Burundi

ADOLESCENT INVESTMENT CASE

SUMMARY

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TABLE OF

Burundi **ADOLESCENT INVESTMENT CASE**

THIS DOCUMENT PROVIDES AN OVERVIEW OF THE "BURUNDI ADOLESCENT INVESTMENT CASE: ESTIMATING THE IMPACTS OF SOCIAL SECTOR INVESTMENTS FOR ADOLESCENTS" AND ITS KEY FINDINGS.

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SUMMARY | DECEMBER 2019

ACKNOWLEDGMENTS

The study on the Investment Framework for Adolescents in Burundi is the result of a participatory process between the Government of Burundi and UNICEF, in collaboration with UNFPA and with the contribution of UN Women and UNDP.

This study is the result of a process conducted by the members of the Technical Monitoring Committee, under the leadership of the Ministry of Youth, Posts and Information Technology.

This report would not have been possible without the continued commitment of all the members of the Committee, coming from sectoral ministries including the Ministry of Education, Technical and Vocational Training; the Ministry of Human Rights, Social Affairs and Gender; the Ministry of Finance, Budget and Economic Development Cooperation; Ministry of the Interior, Patriotic Training and Local Development; the Institute for Statistics and Economic Studies of Burundi, the United Nations agencies involved, and other stakeholders working on adolescent development in Burundi.

The Victoria Institute for Strategic Economic Studies (VISES), a research institute at the University of Victoria, Australia, was recruited to carry out this study. Our thanks go to the team: Peter Sheehan, Bruce Rasmussen, Kim Sweeny, John Symons, Alison Welsh, Margarita Kumnick and Neelam Maharaj.

This study also benefited from the comments of colleagues from UNICEF Burundi, the Regional Office for Eastern and Southern Africa of UNICEF (ESARO), the UNICEF Innocenti Research Office, as well as colleagues from the offices of the UNFPA, UN Women and UNDP.

Our thanks go to all those who have contributed, directly or indirectly, to the production of this document which will serve to orient and guide investments for adolescents in Burundi.

PREFACE

In Burundi, adolescents represent a quarter of the population. The realization of their rights is essential. They are a crucial element of the country's socio economic development. Burundian adolescents face significant challenges, including a high level of vulnerability, high health risks and and relatively low levels of education and skills.

Adolescence is a period of life during which everything is possible. It is the time when individuals acquire the physical, cognitive, emotional, social and economic resources that will accompany them throughout their adult lives.

Unfortunately, as the Committee on the Rights of the Child notes, this potential is largely compromised because States do not recognize or invest in the measures necessary to enable adolescents to enjoy their rights. Data disaggregated by age, gender and disability not available in most countries to inform policies, identify gaps and support the allocation of appropriate resources to adolescents.

The production of evidence is an essential step in the choice and definition of development policies and strategies. It is for these reasons and with the aim of attracting more attention to this fragment of the population that UNICEF - in collaboration with UNFPA and with contributions from UN-Women and UNDP - supported the Government of Burundi in the realization of this study.

We take this opportunity to thank the Government, the Institute of Statistics and Economic Studies of Burundi as well as the Ministry of Youth, Posts and Information Technologies for its leadership and excellent collaboration. In addition, for this important work, we had the pleasure of working with the Victoria Institute for Strategic Economic Studies at the University of Victoria in Australia.

This study not only provides a detailed and relevant analysis of the importance of investments in the adolescent sector, but also proposes concrete interventions. The investment framework makes it possible to analyse, for each proposed area of intervention, the benefit-cost ratio. These elements allow us to direct our efforts to increase investment in the health and education sectors (formal as well as non-formal and continuing education) for adolescents, girls and boys.

By giving all adolescents, especially the most vulnerable girls and boys, the tools they need to improve their lives and engaging them in efforts to improve their communities, we are investing in the resilience and strength of their societies.

We encourage all partners - United Nations, Government, civil society, development partners - to use the elements contained in this report to inform the decision-making process and the development of programmes for adolescents, with a view to supporting Burundi in achieving the objectives of the 2030 Agenda for Sustainable Development objectives.

Jeremy Hopkins
UNICEF Representative in Burundi

Garry Conille
Resident Coordinator of United Nations system in Burundi

FOREWORD

Burundi has embarked on the path of its political and economic emergence through the adoption of the National Development Plan of Burundi 2018-27. One of its priorities is to ensure the involvement of youth in all the processes of its development and to support the youth through policies and programmes. Along with our national, international and bilateral partners, we share the concerns of young people, and want to ensure that the large share of population they represent is not a burden for the country but rather a factor of development, provided that we channel their potential.

Burundi is inhabited by a population of over 12 million people and could reach 14.9 million inhabitants in 2030. This population is characterized by its extreme youth, with 65% under the age of 25.

The objective of this report is to provide decision-makers and partners in Burundi with a modelled framework for investing in interventions, mainly in health and education, in order to improve the well-being of adolescent girls and boys.

A Technical Monitoring Committee, composed by different sectoral ministries including the Ministry of Education, Professional and Technical Training, Ministry of Human Rights, Social Affairs and Gender, as well as the Ministry of Finance, Budget and Economic Development Cooperation, Ministry of the Interior, Patriotic Training and Local Development, chaired by the Ministry of Youth, Posts and Information Technologies, with the support of UNICEF, was set up and monitored the work throughout this study.

It is therefore with great pleasure that the Ministry of Youth, Posts and Information Technologies presents the results of this study on the "Burundi Adolescent Investment Case".

This study is of paramount importance because investing in youth is one of the greatest opportunities in Africa, and more specifically in Burundi, given its demographic characteristics. Investing in youth is investing in the development of Burundi. It is up to our youth to build "the Africa we want", an Africa that acts as an influential actor and partner on the international scene as advocated in the African Union's Agenda 2063.

That all those who contributed, directly or indirectly, to the realization and the success of this study, especially the members of the Technical Monitoring Committee and the United Nations agencies (UNICEF and UNFPA), find here the expression of the gratitude of the Ministry of Youth, Posts and Information Technologies.

Hon. Evelyne Butoyi
Minister of Youth, Posts and Information Technologies

LIST OF ACRONYMS

ART	Antiretroviral therapy
BCR	Benefit-cost ratio
DD	Demographic dividend
GDP	Gross domestic product
HPV	Human papillomavirus
ICT	Information and communication technology
NPV	Net present value
OHT	OneHealth Tool
RMNCH	Reproductive, maternal, newborn and child health
TB	Tuberculosis
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UN-Women	United Nations Entity for Gender Equality and the Empowerment of Women
UNESCO	United Nations Educational, Scientific and Cultural Organization
VEM	VISES Education Model
VISES	Victoria Institute of Strategic Economic Studies
WHO	World Health Organization

BURUNDI'S POPULATION AND ECONOMY AT A GLANCE

Rapid population growth:
12 million Increasing
3% every year

A young population:
55%
<18 years old
23%
10-19 years old

The **economy is primarily based on agriculture**, with the majority of the population living in **rural areas**

Fertility rate:
5.5 births
per woman

High population density is placing enormous pressure on available **agricultural land**

2nd
most densely populated
country in Africa

Life expectancy:
58 years

Most people and youth who work are in **informal jobs**

Low contraceptive prevalence
20%
for women aged 15-48 years

Sources: ISTEEBU, Demographic and Health Survey 2016/2017, Burundi Household Living Conditions Survey 2013/2014

THE CASE FOR INVESTING IN BURUNDI'S ADOLESCENTS

INTRODUCTION

Burundi's adolescents – nearly one quarter of its growing population – are key to the country's economic and social development. Yet they face serious difficulties, including a high level of vulnerability, serious health risks and relatively low levels of education and skills.

To overcome the many challenges it faces and make progress towards the Sustainable Development Goals and its own national development plan, Burundi needs to develop the potential offered by its "Generation Next", or risk seeing a generation of young people be left behind. In the Burundian context, where 9 of 10 people live in rural areas, this means improving the productivity of the agricultural sector, increasing downstream processing, developing more service and manufacturing industries and increasing the level of formal employment. None of this will be possible unless Burundi is able to improve the health and education of its adolescent population and help them to develop twenty-first century skills and competencies, including digital literacy and access to new technology, such as mobile phones on the one hand and soft competencies in creativity, critical thinking, communication and team work on the other.

These efforts are in line with Burundi's National Development Plan, 2018-2027, which was launched in June 2018 with the overall aim of "structurally transforming the Burundian economy, for strong, sustainable, resilient, inclusive growth, creating decent jobs for all and leading to better economic growth and social well-being". They also contribute to the aims of the National Youth Policy 2016-2026, to increase access for girls and boys to employment and self-development and to improve access to youth-friendly health services.

Developing the potential of Burundian adolescents will require substantial investments, especially in their health and in their education and skills development. This investment will guarantee a substantial return in terms of the lives bettered and the contribution to the country's economy and society.

To quantify the value of this investment in Burundi's future, the Victoria Institute for Strategic Economic Studies (VISES) at the University of Victoria in Australia was recruited to assess the investment case for adolescents. The purpose of their report is to make available to decision makers and partners in Burundi a modelled framework for investing in interventions, largely in health and education, to improve the well-being of adolescent girls and boys, including the most vulnerable.

One of the aims of its "return on investment" approach is to support advocacy efforts for greater investment in health and education programmes by the national Government, private foundations and the private sector as well as traditional bilateral and multilateral donors and partners, based on the results of a cost-benefit analysis. This report summarizes the main findings and recommendations of that more detailed, specialist report.

ADOLESCENTS IN BURUNDI

Adolescents are about **23%** of the population:

2.6 million

1 in 5 women aged 15-24 is **illiterate**

30% of adolescents are **out of school**

Only **10%** of students complete **secondary school**

Only **1 in 5** adolescent **girls** and **1 in 4** adolescent **boys** is **enrolled in secondary school**

8% of girls aged 15-19 years girls have started **having children**

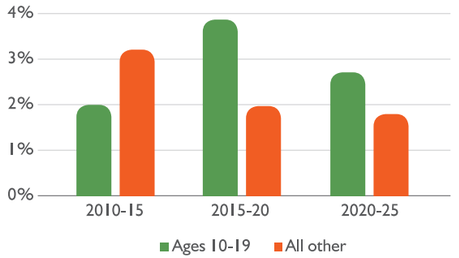
High rates of HIV/AIDS, malaria, tuberculosis, stunting, road injuries

Sources: ISTEEBU, Demographic and Health Survey 2016/2017, Education Management Information System, UNESCO

WHY FOCUS ON ADOLESCENTS?

Nearly one quarter of Burundi's rapidly growing population is an adolescent girl or boy, and this age group is growing significantly faster than the rest of the population, as shown in this figure.

ADOLESCENT POPULATION GROWTH RATE COMPARED WITH ALL OTHER AGES



Source: ISTEEBU

Given their numbers, adolescents will have a positive impact on the development of Burundi. They will shape the future of the economy and the country's development as well as the next generation of Burundians. Their level of education, skills and training will determine whether the economy will catch up with its near neighbours, be fit to face twenty-first century challenges and take advantage of opportunities, re-emerging as a highly productive agricultural economy and transitioning to a more balanced economy with thriving industrial and services sectors.

Some 81 per cent of children of primary-school age are enrolled in primary education but this drops to just

Meet Nella, a 16-year-old Burundian living in Karusi. Like many adolescents, she faces multiple challenges related to her education and health. For starters, she may have stopped her education at the end of primary school and may be illiterate. She may already have a child. Nella and her peers face a range of health risks such as HIV/AIDS, malaria and tuberculosis and a high risk of road accident injuries.

31 per cent for secondary school; furthermore only 10 per cent of those who enter schooling complete their secondary education. A radical reform programme to extend secondary education and provide vocational education is underway but is yet to have a significant impact on the school-age population.

Underlying these figures is a range of challenges that prevent adolescent girls and boys in Burundi from accessing quality education: poverty, gender discrimination and lack of appropriate school facilities, especially for girls. Family responsibilities and expectations weigh heavily on adolescent boys and girls, who are required to help provide food and do household chores. Violence, both within the home and in the broad community, is among the factors that make it more difficult for some adolescents to participate actively and continuously in school.

Male adolescents have a higher burden of disease than females, largely because of HIV/AIDS and traffic injuries, despite the additional burden of childbearing for some girls aged 15-19. The disease burden for both females and males is higher for older (15-19 years) than younger (10-14 years) adolescents, with higher rates of HIV/AIDS and tuberculosis for both sexes, of road injuries for males and of maternal disorders for females.

WHY DEVELOP AN INVESTMENT FRAMEWORK?

An investment modelling framework provides a structure for estimating the costs and benefits of an integrated set of preferred policy programmes or interventions based on the best available evidence of their costs and effectiveness. In the study, such a framework was used to evaluate a set of health and education interventions to improve the well-being of adolescents.

One of the strengths of the methodology is to assess the human outcomes of better health and education in economic terms. These human outcomes, including a range of improved health benefits, better control over fertility and improved levels of education, deliver important economic benefits in the form of improved productivity and access to employment. The investment framework provides the means to quantify the costs and benefits of better health and higher levels of education for adolescents.

For health and education, the study employed two well-established and internationally tested models: the OneHealth Tool (OHT), developed by the United Nations Inter-Agency Working Group on Costing; and the VISES Education Model (VEM), initially developed for UNESCO and substantially enhanced by the Victoria Institute of Strategic Economic Studies, where the authors of the investment case are based. Other models were also used, including one to assess the effects of education and training on employment and productivity. The models used the best data currently available from Burundi, and where relevant, from international sources.

Addressing the Government's concerns about youth employment, the modelling includes interventions to raise the general level of education, in addition to interventions focused on vocational and non-formal education that improve adolescents' employability and entrepreneurship capacity. For health, the interventions focused on improving the general health of adolescents, such as reducing tuberculosis and malaria and better sexual and reproductive health and interventions to lower fertility rates, with a particular emphasis on lowering teenage pregnancies.

The report provides evidence of **the significant economic gains – of over 10 times the costs – to be made by investing in a package of interventions in health and education for adolescents.** These returns, particularly in education, are long-term in nature. The timely investment in related interventions is necessary to transform the lives of each adolescent cohort over their life course.

In addition to the importance of an enabling economic environment, the success of these initiatives will be highly dependent on maintaining a conducive sociopolitical environment, for example by developing inclusive and resilient communities, maintaining appropriate levels of protection, reducing gender-based violence and promoting gender equality. Investment in health and education will ensure that adolescents' rights are upheld and in turn will help to achieve broader development goals.

KEY RESULTS

TO GUIDE POLICIES, PROGRAMMES AND BUDGETS, IT IS NECESSARY TO HAVE SOLID EVIDENCE. THROUGH THIS STUDY, WE NOW HAVE ELEMENTS THAT SHOW THE HIGH LEVEL OF RETURN THAT CAN BE EXPECTED THROUGH INVESTMENTS IN ADOLESCENTS IN BURUNDI.

The interventions related to **HEALTH** addressed in the study cover sexual and reproductive health, as well as a range of communicable and non-communicable diseases affecting adolescent males and females in Burundi. In addition to these interventions covered by OHT, separate models were developed to addresses tuberculosis, human papillomavirus (HPV) and road traffic injuries.

The recommended actions in favour of **FORMAL EDUCATION** include rural provision, improved infrastructure, changing teaching methods, tutoring courses, increased use of computers and providing more information to parents and the community. Formal education actions have different degrees of effectiveness on the percentage of school dropout and learning delays; this can be seen by looking at the number of students completing secondary school or the average number of years of schooling.

Programmes related to **NON-FORMAL EDUCATION** include various training and the issuance of certificates of professional competence. They also promote social innovation, enterprise creation and twenty-first century skills development.

In most cases, developing a person's human capital is a much longer process than improving their health. For this reason, the study shows benefit-cost ratios (BCRs) for health for interventions to 2030, whereas for education the interventions continue to 2050 and so the BCRs are for that period. Costs shown are average annual costs over the period.

As detailed in the following table, which presents the main results of the study, the overall BCRs are 16.4 for actions in the field of health, 10.0 for formal education and 15.3 for non-formal education.

COSTS AND BENEFIT-COST RATIOS (BCR) FOR HEALTH AND EDUCATION INTERVENTIONS

PROGRAMME AREA	COST (2019-2030) US$ MILLION PER ANNUM (NPV AT 3% DISCOUNT RATE)	BCR (2019-2030)
HEALTH		
Overall Health*	**8.8**	**16.4**
OHT	11.5	13.2
a) RMNCH**	4.4	11.2
b) Malaria	3.1	19.3
c) Depression & anxiety	0.6	37.8
d) HIV/AIDS	0.4	8.1
e) Tuberculosis	2.9	10.0
HPV	1.4	6.3
Road accidents	0.8	17.6
EDUCATION		
Overall education	**115.2**	**9.7**
Formal education	**111.7**	**10.0**
Supply of rural schools	11.3	8.7
Improved infrastructure	19.0	8.3
Pedagogical changes	29.1	12.6
Remedial education	15.2	16.3
Increased computer usage (ICT)	20.0	18
Enhanced information to parents	3.9	33.9
Community interventions (CM)	2.3	22.3
Non-formal education	**6.2**	**15.3**
Social innovation & entrepreneurship	2.6	34.2
Trade certificate	5.6	16
Professional training	2.7	32.1

NPV= net present value. * The overall BCR for health refers to the priority interventions. This excludes the BCRs for HIV/AIDS, tuberculosis and HPV. ** Reproductive, maternal, neonatal and child health. *** For formal education, this overall BCR refers to priority interventions. This excludes the BCRs for malaria prevention and control and conditional economic incentives.

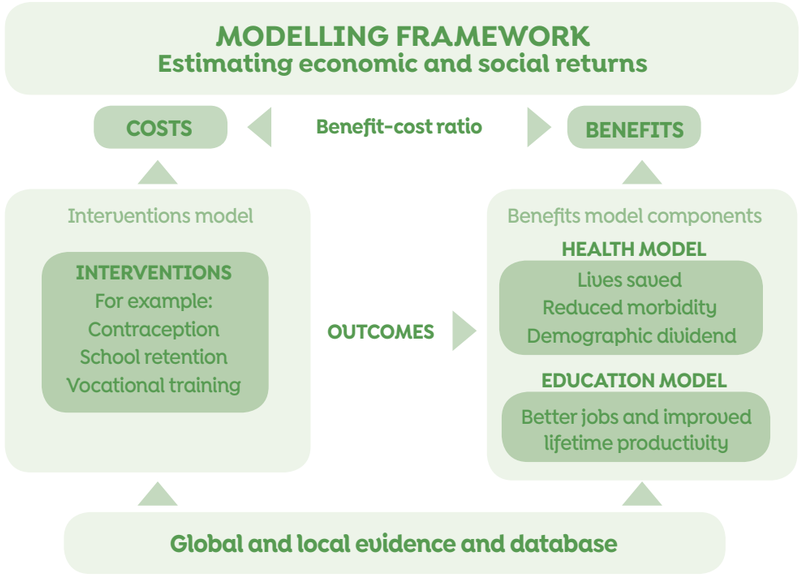
METHODOLOGY

The investment framework for adolescents in Burundi draws on similar global studies and is the first application of this methodology in an African country.

The **BCR** is obtained by dividing the estimate of the benefits by the estimate of the cost. If it is greater than 1, it means that the benefits of an action programme are higher than its cost.

The study has developed estimates for two scenarios, for moderate and high economic growth. In the moderate scenario, Burundi is assumed to follow a typical path for developing countries, which is taken to imply average annual growth in labour productivity out to 2030 of 2.1 per cent, or gross domestic product (GDP) growth of 5.3 per cent. With regard to the possibility of Burundi achieving more than average growth as it recovers from the challenges of recent years, the study also uses a high growth scenario with labour productivity growth of 4.0 per cent per annum and GDP growth of 7.2 per cent per annum out to 2030.

The results presented in this summary are for the high growth scenario.



THE HEALTH MODEL

The health model – the OneHealth Tool (OHT) – estimates the health impact and cost of a programme of interventions to reduce adolescent death and disability. The interventions addressed in this study cover sexual and reproductive health and a range of communicable and non-communicable diseases affecting adolescent males and females in Burundi between the ages of 10 and 19 years.

In addition to interventions covered by the OHT, separate supplementary models were developed to address tuberculosis, HPV and road traffic injuries. The tuberculosis modelling was then reintegrated into the OHT.

Making an investment case for interventions to address adolescent health using the OHT relies on:

- Being able to specify a **set of cost-effective interventions** that have been shown to be successful.
- Being able to **identify the target population** to which the interventions will be delivered.
- Specifying what **proportion of the target population will receive the intervention**.
- Calculating the cost associated with delivering the intervention.
- Being able to **quantify the impact of the intervention** on the particular aspect of adolescent health being considered.

In consultation with stakeholders in Burundi, a list of 96 priority interventions was agreed to be included in the modelling for this investment case. These interventions comprise reproductive, maternal, newborn and child health (RMNCH), micronutrient supplementation and other nutrition interventions, diarrhoea and pneumonia care, malaria prevention and case management, youth-focused interventions on HIV, antiretroviral therapy (ART), prevention and treatment of non-communicable diseases like asthma and psychosocial treatment for depression.

The modelling approach compares the benefits and costs of three scenarios (base, medium and high) from 2019 to 2030, to align with the 2030 Agenda for Sustainable Development. For the base case scenario, the coverage rates for interventions increased slowly to 2030. For the high case scenario, target coverage rates were set at ambitious levels and for the medium scenario, coverage rates for 2030 were between the base and high scenarios.

The approach to estimating the costs associated with the three scenarios combines the direct commodity costs for drugs and supplies with estimates for the other components of cost, i.e., RMNCH programme costs, adolescent programme costs, logistics, infrastructure, governance, health information systems and health financing.

ECONOMIC, SOCIAL AND DEMOGRAPHIC BENEFITS

To estimate the return on investment for the health interventions, it is necessary to express the improved health outcomes in economic terms and compare these with the costs of the programmes.

The economic model calculates the economic and social benefit arising from reduced mortality and morbidity and the demographic dividend from reduced fertility.

- The **economic benefits** arise when people whose lives are saved or whose morbidity is avoided participate in the workforce and produce economic output.
- The **social benefits** are calculated assuming that the additional benefit from people being alive or avoiding serious disability is a proportion of GDP per capita.
- The **demographic dividend** is calculated by relating the change in total fertility rate arising from a reduction in fertility for those aged 15–19 to an increase in GDP per capita.

Because benefits and costs for future years usually have a lower value, a discount rate is applied to these future benefits and costs. Most analyses of long-term projects adopt the standard World Bank discount rate of 3 per cent to express these benefits and costs as net present values (NPVs).

THE EDUCATION MODEL

The education model – the VEM – analyses the costs and benefits of various education interventions for adolescents in secondary schools. The model has been adapted specifically for Burundi by differentiating between general and vocational secondary school cohorts, and by the inclusion of non-formal training for students who leave school with different levels of educational qualifications. The model includes target increases for vocational education as described in the Government's Education Transition Plan 2018-2020. In addition, specific percentages of school-leaving cohorts are assumed to undertake non-formal training such as entrepreneurial schemes or training programmes.

The model includes a set of interventions (intervention package) which affect various education variables including intake levels and promotion, repetition, dropout and learning rates. The interventions affect the number of school leavers over time differentiated by sex, age and grade. The model then generates outputs including the highest grade attained by school leavers, the average learning level and the education attainment levels of population cohorts of 20-24-year-olds out to 2050, for both males and females. The education or learning quality measure increases over time as the various interventions are applied. The effectiveness of the interventions is affected by various education risk factors including poverty, gender, rural or urban location and early marriage.

The VEM calculates the number of adolescents who leave school, by age, gender and the grade of school departure. These school leavers are aggregated into post-school education groups, namely primary education only, incomplete secondary and full secondary education. For Burundi, the model differentiates between general, technical and vocational secondary school cohorts, and those that complete secondary school with pedagogical (teacher) training. The model also includes non-formal training for adolescents who leave school with different levels of educational qualifications (i.e., primary, incomplete secondary and complete secondary).

Incorporated into the VEM are the basic costs associated with education provision, as well as the additional costs of the interventions. These costs are required in order to estimate the BCRs and guide the choice of best value-for-money interventions. The costs of each type of intervention vary and are based on the base unit costs of education in Burundi. The base costs of education provision are the costs to provide education for a country and include teacher salaries, buildings, maintenance of school buildings, learning materials and administration. The total of these costs is divided by the number of students to obtain an annual cost per student, or base unit cost. The costs of the interventions are based on this annual cost per student.

The outcome results assume an increasing level of implementation over a 10-year period to 2030, followed by them being maintained at those levels for simulations that run to 2040 or 2050.

OUTCOMES FOR ADOLESCENTS

THIS SECTION DETAILS THE SIGNIFICANT POSITIVE OUTCOMES OF THE HEALTH AND EDUCATION INTERVENTIONS MODELLED IN THE STUDY.

ADOLESCENT HEALTH

In Burundi, the top 20 causes of death account for over 80 per cent of all adolescent deaths. The most important causes of death for adolescents are malaria, HIV/AIDS, road injuries, tuberculosis, diarrhoeal disease, lower respiratory infections, meningitis, typhoid, epilepsy and maternal disorders

For females aged 10-14, drowning and congenital birth defects are also important. For females aged 15-19, maternal disorders are the fourth highest cause of death.

For males aged 10-14 and 15-19, road injuries are an important cause of death, as are conflict and terrorism.

As pregnancy and childbirth among adolescent girls in Burundi is an important issue, the modelling contains a number of family planning interventions to reduce teenage pregnancy. Interventions to keep girls in school also reduce teenage pregnancy, as discussed later in the education section.

The reproductive, sexual and other health outcomes from modelling interventions with the OHT are usually expressed as the number of deaths and amount of morbidity that occurs for each health condition each year for each age group and sex, where this is available. For reproductive health, other outcomes include fertility rates and numbers of births.

The modelling results in a reduction in fertility rates and in births for females aged 15-19:

- High scenario: fertility rates are 30.9 per cent lower in 2030 with 38,705 fewer births compared to the base.
- Medium scenario: fertility rates are 23.7 per cent lower with 25,817 fewer births.

Comparing the high scenario to the base scenario, the main health outcomes for the period 2019 to 2030 are:

- Some 14,667 adolescent deaths averted.
- Reduction of 1,361 stillbirths and 1,580 newborn deaths to adolescent mothers.
- 6,302 adolescent lives are saved from tuberculosis.
- 1,500 adolescent lives saved from road traffic injuries.
- 5,798 fewer adolescents with serious disability.

The introduction of an HPV vaccination programme is predicted to save 16,842 deaths from cervical cancer over the lifetimes of the girls immunized between 2019 and 2030.

There is a significant reduction in the numbers of adolescents with anaemia and the number of stunted children born to adolescent mothers:

- 21,295 fewer pregnant women with anaemia.
- 54,684 fewer women of reproductive age with anaemia.
- 15,157 fewer newborns stunted.

The reduction in adolescent deaths is largely due to interventions to prevent and treat malaria, with significant contributions from interventions for tuberculosis and road traffic injuries.

INTERVENTIONS FOR REPRODUCTIVE, MATERNAL, NEWBORN AND CHILD HEALTH, HV/AIDS, MALARIA AND TUBERCULOSIS

For the combined interventions for RMNCH, HIV/AIDS, malaria, tuberculosis and non-communicable diseases, the economic benefit from the increase in the workforce is $844 million, the demographic dividend from reduced fertility is $390 million and the social benefit is $578 million with an overall benefit of $1,812 million. The returns on investment show an overall BCR of 13.2. **This means that for every United States dollar invested, Burundi will reap a benefit of over 13 dollars.**

BENEFITS, COST AND BENEFIT-COST RATIOS, HIGH GDP GROWTH RATE, 3% DISCOUNT RATE, US$ MILLION

	ALL*	RMNCH	HIV/AIDS	MALARIA	TB
ALL INTERVENTIONS MODELLED					
NPV economic benefit	844	104	22	430	209
NPV demographic dividend (DD)	390	390			
NPV social benefit	578	92	19	292	140
NPV cost	138	52	5	38	35
Benefit-cost ratio – economic benefit	6.1	2.0	4.3	11.5	6.0
Benefit-cost ratio – economic benefit + DD	9.0	9.4			
Benefit-cost ratio – economic + DD + social benefit	13.2	11.2	8.1	19.3	10.0
PRIORITY INTERVENTIONS**					
Benefit-cost ratio – economic + DD + social benefit	**16.4**				

* This column includes all of the components shown in this table plus depression and anxiety shown in the next table. **Excludes HIV/AIDS, tuberculosis and HPV.

INTERVENTIONS FOR DEPRESSION AND ANXIETY, HPV AND ROAD TRAFFIC INJURIES

BENEFITS, COST AND BENEFIT-COST RATIOS, HIGH GDP GROWTH RATE, 3% DISCOUNT RATE, US$ MILLION

	DEPRESSION & ANXIETY	HPV	ROAD TRAFFIC INJURIES
NPV economic benefit	157	76	135
NPV social benefit	105	27	30
NPV cost	7	17	9
Benefit-cost ratio – economic benefit	22.7	4.6	14.4
Benefit-cost ratio – economic + social benefit	37.8	6.3	17.6

The implementation of a full HPV vaccination programme will deliver health and economic benefits for girls in later life and also provide protection against cancer for their partners. The interventions for reducing road traffic injuries will benefit adolescents, especially adolescent boys, and other age groups. Both of these programmes require minimal investment, yet promise to yield great benefits.

The modelling undertaken here addresses the major causes of death and disability among adolescents in Burundi, including HIV/AIDS, tuberculosis, malaria, maternal and newborn disorders, depression and anxiety, and epilepsy. Implementing the programme of family planning interventions, modelled using OHT, will significantly reduce teenage pregnancy and births to adolescent girls, and through its influence on the total fertility rate will produce a demographic dividend for Burundi.

BENEFIT-COST RATIO FOR PRIORITY INTERVENTIONS IN HEALTH

PROGRAMME AREA	BCR (2019–2030)
Health	**16,4**
OHT	13.2
HPV	6.3
Road accidents	17.6

For the priority interventions identified in coordination with government officials, the BCR is 16.4.

Achieving these strong returns on investment will require that programmes be skilfully designed and implemented. In addition and importantly, they need to respond to the needs of adolescent girls and boys by meeting the requirements of adolescent-friendly health services such as decreasing risky behaviours, improving protection and avoiding unwanted pregnancies. Ensuring quality in service delivery is crucial for effective programmes.

In sum, it is worth reiterating the high return on investment in the health sector. For areas of intervention prioritized for Burundi, the overall BCR is high at 16.4.

Each United States dollar invested in the health of Nella and her peers will bring a return of 16.4 dollars!

EDUCATION, TRAINING AND EMPLOYMENT FOR ADOLESCENTS

EDUCATION AND TRAINING INTERVENTIONS

The education model – the VEM – analyses the costs The interventions considered here are designed to address dropout rates and learning gaps for young people in Burundi between the ages of 15 and 24. They will contribute to the aims of the Government's Education Transition Plan 2018-2020, for which funding of $25.6 million has been obtained and further funding of $21.3 million secured from the Global Partnership for Education.

The Education Transition Plan identifies vocational education and training as particular priorities because this sector offers opportunities to a significant portion of young people and assists in training a skilled workforce to support and enable the development of Burundi's economy. In 2017, the Government established a national policy for technical and vocational education and training with the aim of having at least one Trades Education Centre in each municipality and a Vocational Training Centre in each province. Both types of centres will admit young people 14 or older who have not completed basic education or passed the end-of-year examination for training courses of one to two years. The initial priority is development of training courses in the agro-livestock sector, with a planned expansion of vocational and technical education and a gradual increase in the number of students undertaking courses.

The study paid particular attention to the four major risks affecting educational outcomes: poverty, marital status, female gender and rural location. The analysis found that being married and being in school are almost completely mutually exclusive for adolescent girls. These results suggest that interventions to reduce early marriage may, in terms of their effect on educational outcomes, be equivalent to an intervention to increase girls' school attendance. Data from the 2019 Demographic and Health Survey showed that poverty, rural location and a combined effect of marriage and girls being sexually active correlate with a higher likelihood of dropping out of school before completing upper secondary.

The interventions modelled for **formal education** include rural school supply, improved infrastructure, pedagogical changes, remedial education, enhanced use of technology, malaria prevention and control, information to parents and communities, cash transfers

to poor students, conditional economic incentives and community mobilization on early marriage. The formal education interventions have varying degrees of effectiveness on dropout rates and learning gaps, which flow through to secondary school completion rates and average years of schooling.

Non-formal education programmes modelled include trades certficates and vocational training, social innovation, entrepreneurship and life skills.

The results from the interventions show, by 2030:

- A substantial rise in female and male students in the 15-19 age group, from 55 per cent to 71 per cent for all females in that age group and from 45 per cent to 70 per cent for males.
- The numbers of students leaving school with only a primary education falls from 30 per cent to 11 per cent of the female student population and from 25 per cent to 12 per cent for males.

The most dramatic gains are for secondary school completions for the 20-24-year-old cohort by 2050, with more modest gains by 2030. The increase is delayed due to a complex mix of demographics, different starting ages and promotion and repetition rates as the interventions flow through the education system, but dramatically increase from the mid-2020s.

- For females aged 20-24, secondary school completions increase from 26 per cent with the base case to 53 per cent with the intervention case, more than double, while the proportion who leave school only with primary school completion drops from 28 per cent to 12 per cent.
- For males, the increase in secondary school completions to 2050 is from 24 per cent to 50 per cent (again more than double) and the proportion leaving only with primary education drops from 28 per cent to 14 per cent. The average years of completed schooling also increase by 25 per cent for females and 16 per cent for males to 2050.

Non-formal education programmes result in increased numbers of students with vocational training, with nearly 350,000 students having a trade certificate by 2030, 170,000 with UpShift training and 40,000 with vocational training.

PRODUCTIVITY OUTCOMES FROM EDUCATION AND TRAINING INITIATIVES

In today's world, education of good quality to at least secondary level is vital for adolescents to build the capabilities required to live productive, empowered and satisfying lives. However, only 10 per cent of those who enter school currently complete secondary school, and even when they do, the quality of their education is often limited. The evidence is clear that better education has many benefits, from better health and increased empowerment to an increased likelihood of securing and being productive in a high-quality job. For the case of Burundi, the study concentrated on two different types of effect: (1) the impact of additional schooling and better-quality schooling on an individual's productivity and earnings in a given job; and (2) the role of education in allowing adolescents to move into better quality employment, given the current importance of low-wage informal employment (own-account workers and contributing family helpers) in Burundi.

The study modelled the impact on the productivity of individual cohorts of 20-24-year-olds as they age over time. Increased years of schooling of better quality improve lifetime productivity for the relevant cohort of school leavers, and completing secondary school improves an individual's chance of obtaining a formal job. Post-school training initiatives in trade skills, vocational training and non-formal training in innovation and entrepreneurship increase the individual's productivity when at work.

As shown in the table, by 2050 the productivity of girls aged 20-24 years by that date has doubled, while that of males has risen by 86 per cent, relative to the 2018 cohort. This is mainly due to longer and better schooling. Other contributing factors are increased access to work, particular formal jobs, after completing secondary school, and post-school and "out-of-school" training.

Because of this growth over time in individual cohort productivity, that of the cumulative cohort of those shaped by the initiatives grows less rapidly.

By 2050 this group will constitute well over half the workforce, with their productivity up by 71 per cent for males and 85 per cent for females. This result illustrates the powerful, long-run impact of these initiatives on the economy.

PRODUCTIVITY AND GDP OUTCOMES FROM EDUCATION AND TRAINING INITIATIVES (PERCENTAGE CHANGE RELATIVE TO THE BASE CASE, PRIORITY PACKAGE, HIGH ECONOMIC GROWTH CASE)

	MALES	FEMALES
	2050	
Impact on productivity of 20-24-year cohorts by year shown		
Years of schooling	11.3	22.2
Learning quality	41.6	41.6
Employment type	14.1	9.5
Overall employment	0.0	3.3
Post-school and "out-of-school"	3.4	3.2
Total 20-24-year cohort productivity	85.9	102.2
GDP from accumulated 20-24-year cohorts by year shown		
Total cohort GDP	70.7	84.6

BENEFIT-COST RATIOS FOR THE EDUCATION AND TRAINING INTERVENTIONS

The report provides productivity and BCR results for two groups of nine measures: (1) a set of priority interventions as identified by the Government as part of the process of this study (the priority measures); and (2) a different but overlapping set of the nine initiatives with the highest BCRs. These priority education and training interventions represent vital investments in Burundi's future, changing

the profiles of educational outcomes massively. They are costly and will take time to realize their full impacts, but in due course their impacts will be profound.

Each of the three non-formal education and training interventions modelled had high BCRs or 16 or more.

As explained in the body of the report, the BCR for a set of interventions implemented together tends to be lower that of the individual interventions, because of the interactive effects of the multiple interventions.

While the cost of the interventions may be high, the return on investment is equally high in terms of a stronger, more stable Burundi. The cost to Burundi of not implementing the interventions would be even higher: a lost generation of young people, with all their potential unfulfilled.

INDIVIDUAL BENEFIT-COST RATIOS FOR THE EDUCATION INITIATIVES, 2019-2050 (BASED ON THE HIGH GROWTH CASE & 3% DISCOUNT RATE)

PROGRAMME AREA	BENEFIT-COST RATIO (BCR) (2019-2050)
Formal education	
Supply of rural schools	8.7
Improved school infrastructure	8.3
Pedagogical changes	12.6
Remedial education	16.3
Increased use of ICT & related technologies	18.0
Enhanced information to parents	18.3
Community interventions related to child marriage	22.3
Malaria prevention & control	14.6
Cash transfers for students	8.3
Conditional economic incentives (child marriage)	9.6
Non-formal education	
Social innovation & entrepreneurship	34.2
Trade certificate	16.0
Professional training	32.1

FINANCING THE INTERVENTION PROGRAMMES

There is limited fiscal space domestically to finance the large intervention programme proposed in the investment case, which reaches some $230 million per annum by 2030. However, incremental changes at the national level would make a valuable contribution towards this funding task. These would involve:

- Increasing spending from the national budget, as economic recovery gains strength and revenue improves.
- Targeting spending more effectively on key priority areas, both within government spending as a whole and within the range of initiatives proposed.
- Improving the efficiency of existing and new spending.

In terms of external funding, it is important for Burundi to press for a substantially increased flow of official development assistance. Traditional foreign aid sources have been reasonably strong for health at a global level, but not for education, apart from a recent increase in World Bank funding. Overall, aid flows to Burundi have declined in recent years.

A recovery in foreign aid would make a meaningful contribution but by itself would not be sufficient to fund the proposed health and education investment programme.

In addition, there is a need to look beyond traditional financing mechanisms. While there are difficulties in monetizing these gains for the Government, the estimated size of the returns may persuade donors to support the establishment of an Adolescent Development Fund for Burundi to invest in these programmes. The fund could seek to raise resources based on the economically successful implementation of the programmes. It will also have the added value of promoting greater and more consistent coordination and coherent programming. Innovative funding techniques now being trialled elsewhere in the world could be used to attract social investors for whom part of their return would consist of improved social outcomes in Burundi. For such advocacy to be effective with private investors, a case is to be made for the positive ripple effects of investments in a relatively small economy, where public policies can have quick impacts in terms of human capital and prospects of prosperity.

After two difficult decades, Burundi is now in a process of social restoration and renewal of economic growth. Indeed, if the security situation continues to improve and the international community provides renewed support, there are good prospects of rapid growth in economic output and substantial improvement in community welfare over the decade ahead. In some

part, this will be catching up to higher levels of both output and welfare previously achieved. But Burundi also brings significant strengths to this recovery process. Spending on health and education has been sustained during the crisis, and Burundi spends a higher proportion of its GDP on these key sectors than its East African neighbours. Relative to its economic situation, it appears to have achieved solid outcomes which will provide a base on which to build.

Targeted investments in the health and education of the burgeoning cohorts of adolescents will be central to Burundi's resurgence. Such investments will provide the foundation for longer-term economic development, directly improve the present and future lives of adolescents and their families and show a high rate of return on investment for the country. Both the immediate effects on adolescent welfare and the long-term return on investment through increased economic output and other social benefits are critical elements of these investments.

Let us act, to ensure that Nella and her peers are healthy and have the skills they need to reach their full potential and become productive agents of change for Burundi, and beyond!

CONCLUSION

The importance of investing in the health and education of young people has been repeatedly emphasized by world leaders, to build a skilled generation that will create sustainable economies and peaceful and prosperous societies. The study provides quantitative evidence of the very substantial net benefits of investments in the health and education of Burundian adolescents: for the health sector, the BCR is 16.4, and for formal education is 10 and for non-formal education it is 15.3.

In spite of past difficulties, Burundi brings genuine economic and social strengths to its renewal process. The country has an opportunity to substantially increase agricultural productivity. It also has a genuine opportunity to develop a range of private services based on agriculture and other activities, including those utilizing new and emerging digital technologies. There are also prospects for expanding industrial production, including those at the local level processing off-farm products, and for restoring the infrastructural fabric of the society. Rapid recovery from distressed levels of activity and income has taken place in other countries and is possible for Burundi. One potential profile of this resurgence is provided in the National Development Plan, 2018-2027.

In an agricultural economy such as Burundi's, most workers work in the informal sector, where many jobs provide no stable income stream, little job protection or skills training and no safety net. In such a context, social protection is a key component of international poverty reduction strategies and plays a vital role in development policy. For Burundi, programmes to increase community resilience and cohesion and reduce gender-based violence have been an important focus of international assistance programmes.

More generally, the context of a social investment programme must include a further strengthening of the security situation and rapid building of infrastructure at national and local scale – in transport, energy, local community and business infrastructure, as well as digital infrastructure for the modern economy. Parallel initiatives to expand economic activity in critical areas, particularly in agriculture, which can also drive expanded activity in local manufacturing and services, are also essential. The social investment programme for adolescents, which aims to sharply improve their health and human capital, will both depend on and facilitate this broader process of development.

In this context, targeted investments in health and education for the burgeoning cohort of adolescents will be central to Burundi's resurgence. Such investments will provide the foundation for longer-term economic development, directly improve the present and future lives of adolescents and their families and show a high rate of return on investment.

By investing in health and education interventions, we can help Nella and her peers stay in school longer, gain better knowledge and skills and be healthier, thus achieving their full potential by becoming productive members of society.

ANNEX 1.

DEFINITIONS OF KEY TERMS

Benefit-cost ratio	The main way of expressing the rate of return on an investment used in this report. The BCR divides the estimate of benefits by the estimate of costs. A BCR greater than 1 means that the benefits of an intervention programme are greater than the costs of the programme. So, for example, a BCR of 10 means that for every dollar, euro or Burundi franc invested, there will be a benefit worth 10 dollars, euros or Burundi francs.
Demographic dividend	When fertility rates are reduced and the growth of the pre-working-age population slows, various factors come into play to increase per capita growth rates. For example, the capital resources of the society can be spread more deeply across the existing population rather than servicing a rapid increase in population, and the proportion of the population able to work rises. These effects are referred to as the demographic dividend.
Net present value (NPV)	It is standard practice when calculating BCRs to express these benefits and costs in NPV terms. Because benefits and costs for future years are usually regarded as having a lower value than those in the present, a discount rate is applied to these future benefits and costs.
Discount rate	The discount rate is the rate by which future income or expense is made comparable to immediate income or expense. The discount is calculated in compound interest on the basis of an annual rate.

ANNEX 2.

DESCRIPTION OF DIVERSE INTERVENTION PROGRAMME AREAS

HEALTH	
Reproductive, maternal, neonatal and child health (RMNCH)	• Family planning • Access to safe abortions • Management of complications related to abortions • Keep girls in school
Malaria	• Prevention: Materials treated with insecticide; Pregnant women sleeping under an insecticide-treated mosquito net; Residual spraying inside; Seasonal chemoprophylaxis • Treatment: children, adults, pregnant women, treatment of severe cases.
Depression and anxiety	• Psychosocial treatment for different levels of depression • Antidepressant medications for different levels of depression
HIV/AIDS	• Prevention: media, community mobilizations, youth-focused interventions (at school and out of school); access to condoms • Treatment and care: ART for men and women; Cotrimoxazole for children
HPV vaccine	• 2 doses of vaccine to girls aged 12 years (World Health Organization (WHO) Guidelines) • Gradual increase in coverage: Start with 5% coverage of 12-year-old girls; cover 90% by 2024; 100% by 2030
Tuberculosis	WHO Strategy to End Tuberculosis by 2030
Road accidents	• Behavioural measures: seat belts; helmets; alcohol; speed; Graduate License Programme for Young Drivers (different steps towards obtaining a driver's license) • Improvement of infrastructures

ANNEX 2. DESCRIPTION OF DIVERSE INTERVENTION PROGRAMME AREAS (CONT.)

FORMAL EDUCATION	
School offer in rural areas	Proximity of schools
Infrastructure Improvement	Classrooms, school materials, etc.
Pedagogical changes	Curriculum, lesson plans, teacher training
Remedial education	Support for students needing special attention (tutoring in small groups with volunteer teachers)
Participation of parents and community	• Improve the link between parents-community / schools. Motivate parents to demand better education • Community-based follow-up interventions (providing follow-up tools, training for parents on their children's progress, organizing parent meetings at school or village, etc.)
Cash transfers for students	• Interventions to reduce school-related expenses (uniforms, school equipment).
Initiatives to address early pregnancies	• Non-economic incentives (education programmes that promise a gift to the family provided the girl does not get married until the end of the education programme) • Community mobilization (changing social norms)
NON-FORMAL EDUCATION	
Social innovation and entrepreneurship	Social innovation workshops, mentoring, incubation and start-up financing.
Certificate in a vocational school	Two categories of apprentices: • Young people or adults who left basic education before the end of grade 9; young people or adults holding a certificate of completion of basic education but who have not passed the end-of-year examination. • Business Education Centres
Professional training	• Professional Training Centres

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“Let us join forces to help Nella and her peers become healthy, educated and competent agents of change!”