Republic of Rwanda
Ministry of Health

Enabel

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BUSINESS CASE FOR FAMILY PLANNING

IN RWANDA

2019

"Family planning has a range of benefits for an individual, family, community and development of a Nation. Rwanda has invested in Family Planning as a key priority for health and the well-being of the nation. This year's WPD theme & global Family Planning Summit in London provides us an opportunity to scale up globally and in Rwanda our investments in Family Planning as contribution to maternal health and our nations continued development."

Dr. Diane Gashumba,
Minister of Health during the 2017 World Population Day commemoration.

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FOREWORD

Rwanda remains one of among the most densely populated countries in sub-Sahara Africa. Many families still have a large family size, with total fertility rates (TFR) ranging from 3.6 in urban to 4.3 in rural areas. About 19 per cent of women and families would like to delay, space and stop childbearing, but are not using Family Planning methods. The Government of Rwanda is committed to managing the population and lowering population growth.

The Ministry of Health is committed to delivering on the promise of the 2030 Agenda for sustainable development and to guaranteeing reproductive rights and ensuring equitable and universal access to health care, leaving no one behind, and achieving universal access to sexual and reproductive health. This requires renewed consideration in the Family Planning (FP) service delivery, including last-mile services and funding to meet FP 2020 goals.

This business case was developed using global and regional literature, and methodology to assess the returns on investment in Family Planning in Rwanda. Among other things, it seeks to uncover what returns Rwanda will get from investing US$1 in the Family Planning programme. The business case also unpacks the monetary savings that accrue to different sectors in Rwanda.

It has shown that investment in Family Planning has significant benefits that go beyond individual women, families and communities. More broadly, investment in Family Planning could yield short-, medium and long-term benefits that cut across several sectors of the economy, including Health, Education, Agriculture, Infrastructure and beyond. It provides a strong justification for the country to increase domestic funding for Family Planning activities, mainly due to the multi-sectoral benefits that the country stands to gain from investing in family planning.

The Ministry of Health is committed to strengthening collaboration with all stakeholders at all levels to ensure coherence and harmonisation of efforts in mobilising resources needed to address any funding gaps in achieving universal access to Family Planning in Rwanda. These joint efforts will lead to enhanced investment in Family Planning programme. There is no doubt that this will potentially address and manage the rapidly growing population, reduce poverty and achieve development goals enshrined in the Vision 2020, the National Strategy for Transformation (NST1) and Rwanda Vision 2050 (The Rwanda we want).

It is evident that the returns from investing in Family Planning will facilitate Rwanda's Vision 2050 that expresses the country's overarching commitment of attaining high standards of living for all Rwandan citizens and reaching an upper middle-income country status by 2035 and a high-income country status by 2050.

I acknowledge the technical and financial support from the United Nations Population Fund (UNFPA) and the Belgian Development Agency (Enabel).

I also thank the core team that oversaw the technical work and this was composed by the Ministry of Finance and Economic Planning, Ministry of Health, Rwanda Biomedical Centre, Rwanda Social Security Board, Enabel, UNFPA, United States Agency for International Development (USAID), Rwanda Health System Strenghtening Activity (RHSSA/MSH) and the World Health Organization (WHO).

I invite all stakeholders to make use this businness case to advocate and mobilise more resources from Family Planning programme in order to achieve universal access to family planning services.

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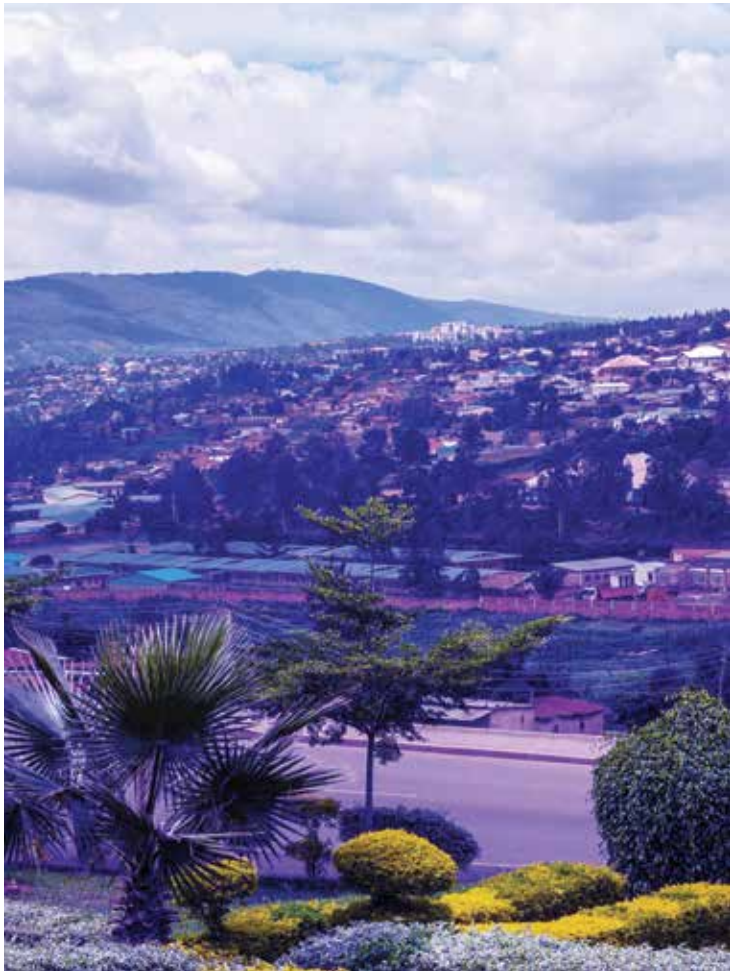
LIST OF ACRONYMS

ANC	Antenatal Care
ASRH	Adolescent Sexual Reproductive Health
CBHI	Community-Based Health Insurance Scheme
CHWs	Community health workers
CPR	Contraceptive prevalence rate
CSE	Comprehensive Sexuality Education
CSOs	Civil Society Organisations
DALYs	Disability-Adjusted Life Years
DFID	UK Department for International Development
DHS	Demographic and Health Survey
GIZ	German Development Cooperation
DPs	Development Partners
EAC	East Africa Community
EICV	Integrated Household Living Conditions Survey
Enabel	Belgian Development Agency
FAO	Food and Agriculture Organization
FP	Family Planning
FP/ASRH	Family Planning and Adolescent Sexual Reproductive Health
GDP	Gross Domestic Product
GoR	Government of Rwanda
HDPs	Health Development Partners
HRTT	Health Resource Tracking Tool
HSSP	Health Sector Strategic Plan
ICFP2018	International Conference on Family Planning 2018
IEC	Information, Education and Communication
LARCs	Long-acting Reversible Contraceptives
MCCH	Maternal, Child and Community Health
mCPR	Modern Contraceptive Prevalence Rate
MDG	Millennium Development Goals
MINEMA	Ministry of Emergency Management
MIGEPROF	Ministry of Gender and Family Promotion
MINAGRI	Ministry of Agriculture and Animal Resources
MINALOC	Ministry of Local Government

MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education
MININFRA	Ministry of Infrastructure
MINYOUTH	Ministry of Youth
MOH	Ministry of Health
MPs	Members of Parliament
MSH	Management Sciences for Health
MYICT	Ministry of ICT and Innovation
NISR	National Institute of Statistics
NST1	National Strategy for Transformation 2017- 2024
OPM	Office of the Prime Minister
PBF	Performance-Based Financing
PPCP	Public-Private Community Partnership
PPFP	Post-Partum Family Planning
PPP	Public and Private Partnership
PS	Permanent Secretary
PSI	Population Services International
RBC	Rwanda Biomedical Centre
RDB	Rwanda Development Board
RHCS	Reproductive Health Commodity Security
RHIC	Rwandan Health Insurance Council
RMNCAH	Reproductive, Maternal, Neonatal, Child, Adolescent, Health
RPRPD	Rwandan Parliamentarians on Population and Development Network
SARCs	Short-term Acting Reversable Contraceptives Methods
SDGs	Sustainable Development Goals
SGBV	Sexual and Gender-based Violence
UNFPA	United Nations Population Fund
UNICEF	United Nations International Children's Emergency Fund
US$	US Dollars
USAID	United States Agency for International Development
WHO	World Health Organization

EXECUTIVE SUMMARY



Context of Rwanda *

Total population
11,809,300

Population density
416/km²

Contraceptive Prevalence Rate
47.5%

Teenage Pregnancy
7.3%

Unmet need for Family Planning
19%

Maternal Mortality Ratio
210/100,000

Source: Population Census 2012, DHS 2014/2015.

Introduction

Rwanda has a population of about 12 million people, of which 40% is under the age of 15 years. The country is recognised as one of the most densely populated countries in sub-Saharan Africa (415 inhabitants per square kilometre in 2012).

The population density in Rwanda is projected to increase to over 600 inhabitants per square kilometre by 2032 if the current population growth trend persists. Most of the Rwanda population is female (52%) while about 2.6 million people are women of reproductive age (i.e. between 15 and 49 years) with a fertility rate of about 4.2 children per woman.

Recent figures show that the country is growing at about 2.6% annually. This rapid population growth has the potentials to undermine current and future progress in national economic growth, development and health.

Based on these statistics and the pressure that a rapidly growing population will place on the economy, the Government of Rwanda (GoR) has committed to managing the population through, among other things, increasing the uptake of contraception and reducing fertility levelas documented in the Economic Development and Poverty Reduction Strategy (2013-2018) and in other relevant government documents.

To achieve this, the Government aims to focus on sustaining campaign on voluntary family planning, increasing the uptake of (modern) contraceptive methods for both men and women, and improving the living conditions of Rwandans through universal access to health and basic education.

Globally, Family Planning remains a cost-effective way to improve maternal and child health outcomes and has been demonstrated in the 2015 development agenda where investment in effective Family Planning contributes to the achievement of the Sustainable Development Goals (SDGs).

The Demographic Dividend report 2017 also alludes to this.

Regarding Family Planning program in Rwanda, unmet need for contraceptives declined from 36% (in 2000) to 19% (in 2014/15). The most commonly used contraceptives include injectable (52%), pills (17.2%) and implants (17.2%).

In fact,the modern contraceptive prevalence rate (mCPR) grew rapidly from 4% in 2000 to 47.2% in 2014/15. Studies show that women residing in rural areas, living in the Western Province, those with no formal education and those from poor households were disadvantaged in the use of contraceptives.

The recent Family Planning and Adolescent Sexual Reproductive Health/Family Planning (FP/ASRH) Strategic Plan 2018-2024 has revised downwards the national target of increasing the contraceptive prevalence rate (CPR) to 60% based on past performance trends and existing investments as modelled through the FP Goals for Rwanda. The GOR's commitment to the FP2020 programme is critical to keep up the momentum to increase contraceptive use and harness the demographic dividend.

Why Invest in Family Planning in Rwanda?

Rwanda is the second most densely populated country in Africa with 415 inhabitants per square kilometre in 2012. Without substantial investment in family planning, annual population growth may lead to a situation where the country is unable to provide essential services, including health care services for its population.

This growth will require accelerated investment in human capital, particularly in the construction of classrooms, health infrastructure, and job creation for youth with substantial investment also needed in agriculture and livestock systems to ensure food security.

Increased investment in Family Planning in Rwanda is a critical step toward ensuring resilience. In fact, it is projected that Rwanda's population will reach 16 million people by 2032, and population density will increase to over 620 persons per square kilometres by 2032.

This means that about one person will be occupying a square metre. Recently, at the 2018 International Family Planning Conference (ICFP2018) held in Kigali, the Right Honourable Prime Minister of the Republic of Rwanda reiterated that "quality Family Planning services are strong means of improving the lives of women, children and families. Family Planning is therefore not only a woman's issue; it involves men as well" (quoted in Niyonzima, 2018).

This recognises the benefits of Family Planning in terms of improving the lives of Rwandans and empowering women so that they can exercise their sexual and reproductive rights to choose the number of children they have, and when, and with whom.

The preceding points to the need to invest in sustainable Family Planning activities to ensure that the country continues to makesubstantial progress on its development path. In fact, the GoR has developed the first ever integrated

Reproductive, Maternal, Neonatal, Child, Adolescent, Health (RMNCAH) Policy from which the Adolescent Sexual Reproductive Health/Family Planning (ASRH/FP) and Maternal Neonatal Child Health (MNCH) costed strategic plans have been developed.

However, what is lacking is the need to have a strong investment case for Family Planning in Rwanda. To date, no study or investment case has been undertaken to assess the benefits and financial sustainability of Family Planning programmes in Rwanda, even though the country is densely populated and has a high maternal mortality of 210 deaths per 100,000 births (RDHS 2014/2015).

Overall, benefits from investing in Family Planning can be yielded on the short-, medium- or long-term. In the short-term, women and men are empowered to enable them to plan the timing and size of their families. Women's lives are saved as they avoid unintended pregnancies, abortions (including unsafe abortions), infant and maternal deaths, etc. In the long-term, there are a substantial saving to the health system and other sectors of the economy.

The short-term benefits to the health sector will increase in the future, and significant healthcare costs will be averted. Sectors such as education, agriculture and infrastructure will benefit substantially.

Financial Outlay and Benefits of Investing in Family Planning in Rwanda

This study provides aggregate country-level data related to current financing, and projected financial outlays in the future for the Family Planning programme in Rwanda. It also assesses the monetary and non-monetary benefits (short-, medium- to long-term) and returns to investing in Family Planning across many sectors. It contains strategies to raise revenues to fund Family Planning programme in Rwanda over the coming years. Below are key study projections.

- Overall, external development partnerfunding to the health sector has been declining and is projected to continue to decline over the coming decades. It declined from Rwf 222 billion in 2011/12 (73% of total institutional expenditures) to Rwf 195 billion (60% of total institutional expenditures) in 2014/16.
- Also, by 2030/2031 about US$14.3 million was forecasted to be available to fund Family Planning activities.
- It is important to note that the data used to project the funds available for Family Planning are based primarily on financial information collected through the Health Resource Tracking Tool (HRTT). Family Planning funds allocated to health system strengthening activities were not used for the projection because the focus was on funds for direct Family Planning service delivery reported in the HRTT.
- Similarly, funds that support Family Planning service demand creation through social and behaviour change interventions, that are not under the direct oversight of the Ministry of Health were not included.

- Such activities are integrated into plans of other social sector ministries like education, gender and family promotion, local Government, youth and agriculture. While these funds are acknowledged, it is only the funds for Family Planning activities such as commodities and consumables, equipment, salaries, capacity building, etc. that have been included.

- The projected future financial outlay shows that by 2050, the annual funding gap for Family Planning will be between US$18.5 and US$21.1 million. Thus, more domestic funds will be required to fill this gap and ensure universal and equitable access to family planning.

- If Rwanda invests more in family planning, substantial maternal and child lives will be saved.

- By 2023, about 5.5 million unintended pregnancies, 3.4 million unplanned births, 1.2 million abortions (mostly unsafe abortions), 6,600 maternal deaths (pregnancy and birth-related complications) and 128,000 child/infant deaths will be averted by increasing investment in Family Planning to achieve contraceptive prevalence rate (CPR) of 55.8% in 2023.

- Also, over 3.4 million unplanned births will be avoided by 2023. This reduction represents about 28% of the current population of Rwanda and will substantially reduce the population growth rate in the future.

By 2023

about **5.5 million** unintended pregnancies averted

about **1.2 million** abortions averted

about **3.4 million** unplanned births averted

about **6,600** maternal deaths averted

- By 2050, the maternal mortality ratio will drop from 210 to 40 per 100,000 live births, the under-5 mortality rate will drop from 50 to 27 per 1,000 live births, and the adolescent birth rate will drop from 44 to 10 per 1,000 people (representing a 77% drop in adolescent birth rate between 2015 and 2050) when Rwanda achieves a forecasted CPR of 71.9% by 2050. Among other things, Reductions in the adolescent birth rate has a significant impact on the secondary school completion rate.

- Rwanda will save over US$331 million in maternal and infant healthcare costs by 2023.

These significant savings could be used to finance other activities within the health sector.

- Investment in Family Planning slows down population growth and decreases the pressure on the country's limited land space and alleviates some of the environmental consequences associated with overexploitation, deforestation, erosion, and loss of soil fertility.

Consequently, food security will improve. The prevalence of moderate to severe food insecurity drops from 20% to 7.8% by 2050 as a significant proportion of the population will have access to affordable quality food. This will significantly reduce the support from the GoR to provide food subsidies.

- Significant investment in Family Planning will result in the prevalence of child labour dropping from 13.0% in 2015 to 10.2% in 2050. Reduction in the prevalence of child labour will also have a significant impact on school (primary and secondary) completion rates as children will be able to concentrate more on studies rather than engaging in child labour.

- Investing in Family Planning is a strategy to achieve both macroeconomic development and poverty alleviation. In Rwanda, substantial investment in Family Planning will lift over 2.5 million Rwandans out of poverty between 2015 and 2050. This means that poverty headcount will reduce by about 1%.

- By 2050, if Rwanda achieves mCPR of 70%, every US$1 invested in Family Planning will yield about US$402 benefits (i.e. savings) that cut across many sectors in Rwanda—the economy, health, education, agriculture, infrastructure. On average, between 2015 and 2050, every US$1 invested in Family Planning will yield between US$65 and US$112 in returns or savings across many sectors. The savings can be used to finance other developmental activities within or between sectors in Rwanda.

- Many sectors will benefit from investments in Family Planning in Rwanda. The health sector's benefits (over 48%) are the greatest. Education (28%) and the economy (20%) will make substantial savings by investing in family planning. Although the share of financial savings accruing to the infrastructure (urbanisation) and agriculture sectors are less than 3% each, they are still substantial in Rwanda.

By 2023

Rwanda will save over

US$331 million
in maternal and infant healthcare costs

US$144 million
total family planning cost

By 2050

Maternal mortality ratio

210
Maternal mortality ration (2015)

40
Maternal mortality ratio (2050)

Under five mortality rate

50
Under five mortality rate (2015)

27
Under five mortality rate (2050)

By 2050

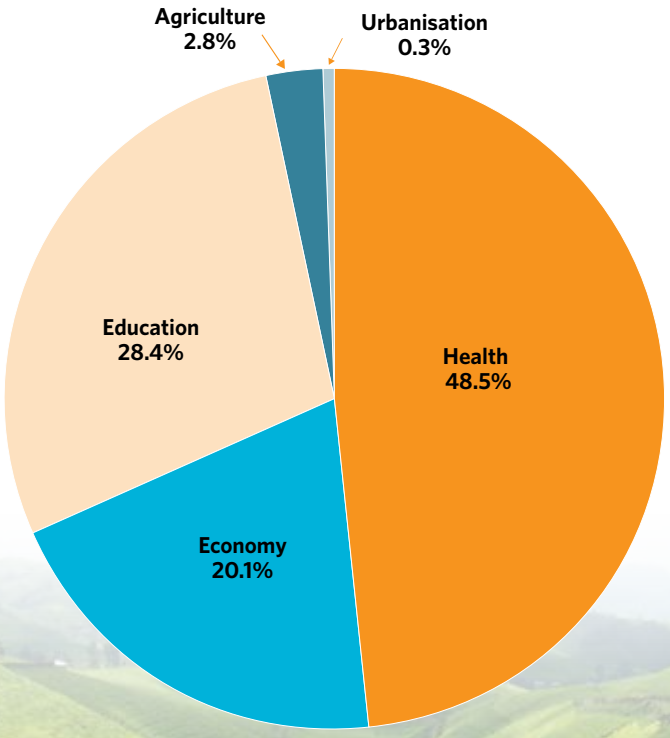
Food insecurity drops from **20%** (2015) to **7.8%** (2050)

Child labour drops from **13.0%** in 2015 to **10.2%** in 2050

By 2050

every **US$1** invested in Family Planning will yield about **US$402** benefits

over **1,500** additional doctors and about **16,000** additional nurses need to be trained to meet the demands



Other substantial results include:

- By 2050, if there is no significant investment in Family Planning (i.e. if the status quo persists), over 217,000 new jobs, that are avoidable, need to be created to meet the demands of a growing population entering the labour force.

Investment required by 2050 if there is no significant investment in family planning in Rwanda

	By 2023	By 2030	By 2040	By2050
Economy				
New Jobs required	0	1,914	52,459	217,201
Education				
Additional Primary school pupils	**3,760**	**114,650**	**937,350**	**1,816,710**
Primary teachers required	70	2,280	20,764	45,418
Primary schools required	5	158	1,530	3,633
Primary classrooms required	**30**	**948**	**9,180**	**21,798**
Additional secondary school students	0	2,100	191,320	1,134,330
Secondary teachers required	0	117	11,645	75,622
Secondary schools required	0	7	11,645	5,672
Secondary classrooms required	**0**	**42**	**69,870**	**34,032**
Health				
Doctors required	7	62	401	1,595
Nurses required	84	708	4,413	15,948
Health centres required	5	42	286	1,276
Hospitals required	0	4	21	64
Hospitals beds required	183	1,532	9,313	31,896
Annual Health Expenditure (US$)	5,487,500	43,137,500	220,800,000	548,612,500
Agriculture				
Reductions in arable land per capital(HA)	8,464	50,364	174,422	299,062
Urbanisation				
Annual new urban households	3,689	23,733	87,147	209,153

- Over 21,000 and 5,672 new primary and secondary classrooms, respectively need to be built to achieve universal access to primary and secondary education in Rwanda.

- In other words, over 3,600 and 5,600 new primary and secondary schools, respectively need to be constructed to accommodate over 1.8 million and 1.1 million primary and secondary school students, respectively.

- Also, over 45,000 and 75,000 primary and secondary school teachers, respectively need to be trained.

- By 2050, if the status quo continues such that there is no significant investment in Family Planning to improve access and uptake of contraceptives, over 1,500 additional doctors and about 16,000 additional nurses need to be trained to meet the demands. Also, over 60 additional hospitals and over 1,200 additional health centres need to be built and equipped to meet the demands. An additional US$549 million will be required in annual health expenditures to meet the demand.

- By 2050, if there is no significant investment in Family Planning and the status quo persists, about 210,000 new unplanned urban households will exist. This will contribute to the increment in the number of urban homes in slum conditions with several consequences on social and economic sectors with a substantial burden on the government. There will also be a 300,000-hectare reduction in arable land per capita, with more pressure on the already overexploited land.

Summary of key strategies to address the major challenges

ADVOCACY, POLICY DIALOGUE

- Strengthening advocacy to increase domestic resources to fund family planning programme
- Introducing innovate financing mechanisms to raise additional revenue to finance the family planning programme in Rwanda
- Promoting male involvement and addressing gender inequalities that can impact family planning decisions
- Improving efficiency in the use of available family planning resources at all levels to increase the value of spending
- Ensuring that development projects and programmes targeting the poor and vulnerable groups should, by policy, be mandated to contribute towards family planning activities in Rwanda
- Including all family planning services (such as commodities, counselling, follow-up, etc.) in the essential benefits package of all health insurance schemes in Rwanda, including the CBHI scheme.

CAPACITY DEVELOPMENT

- Strengthening existing family planning activities within district budgets
- Mainstreaming development programmes and projects to contribute towards family planning in Rwanda

COORDINATION, PARTNERSHIP, MONITORING AND EVALUATION

- Tracking, effectively coordinating and monitoring family planning activities implemented by multiple stakeholders
- Ensuring and strengthening inter-sectoral collaboration, including the strengthening of the private sector involvement in family planning services, supplies and financing
- Strengthening relevant architecture including the HRTT for timely and adequate collection and reporting of family planning expenditures through the MoH, both for the public and private health sectors, to inform policy and decision making

Conclusion

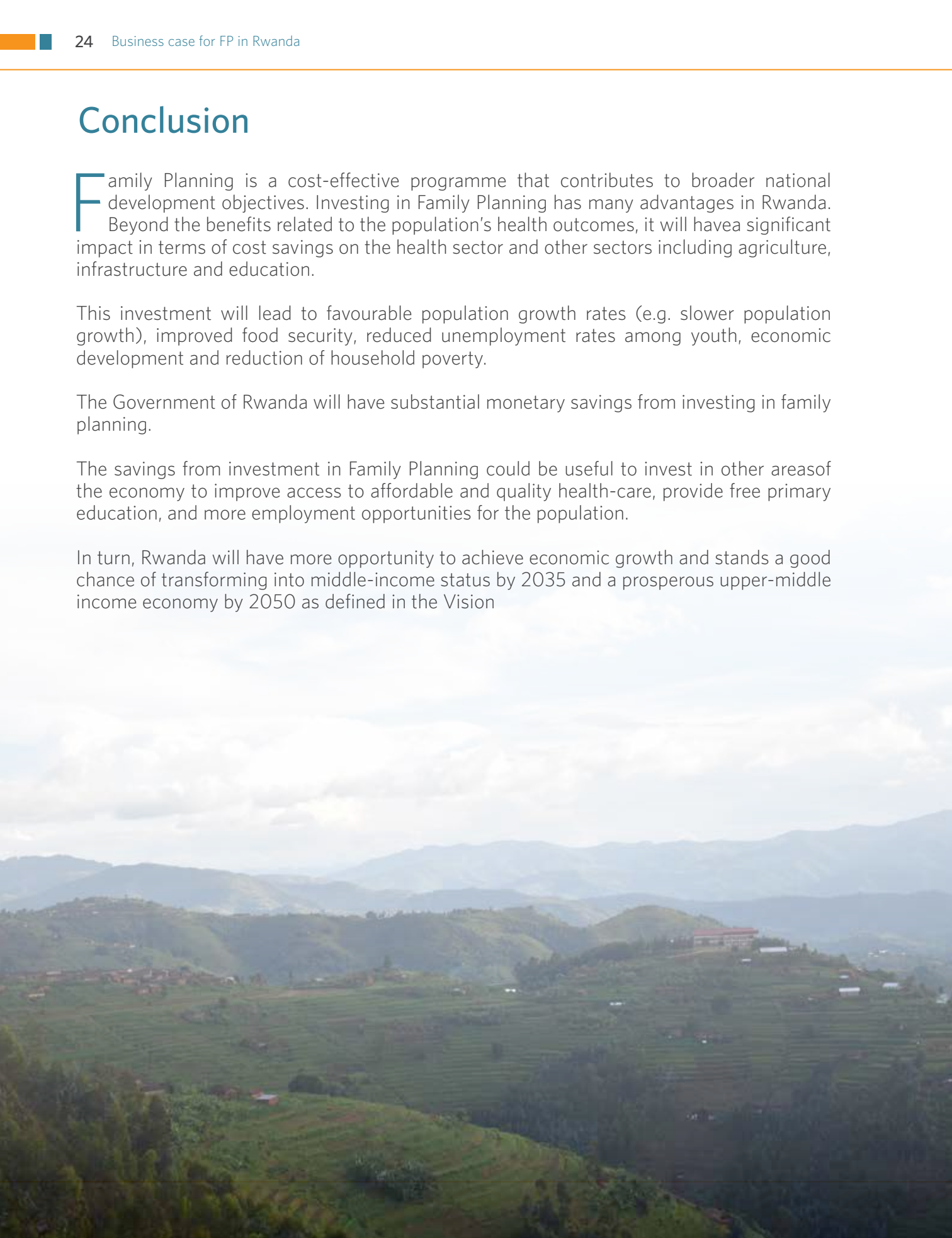
Family Planning is a cost-effective programme that contributes to broader national development objectives. Investing in Family Planning has many advantages in Rwanda. Beyond the benefits related to the population's health outcomes, it will havea significant impact in terms of cost savings on the health sector and other sectors including agriculture, infrastructure and education.

This investment will lead to favourable population growth rates (e.g. slower population growth), improved food security, reduced unemployment rates among youth, economic development and reduction of household poverty.

The Government of Rwanda will have substantial monetary savings from investing in family planning.

The savings from investment in Family Planning could be useful to invest in other areasof the economy to improve access to affordable and quality health-care, provide free primary education, and more employment opportunities for the population.

In turn, Rwanda will have more opportunity to achieve economic growth and stands a good chance of transforming into middle-income status by 2035 and a prosperous upper-middle income economy by 2050 as defined in the Vision



INTRODUCTION

The population projection estimates of the National Institute of Statistics (NISR) show that the country has an estimated population of 11.8 million people in 2017 (NISR, 2018). Population density increased from 321 persons per square kilometre in 2002 to 416 persons per square kilometre in 2011 and about 467 persons per square kilometre in 2017 (National Institute of Statistics of Rwanda, 2017). Population density is projected to increase to over 600 inhabitants per square kilometre by 2032 if the current trend persists (National Institute of Statistics of Rwanda, 2014).

The Rwanda population is young with about 40% being under the age of 15 years. The dependency ratio remained very high (>80%) and had remained the same between 2014/15 and 2016/17 as reported in the Integrated Household Living Conditions Survey (EICV) reports(National Institute of Statistics of Rwanda, 2015; 2018). The resulting child dependency burden hinders the capacities of families and Government to provide for the needs of children, build human capital and save for the future and improve economic infrastructure[1].

The country has experienced significant increase in life expectancy at birth, and this sits at 64.6 years for males and 68.4 years for females (National Institute of Statistics of Rwanda *et al.*, 2015).

[1] *UNFPA (2017)*

Fertility and Family Planning in Rwanda

The 2012 census indicates that females comprise about 52% of the total population (i.e. over 5 million persons). About 51.2% of the female population (i.e. 2.6 million) are women of reproductive age (i.e. between 15 and 49 years).

In the same year, the average age of first marriage was estimated at 25 years for women and 27 years for men. Although Rwanda continues to experience increasing populationgrowth in absolutenumbers, population growth (%) slowed down from 3.2% in 2002 to 2.6% in 2011 (Ministry of Finance and Economic Planning, 2013) with total fertility dropping from 6.1 children per woman to 4.2 children per women at reproductive age between 2005 and 2014/15(National Institute of Statistics of Rwanda *et al.*, 2015).

Overall, in 2017, young people under the age of 20 years made up over 50% of the Rwandan population. Because of the large number of young women (large cohort) who will soon enter their reproductive years, even as the fertility rate declines, Rwanda's population will initially continue to grow significantly for the next few years. It is important to note that teenage fertility increased from 4.1 to 7.3 children between 2005 and 2015.

This increased fertility rate among teenagers is worrisome as the 2012 census estimated that adolescents represented over 22% of the Rwandan population (Rwanda Ministry of Health, 2012). Therefore, Rwanda's youth population needs to be empowered to become the driving force behind economic prosperity and change agents in the coming years.

Rwanda is among of the most densely populated countries in Africa. As a result, the Government of Rwanda (GoR) has been committed to demographic transition measures as documented since the Vison 2020 and other relevant Government strategic documents. The focus has been on sustaining campaign on responsible Family Planning (FP), increasing the uptake of contraceptive (especially the modern) methods for both men and women, encouraging small family size, and improving the living conditions of Rwandans through universal access to health and basic education (Ministry of Finance and Economic Planning, 2013).

Overall, effective Family Planning has many benefits. These include reductions in poverty, economic inequality, gender inequality, and maternal and child mortality; empowerment of women by reducing the burden of excessive childbearing; improving women's productivity; and enhancing environmental sustainability through population stabilisation (Cleland *et al.*, 2006; Prata *et al.*, 2017).

Family Planning is one of the most cost-effective ways of improving maternal and child health outcomes including reductions in infant, child and maternal mortality (Cleland *et al.*, 2006; Cates, 2010; Kohler and Behrman, 2014).

Additionally, access to voluntary Family Planning helps men and women decide freely, and for themselves, whether, when, and how many children they want to have, thus lowering the number of unplanned pregnancies and births. Smaller family sizes help to create a path out of poverty for many families.

The nation and families have more resources per child to invest in their education and health, thus enhancing the overall human capital. Slower population growth helps to build more resilient infrastructure for sectors like health and education and has the potential to accelerate economic growth (Canning *et al.*, 2015; Starbird *et al.*, 2016).

In the post-2015 development agenda, investment in effective Family Planning has been demonstrated to have significant potential to contribute to the achievement of the Sustainable Development Goals (SDGs) and also resulting in substantial Government savings and a demographic dividend (DD) (Petruney *et al.*, 2014).

In general, effective and sustainable Family Planning programmes can be achieved through a combination of factors including (*i*) high-level political commitment, (*ii*) mutltisectoral calloboration, (*iii*) adequate funding, (*iv*) having smaller families and using modern contraceptives through, and (*v*) making a range of methods available through health facilities, social marketing, and outreach services (Cleland *et al.*, 2006).

Health Status

Maternal Health and Mortality

Rwanda has achieved remarkable progress in improving maternal health outcomes in the past decades. Maternal Mortality Ratio (MMR) declined considerably from 1,071 maternal deaths per 100,000 live births in 2000 to 210 per 100,000 live births in 2014/15 (National Institute of Statistics of Rwanda et al., 2015).

The World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) Countdown to 2015 put Rwanda among the nations with the highest average annual rate of maternal death reduction at 9%(World Health Organization and UNICEF, 2012).

Rwanda remained one of a few countries that have managed to achieve the fifth Millennium Development Goals (MDG) target related to maternal health (e.g. to reduce maternal mortality by three quarters, between 1990 and 2015 and to achieve universal access to reproductive health) (UNECA *et al.*, 2015).

Reduction in maternal mortality was attributed to health system reforms that have allowed for the implementation of eveidence based and effective interventions on a large scale. In fact, about 91% of deliveries take place in health facilities (National Institute of Statistics of Rwanda et al., 2015). Improvement in health status indicators has significantly contributed to gains in life expectancy at birth at 64.6 years for males and 68.4% years for females in 2015(National Institute of Statistics of Rwanda et al., 2015).

Despite notable progress, maternal mortality ratio is still high compared to countries in other regions of the globe. Post-partum haemorrhage (22.7%), obstructed labour(12.3%), obstetric infections (10.3%), and eclampsia (9.4%) are reported to be the major causes of maternal deaths in Rwanda (Sayinzoga et al., 2016).However, most of the women still attend fewer than the recommended number of antenatal care (ANC) visits during pregnancy(National Institute of Statistics of Rwanda et al., 2015).

Antenatal, Postnatal and Delivery Care in Rwanda

Indicators of ANC attendance and practice have improved remarkably in Rwanda. The average number of women attending at least three ANC visits was 85% in 2014/15 (Ataguba, 2018), with no significant differences between urban or rural location or wealth quintiles. Attendance of four or more standard visits rose from 10% in 2000 to 44% in 2014/15, although this rate remains low(National Institute of Statistics of Rwanda et al., 2015).

This highlights the importance of improving the quality and utilisation of ANC services. The coverage of postnatal care also requires attention as about 40% of women from the most deprived quintile, and 50% of women from the wealthiest quintile receive a postnatal check-up within two days of giving birth. Skilled birth assistance at delivery has impressively increased from 39% (in 2005) to 91% (in 2015).

However, this figure could hide the variability in skilled assistance within Rwanda and especially among impoverished women where skilled attendance delivery was only 84% in 2014/15 compared to 97% among the better-off women. Similarly, there are persistent inequities in skilled assistance during childbirth between rural (89%) and urban (97%) locations(National Institute of Statistics of Rwanda et al., 2015).

Access to quality ANC services will also promote post-partum Family Planning uptake and reduces missed opportunities for Family Planning uptake in Rwanda.

Child Health

There was a substantial decline in neonatal, infant, and child mortality in Rwanda. Coverage of immunisation and most child health service is very high and nearly universal. Recent estimates show that 93% of the children aged 12-32 months were fully immunised while 87% of infants younger than six months have been exclusively breastfed. Chronic malnutrition remains a significant public health concern: 38% of children under the age of five are stunted (National Institute of Statistics of Rwanda et al., 2015).

Neonatal mortality has also improved: declining from 44 deaths per 1,000 live births in 2000 to 20 deaths per 1,000 live births in 2014/15.

Currently, low birth weight remains the leading cause of neonatal death in Rwanda. Because neonatal mortality contributes to 64% and 45% of infant and under-five mortality, respectively, eliminating preventable neonatal deaths remains a top priority of the GoR (Gashumba and Biziyaremye, 2017).

Infant mortality rates have reduced from 107 per 1,000 lives in 2000 to 32 per 1,000 live births in 2014/15. Under-five mortality decreased from 196 to 50 deaths per 1,000 live births in the period between 2000 and 2015.

93%
of the children aged 12-32 months were fully immunised

87%
of infants younger than six months have been exclusively breastfed

Infant mortality rates have reduced from 107 per 1,000 livebirths in 2000 to 32 per 1,000 live births in 2014/15

Table 1 contains a summary and trend in maternal and newborn health and mortality indicators between 2000 and 2014/15.

Table 1: Progress in major maternal, newborn and child health and mortality indicators

	2000	2005	2010	2014/15
INDICATORS OF MATERNAL HEALTH AND MORTALITY				
Maternal Mortality Ratio (per 100,000 live births)	1071	750	487	210
Antenatal attendance - 1 ANC visit (%)	92	94	98	99
Antenatal attendance - 4 standard visits (%)	10	13	35	44
Deliveries assisted by a skilled health worker (%)	31	39	69	91
Contraceptive prevalence among married women (%)	7	17	52	53
Modern contraceptive prevalence among married women (%)	4	10	45	47.5
Fertility rate	5.8	6.1	4.6	4.2
INDICATORS OF NEW-BORNS AND CHILD HEALTH AND MORTALITY				
Percentage of children fully immunised	76	75	90	93
Percentage of stunted children under 5 years of age	43	51	44	38
Neonatal mortality (per 1,000 live births)	44	37	27	20
Infant mortality (per 1,000 live births)	107	86	50	32
Under 5 mortality (per 1,000 live births)	196	152	76	50

***Sources**: Rwanda Demographic and Health Surveys: 2000, 2005, 2010, 214/15*

Contraceptive Use and Need

Contraceptive Use

Globally, sexual and reproductive health rights remain essential for sustainable development, and this impacts significantly on maternal, newborn, child and adolescent health (Starrs *et al.*, 2018).

In 2015, 53% of married women were using some form of contraceptives (Table 1). Modern contraceptive prevalence rate (mCPR) grew rapidly from a low starting point of 4% in 2000 to 45.1% in 2010 (Table 1). However, the latest data from 2014/15 DHS indicated a slow rise in uptake of modern Family Planning methods compared to significant rises in mCPR in the previous years, increasing slightly from 45.1% in 2010 to 47.5% in 2015 among married women (Table 1).

The slow growth is consistent with the pattern observed in other countries that after reaching a certain level of contraceptive prevalence, additional increases become more difficult to achieve (Figure 1) and required an increased investment. The modern contaceptive prevalence rate has been set at 60% by 2024 (Rwanda Ministry of Health, 2018b).

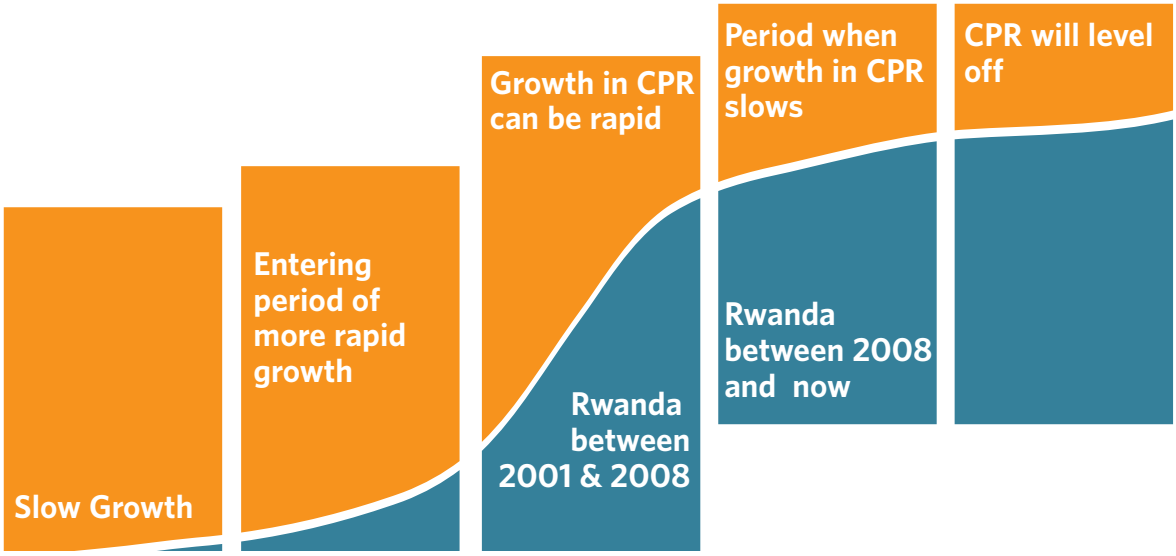
Figure 1 shows the typical S-curve indicating the trajectory and path of mCPR growth in Rwanda. Different levels of mCPR indicate varying degrees of demand and infrastructure necessary for Family Planning commodities and service delivery.

This figure shows that mCPR growth pattern has reached a levelling off stage as increases in CPR tend to be marginal over time.

Number of women using some form of contraceptives increased slightly from

45.1% in 2010 to 47.5% in 2015

Figure 1: Typical S-curve pattern for contraceptive prevalence rate change over time



***Source**: Ministry of Health (2018)*

It is important to note that there were also considerable differences by age, with teenage girls less likely to use contraception than women aged between 25 and 39 years (32.8% and 51%, respectively).

Similarly, women residing in rural areas, in the Western Province, those with no formal education and from poor households were disadvantaged in contraceptive use. Therefore, efforts should prioritise equity in mCPR among different sub-groups to ensure that no woman is left behind.

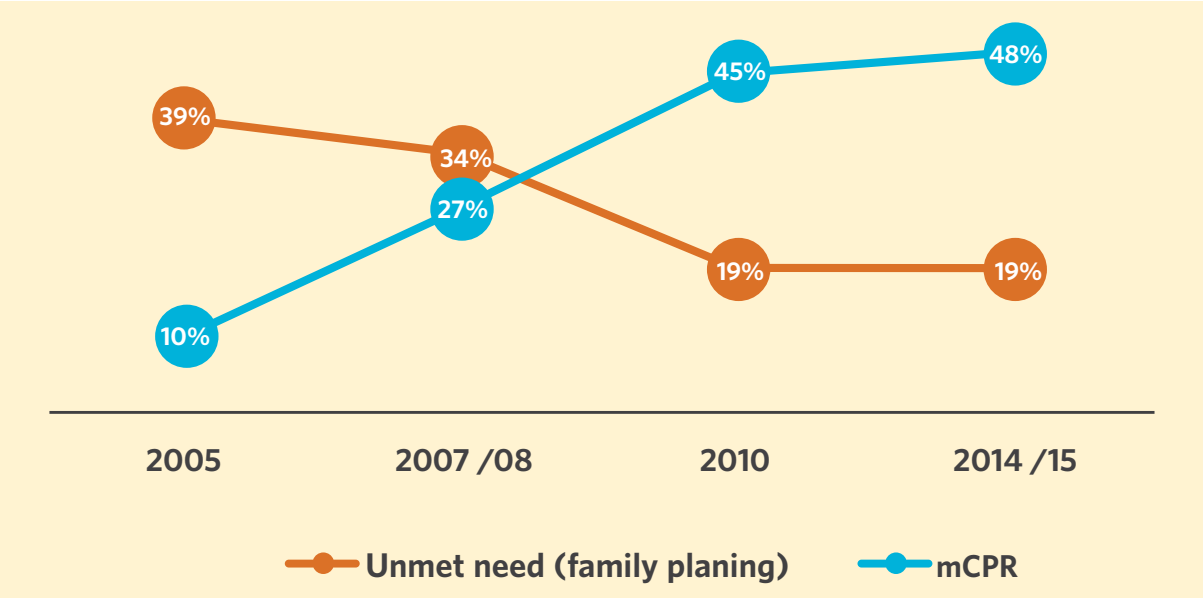
There is a need to increase investment in the Family Planning programme over time and implement tailored interventions with higher returns on investment.

Rwanda's commitment to the FP2020 programme is a significant positive step, but much more needs to be done to ensure universal access to quality contraception, paying attention to addressing inequality in access to contraception to reduce unmet Family Planning needs and harness the demographic dividend.

Unmet Need for Family Planning

Substantial gaps exist in the use of modern Family Planning methods among couples who want to prevent pregnancy. The proportion of married women with unmet need for contraceptives (i.e., they want to delay or stop childbearing, but are not using any contraceptive method) has fallen from 36% in 2000 to 19% in 2014/15 (11% for spacing and 9% for limiting) (National Institute of Statistics of Rwanda ***et al.***, 2015). Figure 2 shows the trend in the use of modern contraceptive and unmet Family Planning need.

Figure 2: Trends in the use of modern contraceptive and unmet Family Planning need, 2005-2015

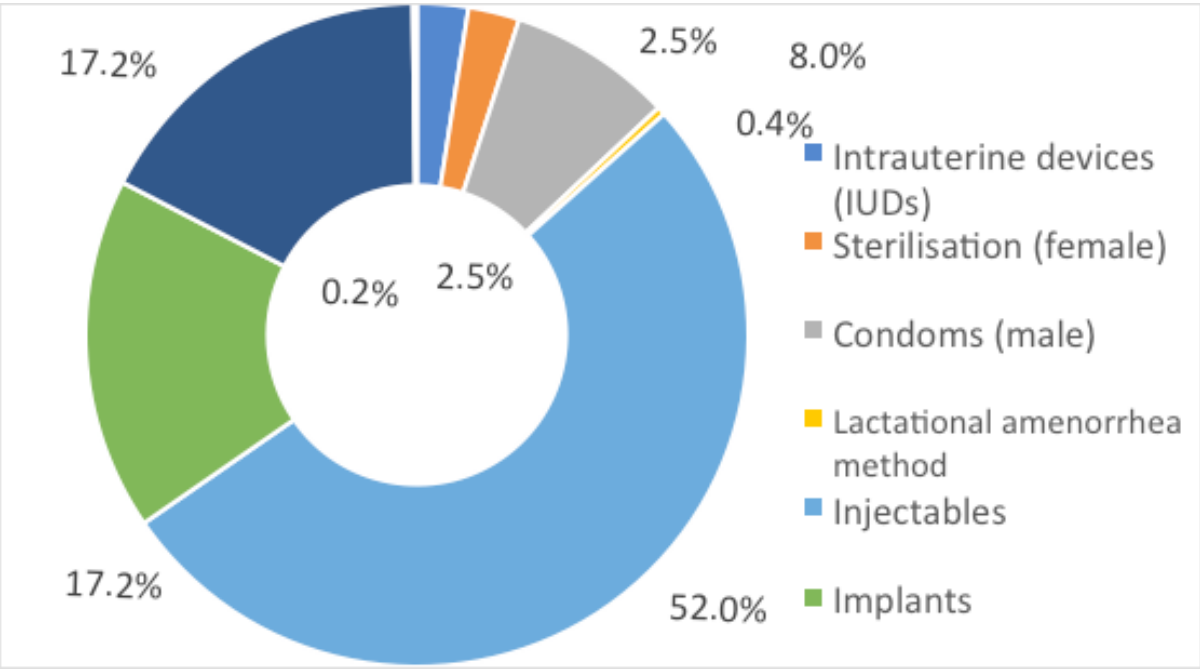


Source: National Institute of Statistics of Rwanda *: Rwanda demographic and health survey:* RDHS (2005, 2007/18, 2010 & 2014/15)

Modern Contraceptive Method Mix in Rwanda

Rwanda's health system offers a full range of Family Planning methods, including the provision of short-acting, long-acting, and permanent methods.

Figure 3: Modern Contraceptive Method Mix in Rwanda, 2014/15



Source: National Institute of Statistics of Rwanda et al. (2015)

Figure 3 shows the modern contraceptive method mix among married women in Rwanda-short term and reversible methods were the most commonly used modern methods. The most popular were injectable (52%), followed by pills (17.2%) and implants (17.2%) (Figure 3). Only 5.8% of women reported using traditional methods [withdraw (3.1%); rhythm (2.7)].

It is important to emphasize that multiple Family Planning methods are offered, and the stock-outs of FP commodities remains very low in Rwanda for majority of modern contraceptives, with exception of female condoms.

The 2018 Service Delivery Point (SDP) survey indicated that the incidence of no-stockout stood at 92.6% for three modern contraceptives and no facility experienced stock out of five modern contraceptives. Female condoms were the most stocked-out modern contraceptives and the main reason was "Low and/or no client demand for the method" (Rwanda Ministry of Health, 2018)

Family Planning Discontinuation and Barriers to Family Planning Uptake in Rwanda

Rwanda strives to increase efforts to close gaps in unmet need for contraception and to expand access to Family Planning methods. However, discontinuation of contraceptives undermines the uptake of Family Planning services. The Demographic and Health Survey (DHS) 2014/15 revealed that women with a need for delaying/limiting pregnancy are more like to have used a Family Planning method.

In contrast, women with a spacing need are less likely to have used Family Planning services. The DHS 2014/15 dataalso show that about one-third of Family Planning users (27.7%) will discontinue use before the first year of use (National Institute of Statistics of Rwanda *et al.*, 2015).

The reasons for not using contraception and discontinuation include fear of side effects, the desire for another child, method failure, rumours, misconception or myths about contraceptives, cultural and religious beliefs, limited communication among partners, limited skills of health care providers to offer long-acting reversible contraceptives (LARCs) and permanent methods (limited method choice), inadequate Family Planning counselling and limited follow-up capacities of community health workers (CHWs) to adequately manage the side effects(National Institute of Statistics of Rwanda *et al.*, 2015).

According to a recent Family Planning barriers study (Ministry of Health *et al.,* 2018), barriers to the uptake of Family Planning include the lack of accurate information, limited availability of skilled healthcare providers (including CHWs) who can provide LARCs and lack of confidentiality when consulting CHWs.

The health sector, in collaboration with other sectors,needs to continuously develop interventions and promote activities that address social, cultural and geographical barriers that hinder the uptake of Family Planning services. The Health Sector Strategic Plan IV (HSSP IV) (Rwanda Ministry of Health, 2018a) recommends that particular emphasis should be paid to (a) enhance the integration of Family Planning services in antenatal and postnatal care, and expansion of social marketing for condoms, emergency and long-acting methods.

The proposals to reduce barriers in the uptake of Family Planning should start by increasing Family Planning awareness, addressing rumours regarding side effects and complications and reducing Family Planning discontinuation. It is also suggested to reinforce the involvement of religious leaders and improve the quality of Family Planning counselling and geographical accessibility with focus on the youth and poor populations to deliver on the promise of Family Planning in hard to reach places.

The use of social media platforms should be strengthened to improve the dissemination and uptake of Family Planning information and services among the youth and population in need.

Why Invest in Family Planning in Rwanda?

Broadly, investment in sexual and reproductive health services, including Family Planning services is noted to yield significant returns through lives saved, improvements in health and wellbeing, improved gender equality, increased productivity, poverty reduction, and other multigenerational benefits for children (Starrs et al., 2018).

A recent study conducted by the GoR and the World Bank identified better-targeted Family Planning measures, in addition to female educationand economic empowerment, as a critical policy action that will contribute to accelerate reduction of fertility to harnessed demographic dividend and achieve significantly high growth and faster poverty reduction (World Bank and Government of Rwanda, 2019).

Globally, work done through the Copenhagen Consensus Center estimates that every US$1 invested in Family Planning and programmes to eliminate the unmet need for modern contraception yields US$120 through savings in health care and economic opportunity costs in the long term (Kohler and Behrman, 2014).

In Zambia, this is estimated to be a saving of US$4 (see Cates, 2010). In fact, universal access to contraception has the second highest return on investment among all the 169 SDG targets.

It is also estimated that additional investment in Family Planning services alone would save developing countries over US$11 billion each year in maternal and newborn healthcare costs (Starbird et al., 2016). Ensuring universal access to Family Planning to all women and men is critical for a country to harness the key demographic dividend.

Unfortunately, investment and spending on Family Planning activities remain low in many African countries. In Rwanda, the largest development partners are the United States Agency for International Development (USAID) and UNFPA, contributing 48% and 35% of total funding, respectively between 2009 and 2011 (Kates et al., 2014).

In Rwanda, to achieve a sustainable Family Planning programme, the GoR has developed the first ever integrated Reproductive, Maternal, Neonatal, Child, Adolescent, Health (RMNCAH) policy from which the Adolescent Sexual Reproductive Health / Family Planning (ASRH/FP) and Maternal Neonatal Child Health (MNCH) costed strategic plans have also been developed. Family Planning activities in Rwanda started officially in 1981, with the creation of the Office National de la Population (ONAPO).

Since 2010, the Family Planning Programme is under Rwanda Biomedical Centre (RBC) within the Maternal, Child and Community Health Division. The primary goal of the Rwanda Family Planning programme is "***to increase the use of FP by Rwandan women of reproductive age group (15-49 years) and increase their male counterparts' involvement in FP programs"*** (Ministry of Health, 2006).
Over the years, Rwanda has made significant progress in the delivery and uptake of Family Planning services with the prevalence of modern contraceptives increasing from 10.3% (in 2000) to17% (in 2005) and 47.5% (in 2014/2015), unmet need for Family Planning declining from 38% to 19% between 2005 and 2015, and total fertility rate dropping from 6.1 in 2005 to 4.2 birth in 2014/2015(National Institute of Statistics of Rwanda ***et al.***, 2015).

The GoR initially set a target to achieve 47.5% modern contraceptive use prevalence by 2018.

However, very little change in modern contraceptive use (3%) was observed between 2010 and 2015 among women aged 15-49. As a result, the target has recently been revised downward from 70% to 60% by 2024 (Rwanda Ministry of Health, 2018b). The public health sector in Rwanda remains the dominant provider of contraceptive methods, providing over 90% of modern contraceptives (National Institute of Statistics of Rwanda ***et al.,*** 2015).

The improved modern Family Planning uptake coupled with a growing population and the need to sustain the increasing trends in the coverage of Family Planning and expand modern contraceptives in private sector as well as in the community have serious cost implications for most developing countries, especially considering limited resources and the non-sustainable nature of development assistance.

While Rwanda has made significant strides in increasing contraceptive use, external funding is still higher than the domestic funds in the health sector and this is estimated at 60% of total spending on health.

To date, no study/investment case has been undertaken to assess the benefits and financial sustainability of Family Planning programmes in Rwanda, even though the country has one of the highest population densities in Africa. A need for such case has been stressed recently (Starrs *et al.,* 2018).

This document describes why Government of Rwanda and development partners should increase now the investment in Family Planning program that will help improve access to and use of contraception among women of reproductive age, and lead to many health, economic and societal benefits.

Therefore, there is a critical need to work towards the development of sustainable financing mechanisms that would include the use of innovative resource mobilisation strategies and more efficient use of the available resources.

The Aim of the Family Planning Business case

> Developing a Business Case to understand better the needs, funding flows and gaps pertaining to Family Planning program in Rwanda and to provide a clear and up-to-date analysis of Family Planning services needs and gaps, in-country plans and options to step up efforts to sustainably meet Family Planning needs.

Objectives

- Summarise aggregate country-level data related to current financing and commitments to family planning
- Assess the benefits and returns of investing in Family Planning across many sectors
- Develop options for increased national investment in Family Planning Reproductive Health Commodity Security (RHCS)
- Develop an implementation plan of the Family Planning business case towards financial sustainability along with its monitoring and evaluation framework

The Process of Developing the Family Planning Business Case

The development of the business case for investing in Family Planning in Rwanda was carried out through an extensive consultative and active engagement process with input from a dedicated reference group or core team that was led by the Ministry of Health.

The group included members drawn from many institutions including the Ministry of Finance and Economic Planning (MINECOFIN), Ministry of Health (MoH), Rwanda Biomedical Centre (RBC), other ministries and government institutions involved in reproductive health and family planning, Belgian Development Agency (Enabel), United Nations Population Fund (UNFPA), United Nations International Children's Emergency Fund (UNICEF), USAID,WHO, Rwandan Parliamentarians on Population and Development (RPRPD), Rwanda Health System Strenghthening Activity (RHSSA/MSH), among others.

A consulting team of experts was constituted and composed of an international consultant, Prof John Ataguba and a national consultant, Mrs Stella Matutina Umuhoza. The consultants developed the business case report under the direct supervision and guidance of the core team.

There were a few briefing meetings held at different times. These were between the consulting team and the reference group/ core team for the Family Planning business case.

The purpose of these meetings was to agree on several aspects of the assignment including the methodology and sources of data and to provide further insights and guidance in the process, especially as it relates to the context and country.

At one of the **stakeholders' workshop**, an inception report that outlines the timeline, main deliverables, methodological approach, and tools to be used in interviews, scenario modelling and analysis were presented and approved.

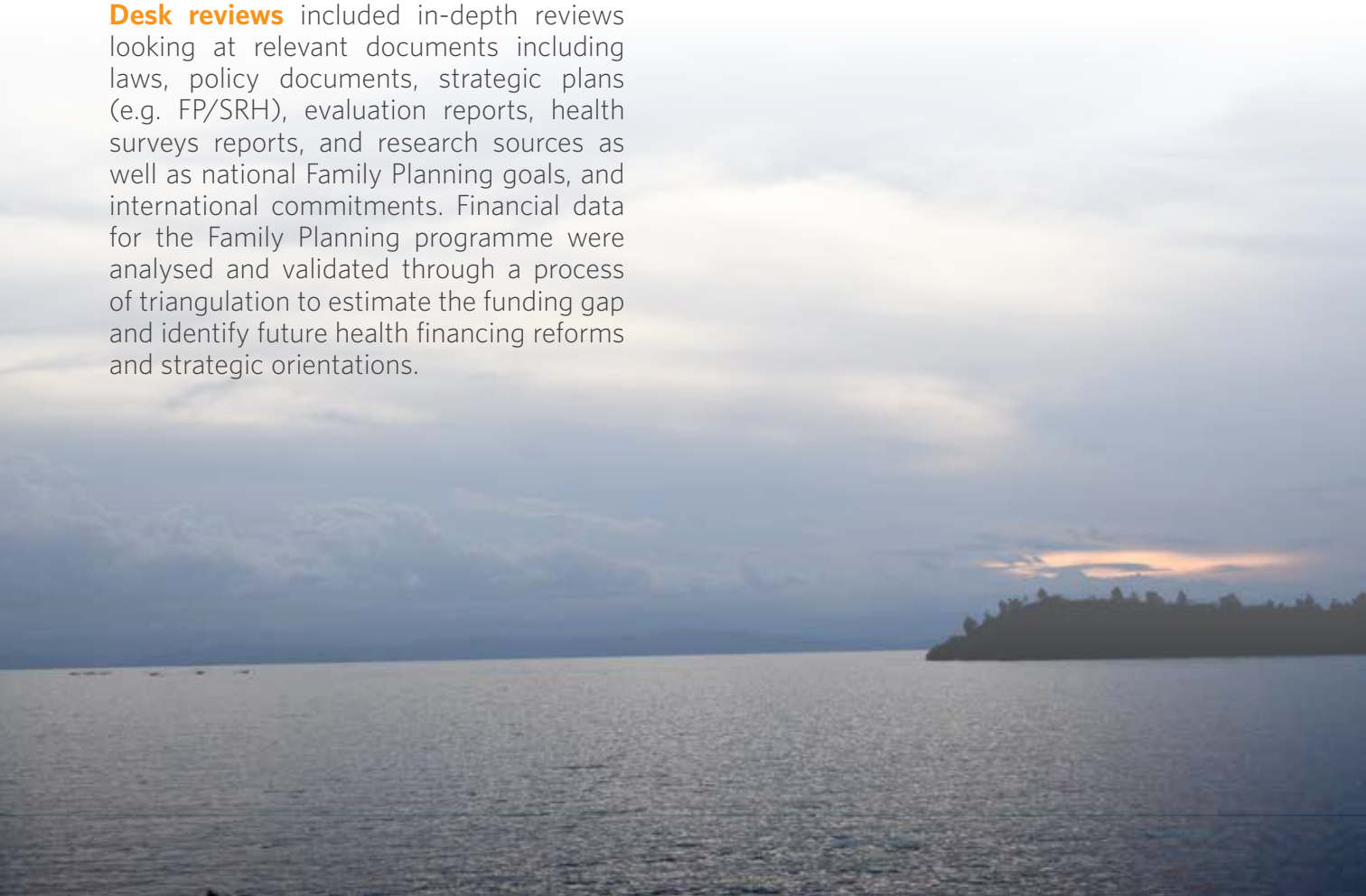
Other **stakeholder engagements** happened through interviews with key informants including government and non-government officials to gather additional and qualitative data from senior policymakers and other partners on the main challenges in financing the Family Planning programme in Rwanda.

The key informants included Government officials from the MoH and other line ministries in the social cluster, leaders of international and bilateral funding agencies, Family Planning implementing partners, health professionals councils and health care providers.

Desk reviews included in-depth reviews looking at relevant documents including laws, policy documents, strategic plans (e.g. FP/SRH), evaluation reports, health surveys reports, and research sources as well as national Family Planning goals, and international commitments. Financial data for the Family Planning programme were analysed and validated through a process of triangulation to estimate the funding gap and identify future health financing reforms and strategic orientations.

The member of the Family Planning core team and other key players organised a few **consultative stakeholder** workshops. In total, four workshops and several meetings were held to obtain information for developing the business case. Recommendations from formal stakeholders consultations and meetings were used to enrich both the situation analysis and scenarios and to validate data.

The **validation** of the Family Planning business case happened with the presentation and discussion of the draft business case report to the core team members and key stakeholders, both national and international. Comments received were used for enriching the business case and for the finalisation of the report. A national validation and **dissemination workshop** was organised subsequently for the Family Planning business case as part of the finalisation process.



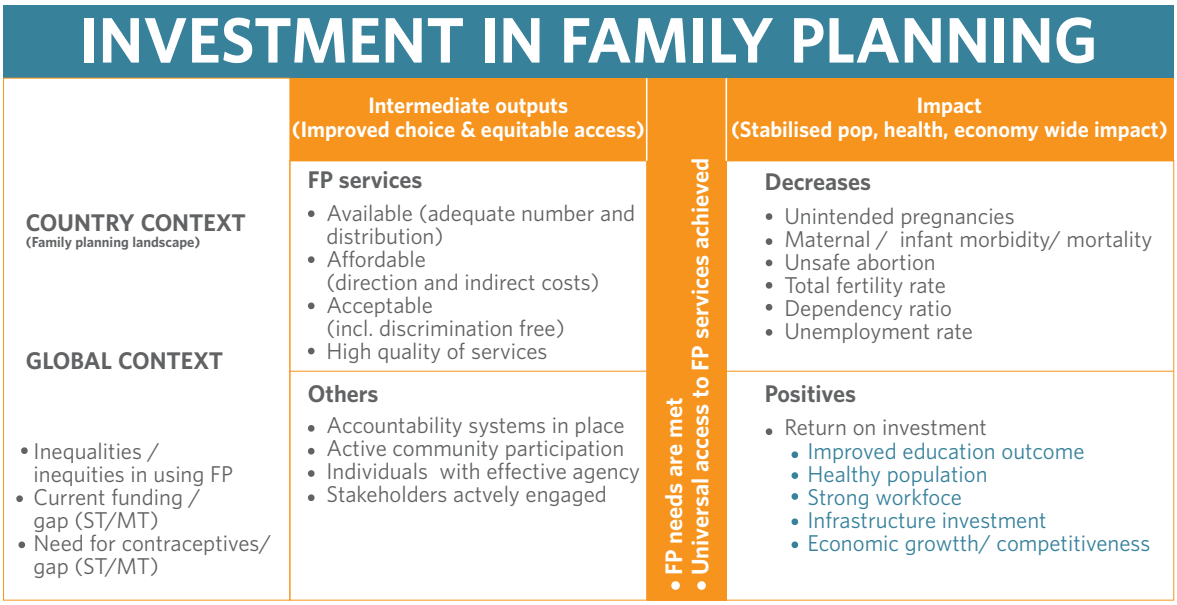
Conceptual Framework

The simplified conceptual framework is shown in Figure 4. Figure 4 also contains the outcomes, outputs and likely impacts of investment in family planning.

This provides an avenue to assess the impact that every US$1 spent on Family Planning will have. It is postulated that sustained investment in Family Planning will increase access (availability, affordability and acceptability) to quality Family Planning services. These will also empower the population, especially women, to take charge of reproductive decisions (i.e. increased choice).

Overall, investment in Family Planning decreases unintended pregnancies, maternal morbidity and mortality, unsafe abortions, total fertility rate, dependency ratio, unemployment rate and crowding. On a broader scale, there are returns on investment that include improved educational attainment and outcomes, healthy population, robust workforce, improved infrastructure and overall economic growth and global competitiveness.

Figure 4: Conceptual framework of analysis: the business case for Family Planning in Rwanda



Financing and Commitments to Family Planning in Rwanda

In Rwanda, the Family Planning programme is funded from various sources including the GoR, non-governmental organisations including bilateral and multilateral agencies. Data from the HRTT show that expenditure trends varied, among other things, by fiscal year and funder.

While we acknowledge that many organisations fund different Family Planning activities, only the expenditures that have been captured within the HRTT, related to commodities, personnel and other programme costs have been used in the estimation of funding outlays for Family Planning in Rwanda. We acknowledge that this may not include funds that several organisations have provided that relate, for example, to health systems strengthening, monitoring and evaluationand other sectors spending (e.g. to the agricultural sector) that may not be linked directly to Family Planning.

In this regard, we acknowledge that the financing information provided here may be underrepresented (see Box 1 for the case of the US government, one of the major funders in Rwanda).

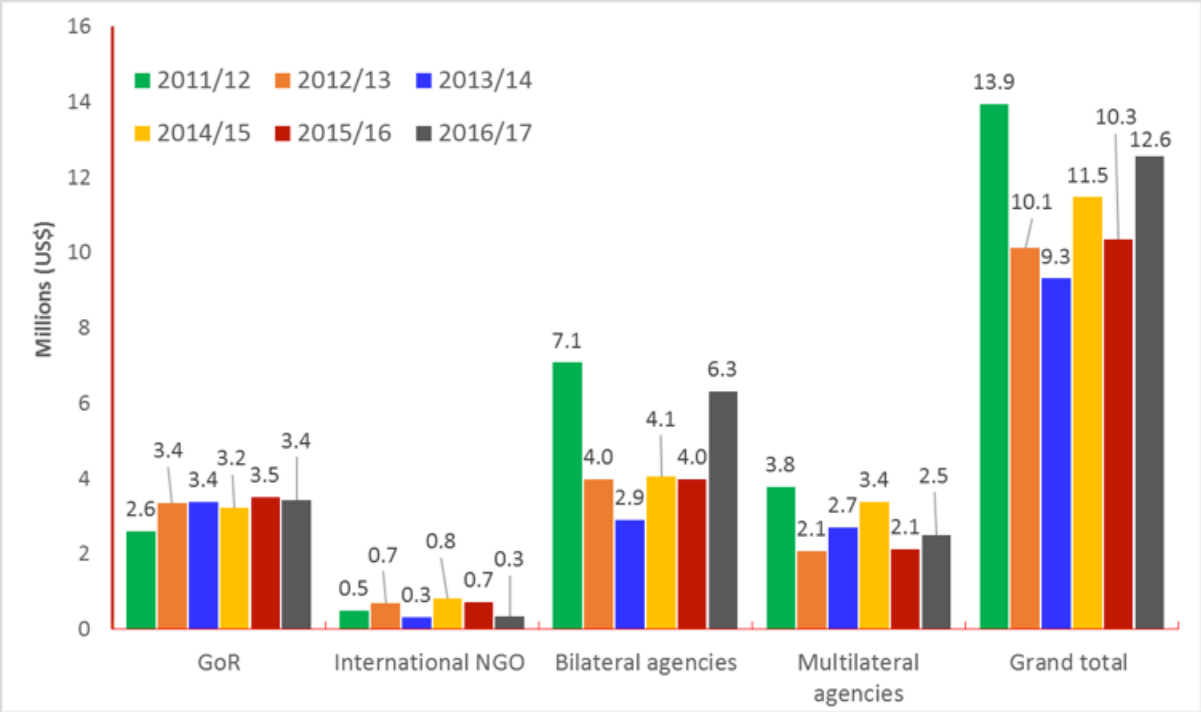
Box 1: Family Planning financial outlays:
The amounts reported and used in this analysis for the US Government may be understated.

It is important to note that the primary reason for the data reported here was to estimate direct financial outlays for Family Planning. It is acknowledged that the US Government spends substantial amounts on Family Planning in Rwanda. This includes direct outlays for Family Planning commodities and health provider capacity building and others that are related to improving Family Planning knowledge and behaviour change approaches designed to enhance demand creation for Family Planning services and dispel myths and misconceptions about modern contraceptives.

The US government also invests some Family Planning resources in integrated programming and cross-cutting health systems strengthening activities to support service delivery. Additionally, in line with the FP and ASRH Strategy for 2018 to 2024 (Rwanda Ministry of Health, 2018), USAID uses Family Planning resources in integrated programmes for the Youth and vulnerable populations programs whose oversight lies with other institutions such as the Ministry of Gender and Family Promotion (OVC programmes) and Ministry of Education (Reproductive health programmes in vocational training programmes for the Youth).

Only the expenditures that are related to Family Planning commodities, consumables and equipment, capacity building, salaries and infrastructure reported through the HRTT, Performance-Based Financing, etc. have been used for estimating and forecasting direct financial outlays for family planning.

Figure 5: Family Planning expenditure, 2011-2016, Rwanda



Source: MoH, RBC, HRTT, 2018

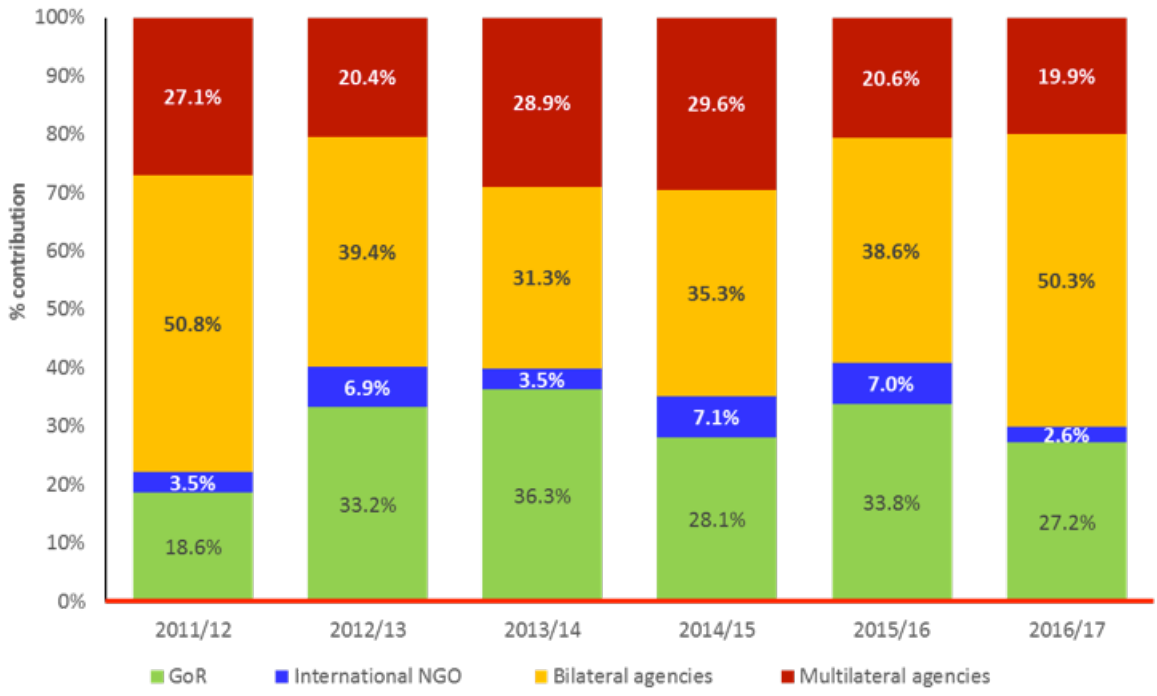
Notes:

1. *Only data available and captured with the HRTT have been used here. It may be possible that there is an underestimation as it excludes those costs that have not been captured in HRTT.*
2. *See Box 1 for the case of US Government spending*

Until recently, the primary source of funding for the Family Planning programme was external development partnerdevelopment partners. In 2014/15, about US$11.5 million was spent on Family Planning in Rwanda (Figure 5). The Government of Rwanda spent over US$3.2 million during this period. Of the total amount spent on Family Planning activities in 2015/16, 33.8% is estimated to come from the GoR, while 66.2% comes from non-GoR sources (7.0% from international NGOs, 38.6% from bilateral agencies and 20.6% from multilateral agencies) (Figure 6)).

In 2016/17, the share of GoR in total expenditure decreased to 27.2% of the total US$12.6 million spent on Family Planning. Also, the monetary value of GoR's expenditure in 2016/17 (US$3.4 million) is lower than in the preceding year. In 2016/17 non-GOR expenditures totalled US$9.1 million compared to US$6.8 million in 2015/16 and US$8.3 million in 2014/15.Correspondingly, GoR expenditures ranged between US$3.2 million and US$3.5 million between 2012 and 2017 (Figure 5).

Figure 6: Family Planning expenditure contributions by agencies, 2011-2017, Rwanda



Source: MoH, RBC, HRTT, 2018

Contributions from different sources are shown in Table 2. Over the years, the most significant contributors are the GoR, UNFPA and the US Government.

Table 2: Family Planning expenditure in Rwanda (US$), by funding source, 2011-2017

Source of funding	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
AIDS healthcare foundation	-	-	-	-	51.55	
Bixby Center	-	-	-	-	-	140,345.10
Compassion International	17,571.41	17,571.41	-	-	-	-
Concern Worldwide Rwanda	1,444.44	9,892.05	-	-	-	-
Emory University	-	-	135,467.00	170,619.00	290,166.00	166,166.42
German Development Cooperation (GIZ, KFW)	2,038,309.28	-	-	-	-	-
Global Fund for AIDS, TB and Malaria	1,687,584.29	1,293,338.58	694,574.24	76,521.22	123,843.67	193,972.75
Government of Rwanda (GoR)	2,597,876.96	3,363,849.55	3,379,710.04	3,218,076.40	3,493,970.64	3,424,500.13
Government of Luxembourg	622,677.55	122,855.23	-	-	-	-
Intrahealth	19,998.00	19,040.00	-	-	-	-
Institute for Reproductive Health	-	-	189,065.00	594,297.49	384,396.00	-
Keep a Child Alive	-	-	-	-	171.42	-
Millennium Promise/ villages project	3,675.00	-	-	34,079.00	49,372.00	-
Norway funds	56,900.00	-	-	-	-	-
ONE UN FUND	101,154.64	8,144.58	-	9,489.40	-	-
PACKARD foundation	3,149.96	4,345.14	-	-	-	-
Partners in Health (PIH)	-	-	-	-	500.00	2,061.17
Population Services International (PSI)	188,333.17	327,705.23	-	-	-	-
Swiss Development Cooperation	66,862.02	71,886.42	-	-	-	-

Source of funding	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Telethon funds/ Norway	-	97,738.00	-	-	-	-
The Government of Australia	26,100.00		-	-	-	-
UK Department for International Development (DFID)	-	211,207.59	-	-	-	-
UNAIDS	12,750.00	7,500.00	-	-	-	25.33
UNFPA	1,885,919.44	663,322.70	2,000,310.73	3,260,271.59	2,007,783.42	2,281,310.34
UNICEF	52,611.00	65,000.00	-	43,554.01	-	-
US Government†	4,269,045.65	3,486,847.94	2,911,766.98	4,050,933.53	3,989,111.35	6,317,333.10
We Actx USA	-	-	-	-	2,243.55	2,177.31
WHO	32,181.60	29,623.50	-	-	-	20,034.58
World Relief	5,288.78	3,041.79	-	-	-	-
World Vision	250,000.00	321,750.00	1,662.00	12,800.00	1,000.00	21,816.31
Grand Total	**13,939,433.19**	**10,124,659.70**	**9,312,556.00**	**11,470,641.64**	**10,342,609.60**	**12,569,742.54**

Source: MoH, RBC, HRTT data

Notes:

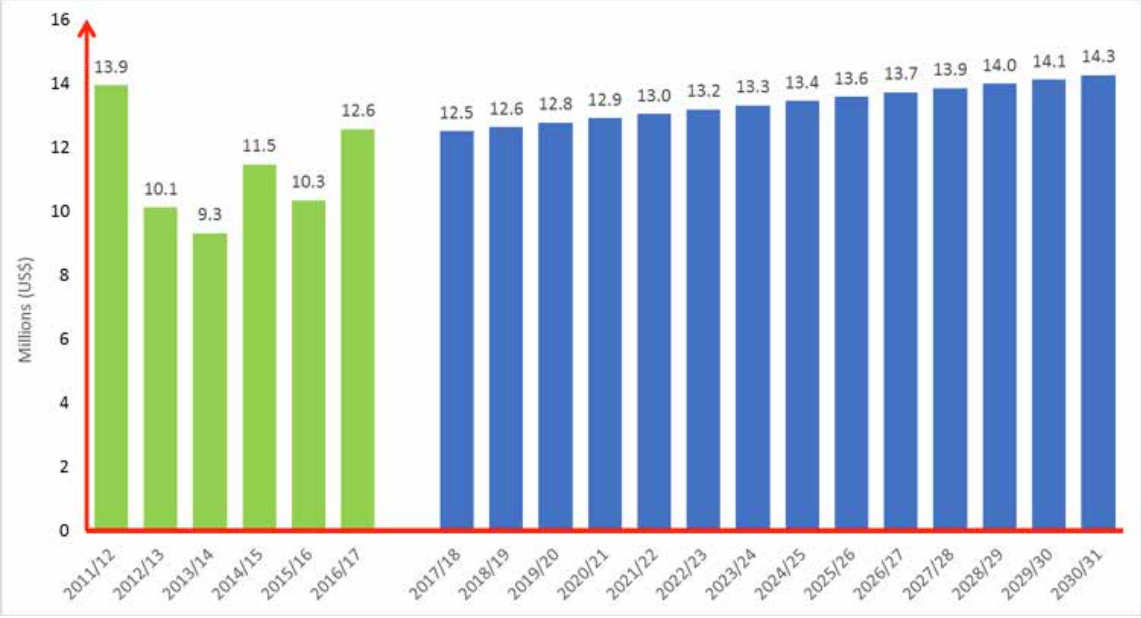
1. *Only data available and captured with the HRTT have been used here. It may be possible that there is an underestimation as it excludes those costs that have not been captured in HRTT*
2. *See Box 1 for the case of US Government spending.*

To assess financing gaps, a projection of future financial outlays for Family Planning in Rwanda (Figure 7), using previous trends (2011-2017) was performed. Overall, as shown by the green bars in Figure 7, between 2011 and 2014, there has beena gradual decline in the funding of Family Planning in Rwanda.

Total funding declined from about US$13.9 million in 2011/12 to about US$9.3 million in 2013/14. However, between 2014 and 2017, there was a gradual increment in Family Planning funding. By 2016/17, about US$12.6 million was spent on Family Planning in Rwanda. These data (2011-2017) have been used to make projections into the future (i.e. the blue bars) as shown in Figure 7.

The projections in Figure 7 show also that funding for Family Planning will increase, albeit slowly over time. For noting, these projections are not based on an assumption of increasing the mCPR from the value in 2014 (47.5%). If the mCPR is to increase to 60% as noted in the HSSP IV (Rwanda Ministry of Health, 2018), these estimates need to be revised upward if they are to be in line with the target of increasing mCPR into the future. So, while the trend may show marginal increases, there needs to be an avenue through which domestic sources will fill any funding gap as the share of GoR has remained below 35% between 2014/15 and 2016/17.

Figure 7*: Projected Family Planning funding landscape, Rwanda, 2011 – 2030*



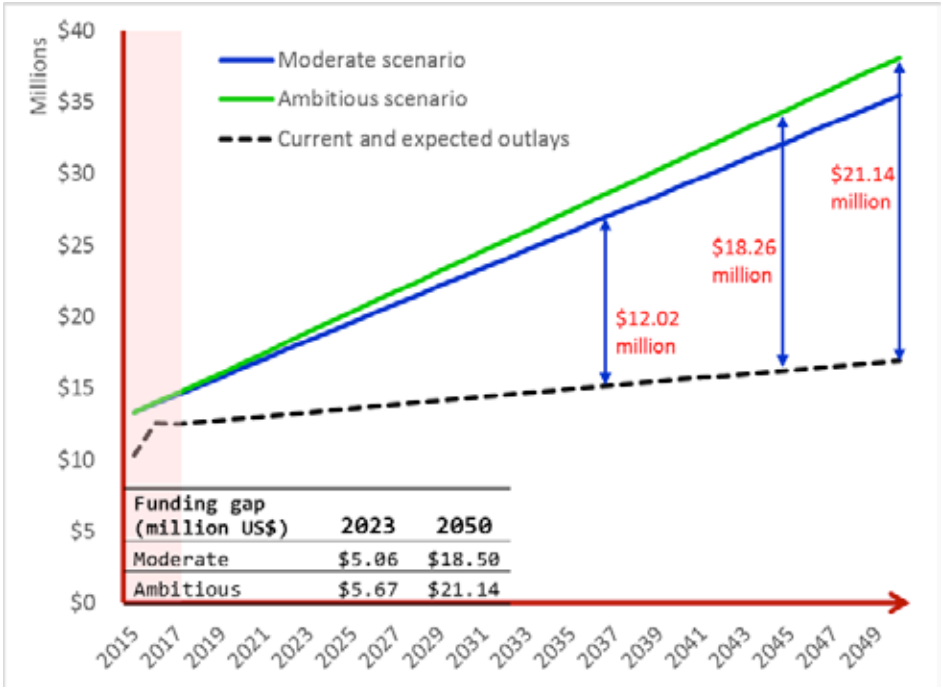
Source: MoH, RBC, HRTT, 2018

Notes:

1. *No adjustment is made for increasing mCPR based on the HSSP IV;*
2. *Actual expenditures in green and projections in blue;*
3. *Only data available and captured with the HRTT have been used for the projection. While this is difficult to verify, it may be an underestimation.*

The projected trends (the blue bars) in Figure 7 is estimated to increase into 2050 (although not shown). These projection in financial outlay have been used in the computation of the trend in the financing gap shown in Figure 8.

Figure 8: Projected Family Planning funding gap, Rwanda, 2011 – 2050



Depending on the assumption, by 2023, a funding gap of between US$5.1 million and US$5.7 million will be created, if the current funding landscape stays the same and a higher mCPR is to be achieved.

This will increase substantially to between US$18.5 million and US$21.1 million by 2050. This represents substantial outlays. In Uganda, although using a slightly different approach, a funding gap of about US$9.8 million is estimated to ensure equitable and universal access to Family Planning by 2020, even though Uganda has a higher proportion of unmet needs (28.4% in 2016) (The Government of Uganda and United Nations Population Fund, 2016).

In Rwanda, substantial domestic resources will be required to fill this financing gap in the face of declining development partner commitment. While the private sector will be vital to raising additional revenue, the fiscal space will determine the extent to which the GoR can increase funding for Family Planning activities without jeopardising allocations to other sectors and activities. Although the amounts required to close the gap are significant, as will be shown later, the returns on investment in Family Planning far outstrip the outlays. These benefits also accrue to other sectors beyond health.

Making a Business Case for Investing in Family Planning in Rwanda

A strong business case for investing in Family Planning is important in the context of a country like Rwanda with a very high population density. Globally, investment in Family Planning and other related maternal and child health activities is the driving force for lowering fertility. This has the potentials to improve population health and boost the economy.

This analysis used a couple of models developed and used in other countries to assist countries in understanding the benefits derivable from reducing fertility rates and improving the uptake of modern contraceptives by investing in Family planning. This report provides a summary of the results from using these models to assess the potential impact or benefits of investing in Family Planning programme.

The report uses three broad models: The Impact-Now model (incorporating the adding-it-up model), the RAPID model, and the FP-Sustainable Development Goals (SDG) model. These models use projections and simulation to inform decision-makers about future scenarios for a given country and to identify areas of interest.It is important to note that we ensured that these models are coherent such that results from all models can be compared. These models are described below:

Impact-Now model

The Impact-Now model was developed by the Health Policy Project supported by USAID (Health Policy Project *et al.*, 2014). The Impact-Now model is useful to demonstrate the benefits of investing in Family Planning with a short- to medium-term focus (up to 10 years).

The Impact-Now model was used to estimate gains in different aspects/areas asa result of increases in contraceptive prevalence rate or reductions in unmet need for family planning.
Aspects that were assessed include:

- Unintended pregnancies avoidable
- Unplanned births preventable
- Abortions (including unsafe abortions) that can be prevented
- Maternal and child deaths that can be avoided
- Financial savings to the healthcare system (e.g.infant and maternal healthcare costs averted)

RAPID model

The RAPID model is part of the Spectrum suite *(https://www.avenirhealth.org/software-spectrum.php).*

It uses demographic information such as population size, age, and sex distribution over some time to generate projections of the socioeconomic impacts of population change across different sectors. These sectors include the economy, education, health, infrastructure (urbanisation) and agriculture.

The model can estimate these impacts up to projections to estimatethe effects up to 150 years into the future, but realistic effectsmust be within a relatively manageable future. Results include requirements for the labour force, primary school enrolment and teachers, the number of nurses and doctors required to meet the needs of the population, etc.

FP-SDG model

The FP-SDG model, designed by Health Policy Plus(Health Policy Plus, 2017), allows for assessing the impact of increases in CPR on many indicators that arerelated to the Sustainable Development Goals. These include:

- Poverty headcount
- Food security
- Maternal mortality ratio and under-five-mortality rate
- Adolescent birth rate, etc.

These tools were employed to model gains and generate three possible scenarios that can be attained by investing in Family Planning:

(1) Status quo scenario (also known as business as usual),

(2) moderate scenario (modest progress) and

(3) the ambitious scenarios.
Table 3 contains the policy targets used in modelling.

Table 3: Policy targets, contraceptive prevalence rates, fertility rate and unmet need

	Status quo		Moderate		Ambitious	
	2023	2050	2023	2050	2023	2050
CPR	53.2%	53.2%	54.6%	62.9%	55.8%	71.9%
mCPR	47.5%	47.5%	49.4%	60.0%	50.7%	70.0%
Fertility rate	4.18	4.07	4.04	3.11	3.92	2.29
Unmet need	18.9%	18.9%	17.6%	15%	16.4%	9.5%

Note:

Unmet needs for Family Planning was set at 19% (2015) based on the DHS 2014/15 data (National Institute of Statistics of Rwanda et al., 2015).

Assessing the Benefits of Investing in Family Planning in Rwanda: The Health Sector

Rwanda has recorded significant progress in the uptake of contraceptive over the past years. However, Rwanda's total fertility rate and the consequent child dependency burden undermine the capacity of families and the Government to provide quality social services including health and education. This section shows how investment in Family Planning would help Rwanda achieve positive health outcomes and reap other substantial benefits to the health sector. These benefits could be short-, medium- or long-term.

Family Planning Increases the Number of Contraceptive Users, especially Modern Contraceptives

The share of Rwanda's population using modern contraceptives will increase significantly between 2015 and 2023. Under the ambitious scenario, about 1.31 million people use modern contraceptives, and this increased to over 1.87 million people by 2023, representing over 560,000 new users added between 2015 and 2023.

Users of traditional contraceptives also increased but not as much as users of modern contraceptives.

Under the ambitious scenario, about 157,000 people use traditional methods in 2015 compared to a projected figure at 170,000 people in 2023.

As shown in Table 6, the total number of users of traditional contraceptive methods will be higher under the status quo compared to the ambitious scenario by 2023. For instance, by 2023, if the status quo continues with minimal investment in family planning, there will be over 208,000 users of traditional contraceptive methods.

However, users of traditional contraceptive methods will sit at 170,000 under the ambitious scenario and about 189,000 under the moderate scenario.

Under the ambitious scenario, about

1.31 million

people use modern contraceptives, and this increased to over

1.87 million

people by 2023, representing over 560,000 new users added between 2015 and 2023.

Investing in Family Planning protects Women from Unintended Pregnancies and Unsafe Abortion

In Rwanda, improvement in contraceptive use is not occurring fast enough; given that unintended pregnancies and induced abortion remain among the significant challenges to maternal health, leading to unplanned births, unsafe abortion, injury and deaths.

It is estimated that pregnancy among teenage girls aged 15-19 years in Rwanda has increased from 6.1% in 2010 to 7.3% by 2014/15 (National Institute of Statistics of Rwanda *et al.,* 2015), resulting in school drop-out, diseases and deaths.

A national-level study in Rwanda showed that annually, nearly half (about 47%) of all pregnancies in the country were unintended (i.e., they came too soon or were not wanted at all) (Basinga *et al.,* 2012)2012.

This translates to an annual rate of 114 unintended pregnancies per 1,000 women aged 15-44 of which 22% end in induced abortion; 15% ends in a miscarriage while 63% leads to unplanned births (Basinga *et al.,* 2012)2012.

Approximately 40% of induced abortions lead to complications requiring medical treatment. Nonetheless, treatment was received by only a third of those in need (Basinga *et al.,* 2012). The average annual post-abortion care cost per client was US$93 across the five types of abortion complications.

The total cost of post-abortion care in Rwanda is estimated at US$1.7 million per year nationwide (Vlassoff *et al.,* 2014).

Increasing the CPR will increasingly avert unintended pregnancies. Unintended pregnancies averted are avoidable pregnancies because women of reproductive age have taken up contraceptives.

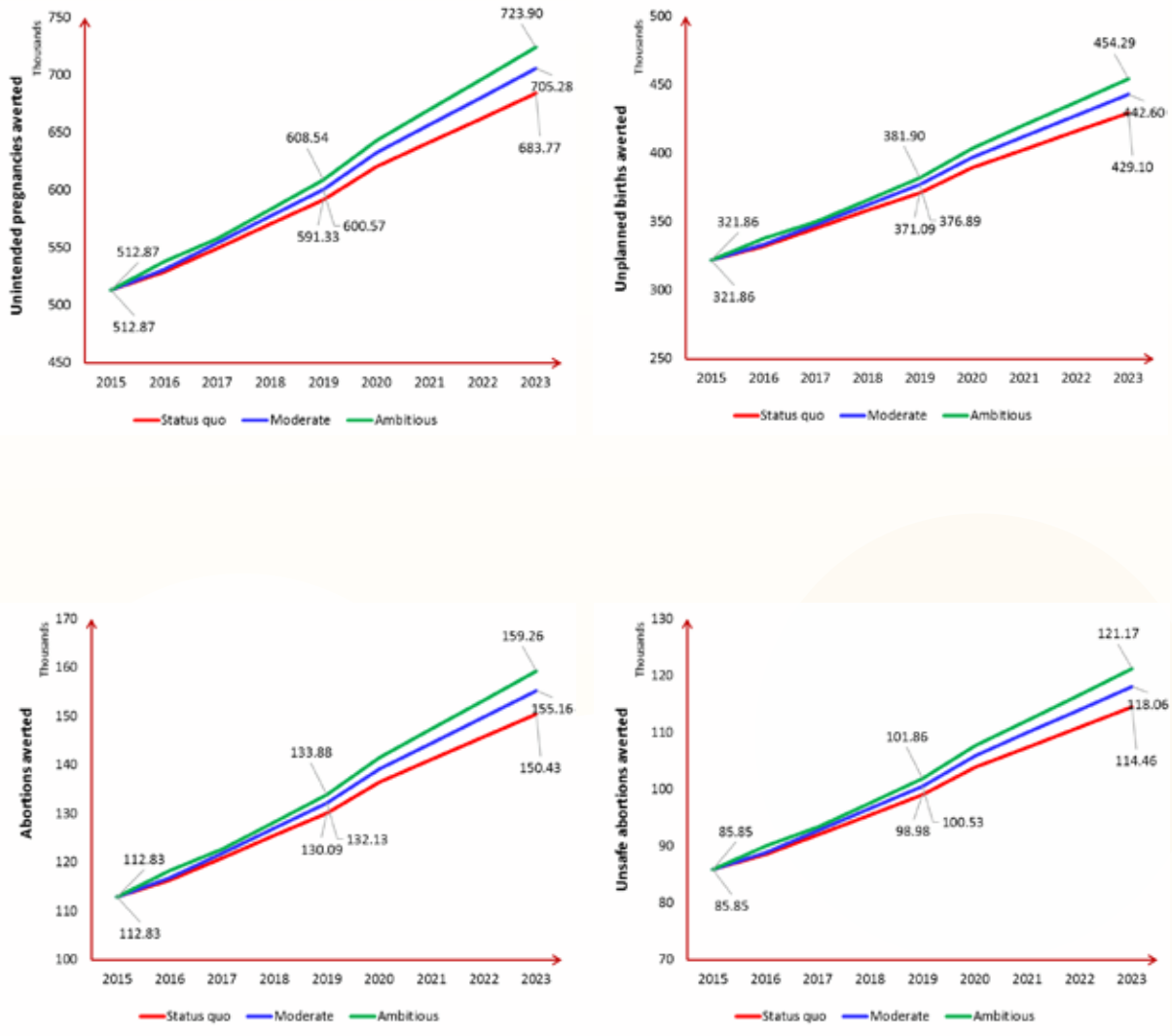
The model indicates that, between 2015 and 2023, investment in Family Planning could help to prevent between 512,900 and 723,900 unintended pregnancies (see Figure 9).

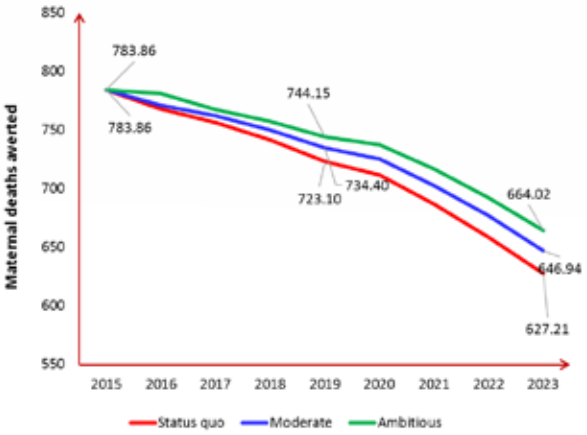
Overall, as shown in Table 4, an aggregate of over 5 million unintended pregnancies will be averted between 2015 and 2023.

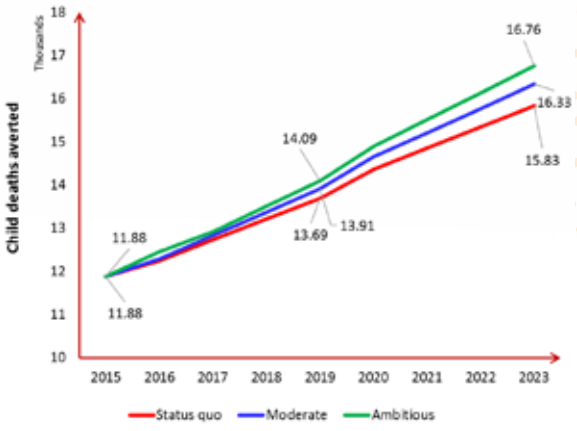
This translates to about 172,000 more unintended pregnancies will be prevented under the ambitious scenario compared to the status quo.

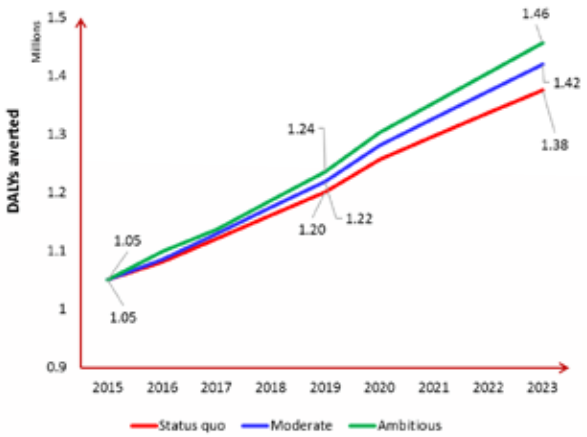
The results are similar to what was obtained in Uganda, using similar methodologies, where over 3 million unintended pregnancies will be averted between 2017 and 2020 (The Government of Uganda and United Nations Population Fund, 2016).

Figure 9: Short- to medium-term benefits of investing in family planning, Health sector, Rwanda




Maternal deaths averted
850
800
750
700
650
600
550
783.86
783.86
744.15
723.10
734.40
664.02
646.94
627.21
2015 2016 2017 2018 2019 2020 2021 2022 2023
Status quo
Moderate
Ambitious


Child deaths averted
Thousands
18
17
16
15
14
13
12
11
10
16.76
16.33
15.83
14.09
13.69
13.91
11.88
11.88
2015 2016 2017 2018 2019 2020 2021 2022 2023
Status quo
Moderate
Ambitious


DALYs averted
Millions
1.5
1.4
1.3
1.2
1.1
1
0.9
1.46
1.42
1.38
1.24
1.20
1.22
1.05
1.05
2015 2016 2017 2018 2019 2020 2021 2022 2023
Status quo
Moderate
Ambitious

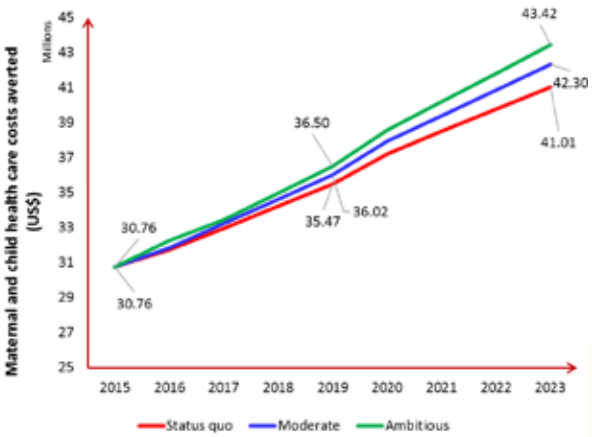

Maternal and child health care costs averted (US$)
Millions
45
43
41
39
37
35
33
31
29
27
25
43.42
42.30
41.01
36.50
35.47
36.02
30.76
30.76
2015 2016 2017 2018 2019 2020 2021 2022 2023
Status quo
Moderate
Ambitious

Table 4: Short- to medium-term benefits of investing in Family Planning in Rwanda (health sector) aggregated from 2015 to 2023

	Aggregated benefits (2015-2023)			Benefits gained compared to the status quo	
	Status quo (a)	Moderate (b)	Ambitious (c)	Moderate (d) = (b) – (a)	Ambitious (e) = (c) – (a)
Unintended pregnancies averted	5,361,285	5,450,609	5,532,984	89,324	171,699
Unplanned births averted	3,364,520	3,420,576	3,472,272	56,056	107,751
Abortions Averted	1,179,483	1,199,134	1,217,256	19,651	37,774
Unsafe Abortions Averted	897,425	912,377	926,166	14,952	28,741
Maternal deaths averted	6,455	6,552	6,643	97	188
Child deaths averted	124,153	126,221	128,129	2,068	3,976
DALYs averted	10,876,431	11,057,015	11,223,663	180,584	347,232
Maternal & infant health care costs saved (US$)	321,567,997	326,925,608	331,866,448	5,357,611	10,298,451

Table 5: Health professional and health infrastructure required

	Status quo				Moderate scenario				Ambitious scenario			
	2023	2030	2040	2050	2023	2030	2040	2050	2023	2030	2040	2050
Doctors required	1,184	1,722	3,217	7,463	1180	1689	3001	6599	1,176	1,660	2,816	5,869
Nurses required	13,779	19,728	35,416	74,634	13734	19348	33043	65988	13,696	19,019	31,003	58,686
Health centres required	799	1,181	2,298	5,971	797	1159	2144	5279	794	1,139	2,011	4,695
Hospitals required	73	101	167	299	73	99	156	264	73	97	146	235
Hospital beds required	30,118	42,666	74,734	149,267	30019	41845	69726	131976	29,935	41,134	65,421	117,371

Table 6: Total number of users of contraceptives in Rwanda, 2015-2023

		2015	2016	2017	2018	2019	2020	2021	2022	2023
Modern contraceptives	Status quo	1,306,284	1,359,929	1,413,573	1,467,218	1,520,863	1,574,508	1,628,152	1,681,797	1,735,442
	Moderate	1,306,284	1,366,842	1,427,962	1,489,646	1,551,895	1,614,713	1,678,100	1,742,058	1,806,590
	Ambitious	1,306,284	1,372,806	1,440,402	1,509,078	1,578,840	1,649,696	1,721,652	1,794,714	1,868,890
Traditional contraceptives	Status quo	157,085	163,536	169,987	176,438	182,889	189,340	195,790	202,241	208,692
	Moderate	157,085	161,634	166,017	170,230	174,274	178,145	181,842	185,363	188,706
	Ambitious	157,085	159,965	162,506	164,702	166,544	168,028	169,146	169,892	170,259

Family Planning saves/reduces Costs related to the Training of Additional Health Care Professionals and Health Infrastructure

Rapid population growth increases the number of health professional required to meet current health service delivery levels. More health professionals of all cadres will be required to meet the needs of a growing population. This means that more investment in critical human resources for health (training doctors, nurses, etc.)[2]and health infrastructure (building and equipping hospitals and health centres) is required.

However, with increased investment in Family Planning to increase mCPR and lower fertility rate, the number of additional health professions to be trained and health infrastructure to be provided will reduce substantially. The country will save on the need to train an excessive number of health professionals and building health facilities.

Family Planning reduces Training Costs of Doctors and Nurses

Rwanda, like many developing countries, is facing a shortage of highly skilled health professionals. According to the statistical yearbook 2017, the number of medical doctors in the public sector was 742 in 2015 compared to 709 in 2014,and the number of people per doctor was 15,479 in 2015 compared to 15,510 in 2014 (National Institute of Statistics of Rwanda, 2017).

Under the status quo, about 7,463 doctors will be required by 2050 compared to 5,868 doctors with substantial investment in family planning (i.e. ambitious scenario). Similarly, in 2015, Rwanda has about 8,751 nurses practicing in both the public and private sectors (National Institute of Statistics of Rwanda, 2017). By 2050, as shown in Table 5 over 74,600 nurses will be needed if under the status quo scenario compared to 58,600 nurses under the ambitious scenario where the mCPR increases to 70%.

2 While all cadres of health professionals are needed, the model was restricted to doctors and nurses, as these were the categories of health professional included in the original model architecture. This means that more savings can be realised, if these other cadres are included.

Family Planning saves Costs related to the Construction of Additional Hospitals and Health Centres

In Rwanda, the MoH remains mainly in charge of setting up new healthcare infrastructure (hospitals and health centres). With higher mCPR and lower fertility, fewer hospitals and health centres will be needed compared to the numbers required to cater to a larger population when the fertility rate is high. In 2015, there were approximately 48 hospitals and 495 health centres in Rwanda (National Institute of Statistics of Rwanda, 2017).

In the Health Sector Strategic Plan IV, the average time to walk to a nearby health facility was estimated at an hour in 2016.

As the population increases, Table 5 shows that about 5,971 health facilities will be needed by 2050 under the status quo. However, with substantial investment in Family Planning (i.e. the ambitious scenario), only about 4,695 health facilities will be required. For example, it means that the cost of constructing about 64 hospitals and 1,276 health centres could be saved in 2050 if there is substantial investment in Family Planning to attain the ambitious scenario.

In addition to the construction of additional hospitals, additional hospital beds are required to accommodate the growing population. By 2050, over 149,000 hospital beds will be needed if the status quo persists. However, this can be reduced substantially to about 117,000 beds under the ambitious scenario. This translates to savings on about 32,000 hospital beds by 2050.

Family Planning saves Lives: Abortions Averted

Some unintended pregnancies end in unsafe abortion even though abortion practice is stigmatised and restricted by law in the country. One-third of induced abortions in Rwandais estimated to occur in Kigali (Basinga *et al.*, 2012). In 2023, Family Planning could help avert between 85,800 and 121,200 unsafe abortions if Rwanda invests in family planning. Overall, between 112,800 and 159,300 abortions would be prevented in 2023 because of an increased CPR (Figure 9), with most of these being unsafe abortions (Figure 9).

Investment in Family Planning to achieve the targets set under the ambitious scenario can avert over 37,000 abortions compared to the number avoided under the status quo (Table 4). For unsafe abortions, as shown in Table 4, it was estimated at 28,741 more unsafe abortions prevented between 2015 and 2050 with investment to achieve the targets under the ambitious scenario.

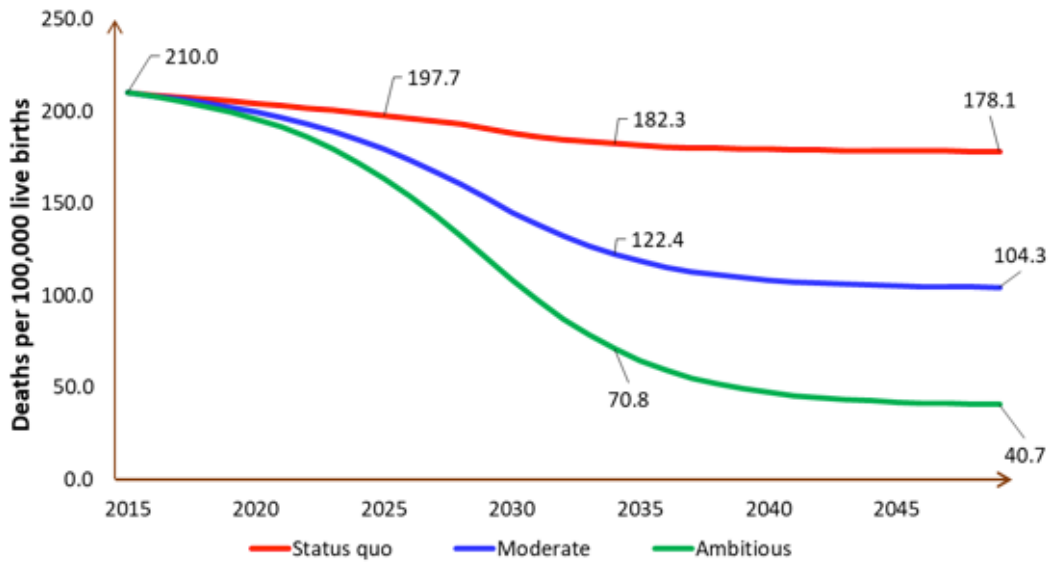
Family Planning saves Lives and prevents Maternal Deaths

In Rwanda, approximately 210 women per 100,000 live births die from causes related to pregnancy and childbirth (National Institute of Statistics of Rwanda *et al.,* 2015). It is shown in Figure 9 that increasing CPR will avert approximately between 627 and 664 maternal deaths in 2023 (Figure 9) and thereby improve maternal health. The CPR for 2015 contributes to the aversion of about 784 maternal deathsin part due to past investment in family planning.

This means that maternal deaths would have increased by about 784 deaths in 2015 if the CPR was zero (i.e.without contraceptive use). Interestingly, the number of maternal deaths that would be averted will decline over time. This is not surprising as Rwanda is one of the few African countries to have achieved the MDG target related to maternal health (Victora *et al.*, 2016).

Aggregate figures in Table 4 show that over 6,600 maternal deaths will be averted between 2015 and 2023 under the ambitious scenario compared to 6,455 deaths prevented under the status quo. This translates to over 180 more maternal deaths prevented when more investment is made in Family Planning over and above the status quo.

Figure 10: Impact of increasing CPR and slower population growth on maternal mortality ratio in Rwanda



With a long-term horizon, maternal mortality ratio will decrease from about 210 per 100,000 live births in 2015 to between 40.7 and 104.3 per 100,000 live births by 2050 (Figure 10). With substantial investment in family planning, the most significant benefits will occur under the ambitious scenario where CPR is estimated at 71.9% and fertility rate at 2.2 by 2050.

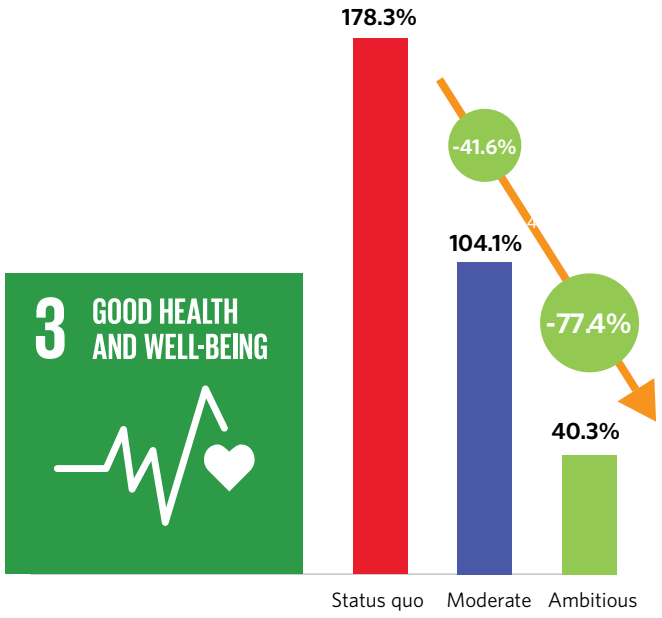
By 2050

Maternal mortality ratio

210
Maternal mortality ratio (2015)

→

40
Maternal mortality ratio (2050)

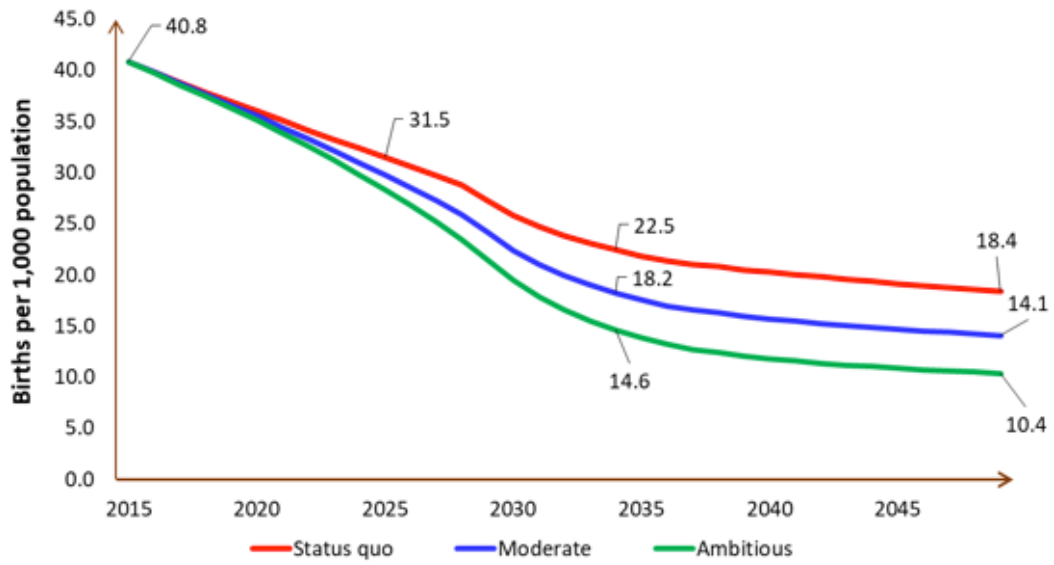


- *Maternal Mortality Ratio dropped from 178.3 per 100,000 live births under the status quo scenario to 104.1 using moderate assumptions and 40.3 using ambitious assumptions (by 2050).*
- *Relatively, maternal mortality reduced by about 41.6% and about 77.4% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on reducing maternal mortality in Rwanda.*

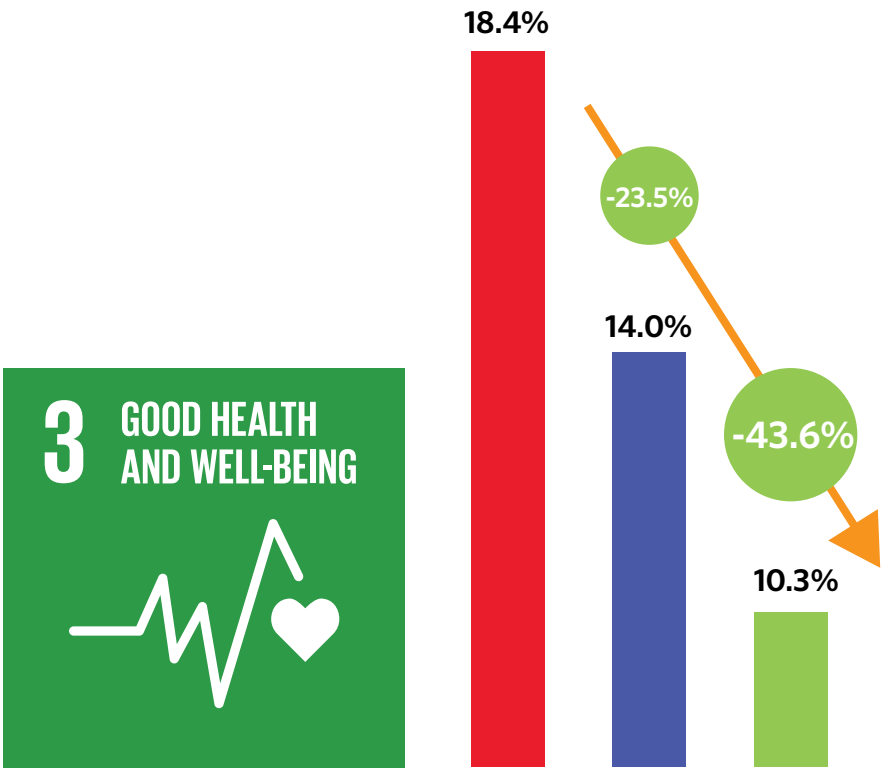
Adolescent Birth Rate: Investing in Family Planning reduces the Adolescent Birth Rate

Apart from reducing maternal deaths, investment in Family Planning can reduce adolescent pregnancies substantially. This is achieved, among other things, through significant expansions in access to contraceptives in Rwanda. The adolescent birth rate is estimated to drop considerably from 40 births per 1,000 population to between 10 and 14 births, depending on the scenario.

Figure 11: Impact of increasing CPR on the adolescent birth rate in Rwanda



In fact, more considerable improvements are recorded under the ambitious scenario. This means that adolescent birth rate as of 2050 will be a fourth of its value in 2015.

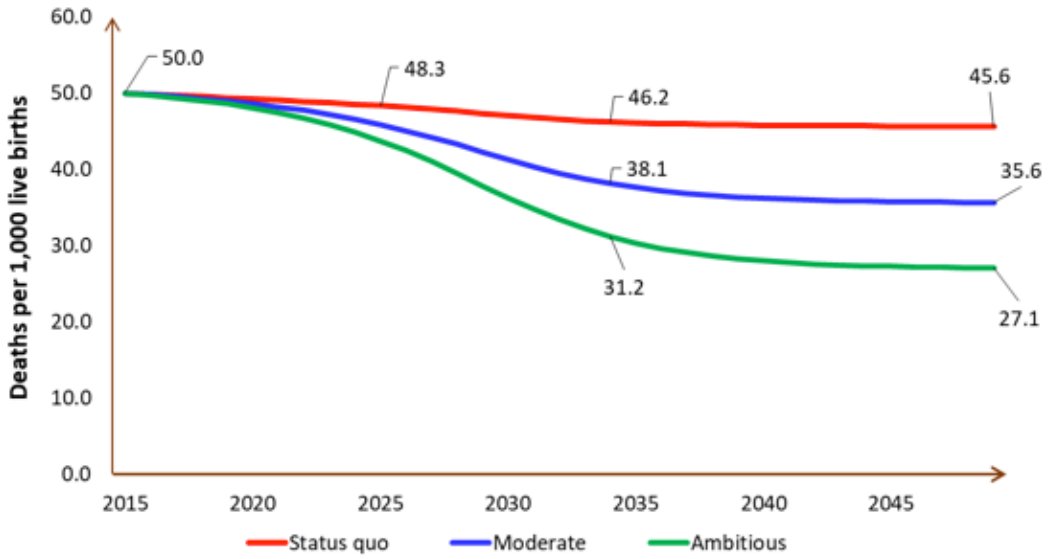


- *Adolescent birth rate dropped from 18.4 per 1,000 population under the status quo scenario to 14.0 using moderate assumptions and 10.3 using ambitious assumptions (by 2050)*
- *Relatively, adolescent birth rate dropped by about 23.5% and about 43.6% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on reducing adolescent birth rate in Rwanda.*

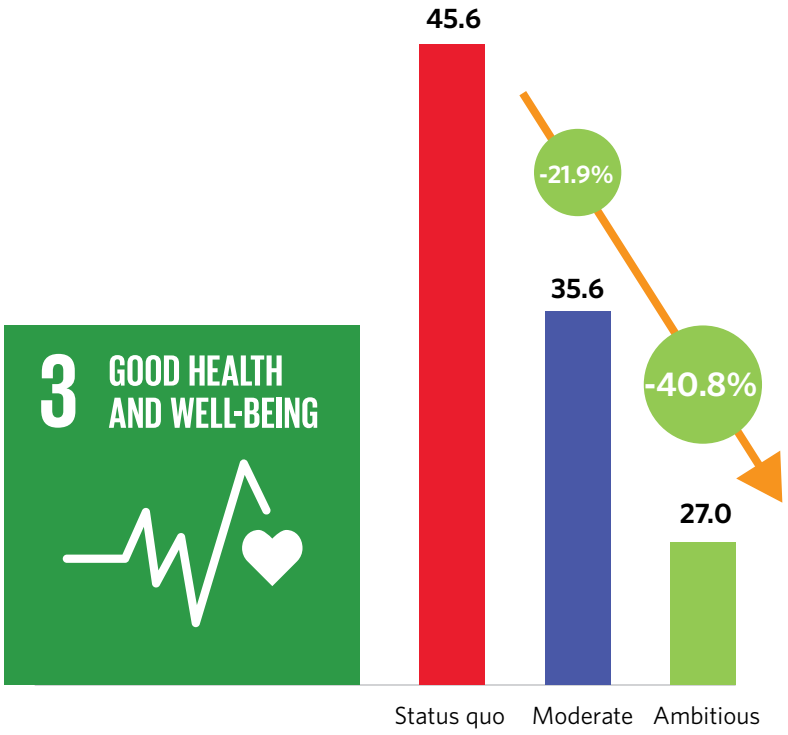
Family Planning saves the Lives of Children: Child Deaths Averted

Significant child deaths will be prevented between 2015 and 2023. As shown in Figure 9, depending on the scenario, between 15,800 and 16,800 child deaths will be prevented in 2023 alone because of a higher contraceptive prevalence rate. In fact, there is a steady upward trend in the annual number of child deaths that will be averted between 2015 and 2023. If the GoR invests in Family Planning (i.e. under the ambitious scenario), a total of 128,129 lives of children would be saved between 2015 and 2023 (Table 4). This translates into about 4,000 more child deaths averted when the status quo is compared with the ambitious scenario.

Figure 12: Impact of increasing CPR on under-5 mortality ratio in Rwanda



Over a longer horizon, as shown in Figure 12, under-5 mortality rate in Rwanda will decline from about 50 per 1,000 live births in 2015 to between 27.1 and 35.6 deaths per 1,000 live births by 2050 with substantial investment in Family Planning. In fact, under the ambitious scenario, under 5 mortality rate will almost be halved between 2015 and 2050 (Figure 12).

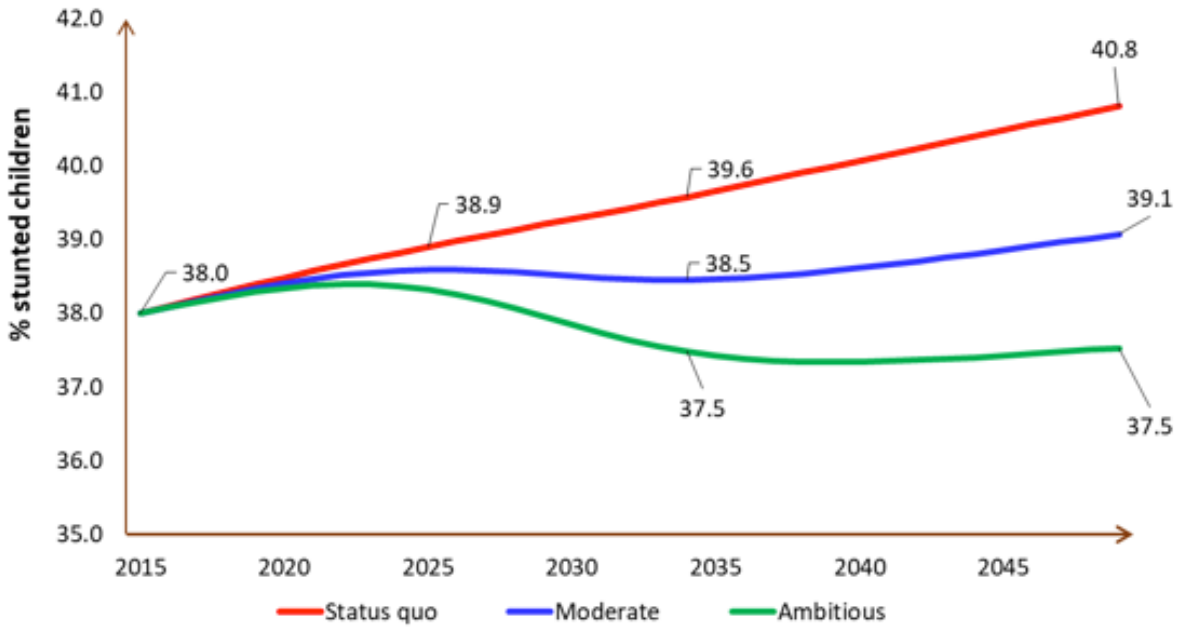


- *Under five mortality dropped from 45.6 per 1,000 live births under the status quo scenario to 35.6 using moderate assumptions and 27.0 using ambitious assumptions (by 2050)*
- *Under five mortality reduced by about 21.9% and about 40.8% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on reducing under five mortality in Rwanda.*

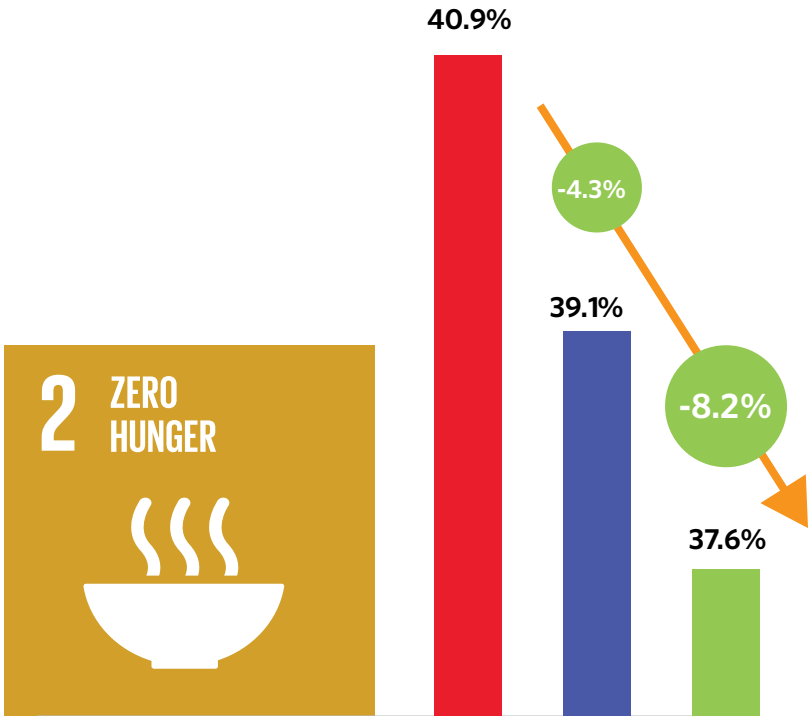
Stunting: Investing in Family Planning reduces Child Stunting

Apart from reductions in child mortality, investment in Family Planning leads to significant decreases in stunting in Rwanda. Although child stunting remains high in Rwanda (Uwiringiyimana *et al.,* 2019), under the status quo scenario and the moderate scenario (to a lesser extent), the proportion of stunted children is modelled to increase. However, for the ambitious scenario, achieving a higher CPR through significant investment in Family Planning will significantly reduce stunting among children in Rwanda.

Figure 13: Impact of increasing CPR on stunting among children under 5 years in Rwanda



This means that significant investment is required as demonstrated under the ambitious scenario to reap the benefits of reduced child stunting in Rwanda. As shown in Figure 13, the prevalence of stunting will decline from 38% (in 2015) to about 37.5% by 2050, under the ambitious scenario. It is important to note that a set of nutritional interventions as well as actions across multiple sectors as are required to reduce childhood stunting (World Bank and Government of Rwanda, 2019). Child stunting has a long-term effect on children's future learning abilities and participation in the knowledge service-led economy that Rwanda is pushing to achieve in the coming years (World Bank and Government of Rwanda, 2019).



- *Prevalence of stunting among children under five years of age dropped from 40.9% under the status quo scenario to 39.1% using moderate assumptions and 37.6% using ambitious assumptions (by 2050)*
- *Relatively, the prevalence of child stunting reduced by about 4.3% and about 8.2% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on reducing child stunting in Rwanda.*

Disability-Adjusted Life Years (DALYs) Averted by Investing in Family Planning

DALYs averted is an important measure of the impact of any Family Planning programme. DALY is a standard metric or unit to show the disease burden in a population. DALYs represent thetotal number of years that are lost to ill-health, disability or early death, as compared to an ideal life expectancy(Murray and Lopez, 1994).

As shown in Figure 9, between 1.4 million and 1.5 million DALYs will be averted in 2023 if the CPR increases to 54.6% and 55.8%, respectively. In general, there is a steady increment in annual DALYs that are averted between 2015 and 2023.

Family Planning is Cost-Effective and saves Money: Infant and Maternal Health Care costs and Total Family Planning Cost saved

Infant and maternal healthcare carry associated economic costs. Investing in Family Planning and achieving significant increases in CPR will lead to slower population growthand significant cost savings in Rwanda's health system.

Results from the modelling show that by 2023, the GoR will save substantial amounts that range between US$41.0 million and US$43.4 million in terms of health care expenditures associated with mothers and infants.

In other words, by choosing the ambitious scenario, the GoR would save about US$43.4 million that can be used to finance other health sector activities.

This is possible because there are significant reductions in pregnancies and births. Cumulatively, about US$332 million will be saved in infant and maternal healthcare cost between 2015 and 2050 (Table 4) when substantial investment (i.e. the ambitious scenario) is made in Family Planning in Rwanda.

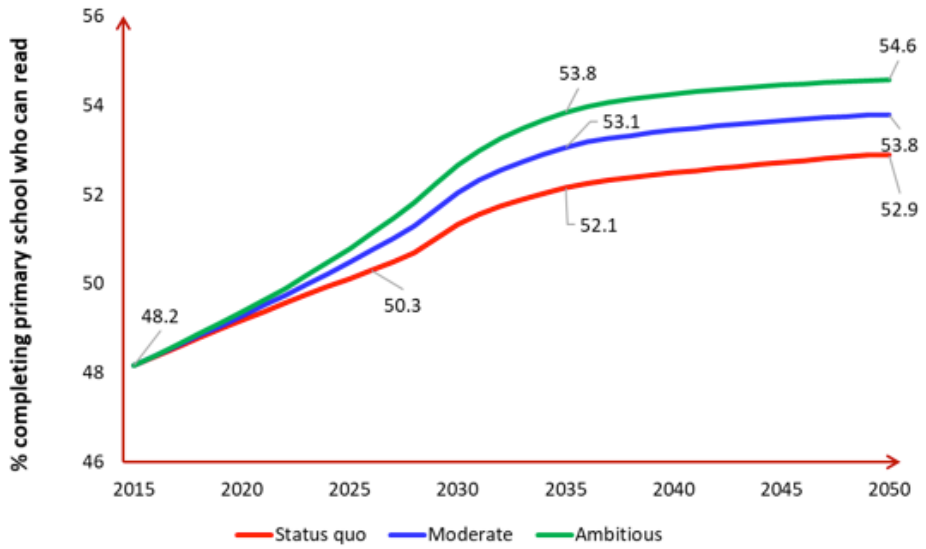
This means that over US$10 million will be saved, between 2015 and 2050, when investment in Family Planning is increased beyond what is observed under the status quo.

Assessing the Benefits of Investing in Family Planning in Rwanda: The Education Sector

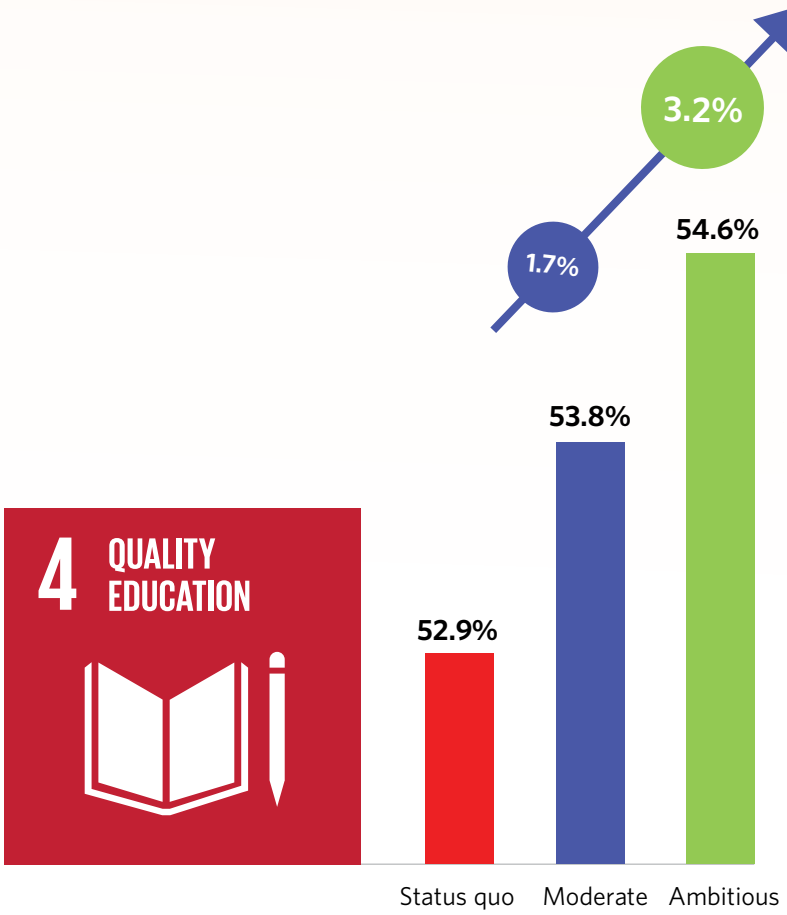
Primary School Reading Achievement: Investing in Family Planning increases Primary Literacy Rate

The National Strategy for Transformation (NST1) and the SDGs[3] have identified education as an essential component for development. Investment in Family Planning will significantly increase the proportion of people completing primary school who will be able to read. It was estimated that this proportion would increase to about 54.6% by 2050 under the ambitious scenario (Figure 14). Marginal improvements were recorded under the status quo.

Figure 14: Impact of increasing CPR on primary school reading achievement in Rwanda



3 A large average family size makes it difficult for families and the government to make the requisite investments in education and health that are needed to develop high-quality human capital and achieve higher incomes and socioeconomic development.



- *Percentage of people completing primary school that can read increased from 52.9% under the status quo scenario to 53.8% using moderate assumptions and 54.6% using ambitious assumptions (by 2050)*
- *Proportion of people completing primary education who can read increased by about 1.7% and about 3.2% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on improving education outcome in Rwanda.*

Figure 15: Short- to long-term benefits of investing in family planning, the education sector, Rwanda

	Status quo				Moderate scenario				Ambitious scenario			
	2023	2030	2040	2050	2023	2030	2040	2050	2023	2030	2040	2050
Primary school teachers required	41,246	50,733	72,100	106,150	41,193	49,541	60,978	81,641	41,176	48,453	51,336	60,733
Primary schools required	2,764	3,518	5,313	8,492	2,761	3,435	4,493	6,531	2,759	3,360	3,783	4,859
Primary school classrooms required	16,584	21,108	31,878	50,952	16,566	20,610	26,958	39,186	16,554	20,160	22,698	29,154
Primary school expenditures required (Rwf billion)	59	77	114	170	59	75	96	131	59	73	81	97
Secondary school teachers required	44,990	69,305	120,696	21,2189	4,4990	69,217	114,456	171,445	44,990	69,188	109,050	136,567
Secondary schools required	2,671	4,310	8,141	15,914	2,671	4,305	7,720	12,858	2,671	4,303	7,355	10,243
Secondary school classrooms required	16,026	25,860	48,846	95,484	16,026	25,830	46,320	77,148	16,026	25,818	44,130	61,458
Secondary school expenditures required (Rwf billion)	89	145	265	477	89	144	251	386	89	144	239	307

Fewer Resources will be required to Educate the Population: Investing in Family Planning will reduce the Resources that are needed to improve Primary and Secondary School Enrolment

Large average family size makes it difficult for families and the Government to make the requisite investment in education that are needed to develop high-quality human capital and achieve higher incomes and socioeconomic development.

The number of primary schools and primary school teachers needed to educate the population will increase with rapid population growth. This translates in an increased number of primary and secondary school classroomsthat need to be constructed to achieve universal primary and secondary education in Rwanda.

As shown in Figure 15, if the current population growth continues (i.e. under the status quo) over 50,000 primary school classrooms will be needed by 2050 to be able to ensure universal access to education at the primary education level.

Thisis compared to less than 21,000 classrooms needed (i.e. ambitious scenario) with significant investment in family planning. In other words, 8,000 primary schools will be required by 2050 to be able to meet the demands of the population.

This is compared to less than 5,000 needed (i.e. ambitious scenario) with significant investment in Family Planning. To accompany this will be about 106,200 teachers by 2050, under the status quo compared to 60,700 teachers under the ambitious scenario.The translates to a saving of about 45,500 primary school teachers by 2050.

Similarly, about 95,000 secondary classrooms will be required by 2050 to accommodate the increased number of students who are progressing from primary to secondary schools. This translates to over 15,900 secondary schools needed by 2050 if substantial reductions in fertility rate are not achieved (under the status quo). Under the ambitious scenario, investing in Family Planning will reduce population growth and Rwanda will only require about 10,200 secondary schools by 2050.

This represents a saving of about 5,700 schools by 2050. The number of teachers needed will also increase substantially under the status quo compared to the ambitious or moderate scenarios. About 212,200 secondary school teachers are expected by 2050 under the status quo.

This will reduce substantially to 136,600 teachers with significant investment in Family Planning under the ambitious scenario (Figure 15). This means that Rwanda will save on the training of about 75,600 secondary school teachers by 2050 with substantial investment in Family Planning.

The financing of primary and secondary schools will also be impacted by population growth. As shown in Figure 15, recurrent expenditure at the primary school level will increase to about US$212 million in 2050 under the status quo. This will be reduced significantly to US$121 million under the ambitious scenario.

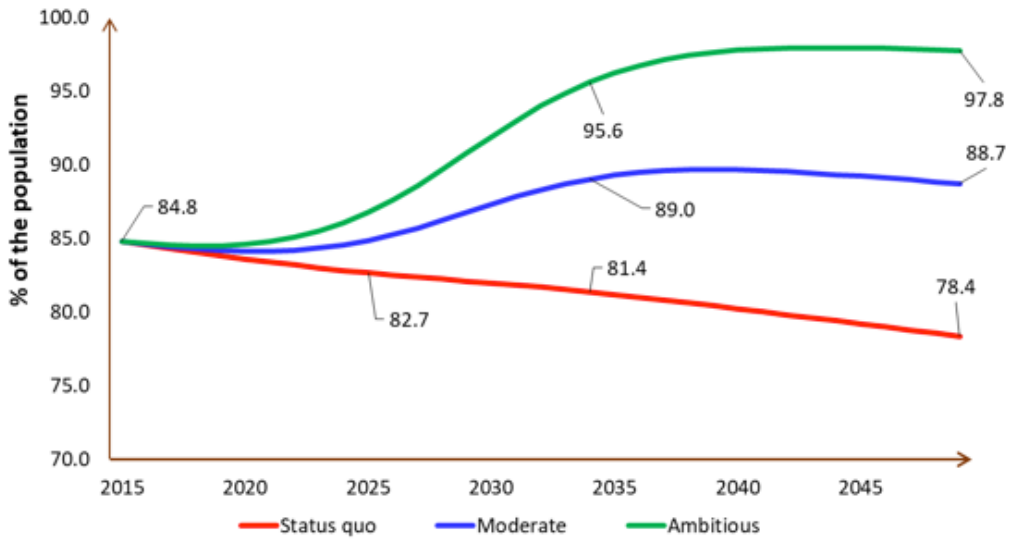
For secondary education, this will reduce from about US$597 million to US$ 384 million by 2050. In total, Figure 15 indicates that there will be a cost saving of US$91 million and US$ 213 million in recurrent expenditure for primary and secondary education in 2050, respectively. Similar results have been reported in Malawi where an additional 116 billion Malawian Kwacha will be required by 2040 as expenditures on primary school education (Ministry of Finance and Development Planning, 2012).

Assessing the Benefits of Investing in Family Planning in Rwanda: The Infrastructure Sector

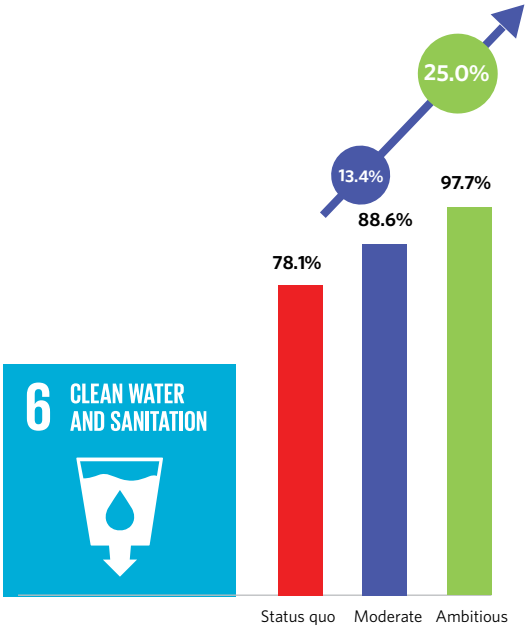
Safe Water and Sanitation: Investing in Family Planning Increases Access to Safe Water and Sanitation

Increasing access to water and sanitation infrastructure is among the priorities of the GoR. Improved water and sanitation havea significant impact on health outcomes, especially with communicable diseases (Raviglione and Maher, 2017). Investment in Family Planning has the potential to improve coverage with safe drinking water (Figure 16) and safe sanitation services (Figure 17). Under the ambitious scenario, coverage with safe drinking water and sanitation would be almost universal in Rwanda.

Figure 16: Impact of increasing CPR on the proportion of the population using safely managed drinking water services in Rwanda



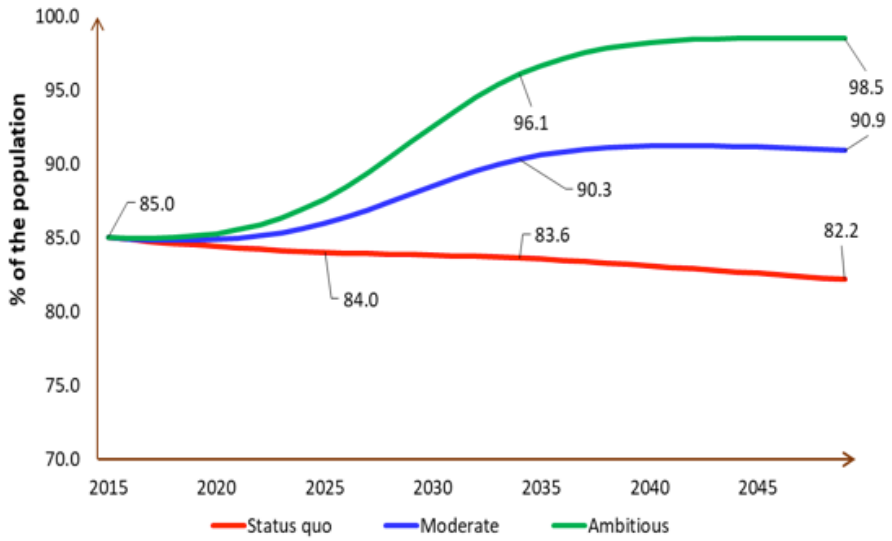
Coverage with safe drinking water, as shown in Figure 16, is modelled to worsen over time under the status quo—coverage will drop from 84.8% (in 2015) to 78.4% (in 2050). With substantial investment, coverage level can be increased to about 98% (under the ambitious scenario).

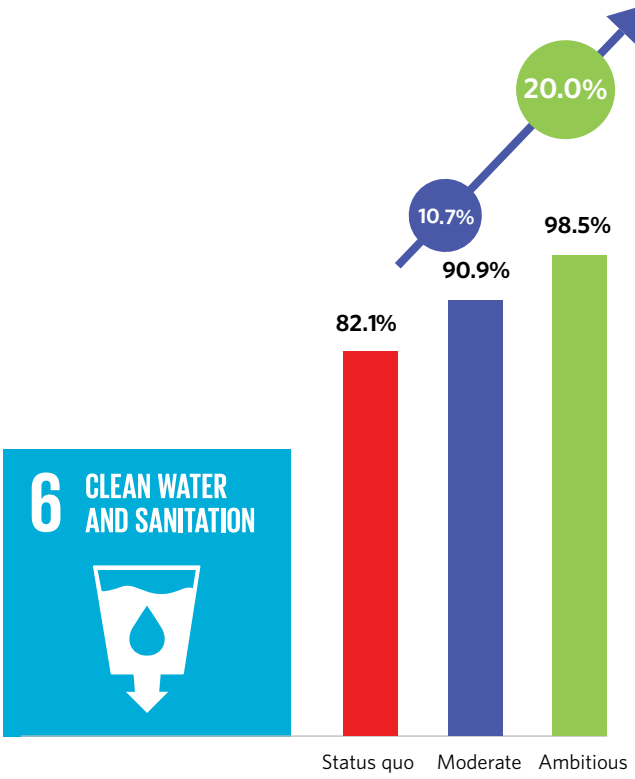


- *Percentage of the population using safely managed drinking water services increased from 78.1% under the status quo scenario to 88.6% using moderate assumptions and 97.7% using ambitious assumptions (by 2050)*
- *The proportion of the population using safely managed drinking water services increased by 13.4% and 25.0% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on use of improved water services in Rwanda.*

The same pattern is recorded for the use of safe sanitation services in Rwanda, although the proportions here are better than for safe drinking water. While under the status quo the use of safe sanitation services will drop from 85% (in 2015) to 82% (in 2050), it is modelled that over 98% will have access to safe sanitation services by 2050 under the ambitious scenario.

Figure 17: Impact of increasing CPR on the proportion of the population using safely managed sanitation services in Rwanda





- *Percentage of the population using safely managed sanitation services increased from 82.1% under the status quo scenario to 90.9% using moderate assumptions and 98.5% using ambitious assumptions (by 2050)*
- *The proportion of the population using safely managed sanitation services increased by 10.7% and 20.0% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on use of improved sanitation services in Rwanda.*

Living in Urban Slums: Investing in Family Planning has a significant Impact on the Proportion of Urban Dwellers Living in Slums

The rapid change in the share of Rwanda's population living in urban areas is another important transformation that Rwanda's population is more likely to experience over the next few years.

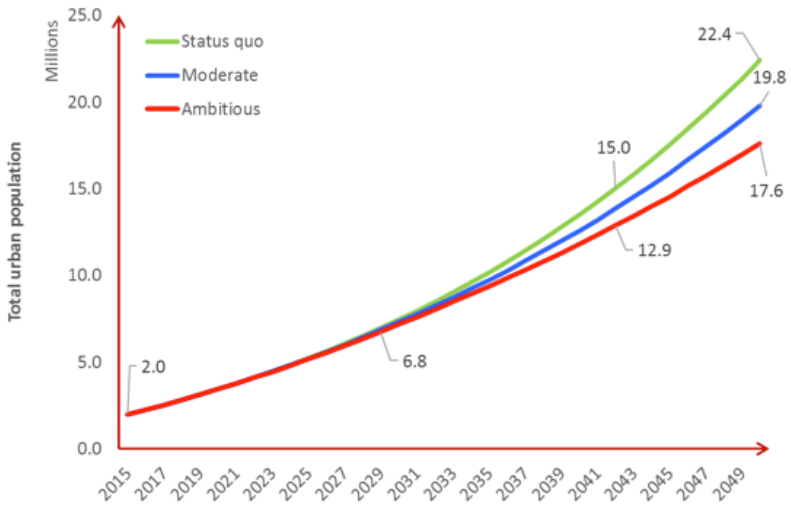
Large scale urbanisation has already taken place in the country with higher population density, especially in the capital city, Kigali.

The 2012 population census and the 2014 EICV estimated that about 16.5% and 17.3% of the population, respectively, reside in an urban area. Rapid population growth tends to exert direct pressure on major cities and urban environment due to migration with people searching for employment opportunities.

Even though urbanisation has traditionally provided massive advantages to national socio -economic transformation efforts in developing and emerging economies (e.g. creation of non-farm jobs), effective management of the urbanisation process is crucial to increase the likelihood of Rwanda becoming middle-income county and achieving the Vision 2050 goals.

In 2017, about 3 million people lived in an urban area in Rwanda (National Institute of Statistics of Rwanda, 2017). However, by 2050, it is forecasted that the urban population will grow significantly to over 22 million people under the status quo (Figure 18). However, investment in Family Planning can reduce this considerably to about 17.6 million urban dwellers by 2050. This translates to approximately 4.8 million unplanned urban dwellers averted by investing in Family Planning.

Figure 18: Impact of changing fertility rate on urban population, Rwanda

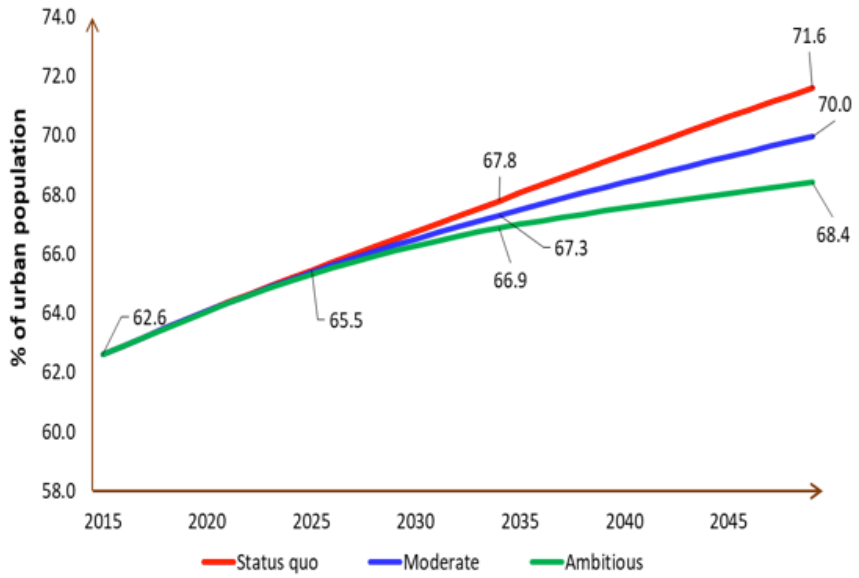


Although there will be reductions in the number of urban dwellers through substantial investment in family planning, increasing urbanisation as shown in Figure 18 is congruent with the country's development goals. The country's Vision 2050 aims to move Rwanda to high-income status by 2050.

This implicitly implies that the current proportion of the urban population will increase significantly by 2050, leading to a predominantly urban population. Based on the results of the modelling (Figure 19), this will give rise to an increased proportion of the people living in urban slums.

The percentage of the urban population in Rwanda living in slums will increase from 62.6% (in 2015) to between 68.4% and 70% in 2050, depending on the scenario.

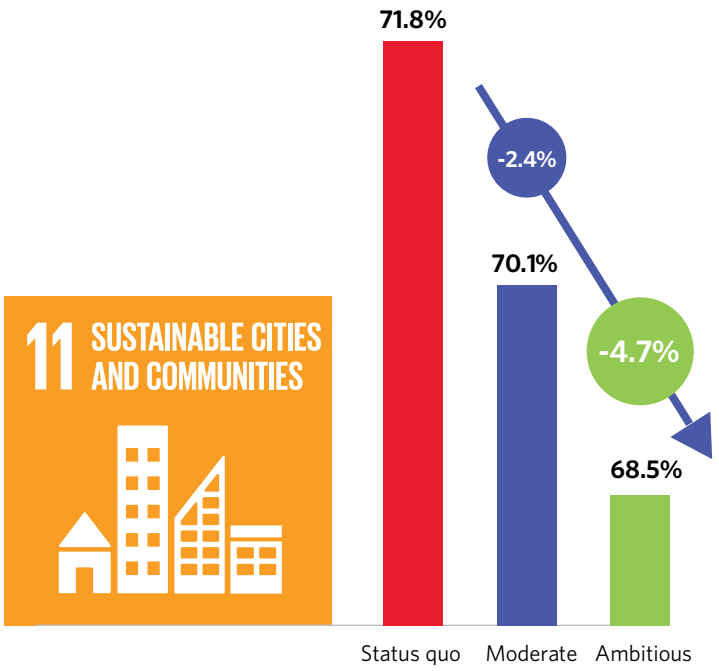
Figure 19: Impact of increasing CPR on the percentage of urban population living in slums/ informal settlements or inadequate housing in Rwanda



Although there will be an increment in the proportion of the urbanpopulation living under slum conditions, the increases recorded under the ambitious scenario are lower than those for the other scenarios. There was a 5.8-percentage point increment under the ambitious scenario compared to a 9-percentage point increment under the status quo. This means that investments in Family Planning can reduce the proportion of the urban slum population by 3.2%.

Investments in Family Planning
can reduce the proportion of the urban slum population by

3.2%



- *Percentage of urban population living in slums reduced from 71.8% under the status quo scenario to 70.1% using moderate assumptions and 68.5% using ambitious assumptions (by 2050)*
- *The proportion of urban population living in slums dropped by about 2.4% and about 4.7% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on improving urban conditions in Rwanda.*

Assessing the Benefits of Investing in Family Planning in Rwanda: The Agriculture Sector

Availability of Arable Land and Food Security: Investing in Family Planning frees up Arable Land and reduces Food Insecurity

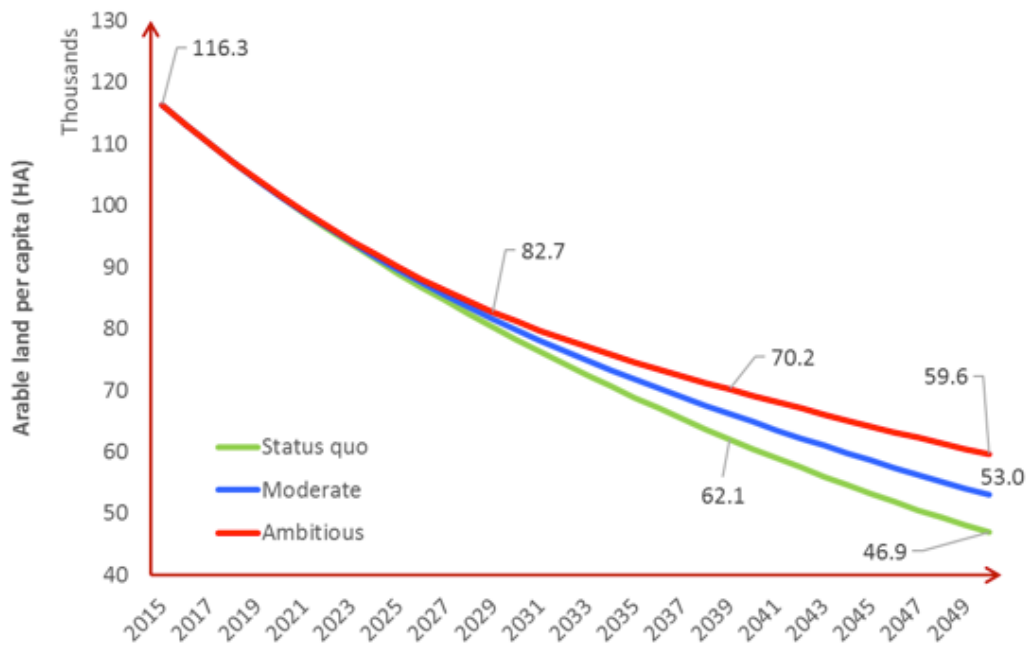
According to the Food and Agriculture Organization (FAO), "food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life" (Food and Agriculture Organization, 2003).

At the household level, food security relates to the household with individuals within households as the focus of concern (Food and Agriculture Organization, 2003). On the other hand, food insecurity occurs when "people do not have adequate physical, social or economic access to food" (Food and Agriculture Organization, 2003).

Food insecurity is particularly concerning for the poorest households. Investing in Family Planning increases food security in Rwanda. Recently, it has been noted that the country's agricultural sector faces the challenge of increased environmental degradation that results in productivity decline(Paul et al., 2018).

Rwanda also faces the dual challenge of food security and environmental sustainability (Paul et al., 2018). Thus, investment in Family Planning has the potentials to address these challenges especially in guaranteeing access to quality food.

Figure 20: Impact of changing fertility rate on the availability of arable land in Rwanda

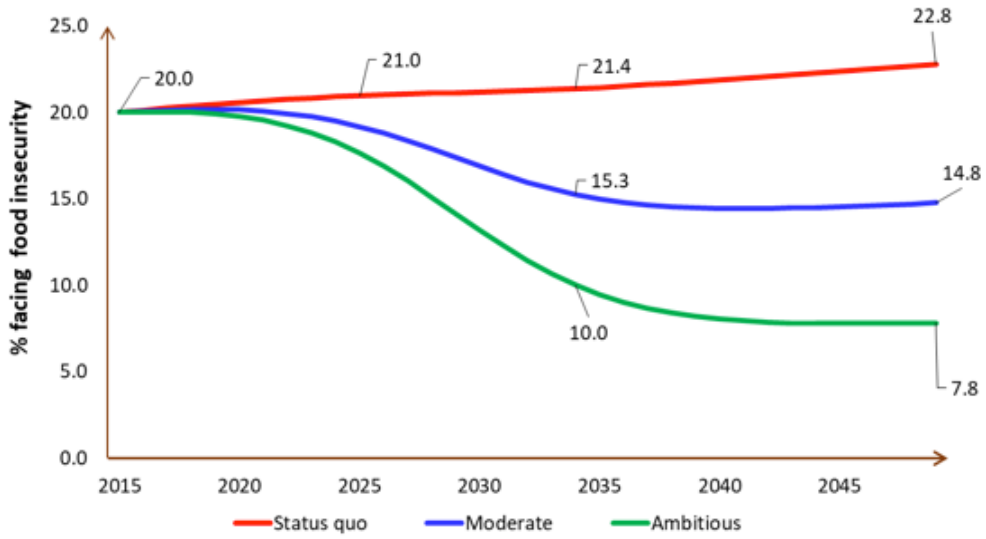


Arable land remains a significant asset to increase food security. Although arable land is estimated at 1.4 million hectares (National Institute of Statistics of Rwanda, 2011), it is forecasted that by 2050, with continued high fertility rate, rapid population growth will add pressure to available arable land, leading to overexploitation, deforestation, erosion, loss of soil fertility, and reduced productivity.

The results of the model show that arable land per capita will decline sharply between 2015 and 2050. This decline is sharper under the status quo than under the ambitious scenario (Figure 20).

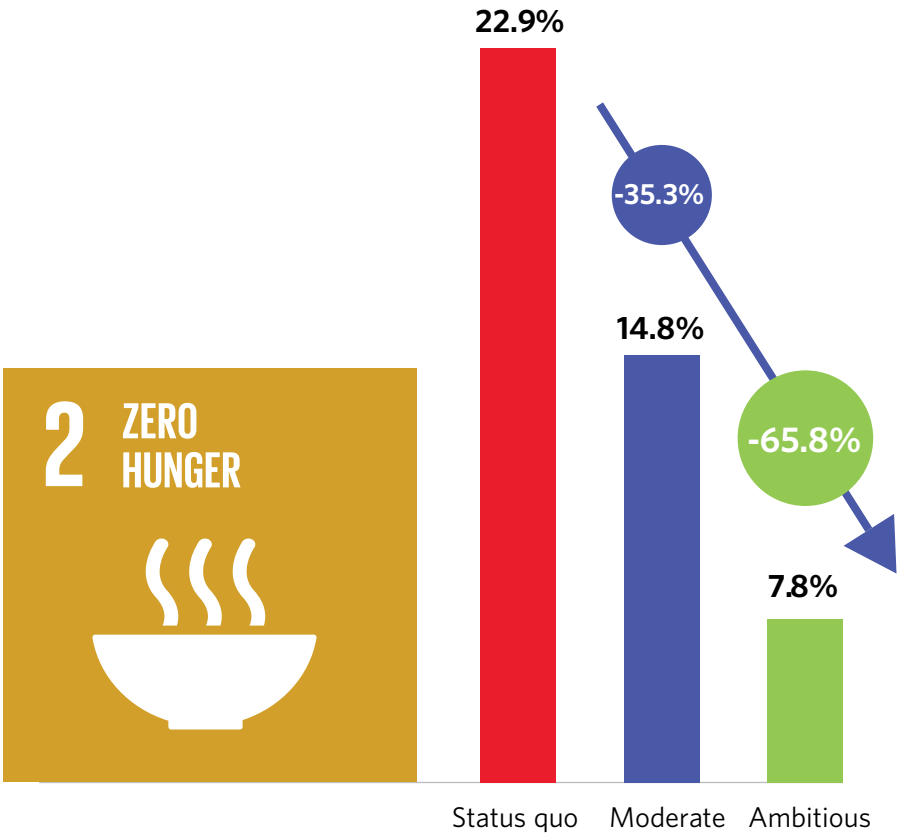
By investing in family planning, the country can save over 17 hectares per capita in arable land in 2050, comparing the status quo with the ambitious scenario. This means that effective demographic transition will make arable land available for agricultural activities including animal and crop farming. This can be used to, among other things, guarantee access to food.

Figure 21: Impact of increasing CPR on moderate or severe food insecurity in Rwanda



With some reductions in arable land in Rwanda, the result in Figure 21 shows that the proportion of individuals facing moderate to severe food insecurity will increase under the status quo—in fact, there will be a 2.8-percentage point increase in the percentage of individuals facing food insecurity between 2015 and 2050.

However, with significant uptake in modern contraceptives, the percentage of the population facing moderate to severe food insecurity will decline significantly from 20% in 2015 to about 7.8% in 2050 (i.e. under the ambitious scenario). A modest decline can be seen under the moderate scenario—declining to about 14.8% by 2050 (Figure 21).



- *By 2050, prevalence of moderate or severe food insecurity in the population will drop from 22.9% under the status quo scenario to 14.8% using moderate assumptions and 7.8% using ambitious assumptions (by 2050)*
- *Food insecurity will reduce by about 35.3% and about 65.8% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on improving food security in Rwanda.*

Assessing the Benefits of Investing in Family Planning in Rwanda: The Economy

Jobs Required: Investing in Family Planning Efficiently reduces the Labour Force Size for Optimum Productivity

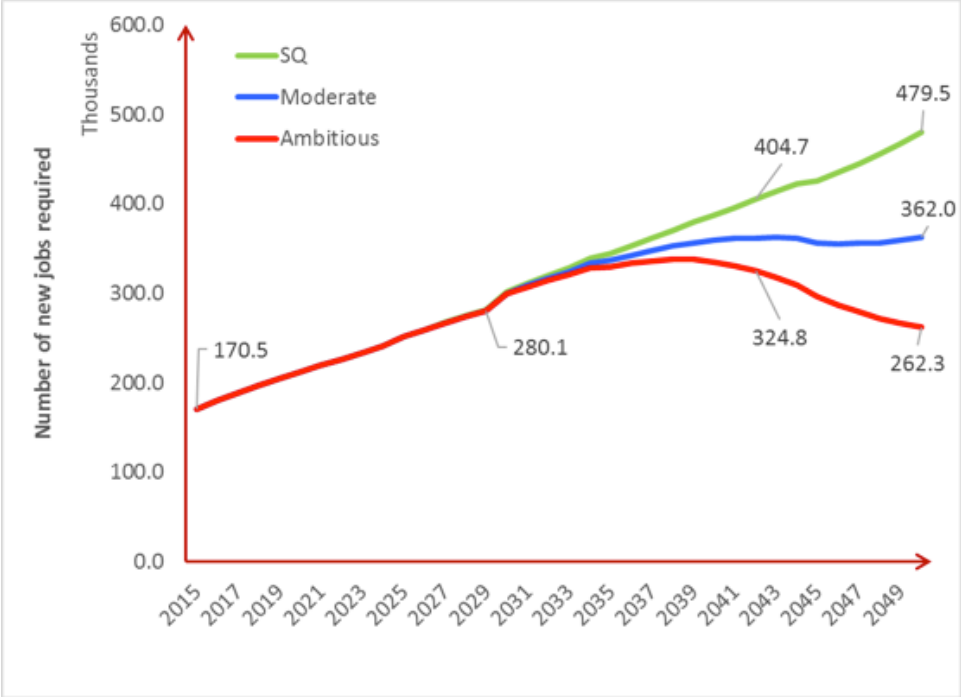
Investment in Family Planning has a positive impact on the economy. Increasing population will mean that more jobs need to be created. This is because millions of young people will enter the labour force over the next years. Most of the new and youngentrants to the labour force for the next two decades already have been born.

As shown in Figure 22, under the status quo, about 480,000 jobs will be required by 2050 to accommodate the growth in population. However, with substantial investment in family planning, only 262,000 jobs will be needed by 2050.

This translates into significant savings in terms of wage bills.

In 2050, about 217,000 unplanned jobs can be avoided when we compare the status quo to the ambitious scenario.

Figure 22: Impact of changing fertility rate on the number of new jobs required in Rwanda

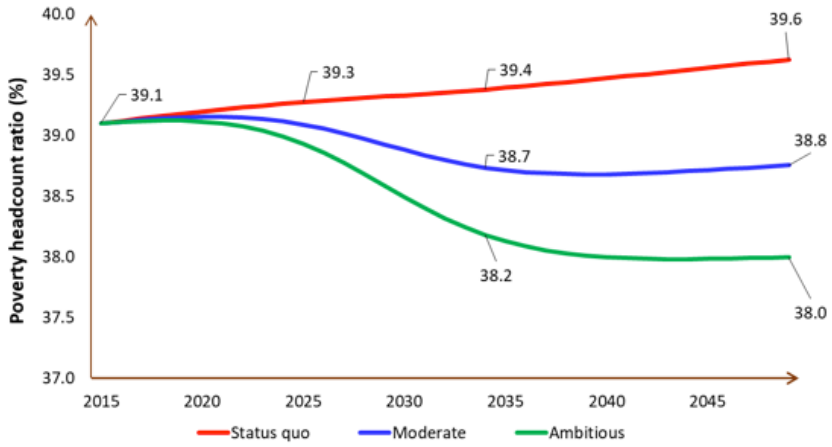


Poverty Headcount: Investing in Family Planning reduces Poverty

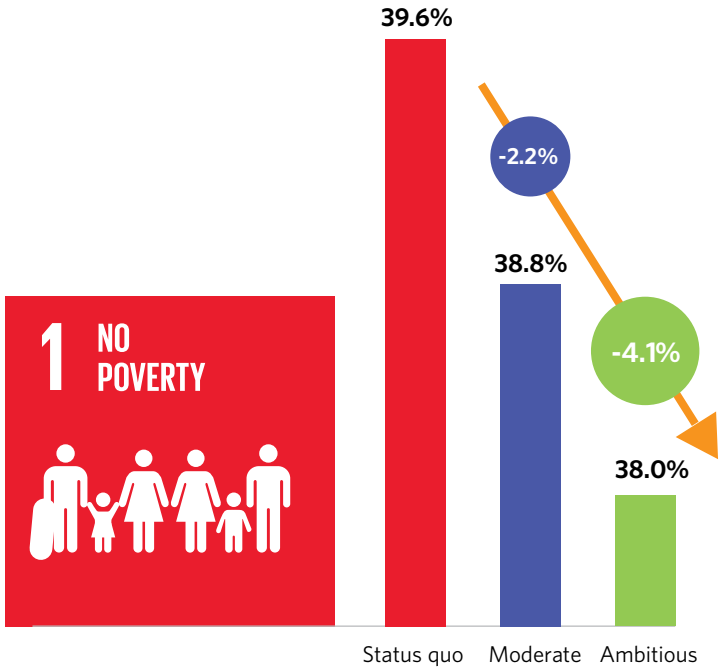
Poverty reduction is also a key objective for Rwanda as reflected in the Vision 2020, NST1 and the SDGs. Over the last decade, the proportion of Rwandans living below the poverty line has declined significantly from 44.9 in 2011 to 39.1% in 2014 and 38.2% in 2016/17. Extreme poverty has reduced in recent years, from 22% in 2011 to 16.3 % in 2014/15 and 16.0 in 2016/17(National Institute of Statistics of Rwanda, 2015; 2018).

The results of the modelling indicate thatinvestment in Family Planning has a positive impact on poverty reduction in Rwanda, thereby enhancing the general well-being of the population. As shown in Figure 23, poverty headcount will decline from about 39% (in 2015) to 38% (in 2050) under the ambitious scenario.

Figure 23: Impact of increasing CPR on poverty headcount in Rwanda



This result implies that investment in Family Planning will avoid about 1.6% of the population being pushed into poverty by 2050. This translates to over 200,000 Rwandans being averted from poverty in 2050, comparing the status quo to the ambitious scenario (Figure 23).



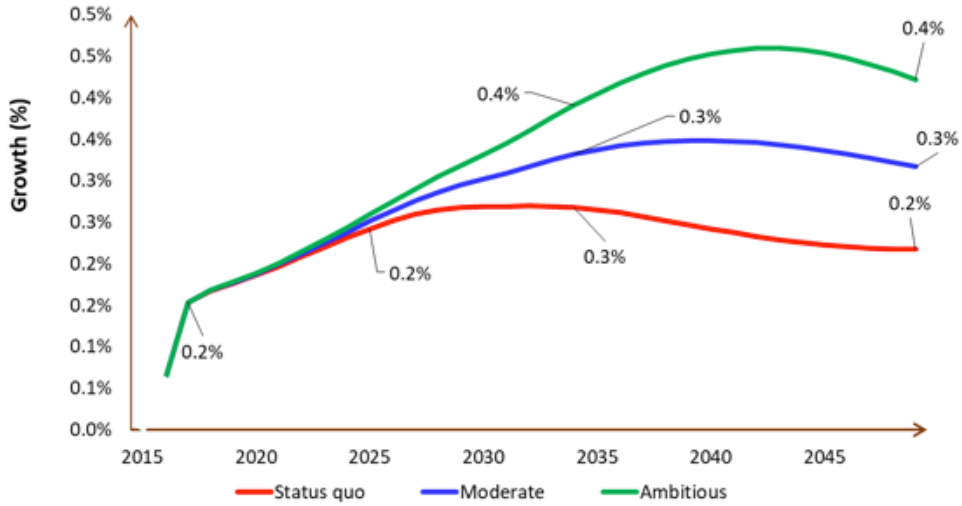
- *Poverty headcount will drop from about 39.6% under the status quo scenario to 38.8% using moderate assumptions and 38.0% using ambitious assumptions (by 2050)*
- *By 2050 poverty headcount ratio will reduce by about 2.2% and about 4.1% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on poverty reduction in Rwanda.*

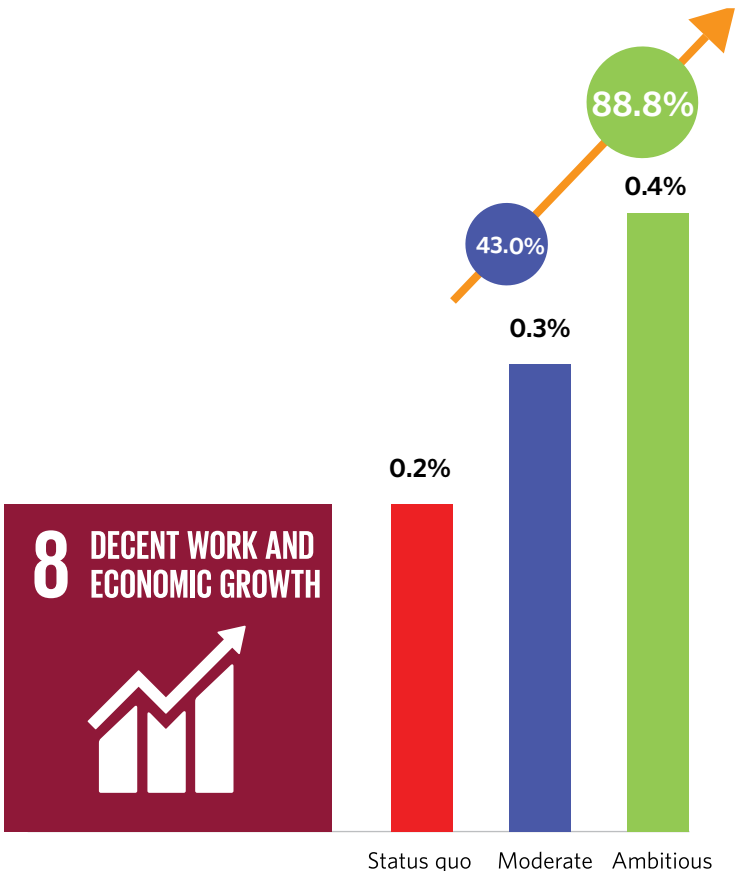
GDP Growth: Investing in Family Planning has a Positive Impact on Economic Growth

It is important to note that investment in Family Planning alone will not have a very substantial impact on economic growth unless this is accompanied by improvements in productivity and other income-generating activities.

In terms of growth in real GDP per employed person, the country will record positive impacts over time, especially with increased investment under the ambitious scenario(Figure 24).

Figure 24: Impact of increasing CPR on the annual growth rate of real GDP per employed person in Rwanda





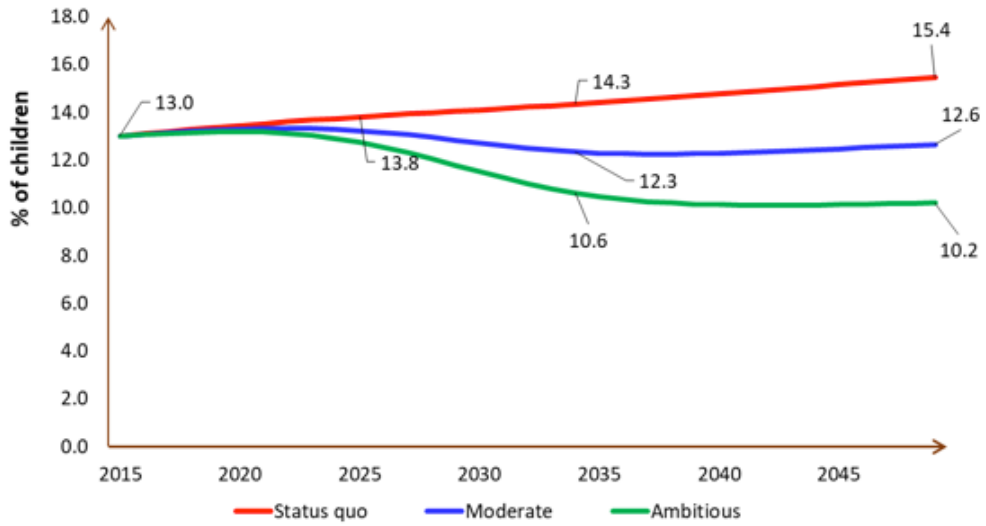
- *Annual growth of real GDP per employed person increased from 0.2% under the status quo scenario to 0.3% using moderate assumptions and 0.4% using ambitious assumptions (by 2050)*
- *Annual growth of real GDP per employed person increased by about 43.0% and about 88.8% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on increasing real GDP per employed person in Rwanda.*

Child Labour: Investing in Family Planning reduces Child Labour

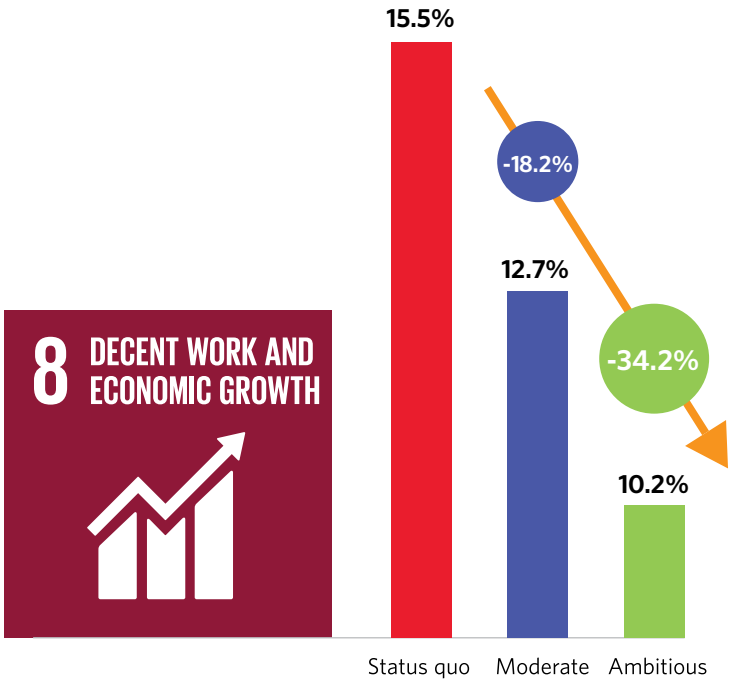
Investing in Family Planning reduces child labour significantly. It has been recognised thathouseholds informally deal with risk by allocating children's time away from school to income-generating activities or household production in the form of engagement in child labour (Strobl, 2017).

Further, it is suggested that policy interventions that can significantly reduce "household risk exposure may have additional benefits in terms of lower child labour supply and higher schooling levels" (Strobl, 2017). In fact, this was shown in the modelling results presented in Figure 25. Large household size increases this risk in households with investment in Family Planning having the potential to reduce this risk through smaller family sizes.

Figure 25: Impact of increasing CPR on the percentage of children involved in child labour in Rwanda



In fact, the results in Figure 25 show that the percentage of children involved in child labour declined substantially from 13% in 2015 to between 10.2% and 12.6%, depending on the scenario. The increased risk, as can be seen under the status quo, is related to the prevalence of child labour that is projected to increase by about 2.5 percentage points to 15.5% by 2050. This means that investment in Family Planning can avert about 5.2% of children involved in child labour in Rwanda by 2050.



- *Percentage of children engaged in child labour dropped from 15.5% under the status quo scenario to 12.7% using moderate assumptions and 10.2% using ambitious assumptions (by 2050)*
- *Prevalence of child labour dropped by about 18.2% and about 34.2% moving from the status quo to the moderate and ambitious scenarios, respectively.*
- *Increase in CPR alone has a significant impact on reducing child labour in Rwanda.*

Return on Investment in Family Planning in Rwanda

The return on investment in Family Planning was calculated for the status quo, moderate and ambitious scenarios. It adopts an economy-wide-approach by looking at the impact of increased CPR or reduced fertility rates on different sectors (see details inTable 7). The procedure used to assess the benefits for each sector is described below.

Approach: Health

Cost savings for the health sector consists of the cost of training health professionals (doctors and nurses), cost of building and equipping health centres and hospitals and recurrent health expenditures including the cost of maternal and infant health care emanating from unplanned births.

The costs of unplanned births including maternal and neonatal care were obtained using the information on the number of unplanned births averted and unplanned pregnancies averted. The cost of training nurses and doctors was derived from an external study in Kenya (Kirigia *et al.*, 2006) as there is a lack of such information in Rwanda.It is arguably true that costs in Kenya are higher than in Rwanda.

Therefore, we used the cost of training these health professionals in Kenya, as at 2005/06, to represent the cost of such training in Rwanda in 2015 (the base year for the modelling). In that study, it will cost US$65,997 (in 2006 prices) to train a medical doctor right from primary school through medical school. It also costs US$4,3180 (in 2006 prices) to educate and train a nurse (Kirigia *et al.,* 2006).

Sensitivity checks were done using a range of values (± 80% of these costs), and the impact on the overall finding was negligible. The cost of building and equipping a typical district hospital (Rwf 8 billion) was used to cost the construction of additional hospitals, and this was obtained from the MoH records.

This cost was similar for that reported for the building of the Nyarugenge district hospital[4]. Related information was sourced for the cost of constructing and equipping a health centre (about US$470,000) (using data on the cost of constructing Kintobo health centre)[5]. These costs were adjusted over time assuming a 5% annual increment.

Approach: Economy

We considered the cost savings, in terms of the wage bill for new jobs that will be created as a result of the increased population. Mainly, these new jobs will not be necessary with increased CPR (or reduced fertility rate).

In addition to population projections, data on current and projected future labour force participation rates were used in the model to estimate new jobs that will be required to meet the demands of the economy in the future.

Approach: Education

The cost-saving considered here includes the cost of building new primary and secondary schools, recurrent expenditures on primary and secondary schools and the cost of training new teachers to accommodate the growing population.

The cost of new classrooms and toilets in 2015—Rwf 8 billion (US$11.6 million) (http://www.gov.rw/newsdetailskiny/) was used to value future costs after adjusting for a 5% annual increment.

Because of paucity in the cost of teacher training (i.e. from primary school until qualifying as a teacher), it was assumed that this amounts to about 60% the cost of a nurse's training obtained from Kenya (Kirigia et al., 2006). Recurrent expenditures were derived directly from the modelling based on the current and projected recurrent spending on primary and secondary education.

4 https://www.newtimes.co.rw/section/read/231126
5 http://www.activesocialarchitecture.com/kint

Table 7: Components for assessing cost savings from investments in Family Planning in Rwanda

Sector	Activities included in the assessment of the benefits of investing in family planning
Health	Recurrent health expenditure (including maternal and child health care costs)
	Cost of constructing and equipping health centres and hospitals
	Cost of training more health professionals (doctors and nurses)
Economy	Cost of new jobs required
Education	Primary school recurrent expenditure required
	Secondary school recurrent expenditure required
	Cost of building new primary schools
	Cost of building new secondary schools
	Cost of training teachers (primary and secondary school)
Urbanisation	Cost of providing water and sanitation services in urban areas
Agriculture	The opportunity cost of arable land lost (valued using maize production)

Approach: Infrastructure and Urbanisation

Urbanisation creates some challenges in terms of the provision of basic amenities for the growing urban population. With increased CPR and reduced fertility, and in line with the Rwanda Vision 2050, it is envisaged that the majority of the Rwanda population will live in an urban area in the future. In fact, this is evident in the investment and development of secondary cities to decongest Kigali—the capital city.

Here, the cost of implementing the strategic plan for water and sanitation from the Rwanda Ministry of Infrastructure (Ministry of Infrastructure, 2013) was used to value what it will cost Rwanda to provide for a growing urban population that will be associated with urbanisation. It was estimated that about Rwf 532 billion will be the cost of implementing the strategy for over 5 years. This cost was used to value cost savings that will emanate from significant reductions in fertility rate after assuming a 5% annual growth in the cost of water and sanitation up until 2050.

Approach: Agriculture

Reduction in arable land is associated with rapid population growth in a country like Rwanda with a very high population density. About 1.4 million hectares of land in Rwanda is arable (National Institute of Statistics of Rwanda, 2011).

Thus, un-managed population growth will place enormous pressure on natural resources including arable land.

To estimate the cost savings here, arable land that would reduce due to population growth and expansion was estimated.

The opportunity cost of the land was valued using maize as one of the primary agricultural produce in Rwanda (National Institute of Statistics of Rwanda, 2011).

The value of maize yield per hectare (3 tonnes per hectare) (Ministry of Agriculture, 2013) was used in addition to the price of maize set at Rwf 200 per kg (US$ 244 per tonne)[6] in 2017.

[6] http://www.minagri.gov.rw/index.php?id=469&tx_ttnews%5Btt_news%5D=1458&cHash=ddff1e3d6fa4c570b2227ba76e95fadb

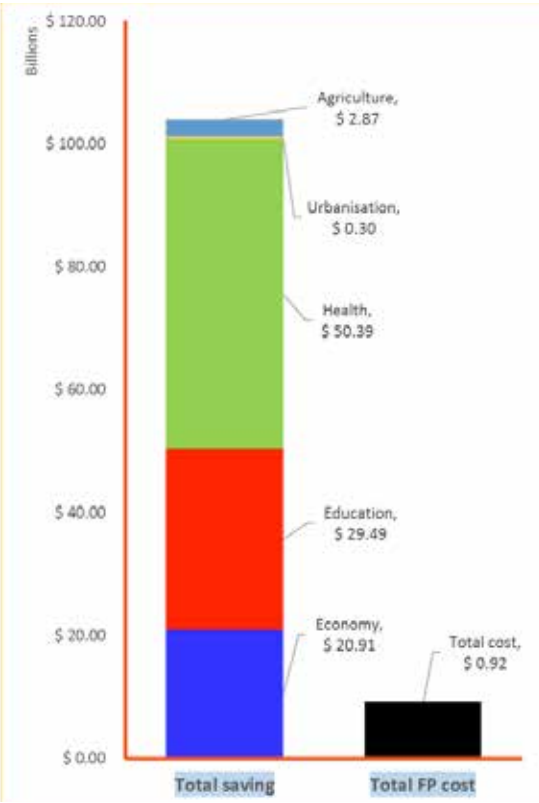
Results: Return on Investing in Family Planning in Rwanda, 2015-2050

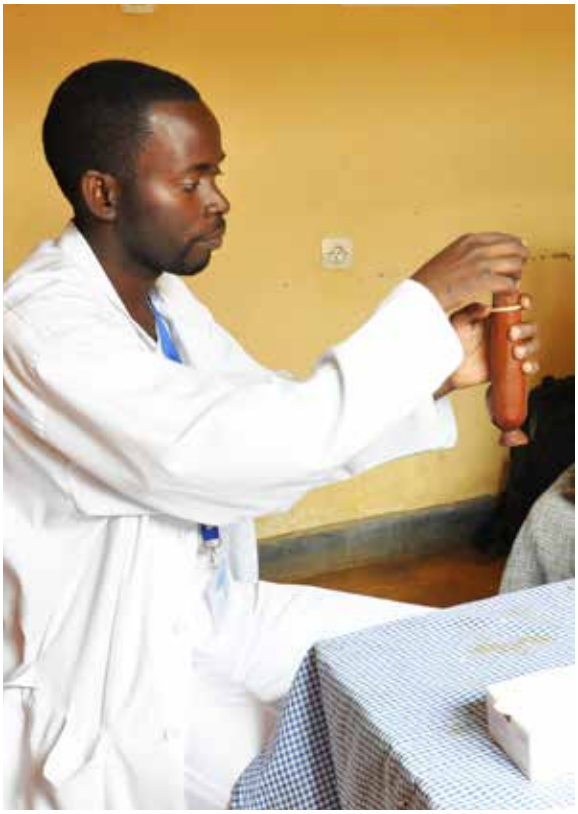
Between 2015 and 2050, **the education** sector alone will save between **US$29.5 billion** (Figure 26).

Between 2015 and 2030, **the health** sector will benefit from saving between **US$50.4 billion.**

Benefits accruing to the health sector is greater than those to other sectors (Figure 26).

Figure 26: The benefits accruing to different sectors (US$ billions), 2015-2050 under the ambitious scenario



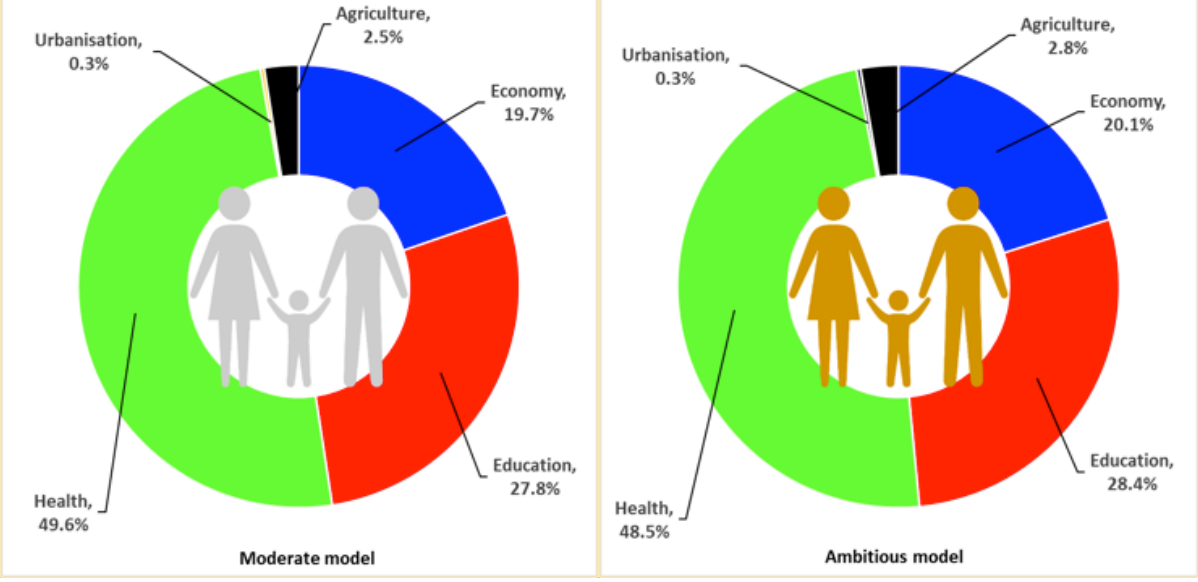


Using one of the major crops in Rwanda (maize), the value of the arable land that will reduce over time was estimated to be worth US$2.8 billion in maize production between 2015 and 2050 (Figure 26).

If the population increases substantially (i.e. with a high fertility rate), available arable land will continue to reduce over time, and this will correspondingly increase demand for food to feed the growing population. In fact, as shown in Figure 13, the prevalence of stunting will increase under the status quo.

Currently, in Rwanda, over 62% of the urban population lives in slum (unplanned) conditions (Ministry of Infrastructure, 2015). One of the major needs will be water and sanitation services for the growing population. As shown in Figure 26, the infrastructure sector will be saving 300 million between 2015 and 2050, if Rwanda can achieve substantial reductions in fertility rate.

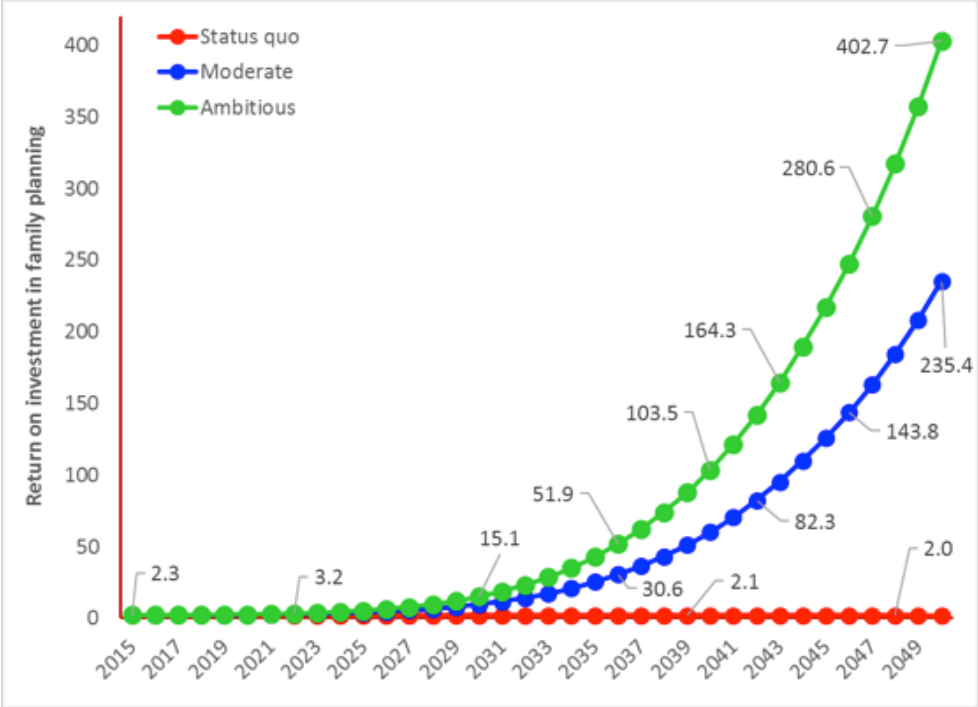
Figure 27: Sector contribution to the benefits of investing in Family Planning in Rwanda, 2015-2050



Irrespective of the scenario (moderate or ambitious), the health sector accounts for about half of the benefits or savings from investing in family planning. Education and the economy also account for a substantial share of the savings (Figure 27).

This means that investing in Family Planning can free up resources within each of these sectors. These resources could be used for other activities including ensuring education for all.

Figure 28: Return on investment in Family Planning in Rwanda, 2015-2050



Taken together, Figure 28 provides a comprehensive return on investment in Family Planning in Rwanda.

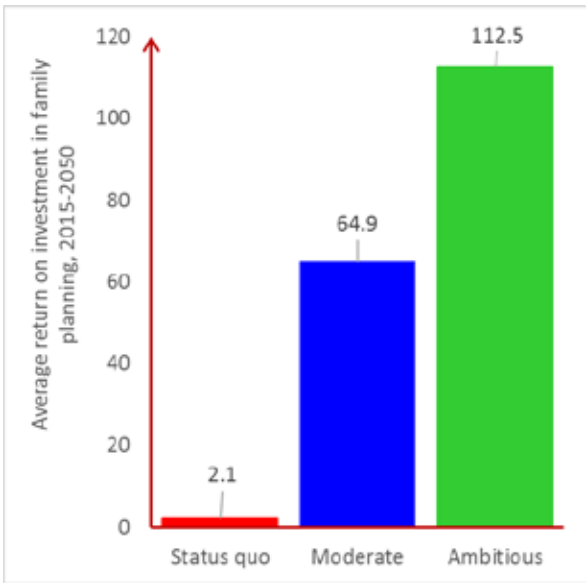
It was estimated that in 2050, an investment of US$1 would yield over US$402 benefits considering all the sectors in Table 7. This represents substantial benefits that Family Planning alone can provide in Rwanda. Between 2015 and 2030, the returns on investment will be between US$2 and US$15 for every US$1 invested in the Family Planning in the country.

As shown in Figure 26, these benefits are not only to the health sector. Other sectors like education, infrastructure, and agriculture will benefit from substantial investment in family.

The benefits of investing in Family Planning as shown in Figure 28 can be averaged out for the entire duration of the model (2015-2050).

The average benefit from investing in Family Planning over this time horizon is also substantial. Under the ambitious model, every US$1 invested in Family Planning programme between 2015 and 2050 will yield over US$112 in return. This is up from over US$65 under the moderate assumption (Figure 29). In Egypt, a benefit-cost ratio of 1:56 was reported overall (for the period 2014-2050), with greater savings from the education and health sectors(Nassar and Fouad, 2015). This means that every Egyptian pound spent on Family Planning will yield an average return of about 56 pounds between 2014 and 2050.

Figure 29: Average return on investment in Family Planning in Rwanda, 2015-2050

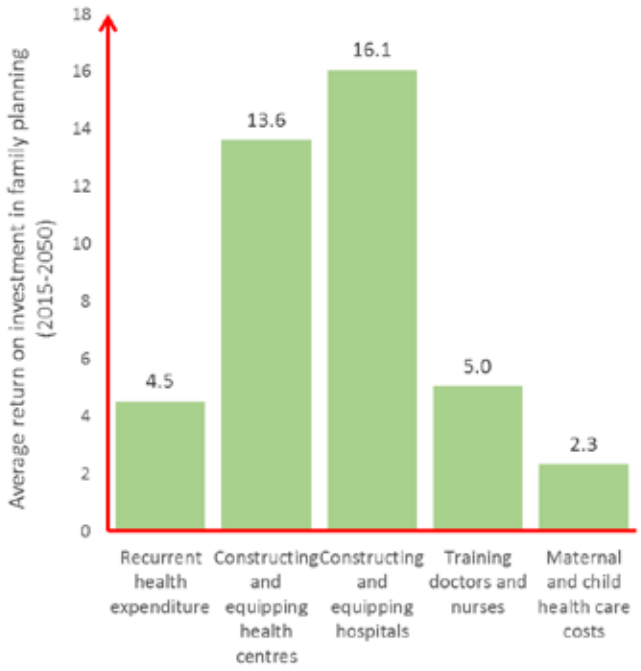


- Over the period 2015-2050, investment in Family Planning in Rwanda will yield significant benefits that cut across several sectors of the economy including agriculture, employment, health education and urbanization.
- On average, between 2015 and 2050, every **US$1** invested in Family Planning in Rwanda will yield between **US$65** and **US$113** returns, spread across the different sectors, with the greatest savings accruing to the health sector.
- Under the status quo, the return on investment will be **US$2** for every **US$1** investment in family planning.

The return on investment in Family Planning in Rwanda cuts across many sectors, including education, infrastructure, agriculture and labour. The share of the various sectors to the return on investment is shown in Figure 27.

The return on investment is further decomposed using the health sector as an example as shown in Figure 30.

Figure 30: Average return on investment in Family Planning (health) in Rwanda, 2015-2050



- For the health sector alone, under the ambitious scenario, **US$1** invested in Family Planning (between 2015 and 2050) will yield a saving of **US$2.33** in terms pregnancy, delivery, infant and abortion related costs
- Also, **US$1** invested in Family Planning will yield a savings of **US$5.00** in terms of training doctors and nurses
- **US$1** investment in Family Planning yields a return of **US$16.06** and **US$13.62** in cost of constructing and equipping hospitals and health centres, respectively
- **US$1** invested in Family Planning yields a return of **US$4.52** in recurrent health expenditures.

Key Strategies to meet the Family Planning Needs in Rwanda

Family Planning is critical to attaining the Vision 2050 goal of improved quality of life and sets the stage for Rwanda's demographic dividend. Key strategies to increase access to and use of Family Planning and adolescent sexual and reproductive health services will include: ensuring that demand creation is scaled up; the strengthening of Family Planning commodity security; the training of health care providers to increase the uptake of contraceptives including increased share of LARCs in the total contraceptive method mix while reducing the share of short-term acting methods (SARCs).

Specifically, based on other strategic Government documents, the following key strategies need to be in place to meet the Family Planning needs in Rwanda.

STRATEGIES	KEY INTERVENTIONS
1. Increase the demand for Family Planning services for all Rwandans, including the youth population through awareness raising and community engagement	
2. Improve the availability and accessibility of Family Planning services through maximising opportunities for efficient integration of quality services at all levels of service delivery	• Improve the skills and capacities of health care providers to deliver integrated family planning/adolescent sexual and reproductive health services of sufficient quality. This will minimise the number of clients visits and facilitate progress towards scaling up reproductive health services • Strengthen various mechanisms for staff retention at all levels of service delivery Monitor and ensure quality assurance of integrated Family Planning services, including the linkage between family planning/adolescent sexual and reproductive health and Sexual and Gender-based violence (SGBV) services
3. Strengthen the commodity supply chain management system to effectively forecast, quantify, procure and distribute sexual reproductive health commodities at service delivery points	• Improve commodity supply to support greater method mix in all service delivery and empower clients to exercise informed choice of method. This will include the supply of consumables and instrument kits for different long-term methods • Ensure reproductive health and Family Planning commodity security

4. Use innovative strategies to increase the uptake of Family Planning / adolescent sexual and reproductive health services	• Support activities that foster role models and champions in family planning • Organise "innovative challenges" to address seemingly intractable service delivery challenges • Scale up and strengthen the use of digital and mobile technologies in support of Family Planning / adolescent sexual and reproductive health service delivery and data collection • Assess the effectiveness of some interventions (i.e. youth corners) before scale-up or further investment.
5. Improve and promote inclusive and inter-sectoral policies for Family Planning / adolescent sexual and reproductive health programming	• Ensure advocacy for youth-friendly health laws
6. Enhance the scale-up of Family Planning in Rwanda including the implementation of post-partum Family Planning (PPFP) methods as well as using youth corners, youth clubs and safe spaces.	• Ensure that youth corners are well equipped with-up-to date and appropriate information, education and communication (IEC) materials and have counselling tools that allow for tailored counselling based on the client's age and life stage
7. Strengthen multi-sectoral strategies and mechanisms at the central, decentralised and community levels to address critical inter-sectoral issues in family planning/adolescent sexual and reproductive health, including gender-based violence and eradicating teen pregnancies.	• Clarify the roles and accountability of other sectors in contributing to improved health outcomes for women and adolescent girls. • Strengthen partnerships and coordination for family planning/ adolescent sexual and reproductive health service delivery at central, decentralised and community levels to avoid overlap of activities.

Strategies for Financing Family Planning Activities in Rwanda

Meeting women's contraceptive needs requires financing strategies to generate resources and substantially reduce unmet needs for Family Planning among women of reproductive age and increase the rate of Family Planning uptake. Innovation in Family Planning funding is necessary to achieve sustainability with the decline in development partner funding for Family Planning activities.

The following strategies can be adopted to increase resources available for Family Planning in Rwanda.

STRATEGIES	KEY INTERVENTIONS
1. Operationalise the overall Health Financing Strategic Plan to ensure sustainable health sector funding, especially given the decline in development partners support. This should also include enhancing the management and coverage of Community-Based Health Insurance scheme (CBHI), Performance-Based Financing (PBF) and fiscal decentralisation.	
2. Continue to advocate for increased domestic resources allocation to the health sector, including from the Ministry of Finance And Economic Planning (MINECOFIN)	• Organise advocacy workshop to explore avenues for increasing domestic financing of Family Planning / adolescent sexual and reproductive health activities • Advocate for investment in Family Planning by engaging administrative districts through the allocation of their revenues to Family Planning/adolescent sexual and reproductive health services and activities
3. Enhance the alignment, harmonisation and coordination of external resources and other relevant line ministries to improve funding predictability. Although there is a decline in external funding for the health sector including for Family Planning in Rwanda, the external funds are still account for a significant share of Family Planning financing (over 65% as shown in Figure 6). Because this is still very substantial, it is essential to strengthen joint planning and budgeting of external funding, including off-budget support to ensure coherence and alignment with Family Planning targets. Collaboration and coordination enable a rapid and effective response. Similarly, collective action and strategic partnership help stakeholders (e.g. development partners) to deliver supplies that save and improve lives.	• Investing in mid-term plans to build resilient financing system with a proper transition from a predominantly external-funded activity to increased domestic funding

4. Maximise efficiency in the allocation and use of existing Family Planning programme resources and improving coverage of critical interventions likely to generate an impact on increasing voluntary, informed and confidential contraceptive choice	• Promote efficiency and effectiveness of the Family Planning programme
5. Foster synergies of Public-Private Community Partnership (PPCP) and ensure sustainable service delivery	• Identify the potential roles of the public and private partnership (PPP) to adequately address the constraints related to demand creation, service delivery, supply chain management, and fostering innovations through research and development • Support innovative PPP to adequately address challenges related to service delivery including supply chain management • Reinforce PPP in the delivery and financing of Family Planning services and activities and develop accountability mechanisms that leverage synergies
6. Ensure that a full package of family planning/adolescent sexual and reproductive health services are included in the essential benefits package of health insurance schemes under the RSSB and other health insurance schemes.	• Expand the package of Family Planning / adolescent sexual and reproductive health services in the health insurance schemes
7. Adopt innovative financing mechanisms to generate resources for Family Planning services and strengthen the long-term financial sustainability of the programme	• Develop alternative funding mechanisms for Family Planning programme (through earmarking funds for family planning) including the introduction of levies on products like mobile phone, transport, etc. • Develop impact bonds • Develop a voucher programme or a conditional cash transfer programme • Grants, loans or guarantees (loan syndication, World Bank loans) • Social franchising

Implementation Plan and a Framework for Monitoring Progress in Realising the Benefits Of Investing in Family Planning in Rwanda

The business case for Family Planning has been developed to among other things, provide an estimate of the resources needed to achieve substantial improvements in Family Planning uptake as well as a lower fertility rate during the next decades.

The business case report also provides a very detailed analysis of the medium- to long-term benefits of investing in Family Planning in Rwanda.Substantial increases in domestic commitments to Family Planning in Rwanda are required to realise these benefits, especially in terms of financing not only commodities but also other programme activities including capacity building, human resource costs, infrastructure, etc.

Because the realisation of these benefits requires the active participation of different stakeholders, there is a need for strong advocacy and partnership. In part, this report provides a sound grounding for advocacy and continued engagement with stakeholders to realise the benefits of investing in Family Planning in the country.

Table 8 provides a snapshot of the significant challenges and gaps that may militate against attaining significant gains from Family Planning investments in the country.

It also offers strategies to address these challenges and the different collaborating partners that are needed to play different collaborative roles. These partners include government agencies (e.g. the Ministries of education, finance, health, local government, youth, and gender and family promotion), development partners, etc.

It remains critical to monitor and assess progress towards achieving these strategies.

This can be done through the development of annual and periodic workplans.

Table 8: Strategies and interventions needed to address challenges in financing Family Planning in Rwanda

Strategies	Collaborating partners	Potential funding required (by 2023)	Potential funding required (by 2050)
Major challenge/gap (1): Limited GoR revenues/domestic resources allocated to Family Planning programme		$18.98 million	$38.09 million
1. Strengthen advocacy for increasing government allocations to the Family Planning programme. This should include short-, medium- and long-term foci. 2. Mobilisation of resources for Family Planning programme at sub-national levels, including social protection programme 3. Strengthen existing Family Planning activities within districts budgets. 4. Start by including family planning/ASRH services and activities in the Imihigo, development plans and budgets	MINECOFIN, MoH, Development Partners (DPs), Administrative districts, Ministry of Local Government (MINALOC) and Ministry of Youth		
Major challenge/gap (2): Limited synergies and role of the private sector			
1. Strengthen private sector involvement in Family Planning services, supplies and financing 2. Ensure and strengthen inter-sectoral collaboration through, for example, Public Private Community Partnership (PPP) for sustainable Family Planning service delivery and financing 3. Ensure the tracking and monitoring of Family Planning activities implemented by multiple stakeholders 4. Ensure effective coordination and monitoring of the progress of interventions implemented by all stakeholders	MoH, Social Clusters Ministries (MINEDUC, MINALOC, Ministry of Gender and Family Promotion (MIGEPROF), MIYOUTH, Private Sector Federation etc.)		
Major challenge/gap (3): Lack of efficiency in the allocation and use of Family Planning resources			
1. Prioritise high-impact interventions to increase voluntary and informed contraceptive choice and maximise the reach of services 2. Increase the effectiveand efficient use of available Family Planning resources at national and sub-national levels to increase the value of spending 3. Ensure maximised budget execution in line with priorities 4. Strengthen relevant architecture including the HRTT for timely and adequate collection and reporting of Family Planning expenditures for both the public and private health sectors to inform policy and decision making.	MoH, RBC, service providers, health insurance schemes, all reporting institutions, Development Partners (DPs)		
Major challenge/gap (4): substantial financing gap exists for financing Family Planning in Rwanda. Also, development partner funding is declining and limited exploration of innovative health financing strategies to raise more revenue for family planning			
1. Introducing and using revenue from any earmarked tax and levies on things like mobile phone airtime, air transport, etc. for financing family planning 2. Using other innovative financing mechanisms such as social franchise, impact bonds, voucher programme or other conditional cash transfer programmes to finance family planning	MoH, MINECOFIN, Civil Society Organisations, Rwanda Development Board (RDB), DPs		
Major challenge/gap (5): No policy exists to mainstream development programmes and projects' contribution towards Family Planning activities in Rwanda			
1. Mainstreaming development programmes and projects to contribute towards Family Planning in Rwanda. 2. Development projects and programmes targeting the poor and vulnerable groups (social protection, nutrition, education, etc.) should, by policy, be mandated to contribute towards Family Planning activities in Rwanda	Government institutions (MINALOC, MoH, MINECOFIN) and DPs		
Major challenge/gap (6): Insurance schemes do not reimburse fully for Family Planning services, and this has implications for financing Family Planning services currently and in the future			
1. Include all Family Planning services (such as commodities, counselling, follow-up, etc.) in the essential benefits package of health insurance schemes, including the CBHI scheme.	RBC, RSSB, MoH, Rwandan Health Insurance Council (RHIC), civil society organisations,DPs		

Recommendations

The GoR declared Family Planning as a priority, and this has been integrated into many national commitments and goals (UNFPA, 2016).

Although the bulk of contributions for many contraceptives still come from development partners, the GoR devoted about 1.3% of the total MoH budget for 2014/15 to Family Planning and reproductive health (UNFPA, 2016). In the Fourth Health Sector Strategic Plan IV (HSSP IV) (Rwanda Ministry of Health, 2018a), the GoR has identified key strategies to support the prioritisation of family planning.

The GoR is committed to increasing the domestic budget for the Family Planning programme, promoting multi-sectoral and stakeholders' collaboration to improve the demand and delivery of Family Planning services, and increasing private sector engagement in the provision of Family Planning services, among other key strategies.

The fact that Family Planning occupies a special place in the GoR's agenda means that there is a great potential to reap the benefits that accrue from substantial investment in demographic transition.

Other organs of Government including the Parliament have made a resolve to contribute to the Family Planning discourse.

To ensure high-level parliamentary involvement in legislation and accountability to Family Planning and reproductive health, the Parliament of Rwanda created the Network of Rwandan Parliamentarians on Population and Development (RPRPD)[7] in 2003 (Mbonyintwali *et al.,* 2018). This parliamentary network embraced Family Planning as a central component of development and women empowerment, including youth and adolescents.

The RPRPD leverages political support at the highest level, including in all social ministries by incorporating Family Planning as an integral part of their work. The collaboration of the RPRPD and a wide range of stakeholders has led to many achievements, in legislation, policy formulation and new strategy development and implementation to improve access to voluntary family planning.

7 RPRPD is an all-party parliamentary group composed by 82 members (senators and deputies) of whom 60 percent are women.

Recommendations for Key Stakeholders

Achieving benefits articulated in this Family Planning business case requires a complex process involving a wide range of institutions and stakeholders within and outside the health sector—the public and private sectors and development partners. Coordination and advocacy across key stakeholders and institutions should remain targeted and focused to successfully implement the proposed strategic interventions and achieve Family Planning funding sustainability in the long-term.

The following recommendations have been outlined, targeting various stakeholders.

Members of the Parliament

Through the RPRPD network, and with the significant involvement of the Members of Parliament (MPs) in the budget voting and formulation process, this advocacy tool should form a strong base for their negotiation and allocation of funds to Family Planning activities in Rwanda.

MPs also have the mandate to monitor district development plans and hold the executive committee leaders accountable. This process should be used to ensure effective utilisation of funds to achieve the benefits of investing in Family Planning outlined in the business case.

While investment in Family Planning is essential and leads to substantial savings, MPs must ensure that all policies aimed at increasing mCPR to reduce the fertility rate in Rwanda preserve the rights and freedoms of all Rwandan people especially regarding their choice of contraception methods. Continuous information, communication and education should also serve as tools to enlighten people for a more informed decision when exercising their freedom of choice.

Ministry of Finance and Economic Planning

The MINECOFIN should continue to play the primary role of collecting, mobilising and allocating public resources.

With the multi-sectoral benefits and savings from investment in family planning, MINECOFIN should explore avenues and feasibility of introducing innovative financing options outlined in this business case to finance the Family Planning programme, without jeopardising allocations to other sectors and activities.

This means that MINECOFIN should ensure that there is fiscal space for funding Family Planning in Rwanda. Advocating for continuous and increased domestic funding for Family Planning is essential because funding from development partners are becoming increasingly limited.

Ministry of Health

MoH has the mandate and responsibility to ensure universal access to Family Planning services and meeting the national goals. This must continue in order to ensure the gains outlined in the business case are attained.

MoH must strengthen advocacy for funding from multiple sources, especially domestic sources (including ordinary budget) and diversify funding sources, where possible.

MoH should continue to improve efficiency in the allocation and use of existing Family Planning resources, which in turn, increases equity in the utilisation of Family Planning services. Effective governance and regulatory frameworks should remain a critical vehicle to attain target sets for CPR and mCPR.

Additionally, the MoH should improve the tracking of information (expenditure) on all resources invested in Family Planning in Rwanda. This can be achieved by strengthening the HRTT and ensuring that all entities feed their contributions towards Family Planning into the HRTT system.

MoH should use any information generated from multiple sources, including from this business case, to support policy advocacy and inform programme managers and planners as well as other stakeholders.

MoH should facilitate research and continuous quality improvement of Family Planning services through evidence-based programming and planning and ensure adequate documentation and dissemination of best practices.

The benefits of investing in Family Planning are multi-sectoral. Therefore, the MoH should continue to support the MINEDUC for school-based comprehensive sexuality education (CSE) as this will accelerate the attainment of the targets set for mCPR.

MOH should lead actions aiming at the implementation of the business case. Because the business case serves as a robust advocacy tool for increased funding for Family Planning programme in Rwanda, increased funds will be managed by the RBC to implement programmes and policies set out in other strategic documents to achieve an increased mCPR for Rwanda.

Development Partners

DPs already make substantial contributions in financing Family Planning interventions in Rwanda. Therefore, it is essential to ensure that they continue to play an important role, not only in funding Family Planning activities directly but also in supporting and using the business case as an advocacy tool to seek additional funding to cover the gap in annual funding for Family Planning in Rwanda.

DPs should provide technical and financial support to build local capacity and allocate resources for Family Planning based on population needs and priorities.

Other Line Ministries and Institutions

The business case calls for active collaboration and multi-stakeholder approaches to attain key Family Planning targets and ensure sustainability and accountability for resources and results. There is a dire need to strengthen existing governance and leadership structures between key institutions and ministries in the Social Cluster, including MINECOFIN, MINALOC, MINEDUC, MINAGRI, MoH, MIGEPROF, MININFRA, and Ministry of ICT and Innovation (MYICT).

Recently, GOR announced plans to review existing laws to allow more teenagers to have access to Family Planning services, including contraceptives. This will require a review of some law provisions. Essentially, depending on how this plays out, Rwanda could reap more benefits given the country's relatively high teenage fertility rate. Therefore, if this move materialises, it is importantto ensure that it contributes substantially to increasing the benefits of investing in Family Planning in Rwanda.

Additionally, MINALOC should be continually involved in the implementation of the Family Planning programme at the sub-national level to maximise the overall gains.

The dissemination of this Family Planning business case should target local leaders, members of Parliament and community leaders to build a strong case for funding Family Planning and to nurture ownership and increase buy-in.

Conclusion

Family Planning remains a top priority for the GoR. This means that there needs to be a strong case made to show the advantages and returns from further investment in Family Planning in Rwanda. This is where this business case becomes relevant as it has not been done before in Rwanda.

The case is particularly pertinent because of the high population density that a rapidly growing population may place on social services and other vital amenities. Although the gains from investing in Family Planning can be monetised, these benefits go beyond money and have been demonstrated—lives are saved, and there are qualitative improvements in the lives of children, men and women.

Apart from providing details of the benefits and savings from investment in Family Planning, this business case also serves as an advocacy tool to raise additional revenue to finance Family Planning services in Rwanda, especially from domestic sources.

Part of the reasons why more domestic funds are required is because development partners involvement in Rwanda's health sector has decreased over the last decade and external funding for the Family Planning programme will decline over the coming years.

This means that the sustainability of the current gains in Family Planning, e.g. achieving mCPR estimated at 60% at 2024 (Rwanda Ministry of Health, 2018b) will be jeopardised without significant investment from the Government and other domestic sources.

This may make it difficult to achieve the goal of universal access to family planning services.

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