contribute to the reduction of child and maternal mortality. According to recent estimates, the under-5 mortality rate has declined from 152 per 1,000 live births in 2005 (Rwanda Demographic Health Survey (RDHS) 2005) to 50 per 1,000 live births in 2014(RDHS 2014-15); the neonatal mortality rate has also reduced from 37 per 1,000 live births to 20 per 1,000 livebirths. The maternal mortality ratio (MMR) has also successfully reduced: MMR was estimated at 750 per100, 000 live births in 2005, and at 210 per 1,000 live births in 2014-15 (RDHS 2014-15).
- CHWs monitor the growth of children under-5 using Middle-Upper Arm Circumference (MUAC) and weight for age (with a salter scale) and refer moderately and severely malnourished children to the HC and follow up children provided with Ready-to-Use Therapeutic Food in the community.
- CHWs help community to gain primary health care in the village and getting treatment at home
- CHWs contribute to reducing the gravity of diseases and help the country in reducing the cost of health issues, thus increasing the economy of the country.
- Assistantes Maternelles de Santé carry out specific activities related to maternal and newborn health, targeting women and their newborns from pregnancy until the newborn reaches the age of two months. They identify and register women of reproductive age, identify pregnant women and refer or accompany them for antenatal care at the HC. They visit pregnant mothers at home at least three times during their pregnancy: one time as soon as pregnancy is confirmed, a second time between five and six months of pregnancy and a third time between eight and nine months of pregnancy.
- During home visits, ASMs identify danger signs and refer/accompany pregnant women to the HC; they provide birth preparedness and ensure that pregnant women sleep under treated mosquito nets. ASMs also screen pregnant women for malnutrition and advice on proper feeding and eventually they accompany them to the HC for delivery. In the case a pregnant woman does not deliver at the health facility, some ASMs have been trained to offer the uterotonic drug Misoprostol to eligible mothers within two hours following the delivery, to prevent post-partum hemorrhage.
- Assistantes Maternelles de Santé also accompany women who deliver at home, and their newborn baby, to the health facility within 24 hours of delivery for postnatal

care (PNC). After birth, the ASMs visit the mother and the baby at home at least three times when the baby weight is normal (day one after discharge from health facility, between day 5-7 after delivery and day 28 after delivery) and at least five times when the baby weight is low (day one after discharge from health facility, day five, day seven, day 14 and day28 after delivery).

- During these PNC home visits, AMSs assess mothers and newborns for danger signs and refer them to the health facility they support breastfeeding and care for low birth weight babies (feeding, skin-to-skin contact), weigh newborns, screen lactating mothers for malnutrition and provide them with nutrition advice.
- Binômes CHWs diagnose and treat children for diarrhea, pneumonia and malaria. They sensitize community members of reproductive age to join Family Planning programs and refer them to the HC to initiate Family Planning. Binômes have been trained and entitled to re-supply family planning clients with oral contraceptive pills (Microlut® and Microgynon®), to administer contraceptive injection (Depo-Provera®), and to provide male and female condoms and menstrual cycle beads
- Binômes CHWs also encourage households to ensure food security by promoting the setting up of kitchen gardens and the breeding of small and large live-stock. They also educate community members to have a balanced diet by offering culinary demonstrations. Finally, they promote in-home food fortification by providing micro-nutrient powder (Ongera) for children aged six months to two years old.
- CHWs are ambassadors in the village. They help local government to disseminate all information to the community.

Interviews with supervisors both at the health center and district level revealed that the support provided to CHWs to efficient consists of trainings, materials, supervision, money through the CHWs cooperatives and medical insurance. Asked about the health policy that influence performance of CHWs, more than a half of the respondents, mentioned the good coordination by the Ministry of health where the CHWs are enumerated from the village by the community. System of the CHWs cooperative brings collaboration between them, leading to the sustainability of the project

When asked questions about the environmental factors that influenced the Performance of CHWs in the last 3 years (2015-2018), respondents both at the health center and district level said the following:

Socio-cultural factors:

Positive influence: Using the same language (Kinyarwanda which is also the national language), CHWs elected by villages' citizens.

Negative influence: age (Community respect the adult CHWs more than young), sex (the communities are not comfortable talking to the opposite sex CHWs), religion (it's impossible for some born again Christians CHWs to sensitize the community on the use family planning methods and refuse to use them)

Technological factor:

Rapid SMS, Ministry of Health gives phone to all CHWs and the data that they collect is directly sent to the server

Economic factors:

Positive influence: cooperative make them to be active, collaborative and they receive money from PBF which is enables them to conduct income-generating activities;

Poverty: because of many responsibilities of CHWs to the community working without a decent salary, sometimes, the CHWs do not have time for visiting the clients (they have to do their work at home to sustain their living)

Physical and Geographical:

All of the respondents replied that it is difficult to conduct visits during the rainy season. Rwanda being a country of a lot of hills, that factor negatively influences the performance of CHWs. Supervisors in The Western and Northern Provinces which are very hilly, said that it's difficult to conduct visits, to take people at health center because of walking in the mountains.

Further, respondents were asked questions about the opportunities that helped the CHWs project to sustain and the challenges that affected the CHWs project in Rwanda. All of them said there are many opportunities, as the CHWs receive financial compensation through Performance based financing (PBF), for delivering health services. It is worth mentioning that thirty percent of the total PBF funds are shared among CHWs, while 70% is deposited

in the collective funds of CHW cooperatives. Other opportunities mentioned by the respondents include the tools and materials.

In addition, the Ministry of Health collaborated with the district and health center officials to build the capacity of the CHWs through the training of trainers.

The challenges identified by the supervisors are: emigration of trained CHWs and turnover; lack of some tools like boots, umbrella, torch; high responsibilities of CHWs; sometimes stock out of the drugs; change of *rapidSMS* system version (version 2 to version 3) and geographical inaccessibility.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Chapter five of this study provides a summary of the findings, conclusion and recommendations of the study. They were drawn in relation to the specific objectives of the study and the research questions.

5.1. Summary of the Findings

Using a descriptive type of research method design, the study was conducted on Community Health Workers project in Rwanda. The main objective was to assess the environmental foundation for community health workers project in Rwanda. To achieve this objective, a survey was conducted in 5 districts, meaning one district from each province and one district from Kigali city. A total of 361 sample, questionnaires were distributed to Community Health Workers, and 354 (i.e. 98%) were returned, only 7 CHWs never responded to our questionnaire. Further, in order to achieve the objective of our research, documentary techniques and interviews were held with the supervisors of CHWs.

Basically, CHWs is dominated by people with low education, the majority of them have completed primary education (51.4%). Regarding gender, women constitute a significant majority (67.8%) while male are 32.2%, married (73.4%), their monthly income is very small as the majority of respondents earn between RWF 10,001-20,000 a month. CHWs named Binôme are 67.8% and ASM are 32.2%. Moreover, 83.6% of the respondents have an experience of 3 years and more as CHWs.

Community health workers were asked many questions related to the internal and external environment in which they operate. For the internal environment, the structure and human resource is well managed. The findings of our research revealed that 98.8% of the respondents confirmed that they strongly agree or agree that the selection of CHWs is done objectively, 96.9% confirmed that there is good collaboration and respect of the hierarchy in the project, they appreciated the trainings and supervision that they received. Asked whether they had an appointment letter before starting the job, the majority of respondents (95.8%) disagreed. The information and system flow are well structured. The majority of the respondents (95.8) admired the means used to record the reports, and 97.4% of the CHWs confirmed that the frequency of submitting reports is appropriate. While a big number of

respondents (67.2%) disagreed with the statement that the payment is adequate for the work that they do as CHW, only 46.3% of the respondents strongly agreed or agree with that the payment was attractive for new entrants.

The community health workers were also asked different questions related to the external environment. The majority of the respondents (83.3%) agree that the health policy facilitate the performance of CHWs and 89.5% respondents confirmed that the package of services to be delivered at community level is enough. The majority of respondents or 93.3% confirmed that the community appreciate and respect CHWs and 94.9% disagree that they get cash from the community as payment. As regards to the economic point, the majority of the respondents (91.5%) strongly agree or agree with the statement that it is important to be a member of the CHWs cooperative.

The result from the interview revealed that, even though the CHWs project is doing well with good policy and structures in place, some challenges still remain. These are particularly related to the insufficiency of funds to implement all the planned programs, trainings which become costly every time there is an innovation. Other challenges are related to the quality of data collected and compiled, mismanagement of cooperatives, etc. CHWs expressed their challenge as long distance and the geographical inaccessibility of some health facilities.

5.2. Conclusion

This study assessed the environmental foundation for Community Health Workers (CHWs) project in Rwanda. Specifically the study focused on assessing health policy that influence the performance of CHWs. It also focused on determining the environmental factors that influence the CHWs performance, assessed the existing opportunities to ensure the sustainability of the CHWs project and examined its challenges in Rwanda. The study was conducted on CHWs and their supervisors in 5 districts using a descriptive design and mixed approach (quantitative and qualitative).

The health Policy that influence the performance of CHWs were assessed. The CHWs Project is relevant to national policy and plans, as well as to the priorities of the health sector. From the Ministry of Health Strategic Plan, there is a logical continuum and a strong coherence in applying principles of participation, community engagement and human rights to the approach and design of the Community Health Project (CHP). The CHP can rely on a

comprehensive, exhaustive and well-articulated body of policy, protocols, manuals and tools, which are not only well designed but also consistently used and applied along the whole value chain of the CHP, from the central level to community levels. They admired how the project continues to create the new innovation as Rapid SMS system for reporting.

This study examined the environmental factors which influence the CHWs performance. The selection of CHWs is done objectively. The day of the elections, those who are interested in becoming CHWs present themselves to the community and the community elects the candidate of their choice by lining up behind her/him. The cell coordinators collect the CHWs form monthly and organize meetings at cell-level to compile and discuss the data and ensure its validity and accuracy. Cell coordinators then submit CHW reports to the HC, where these reports are compiled by the in-charge of CHWs. The HC organizes a meeting at the end of the month. It can be attended by all CHWs, the board of CHWs cooperative and the person in-charge of CHWs at the HC.

The implementation of PBF through the creation of CHWs cooperatives were taken into account in the research, as a variable potentially influencing the performance and motivation of the CHWs, and as core strategy set in place to ensure the sustainability of the project. However, the respondents of the study said that the payment is not adequate for their work and Performance-based financial incentives sometimes come on irregular time. There are difficulties related geographical accessibility for some health facilities and the study found out that socio-cultural factors play a critical role in determining the performance of community health workers.

Moreover, there are some opportunities which contribute to the sustainability of the CHWs project. The functionality of the health system, structure, Policy and practices are well designed. To be successful, CHW project requires regular and reliable support, supervision and continuous capacity building. There is also a need to strengthen the management of CHWs cooperatives.

Even though the CHP is well managed, the study pointed out some critical challenges to be addressed. These are mainly related to the quality of data collected and compiled at the cell level. They include topographical challenges to cover large distances during visits to households or to health centers, insufficient, irregular and delayed payment of PBF to CHWs

as incentives. The limited number of CHWs to cover the household per village, many responsibilities and stock out of medicine were also mentioned in the study.

5.3. Recommendations

Based on the findings and conclusions drawn with regard to the assessment of the environmental foundation of the community health workers project in Rwanda, the following recommendations are proposed:

Internal factors:

Government institutions particularly at the grassroots level should issue appointment letters to the community health workers before they start the job to establish that voluntarism work and to clarify their roles and responsibilities towards the Community that they serve. As the Community Health Workers are closer to the community, this letter should be signed by the Executive Secretary of the sector and the in-charge of the health District in which they are operating;

A calendar of these trainings should be worked out at the beginning of the fiscal year to enable CHW plan accordingly;

The Government of Rwanda through its Ministry of Health should review strategies to motivate CHW by availing on time incentives and other facilities (transport facilities, reimbursements, umbrellas, torch, boots, etc.) for CHWs, so they are enabled to deliver their services in a more conducive manner.

External factors

The Ministry of Health together with the CHW Project should review the current policy on CHW particularly looking on how to increase the number of CHWs given the areas to be covered and the high density of the Rwandan population. This means that the number of CHWs should vary from cell to cell and district to district depending on the size of the areas to be covered and the number of the population to be served;

Given the workload of the CHWs in Rwanda, the Government of Rwanda specifically the Ministry of Health should discuss with Government local entities at the District and Sector level about how to involve other staff members at the HC and district level to ensure a complete integration and appropriate monitoring of the CHWs program implementation;

Local Government institutions (District and Sectors administration), Health Centers involved in the implementation of the CHW program should consider different socio-cultural factors during the recruitment of the new CHWs;

The Ministry of Health through the CHWs Program and Government local institutions specifically the Sector level administration should work out strategies to strengthen CHWs' cooperatives and to ensure their sound management so they can constitute a source of income for CHWs;

In order to avoid the stock out of the medicine and frustrations of CHWs and members of the Community, the Government of Rwanda particularly the Ministry of Health should improve the supply chain. This should be done through close and regular collaboration and communication between the Ministry of Health and local government institutions, specifically the District and the Health centers.

5.4 Suggestions for Further Study

A study should be done on the assessment of information system on the performance of Community Health workers.

Conduct a research on effects of Performance incentives for Community Health Worker Cooperatives.

REFERENCES

Abbott L, Luke N. (2011). Local hierarchies and distributor noncompliance: a case study of Community-based distribution in rural north India. Health Care Women Int. 2011

Adzei, F. A., &Atinga, R. A. (2012). Motivation and retention of health workers in Ghana's district hospitals: addressing the critical issues. *Journal of health organization and management*, *26*(4), 467-485.

African Development Bank Group. (2014). Improving economic competitiveness to bring about shared growth.

Anyangwe S, Mtonga C, 2007: Inequities in the global health workforce: the greatest impedimentto health in sub-Saharan Africa.

Armstrong M. (2009). A handbook of personnel management practice .11th Ed. London

Ashraf, N., Bandiera, O., & Jack, B. K. (2014). No margin, no mission? A field experiment on incentives for public service delivery. *Journal of Public Economics*, *120*, 1-17.

Azad K, Barnett S, Banerjee B, Shaha S, Khan K, Rego AR, et al, (2010). Effect of scaling Up women's groups on birth outcomes in three rural districts in Bangladesh: a cluster-randomised controlled trial

Bang, A. T., Bang, R. A., P. G., Sontakke& the SEARCH team. (1994). Management of Childhood pneumonia by traditional birth attendants.*Bulletin of the World Health Organisation*, 72(6), 897-905.

Basinga, P., Gertler, P.J., Binagwaho, A., Soucat, A.L., Sturdy, J. and Vermeersch, C.M. (2011).Effect on maternal and child health services in Rwanda of payment to primary health- care providers for performance: an impactevaluation.

Bhutta ZA, Lassi ZS, Pariyo G, Huicho L. (2010). Global experience of community health workers for delivery of health-related millennium development goals: a systematic review,country case studies

Cueto M. (2004). The origins of primary health care and selective primary health care.

American Journal of Public Health

Dussault, G. (2006). Understanding geographical imbalances in the distribution of the health workforce.

Ministry of Finance and Economic Planning (2013). Economic Development and Poverty Reduction Strategy

Evans DB, Etienne C, (2010)**:** Health systems financing and the path to universal coverage. Bull World Health Organ

Franco L, Bennett S, Kanfer R,(2002): Health sector reform and public sector health worker motivation: a conceptual framework

Furuta, Marie and Sarah Salway(2006). Women's Position within the Household as a Determinant of Maternal Health Care Use in Nepal.*International Family Planning Perspectives*

Haines AS, Lehmann D, Rowe U, Lawn AK, Jan JE, Walker S, Bhutta DG.(2007). Achieving child survival goals: potential contribution of community health workers.

Gil and Kalisa, I. (2016). Rwanda Community Performance-Based-Financing Impact Evaluation 2013. World Bank Group, University of Rwanda, Rwanda Ministry of Health.

Gil S, Kalisa I, Jeanine C, James H,Cathy M, Denis N,Jeanette W.(2017). Effects of Performance for Community Health Worker Cooperatives in Rwanda.

Journal of Environmental and Public Health. (2017). Role Performance of Community Health Volunteers and Its Associated Factors in Kuching District.

Liverpool School of Tropical Medicine. (2016). Centre for Maternal and Newborn Health, Comprehensive Evaluation of the Community Health Program in Rwanda.

Lewin, S., Dick, J., Pond, P., Zwarenstein, M., Aja, G., Wyk, B. v., et al. (2005). Lay healthworkers in primary and community health care. The Cochrane Database of SystematicReviews: John Wiley & Sons, Ltd.

Mugenda O.M &Mugenda, A. G (2003).Research methods; quantitative and qualitative.National Institute of Statistics of Rwanda. (2018) .www.statistics.gov.rw: Imihigo2017/2018 Evaluation executive Report.

Nyandekwe, M., Nzayirambaho, M. &Kakoma, J.B. (2014). Universal health coverage in Rwanda

Pan Uta Lehmann and David Sanders. (2007). Community health workers: What do we Knowabout them? The state of the evidence on programs, activities, costs and impact on Health outcomes of using community health workers.

Ruebush, T. K., Weller, S. C., & Klein, R. E. (1994). Qualities of an ideal volunteer Community malaria worker: A comparison of the opinions of community residents and national malaria service staff. *Social Science&Medicine,* 39(1), 123-131.

Rwanda Governance Board. (2017). Rwanda Community Health Workers Programme: 1995- 2015

Rwanda Ministry of Health. (2013). National Community Health Strategic Plan (2013-2018).

Rwanda Ministry of Health.(2015). National Community Health Policy . Kigali.

Shapira, G. (2016). Impact Evaluation of the Rwanda Community Performance-Based Financing Program.

USAID (2015).Factors impacting the effectiveness of community health worker behavior change. A literature Review

US Department of Health and Human Service. (2011). Community health workers evidence-based models tool box HRSA office of rural health policy .

World Health Organization.Declaration of Alma-Ata. Geneva: WHO; 1978. Available from:*http://www.who.int/publications/almaata_declaration_ en.pdf [accessed 2006]*.

World Health Organization (2013). Community performance-based financing to improve maternal health outcomes: Experiences from Rwanda.

APPENDICES

APPENDIX I

QUESTIONNAIRE

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT: PROJECT MANAGEMENT

My name is **Marie Louise Tuyisenge**. I am a student of St. Mary's University School, in Project Management Department. The purpose of this research is to assess the environmental foundation for community health workers project in Rwanda. I strongly assure you that the information you provide will be used for academic purpose only and will be kept confidential. I would like to extend my deep appreciation in advance for being a volunteer to devote your valuable time in filling this form.

Sincerely,

Marie Louise Tuyisenge

District …….…… Date ……

DIRECTION: - No need to write your name and just tick the right answer by making √

SECTION A: SOCIO-DEMOGRAPHIC DATA

1. Sex	Male	[ ]
	Female	[ ]
2. Age	Below 20 years	[ ]
	20-29 Years	[ ]
	30-39 Years	[ ]
	40-49 Years	[ ]
	50 + Years	[ ]
3. Marital Status	Single	[ ]
	Married	[ ]
	Widowed	[ ]
	Separated/Divorced	[ ]
4. Level of education	Primary	[ ]
	Not completed secondary	[ ]
	Secondary	[ ]
	Post- secondary	[ ]
	University	[ ]
5. Occupation	None	[ ]
	Farmer	[ ]
	Formal employm	
	Casual Labor	[ ]
	Business	[ ]
6. Monthly income in RWF	5,000 – 10,000	[ ]
	10,001 – 20,000	[ ]
	20,001 -30,000	[ ]

	30,001 – 40,000	[ ]
	30,001 – 40,000	[ ]
	40,001 – 50,000	[ ]
	Above 50,000	[ ]
7. For how long have you been practicing as a CHW?	Less than six months	[ ]
	six months -1Year	[ ]
	1 -2 Years	[ ]
	3 Years or more	[ ]
8. What is your position as Community Health Worker?	ASM	[ ]
	Binôme	[ ]

SECTION B&C: INTERNAL and EXTERNAL ENVIRONMENT

State the level of your agreement against each item by putting tick mark **(√)** in the appropriate option.

SA = Strongly Agree; A= Agree; MA=Moderately Agree; DA=Disagree; and SDA=Strongly Disagree

	Item	**Level of Agreement**				
Section B. Internal Environment		**SA**	**A**	**MA**	**DA**	**SDA**
1	**Structure and Human Resource**					
	The selection of community health workers is done objectively					
	I got appointment letter when this job started					
	There is good collaboration and respect of the hierarchy in our project activities.					
	Before starting ,I received adequate trainings relevant to the work I am doing					
	I Have attended adequate refresher Course in the last 3 years (2015-2018)					
	In the last 3 years (2015-2018) I admire the trainings that I attended for performing my duties as CHW					
	There is regular supervision by pertinent people and authorities					

	I get enough supervision					
2	**Information System and Flow**					
	I admire the means used to record my reports					
	The frequency of submitting reports is appropriate					
	I share my reports with the others Community Health Workers before submitting					
	Documenting and disseminating reports are relevant for stakeholders as reference and input for decision making					
	There is timely and regular feedback from supervisors on the my performance					
3	**Finance**					
	I receive cash payment on what I do for the community					
	The payment is adequate for the work that I do as CHW					
	Payment is motivating enough to perform beyond call of duty					
	Payment is attractive for new entrant CHW					
Section C. External Environment		**SA**	**A**	**MA**	**DA**	**SDA**
1	**Health Policy**					
	The health Policy facilitate the performance of CHWs					
	The package of services to be delivered at community level are enough					
	Policy is enriched based on inputs given by CHWs and other stakeholders					
	Policy is neutrally designed to facilitated the services of CHWs					
2.	**Public Relations**					
	The community appreciate my work by thanking me after serving them					
	The community appreciate my work by giving me cash payment					
	The community respect me when I am attending them					
	In the last 3 years, there have been some cultural beliefs in the community that are in conflict with organization's Policy					
3	**Economic**					
	It is important to be a member of the CHWs cooperative					

	I got some opportunities from cooperative CHWs in the last 3 years (2015-2018)					
	There are some economic factors that hinder my performance					
4	**Physical and Geographical**					
	My work environment is safe and free from hazards					
	The time and distance for households are not hardly					
	Necessary materials are available and appropriate working conditions					
	Materials and supplies are sufficient					
	Infection control strategy guidelines available					

SECTION D: OTHERS QUESTIONS

1. Which the training did you attend as a community Health worker?

Training course	**Yes**	**no**
Community Case Management (CCM)	[Yes]	[No]
Mother and Newborn Health Program (MNH)	[Yes]	[No]
Reproductive Health (RH)	[Yes]	[No]
Family Planning (FP)	[Yes]	[No]
Nutrition Program (NP)	[Yes]	[No]
Environmental health and Hygiene (EH	[Yes]	[No]
Behavior Change and Communication (BCC)	[Yes]	[No]
Community Performance Based Funding(C-PBF)	[Yes]	[No]
Community Health Management Information (CHMIS)	[Yes]	[No]

2. Who trained you as a Community Health Worker?

a) Health center [ ] b) District Hospital [ ] c) Ministry of Health [ ] d) Other [ ]

3. Who is mainly involved in supervising you?

a) Cell [ ] b) Health center [ ] c) District Hospital [ ] d) Ministry of Health [ ] e) Other specify: ……..

4. Where do you take your reports?

a) Cell [ ] b) Health Center [ ] c) District Hospital [ ] d) Ministry of Health [ ]

e) All of the above [ ]

5. Who pays in cash for what you do for the community?

a) Community [ ] b) Ministry of Health [ ] c) Non -Governmental Organization [ ]
d) others specify: ……

6. What kind of payment do you receive?

a) Salary [ ] b) Allowance [ ] c) Intensive training and refresher

courses [ ] d) Recognition by the community [ ] e)others specify: …

7. Which of the following incentives do you think would motivate you the most as a CHW?

a) Salary [ ] b) Allowance [ ] c) Intensive training and refresher courses [ ]
d) Recognition by the community [ ] e) others specify: …….

8. What opportunities did you get from Cooperative CHWs?

a) A loan [ ] b) Support from other members [ ] c) Building friendship [ ]
d) Other Specify [ ]

9. How many households do you cover in a week?

a) Less than 3 [ ] b) 3-5 [ ] c) 6-10 [ ] d) More than 10 [ ]

10 .How do you move from household to household during your visits?

a) By foot [ ] b) Using a bicycle [ ] c) Using motorbike [ ] d) Bus [ ]

1**1 .What is your daily coverage in kms during your visits?**

a) Less 3km [ ] b) 3-5 km [ ] c) 5-7 km [ ] d) Above 7 km [ ]

12. What mostly hinders your movement during your visits?

a) Rugged terrain [ ] b) Wild animals [ ] c) landslides during rainy season [ ]

d) Slippery/muddy [ ] e) Rivers [ ] f) Long distances [ ] g) none of the above [ ]

13. What are the two major challenges to complete your duties as CHW?

I thank you most sincerely for sharing your opinion

APPENDIX II

KEY INTERVIEW

ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT: PROJECT MANAGEMENT

My name is **Marie Louise Tuyisenge**. I am a student of St. Mary's University School, in Project Management Department in Ethiopia. I am doing a research on the environmental foundation for Community Health Workers Project in Rwanda. An important part of the research is to understand the environment in which the CHWs are operating, as well as what the community's opportunities and challenges are. The Key interview concerns only the CHWs supervisors at Health center and District level. The interviews will be strictly confidential and the study is purely academic. I request you to spare a few minutes of your precious time to answer this questionnaire and I thank you in anticipation of your cooperation for my research education through your responses.

Sincerely,

Marie Louise Tuyisenge

District: …….

Age: **Sex:**

Education:

Supervisor of CHWs: District Level [ ] **Health Center Level** [ ]

Number of years in this position:

1. What is your role/responsibility in CHWs project in Rwanda?
2. Do you find that the CHWs project is an important for the community and for the country? Explain.
3. What do the HC/ District to support (kind of support) CHWs to be functional in their community?
4. Any health Policy (system, plan, structure, practices) that influence Performance of CHWs in the county?
5. What are the environmental factors influencing the Performance of CHWs in the last 3 years (2015-2018)?
   - Socio-cultural
   - Technological
   - Economic
   - Physical and Geographical
6. During the last 3 years, what are the opportunities that helped the CHWs project to sustain in Rwanda?
7. During the previous 3 years, what are the challenges that affected the CHWs project in Rwanda?

Thank you.