REPUBLIC OF RWANDA
DATA COLLECTION SURVEY
ON
ECD AND EDUCATION IN RWANDA

FINAL REPORT

January 2022

Japan International Cooperation Agency
Africa Department

M-wing LLC
Active Communication International Co., Ltd.
Nippon Engineering Consultants Co., Ltd.

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■ Outline of the Republic of Rwanda

Republic of Rwanda

Area: 26,340 km2
Population: 12.63 million (2019, World Bank)
Capital: Kigali
Ethnic group: Hutu, Tutsi, Twa
(Rwanda abolished ID cards indicating the ethnic group of their holders)
Language: Kinyarwanda, English (2009, added to official languages and became the language of education instead of French), French, Swahili
Religion: Christianity (Catholic, Protestant), Islam
GDP: 10.12 billion dollars (2019, World Bank)
GNI per capita: 820 US dollars (2019, World Bank)
Economic growth rate: 9.4% (2019, World Bank)
Currency: Rwandan franc
1 dollar = 976.3 Rwandan francs (2019, BNR)

Source: Website of the Ministry of Foreign Affairs

Children studying

One laptop per child

Hand washing in ECD Center

School lunch in ECD Center

Class in primary education institution

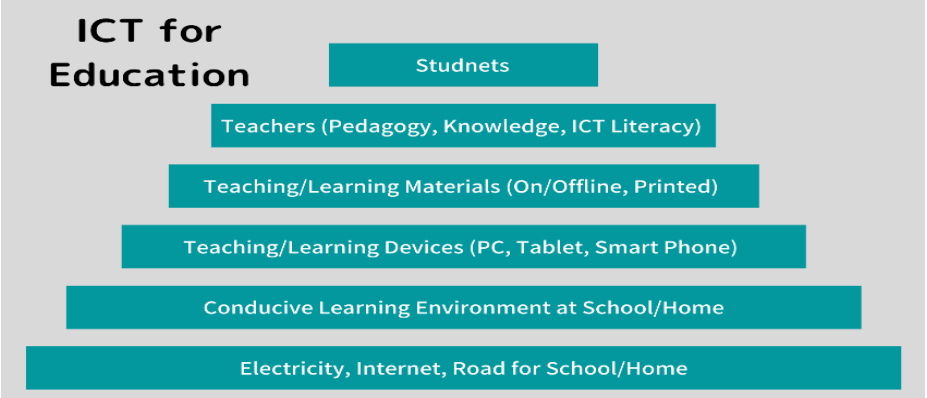
Class utilizing ICT

Source (Survey Team)

Summary

Project name	Data Collection Survey on ECD and Education in Rwanda
Period of project implementation	From March 4, 2021 to January 31, 2022
Background and purpose of the survey	The Rwandan Ministry of Education has developed the Education Sector Strategic Plan ESSP3 and is taking measures to improve the quality and accessibility to education. In response, the Rwandan government, the World Bank, and other organizations have implemented measures to address issues such as insufficient numbers of teachers, the low capacity of teachers, shifts in overcrowded classrooms, and inadequate development of teaching materials and curriculum, but the issues still remain. In addition, the importance of developing ECD for children under 6 years of age was also mentioned, and a national ECD strategic plan is currently being implemented. Meanwhile, the ECD project implemented by UNICEF is scheduled to end in December 2020, and continued support is required. Against this backdrop, the current situation and issues of ECD and pre-primary through secondary education in Rwanda will be collected, identified, and analyzed, and then the Rwandan government's priority issues in the education sector and the effectiveness of its support measures in addressing these issues will be examined. Efforts will also be made to build consensus with JICA and the Rwandan government on support measures.
Political and social situation	■Political situation ・ The Rwandan government has set a target of becoming an upper-middle-income country by 2035 and a high-income country by 2050. ・ Implemented the "First National Transformation Strategy (NST1)", a medium-term growth strategy targeting an average annual economic growth of 9.1%, starting in 2017. ■Social situation ・ Organizes an overview of the economy, population, economic growth, and the state of the country. ・ The population is approximately 13 million (increased approximately 1.7 times in 20 years). ・ GDP is about US$10 billion (Increased by about 5 times in 20 years) Agriculture, forestry and fisheries account for about 25% of GDP.
Current situation and issues in the education sector	■Policy trend The current policy is the Education Sector Strategic Plan 2018/19 – 2023/24, published in 2019, Vision 2020/50 for higher-level policies, created based on NST1, and aims to improve the quality of education that leads to the development of human capital. The target values are set by focusing on Literacy and Numeracy in P3, P6, and S3, NIR P1 (Net Intake Rate in P1), NIR S1 (Net Intake Rate in S1), dropout rate, retention rate, GIR P6 (Gross Intake Rate in P6), GIR S3 (Gross Intake Rate in S3), and advancement rate from primary to secondary education. In other words, priority efforts in the education sector are to enter school at an appropriate age, to complete basic education without repeating or leaving school (improving the internal efficiency of education), and to meet basic academic standards as indicated by Literacy and Numeracy. ■Status of external support Many DPs are providing support mainly for basic education. In particular, the World Bank is implementing a large project financing RQBE across a wide range of basic education. At the same time as infrastructure development, support is being provided for teacher training. While there is a lot of support for improving the quality of learning and ICT utilization by other DPs in basic education, it can be confirmed that there is not enough support for pre-primary education, which is not included in basic education at present. ■Current Status and Issues in the Education Sector Rwanda has made the development of human capital a top policy goal, but challenges in the education sector include the internal efficiency of basic education and the academic achievement of children. The decline in learning skills is

	significant in early primary education and has a significant impact on the continuation of education. In pre-primary education, the issue of accessibility is particularly important due to the significant shortage in the number of facilities. In primary education, incompatibility of school age, especially due to lack of school readiness preparation, poor academic performance, retention and dropout from school, quality of learning due to the quality of teachers and school infrastructure, and ICT utilization that does not make any progress in effective utilization amid the progress of ICT hardware. In secondary education, the challenges include low advancement rates, especially due to low internal efficiency in primary education, inappropriate age of schooling, and insufficient academic skills to continue learning in secondary education. In terms of infrastructure related to schools, there is a lack of facilities in general, a lack of laboratories, a lack of ICT facilities and Internet environment, and a lack of kitchen facilities to promote the school lunch policy that has been launched recently.
Current situation and issues in the ECD sector	■ECD Services ECD has been positioned as one of the key issues in international development today, and the emphasis on its importance from the perspective of human capital investment has been a feature of recent policy discussions. In Rwanda, the National Child Development Agency (NCD) has been established within MIGEPROF to promote integrated ECD services in five areas: ①Maternal and child health and nutrition; ② School readiness; ③ Parenting and early stimulation; ④ Child protection and inclusion; and ⑤Water and sanitation (WASH: Water, Sanitation and Hygiene). In particular, its mission is to "combat stunting through integrated ECD services," and efforts are being made to improve stunting by establishing ECD centers tailored to local conditions. This study examined the ECD as a policy, the analysis of relevant policy documents, the function and role of the NCD as a central department in charge of ECD services, and the actual situation of the District as an implementing agency of the ECD administration. We also conducted field surveys and interviews on the various ECD centers that provide ECD services, namely Model ECD centers, the Community-based ECD Center, and the Home-based ECD Center. As a result, the Model ECD Center and the Community-based ECD Center served the same functioned in the same way as Nursery schools in terms of school readiness. Both the Model ECD Center and the Community-based ECD Center employed qualified TTC graduates in most cases, but the Model ECD Center was the far superior physical environment. On the other hand, despite the overwhelming number of Home-based ECD centers, there are few toys, picture books, or stationery, and they are limited to providing porridges and milk for improved nutrition. The caregivers are parent volunteers and lack professional knowledge. Focusing on the direction of the government's pre-primary education policy, the challenge is how to raise the quality of the Home-based ECD centers. ■Maternal and child health and nutrition improvement After the 1994 genocide, Rwanda's stunting rate has declined from 48% (2000) to 33% (RDHS 2019-2020) over the past two decades since 2000 due to efforts to improve health systems and nutrition. After the 1994 genocide, Rwanda's stunting rate has declined from 48% (2000) to 33% (RDHS 2019-2020) over the past two decades since 2000 due to efforts to improve health systems and nutrition. However, the figure is still disturbingly high, higher than the African average of 30.7% (UNICEF, 2020). In order to clarify the issues in improving the nutritional status of infants and toddlers, this study surveyed the nutritional methods and dietary conditions of infants and toddlers in the homes of mothers with children attending an ECD center, as well as the actual conditions of the ECD center's food service. In addition, students from primary and secondary schools and teacher training schools visited by this study group were surveyed on their school meals and the actual conditions of meals at public schools, including pre-primary education facilities. The challenges in improving nutrition were found to be missed meals and inadequate intake of nutritious foods (especially protein and iron) among non-pregnant, pregnant, infant, pre-primary, and primary and secondary school children and adolescents due to limited access to essential foods resulting from low

	household income and inadequate school lunch budgets. As for cooperation in the field of nutrition, we propose the use of poultry farming, egg powder, freeze drying, air drying, and other food processing techniques to improve the intake of animal protein, and the use of iron utensils, small fish powder, and egg powder to supplement MNP to improve the intake of iron and micronutrients. In addition, for the provision of nutrient-dense school meals, the Government will propose cooperation with WFP and related organizations and the utilization of JICA Overseas Cooperation Volunteers, and for the development of fortified foods and preserved foods, the Government will propose technical cooperation and support for commercialization through private partnership schemes. In addition, we propose the use of the multipurpose facilities of the Japanese Model ECD Center as a place for learning about business to strengthen nutrition and health services using ICT and to improve household income.
Current situation of ICT utilization	"ICT utilization" is highly positioned in Rwanda and covers all sectors. It is an essential element for the transformation to a knowledge-based society, economic growth, enhancement of global competitiveness, and promotion of social transformation outlined in Vision 2020. "ICT utilization" for education contributes to the development of human infrastructure. The importance of ICT utilization in education was mentioned in the Education Sector Policy of 2003, and laptop computers (XO) were distributed to primary school children in the OLPC program in 2008. Thus, the "emphasis on ICT utilization" to improve the quality of public education in Rwanda has long been a given line. The new CBC curriculum identifies "ICT" as a 21 century skill for learners to acquire. However, the communication and ICT infrastructure in Rwanda as a whole is still in its infancy, and the school education field is no exception. There are still few cases in which ICT is actively used by teachers in general subject teaching practices and by children in learning (at schools and homes), and it has not yet reached the stage where it has an educational effect. This is because in order for ICT to be incorporated into the hierarchical structure of learning (see figure) and to fully demonstrate its effects and functions, it is necessary to develop a new and consistent learning environment, not only in terms of hardware, such as telecommunications, schools and homes, school routes, PCs, tablets and smartphones, and digital teaching materials, but also in terms of software, such as the acquisition of ICT literacy and effective teaching methods by teachers, and the acquisition of ICT literacy by students themselves.  On the other hand, the introduction of the School Data Management System (SDMS) and Teacher Management Information System (TMIS) has increased the speed and accuracy of data management for school administration, school education administration and finance, and faculty personnel, contributing to more effective academic administration and implementation of school education administration. In the future, it is expected that attendance management of children and students, preservation of learning history, grade level records, and records of completion test results will be integrated and function effectively as a source of information to grasp the needs of lesson improvement by teachers, support for slow learners, and household support by the government.

	Currently, with the cooperation of many DPs and private companies, REB is promoting the implementation of teacher training, the distribution of PCs for teachers, online learning portals, and the development and dissemination of digital teaching materials for distance learning, in order to improve teachers' ICT utilization capabilities. On the other hand, the motivation for countries, aid organizations, and private companies to provide ICT support can be seen as a desire to secure a standard (first-mover advantage) for online learning environments.
Results of analysis in the survey	■Priorities for the Education Sector A priority in the education sector is to improve quantity and quality in primary school readiness (pre-primary education and ECD services). A priority in the education sector is to improve quantity and quality in primary school readiness (pre-primary education and ECD services). For pre-primary education, there is a significant shortage of schools, and there is insufficient infrastructure to accommodate pre-primary children. For pre-primary education, there is a significant shortage of schools, and there is insufficient infrastructure to accommodate pre-primary children. Pre-primary education allows children to start primary education at an appropriate age and learning skills and reduces the risk of repeat or withdrawal. The next issue is that children are not adequately cared for at school, especially in early primary education, leading to repeat grades and dropouts. In order to prevent this from happening, it is first necessary to improve the quality of learning to develop the academic skills to continue education, and the quality of teachers responsible for teaching is an issue. This is an issue for the TTC, which is responsible for teacher training. ■Priorities for the ECD sector The poor quality of ECE among the ECD services provided in the ECD sector is a priority issue when considering the connection to primary education. In addition to inadequate infrastructure, the quality of ECE among caregivers is low, especially in Home-based ECD centers where many young children attend, and capacity building is highly needed. Furthermore, Model ECD Centers have not been able to provide sufficient guidance to their Home-based ECD Centers under its jurisdiction.
Consideration of support measures	In order to support the priority issues, various support measures have been proposed, but one particularly effective support measure is infrastructure development using ODA loans. For the purpose of improving the internal efficiency of basic education by improving access to pre-primary education and teacher training at the TTCs, the proposal was to support primary education from both the pre- and post-enrollment perspectives by expanding pre-primary education and improving the quality of teachers through the development of TTC training schools. The final recommendation is the importance of supporting the ECD sector. It remains to be seen how the education sector and the ECD sector will work together in the future, but even in the case of pre-primary education under MINEDUC, which is currently being expanded with a focus on ECE, the enhancement of ECD services is expected to become an issue as the expansion of pre-primary education through ODA loans progresses. It is also effective from a long-term perspective to continue exploring the full potential of ways to support integrated ECD services.

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List of Abbreviations

Abbreviations	Formal name
ACEITLMS	African Centre of Excellence for Innovative Teaching and Learning Mathematics and Science
AIMS	African Institute for Mathematical Sciences
ANC	Antenatal Care
ASM	Agent de Sante Maternelle
AU	African Union
BHCK	British High Commission Kigali
BIA	Bridge International Academies
BLF	Building Learning Foundations
BOQ	Bill of quantities
CA	Comprehensive Assessment
CADIE	Capacity Development of Information Communication Technology use in Education
CAMIS	Continuous Assessment Management Information System
CAP	Contents Access Point
CBC	Competence-Based Curriculum
CBHI	Community Based Health Insurance
CDD	Community Driven Development
CEAPS	Centre Expérimental d'Activités Préscolaire
CEMASTEA	Centre for Mathematics Science and Technology Education in Africa
CEW	Community Education Worker
CG	Capitation Grant
CHW	Community Health Worker
CMU-R	Carnegie Mellon University, Rwanda
COVID-19	Coronavirus Disease 2019
CP	Counterpart
CPD	Continuous Professional Development
CPU	Central Processing Unit
CSO	Civil Society Organization
DCC	District Continuous Professional Development Committee
DDE	District Director of Education
DEO	District Education Officer
DfID	Department for International Development
DG	Director General
DDG	Deputy Director General
DHCR	Developing Human Capital in Rwanda
DHS	Demographic and Health Survey
DoS	Deputy of Studies
DOTS	Directly Observed Treatment Short course
DP	Development Partner
DRC	Democratic Republic of Congo
DS	Demonstration school
EAC	East African Community
ECCE	Early Childhood Care and Education
ECD	Early Childhood Development
ECDAN	Early Childhood Development Action Network
ECE	Early Childhood Education
ECEC	Early Childhood Education and Care
ECLPE	Early Childhood and Lower Primary Education
EDPRS	Economic Development and Poverty Reduction Strategy
EFA	Education for All
EDPRS2	Economic Development and Poverty Reduction Strategy II

EICV	Enquête Intégrale sur les Conditions de Vie des Ménages
EJEP	Egypt-Japan Education Partnership
EJS	Egypt-Japan School
ESIA	Environmental and Social Impact Assessment
ESSP2	Education Sector Strategic Plan II
ESSP3	Education Sector Strategic Plan III
EU	Europen Union
FAO	Food and Agriculture Organization of the United Nations
FBF	Fortified Blended Food
FBO	Faith-based Organization
FCDO	Foreign, Commonwealth and Development Office
FMO	Nederlandse Financierings-Maatschappij voor Ontwillelingslagen
F/S	Feasibility Study
Fab-Lab	Fabrication laboratory
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
GIR	Gross Intake Rate
GIZ	Deutsche Gesellschaft fur Internationale Zusammenarbeit
GNI	Gross National Income
GoR	Government of Rwanda
GPI	Gender Parity Index
GS	Groupe Scolaire
HC	Health Center
HCD	Human Capital Development
HCI	Human Capital Index
HEC	High Education Council
HGS	Home Grown Solution
HGSF	Home-grown School Feeding Programme
HP	Health Post
HT	Head Teacher
ICET	International Council on Education for Teaching
ICT	Information and Communication Technology
ICTC	ICT Complex
ID	Identification
IDP	Integrated Development Programme
IEE	Inspire, Educate and Empower
IEEE	Institute of Electrical and Electronics Engineers
IEV	International Exchange Volunteer
IFC	International Finance Cooperation
IM	Interactive Mathematics
IMF	International Monetary Fund
IoT	Internet of Things
IPRC	Integrated Polytechnic Regional College
IPU	Inter-Parliamentary Union
ISCED	International Standard Classification of Education
ISO	International Organization for Standardization
IT	Information Technology
IYCF	Infant and Young Child Feeding
JICA	Japan International Cooperation Agency
JRES	Joint Review of the Education Sector
KICD	Kenya Institute of Curriculum Development
KOICA	Korean International Cooperation Agency
LARS	Learning Achievement in Rwandan School
LE	Languages Education
LMS	Learning Management System

LODA	Local Administrative Entities Development Agency
LwD	Learning with Disability
L3	Literacy、Language、Learning
MCF	Mastercard Foundation
MIFOTRA	Ministry of Public Service and Labor
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
MINICT	Ministry of ICT & Innovation
MNP	Micronutrient Powder
MoH	Ministry of Health
MS	Model School
MTN	Mobile Telecommunications Network
MUAC	Mid-Upper Arm Circumference
MYICT	Ministry of Youth and ICT
NAR	Net Attendance Rate
NCD	National Child Development Agency
NCDs	Non-communicable diseases
NDF	Nutrition Dense Food
NECDP	National Early Childhood Development Program
NER	Net Enrollment Rate
NESA	National Examination and School Inspection Authority
NGO	Non-Governmental Organization
NICI	National ICT Strategy and Plan
NIR	Net Intake Rate
NISR	National Institute of Statistics Rwanda
NPO	Non-Profit Organization
NST1	National Strategy for Transformation
OECD	Organisation for Economic Co-operation and Development
OLPC	One Laptop Per Child
OLPT	One Laptop Per Teacher
OS	Operation System
OV	Old Volunteer
PBF	Performance-based Financing
PCM	Project Cycle Management
PDCA	Plan, Do, Check, Action
PKO	Peacekeeping Operations
PM2.5	Particulate Matter 2.5μm
PNC	Postnatal Care
PO	Project Office
PRISM	Project to Strengthen Primary School Mathematics and Science with the Use of ICT
PS	Permanent Secretary
PTA	Parent-Teacher Association
QTY	Quantity
RAP	Resettlement Action Plan
RBC	Rwanda Biomedical Center
RCA	Rwanda Cooperative Agency
RCA	Rwanda Coding Academy
RDHS	Rwanda Demographic and Health Survey
REB	Rwanda Basic Education Board
RHHS	Rwanda Household Survey
RISA	Rwanda Information Society Authority
RNEC	Rwanda National Ethics Committee

RP	Rwanda Polytechnic
RPF	Rwanda Patriot Front
RQBE	Rwanda Quality Basic Education for Human Capital Development Project
RTB	Rwanda TVET Board
RURA	Rwanda Utilities Regulatory Authority
RWF	Rwandan Franc
SABER	Systems Approach for Better Education Results
SBCT	School-based Collaborative Teacher Training
SBI	School-based INSET
SBM	School-Based Mentor
SCC	Sector Continuous Professional Development Committee
SDGs	Sustainable Development Goals
SDMS	School Data Management System
SEI	Sector Education Inspector
SEO	Sector Education Officer
SET	Science and Elementary Technology
SEZ	Special Economic Zone
SIIQS	Supporting Institutionalization and Improving Quality of SBI Activity
SIM	Subscriber Identity Module
SMASSE	Strengthening Mathematics and Science in Secondary Education
SME	Science and Mathematics Education
SMS	Short Message Service
SSE	Social Studies Education
SSL	School subject leaders
STEM	Science, Technology, Engineering and Mathematics
SPIU	Single Project Implementation Unit
SPRP	Stunting Prevention and Reduction Project
TA	Technical Assistance
TCT	Tumba College of Technology
TMIS	Teacher Management Information System
TMP	Teaching Methods and Practice
TRC	Teacher Resource Center
TTC	Teacher Training College
TVET	Technical and Vocational Education and Training
UHC	Universal Health Coverage
UNAMIR	United Nations Assistance Mission for Rwanda
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UNMISS	United Nations Mission in the Republic of South Sudan
UR	National University of Rwanda
UR-CE	The University of Rwanda-College of Education
USAID	United States Agency for International Development
VSO	Voluntary Service Overseas
VUP	Vision 2020 Umrenge program
VVOB	Flemish Association for Development Cooperation and Technical Assistance
WASH	Water, Sanitation and Hygiene
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
9YBE	9 years Basic Education
12YBE	12 years Basic Education

Chapter 1 Outline of the Project

1.1 Background and purpose of the survey

The Rwandan Ministry of Education has developed a five-year (2018-23) Education Sector Strategic Plan III (ESSP3) and is advancing measures to improve the quality and accessibility of education. In response, the Rwandan government, the World Bank, and other organizations have implemented measures to address issues such as insufficient numbers of teachers, low teaching proficiency, lessons using a shift system for overcrowded classrooms, and inadequate provision of teaching materials or curriculums. However, the same issues remain.

The importance of developing Early Childhood Development (ECD) for children under six years of age has also been highlighted. The National ECD Strategic Plan (NECDP 2018-2024) is currently being implemented to address this. However, UNICEF's ECD project (Developing Human Capital in Rwanda: DHCR) is scheduled to end in December 2020, and continued support is needed.

Within this context, we will compile, identify, and analyze the current situation and the issues of ECD and pre-primary through secondary education in Rwanda. We will examine the Rwandan government's priority issues in the education sector and the effectiveness of its support measures to address these issues. We will also strive to build consensus between JICA and the Rwandan government regarding the support measures.

1.2 Items of the Project

The main work items for this project are as follows.

Table 1-1 List of main work items

Work item	Quantity	Remarks
(1) [Domestic] Operational plan, IC/R, ECD, and compilation of issues in the field of education	One set	
(2) [Local] Information collection on ECD and education sector	One set	
(3) [Domestic] IT/R, JICA explanation	One set	
(4) [Local] Explanation of the project and additional information collection	One set	
(5) [Domestic] DFR and FR creation	One set	

1.3 Survey content

1.3.1 Outline of the survey

On the first trip, interviews were conducted with the departments in charge, mainly MINEDUC and the National Child Development Agency (NCD), in order to gather general information on ECD and the education sector. After that, we made a comprehensive visit to schools in the entire country of Rwanda, combining each province and each facility, including pre-primary education facilities, primary education facilities, secondary education facilities, and teacher training schools.

Regarding ECD services, interviews were conducted with NCDs, international organizations supporting ECD, and NGOs to learn about their support. Also, we visited various types of ECD centers to survey the actual status of service provision and to collect good practices.

With regard to improved nutrition/maternal and child health, the current status of maternal and child health service delivery was surveyed for Community Health Workers (CHWs), and the status of daily meals and school meals for mothers with children attending ECD centers and students enrolled in primary and secondary schools and teacher training colleges

With regard to ICT utilization, we visited schools to survey the ICT infrastructure development and the status of its utilization for learning and office work in schools, and visited related private companies to discover technologies and products that meet the needs of the field. In addition, we grasped the overall picture of the local business situation and installed quotation documents as necessary.

For the second trip, hearings and discussions were held mainly with the main person in charge of the department with the aim of considering proposed support measures based on the results of analyzing the information collected during the first trip. Regarding school facilities, regarding pre-primary facilities and teacher training schools, visits were made to facilities with high service levels and those with low service levels, and information on details of facilities and construction costs was collected.

As for ECD services, information was collected and discussed from relevant organizations, and information was exchanged with the headquarters investigation team and technical and professional teams to propose support measures.

In the area of nutrition improvement/maternal and child health, we surveyed school meals at public schools that began service in 2021, and information was exchanged and discussions were held with relevant organizations and private companies to propose measures to support nutrition improvement.

As for ICT utilization, we followed up on the first trip and exchanged information with the PRISM project as appropriate.

1.3.2 Operational Flowchart

The flowchart of the entire survey is shown below.

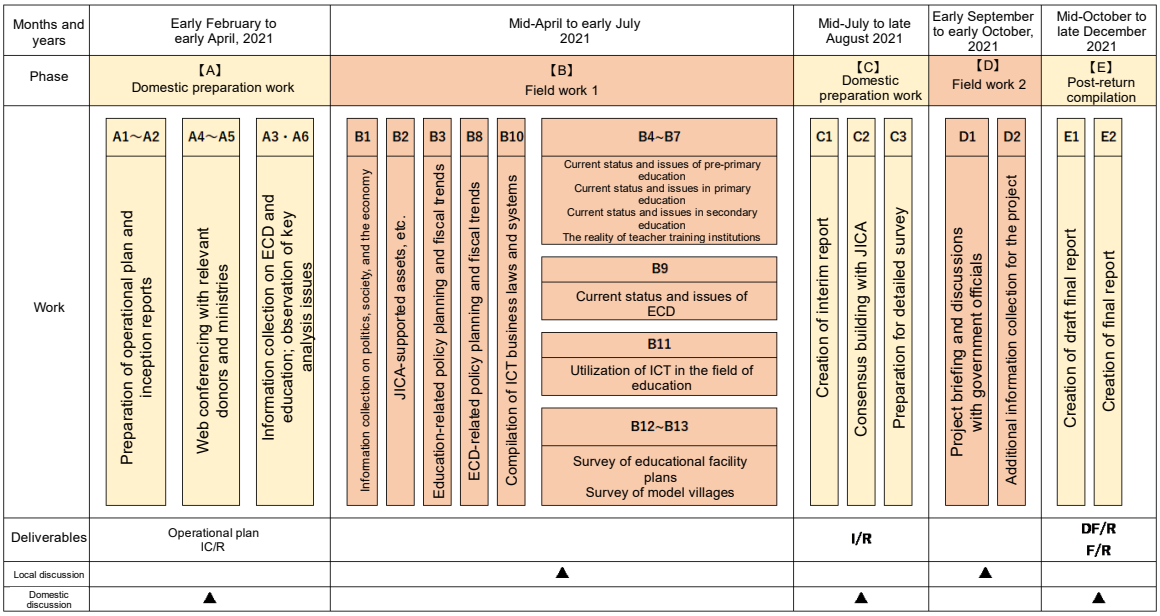


Figure 1-1 Survey Flowchart

1.3.3 Work plan

The work plan is shown in the following table.

Table of Contents 1-2 Survey contents and process plan

Work item			2021											
			2	3	4	5	6	7	8	9	10	11	12	1
【A】 Domestic	【A1】	Creation of operational plan												
	【A2】	Creation of inception report												
	【A3】	Information collection and analysis of the actual situation and issues in the field of ECD and education												
	【A4】	Web conferencing with relevant development partners												
	【A5】	Web conferencing with relevant ministries and agencies												
	【A6】	Observation of key challenges in the ECD and education sectors in Rwanda												
【B】 Local	【B1】	Information collection on the political, social, and economic situation in Rwanda												
	【B2】	Identification of JICA support outcomes, support assets, and resources												
	【B3】	Information collection on education sector policy planning and fiscal trends												
	【B4】	Information collection on current status and issues of pre-primary education, issue analysis												
	【B5】	Information collection on current status and issues of primary education, issue analysis												
	【B6】	Information collection on current status and issues of secondary education, issue analysis												
	【B7】	Observation of actual situation of teacher training institutions; identification of issues												
	【B8】	Information collection on ECD policies, plans, and financial trends												
	【B9】	Information collection on current status and issues of ECD, issue analysis												
	【B10】	Compilation of ICT business laws and systems												
	【B11】	Survey on ICT utilization in the field of education												
	【B12】	Information collection on educational facility planning												
	【B13】	Research on model villages												
【C】 Domestic	【C1】	Creation of Interim Report												
	【C2】	Consensus building with JICA												
	【C3】	Preparation for detailed survey												
【D】 Local	【D1】	Briefing on support project (program) and discussion with government officials												
	【D2】	Additional information collection for support project (program)												
【E】 Domestic	【E1】	Creation of Draft Final Report												
	【E2】	Creation of Final Report												
Deliverables		Task planning												
		Inception Report												
		Interim Report												
		Draft Final Report												
		Final Report												
			2	3	4	5	6	7	8	9	10	11	12	1

Local operations period Domestic operations period

▲Explanation of the report, etc.

1.4 Schedule for Survey

1.4.1 First trip

The period and dates for the first trip are as follows. After the visit, the process of conducting the survey with field visits was changed from the original schedule due to a request for approval from the Ministry of Education (MINEDUC) and the National Child Development Agency (NCDA), and also due to the impact of COVID-19. As a result, the process has been changed from the original schedule.

Table 1-3 Period and date of first trip

Name	Area of responsibility	Period	Number of days
Masanobu Matsuyama	Chief Operations Officer / Education Issue Analysis 1)	April 17, 2021 to June 24, 2021	69 days
Yumiko Ono	Deputy Chief of Operations / Education Issue Analysis (2)	From May 1, 2021 to June 30, 2021	61 days
Katsutoshi Unetsubo	Educational Facilities Planning	April 23, 2021 to June 2, 2021	57 days
Manami Sato	ECD Issue Analysis (Nutrition improvement / Maternal and child health)	May 12, 2021 to June 30, 2021	50 days
Keiichi Naganuma	Analysis of ICT utilization and innovation deployment status	May 12, 2021 to June 30, 2021	50 days

1.4.2 Second trip

The period and dates for the second trip are as follows. We will consult with the recipient government to build consensus on the support project agreed upon with JICA (assuming paid financial cooperation).

- Share the results of the analysis of issues in the field of ECD and education based on the information collected during the first round of field missions.
- Confirm nature of and build consensus on the proposed support project

In addition, we collected and compiled additional information necessary for calculating and evaluating rough estimates of the proposed support projects.

Table 1-4 Period and date of the second trip

Name	Area of responsibility	Period	Number of days
Masanobu Matsuyama	Chief Operations Officer / Education Issue Analysis 1)	November 7, 2021 to December 1, 2021	25 days
Yumiko Ono	Deputy Chief of Operations / Education Issue Analysis (2)	October 23, 2021 to November 27, 2021	36 days
Gentaro Nagasawa	Educational Facilities Planning	November 22, 2021 to December 4, 2021	13 days
Manami Sato	ECD Issue Analysis (Nutrition improvement / Maternal and child health)	November 15, 2021 to November 29, 2021	15 days
Keiichi Naganuma	Analysis of ICT utilization and innovation deployment status	November 7, 2021 to December 1, 2021	25 days

Chapter 2 Political and Socioeconomic Situation

In this chapter, we provide a basic overview of political and socioeconomic projects in Rwanda.

Political Situation	➢ The Rwandan government has set a goal of becoming an upper middle-income country by 2035 and a high-income country by 2050. ➢ Since 2017, it has been implementing the first National Strategy for Transformation Strategy (NST1), a medium-term growth strategy that aims to achieve an average annual economic growth of 9.1%.
Socioeconomic Situation	➢ Economic overview, population, economic growth, land status, etc. ➢ Population is approximately 13 million (increased 1.7 times in 20 years) ➢ GDP is approximately US$10 billion (a fivefold increase in 20 years) ➢ Agriculture, forestry, and fisheries account for approximately 25% of GDP.

2.1 Political Situation

In the 1980s, the country made efforts to rebuild its economy, but after the outbreak of the civil war, it suffered negative growth. In particular, it was further devastated by the genocide in 1994. Subsequently, a steady recovery in agricultural production, assistance from development partner countries, and sound economic policies returned GDP to pre-civil war levels by 1999. Since 2010, Rwanda has maintained an average real economic growth rate of around 7%, but has been hampered by a chronic trade deficit.

The Government of Rwanda (GoR) has set a goal of becoming an upper-middle-income country by 2035 and a high-income country by 2050. Since 2017, the GoR has been implementing the National Strategy for Transformation (NST1), a medium-term growth strategy that aims to achieve average annual economic growth of 9.1%. In the World Bank's "Doing Business 2020" (an investment climate ranking), the country ranks 38th out of 190 countries and regions worldwide. It ranks second highest in Africa.

2.1.1 Domestic political overview

In 1990, the Rwandan Patriotic Front (RPF), a predominantly Tutsi group that had taken refuge in Uganda before and after independence, invaded Rwanda by force. A civil war broke out between the RPF and the Hutu regime. The Arusha Accords were signed in August 1993, following which the United Nations dispatched the United Nations Assistance Mission in Rwanda (UNAMIR) to monitor the ceasefire. However, the assassination of President Habyarimana in April 1994 triggered a genocide of Tutsi and Hutu moderates by Hutu extremists. By July of that year, the number of victims is reported to have reached between 800,000 and 1,000,000.

In August 2003, a presidential election was held, and President Kagame was elected. In all subsequent elections to the Senate and House of Representatives, the ruling RPF won.

In December 2015, the constitution was amended through a referendum. The amendments shortened the presidential term from seven years to five years while maintaining a provision that prohibits the president from being elected for a third term. The amended Constitution made it possible for President Kagame to run in presidential elections scheduled to be held in 2017 and 2024. President Kagame ran in the August 2017 presidential election. He was re-elected with 98.8% support (for his third term, which ends in 2024).

President Kagame has made considerable efforts to fight corruption. Low levels of corruption, combined with good security, provide a favorable business environment. Rwanda has the world's highest percentage of female members of parliament at 61.3% (as of January 2021, IPU). Women hold the key position of Speaker of the House of Representatives, and the percentage of female cabinet members is approximately 52% (as of March 2021).

2.1.2 Diplomatic overview

Rwanda has emphasized economic diplomacy for its economic development. It has established good relations with major donor countries, while also playing an active role in the East African Community (EAC) and in African economic integration. Rwanda has contributed to peace and stability in Africa for many years, including sending peacekeepers to the United Nations Mission in the Republic of South Sudan (UNMISS). In 2018, President Kagame served as AU Chair and also provided leadership for AU reform and other initiatives.

2.1.3 Rwanda's administrative structure

Rwanda's administrative structure is divided into five provinces (Kigali, Eastern Province, Western Province, Southern Province, and Northern Province) and their respective districts.

Table 2-1 Administrative divisions of Rwanda

Province name	Number of districts
Kigali	3
Northern District	5
Eastern District	7
Western District	7
Southern District	8

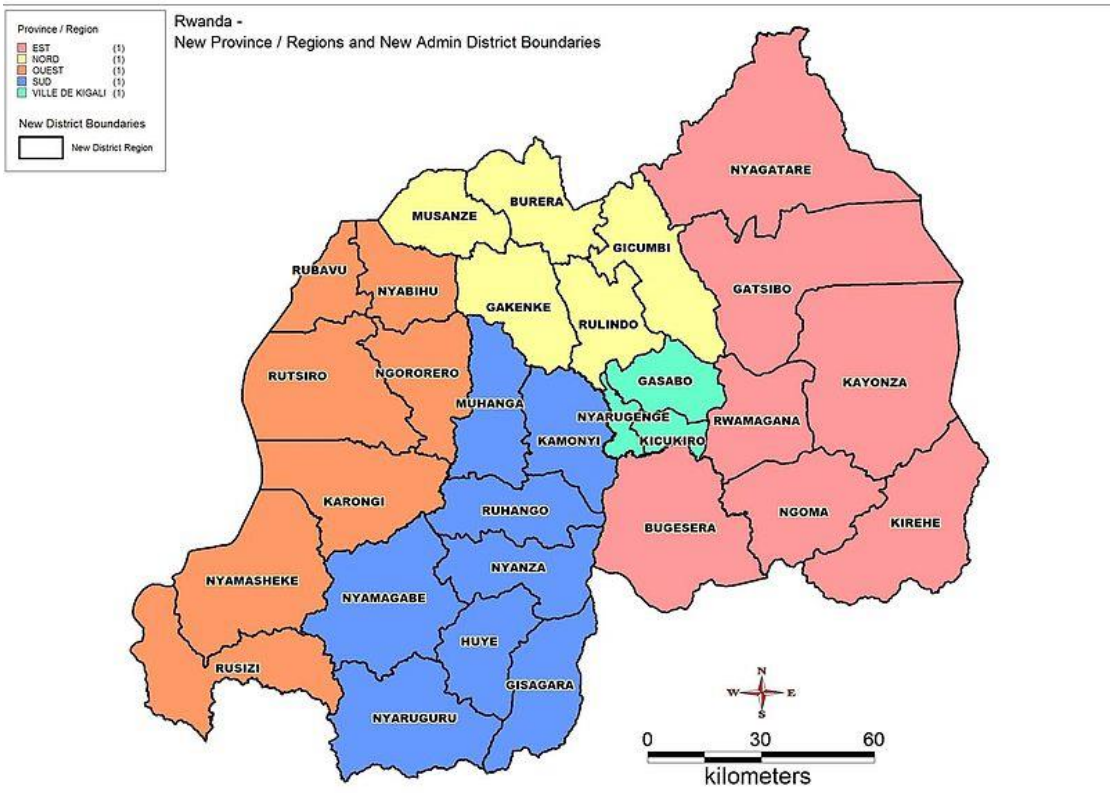


Diagram 2-1 Rwanda's administrative divisions[1]

[1] Source: "https://commons.wikimedia.org/wiki/File:Rwanda_Districts_Map.jpg?uselang=ja"

2.2 Socioeconomic Situation

2.2.1 Socioeconomic overview

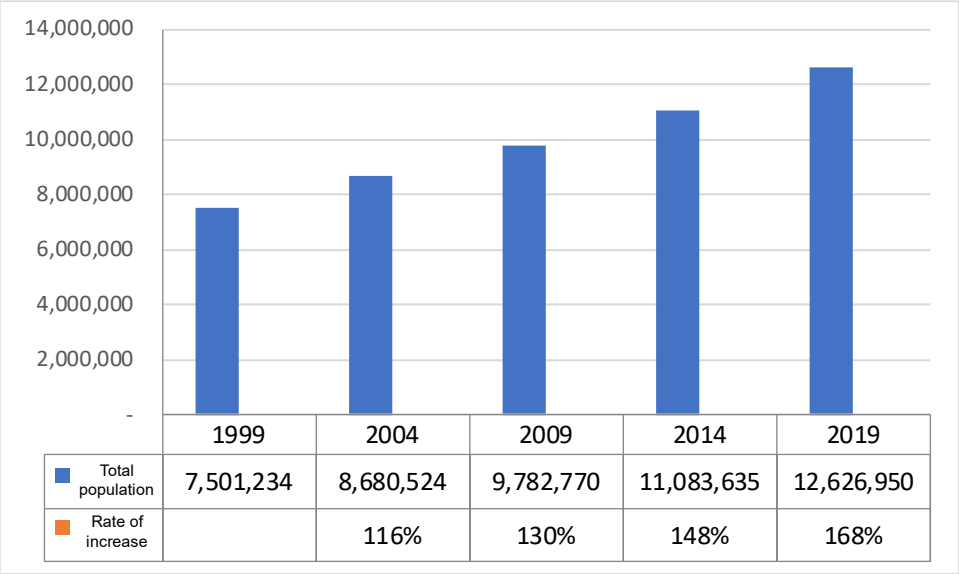
Agriculture, forestry, and fisheries account for about 25% of Rwanda's GDP, with many farmers owning small-scale farmland. The main commercial crops are coffee and tea. Government policy aims to enhance international competitiveness by improving quality. However, the country's landlocked geography gives rise to the problem of high transportation costs. To overcome this problem, Rwanda is focusing on the development of special economic zones and on the promotion of the ICT industry.

Table 2-2 Socioeconomic overview

Item	Contents and values	Source
Location map		CIA WORLD FACTBOOK Library
Capital city	Kigali	
Population	12.63 million people	2019: WB
Ethnic groups	Hutu, Tutsi, Twa	Ministry of Foreign Affairs HP
Languages	Rwandan, English (added to the official language list in 2009, replacing French as the language of education)	Ministry of Foreign Affairs HP
Religions	Christianity, Islam	Ministry of Foreign Affairs HP
Political structure	Republic	Ministry of Foreign Affairs HP
Major industries	Agriculture (coffee, tea, etc.)	Ministry of Foreign Affairs HP
GDP	10.12 billion dollars	2019: WB
GNI per capita	820 U.S. dollars	2019: WB
Economic (GDP) growth rate	9.4%	2019: WB
Total trade value	Exports $1.162 billion, imports $3.195 billion	2019: UNCOMTRADE
Major trading partners	Exports: Democratic Republic of the Congo, United Arab Emirates, Uganda, Switzerland, Pakistan Imports: China, India, Kenya, Tanzania, United Arab Emirates	2019: UNCOMTRADE

2.2.2 Population

According to World Bank data, in 2019 Rwanda had a population of about 13 million. Twenty years ago, in 1999, the population was about 7.5 million. If 1999 is used as the base year, the population growth rate is about 1.7 times.

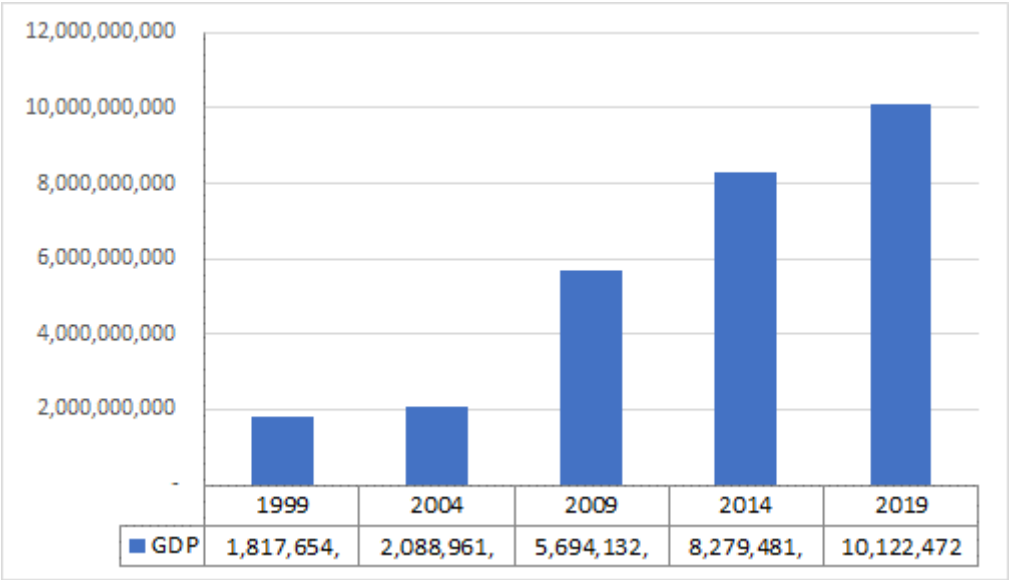


	1999	2004	2009	2014	2019
Total population	7,501,234	8,680,524	9,782,770	11,083,635	12,626,950
Rate of increase		116%	130%	148%	168%

Figure 2-2 Rwanda's Population Trends[2]

2.2.3 Economic growth

Similarly, according to World Bank data, Rwanda had a GDP of about US$10 billion in 2019. This amounted to a fivefold increase in the twenty years since 1999, when GDP was about US$2 billion.



	1999	2004	2009	2014	2019
GDP	1,817,654,	2,088,961,	5,694,132,	8,279,481,	10,122,472

Figure 2-3 Rwanda's GDP Trends[3]

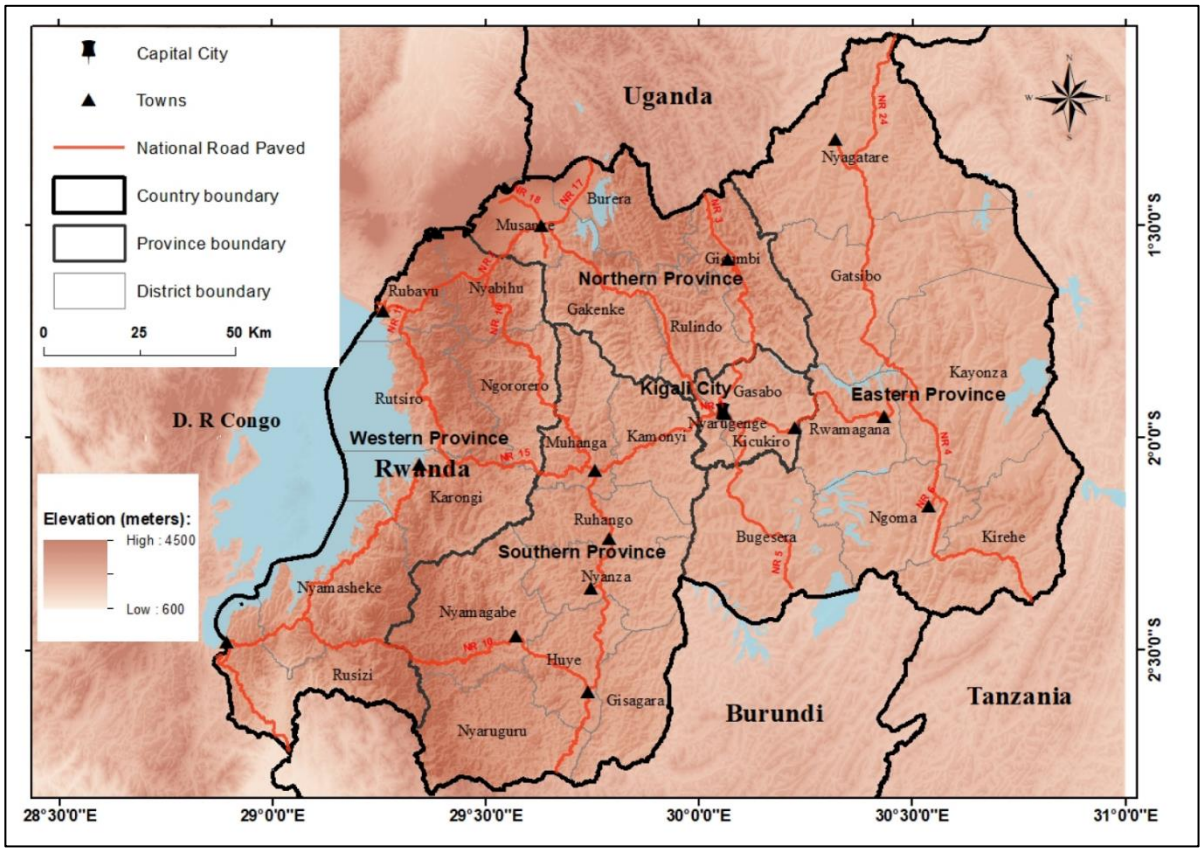
[2] Source: World Bank website "https://data.worldbank.org/indicator/SP.POP.TOTL"
[3] Source: World Bank website "https://data.worldbank.org/indicator/SP.POP.TOTL"

2.2.4 Topography

Rwanda is a landlocked country in Central Africa, with the Republic of Uganda to the north, the United Republic of Tanzania to the east, the Republic of Burundi to the south, and the Democratic Republic of the Congo to the west. It covers an area of approximately 27,000 km^2. It is called “the Land of a Thousand Hills” because its land consists of grasslands and rolling hills.

Rwanda can be roughly divided into three regions: grassy highlands, rolling hills, and mountains. Western Rwanda is divided into the Congo River system and the Nile River system by a mountain range that runs north to south at an average elevation of about 2,750 meters. The western slope of this ridge faces Lake Kivu, one of Africa's great lakes. The Ruzizi River valley, which rises from the southern end of Lake Kivu and runs southward, forms part of the Great Rift Valley and forms the border with Congo. The eastern slope of the ridge is less steep than the western slope. Its gently undulating hillsides gradually decrease in elevation to the eastern region, which consists of plains, swamps, and lakes near the Tanzanian border.

When planning the construction of new schools or facilities, it is important to secure a large schoolyard due to topographical constraints such as hills and landslides.



Map 2-4 Elevation and topographic map of Rwanda[4]

[4] Source: " Developing Capacity for Climate Resilient Road Transport Infrastructure (DCCRR) ".

Chapter 3 Current situation and issues in the education sector

3.1 Policy trends

3.1.1 Laws and regulations related to education

The following laws have provisions related to education and children's rights.

Table 3-1 Laws and regulations related to education

Law	Category	Summary
The Constitution of the Republic of Rwanda, 2003, Constitution, 2015 (Revised Edition)	General	Constitution Right to education
Law Organizing Education, 2003	General	Basic Law on Education
Law Governing Registration of the Population and Issuance of the National Identity Card, 2008	General	Law governing the registration of residents and the issuance of national ID cards
Law Relating to the Code of Criminal Procedure, 2004	General	Criminal Procedure Code
Law Relating to Abolition of the Death Penalty, 2007	General	Law on the abolition of the death penalty
Law Relating to Rwandan Nationality, 2008	General	Law relating to nationality
Order Establishing the Procedure for Application and Acquisition of Rwandan Nationality,2009	General	Order to establish procedures for applying for and obtaining nationality
Law Establishing the Organization and Function of the Office of the Ombudsman, 2003	General	Law to establish the organization and functioning of the Office of the Ombudsman
Penal Code, 1980	General	Criminal law
Law Establishing and Determining the Organization of the National Prisons Service, 2006	General	Law establishing and determining the organization of the state prison service
Civil Code, 1988	General	Civil law
Law Establishing the National Human Rights Commission, 1999	Human rights	Law on the establishment of the National Human Rights Commission
Law Determining the Organization and Functioning of the National Human Rights Commission, 2007	Human rights	Law to determine the organization and functions of the National Human Rights Commission
Law Regulating Labour in Rwanda, 2009	Human rights	Labor regulation law
Law Relating to the Rights and Welfare of the Child, 2011	Children	Law on the welfare and rights of the child
Law Relating to Rights and Protection of Children Against Violence, 2001	Children	Law on the rights and protection of children against violence
Law on Prevention and Punishment of Gender Based Violence, 2008	Gender	Law concerning the prevention and punishment of gender-based violence
Law Relating to Protection of Disabled Persons in General, 2007	Disabilities	Law on the protection of persons with general disabilities
Law on the Prevention, Suppression and Punishment of the Crime of Discrimination and Sectarianism, 2001	Ideology	Law on the prevention, suppression and punishment of discrimination and sectarian offenses
Law Relating to the Punishment of the Crime of Genocide Ideology, 2008	Ideology	Law on punishment of crimes of genocide ideology
Law Relating to the Establishment of the	Ideology	Law on the establishment of a fund for

Fund for the Support and Assistance to the Survivors of the Tutsi Genocide and Other Crimes Against Humanity Committed between 1st October and 31st December 1994, and Determining its organization, Competence and Functioning, 2008		the support and assistance to survivors of the Tutsi genocide and other crimes against humanity committed between October 1 and December 31, 1994, and on the determination of its organization, capacity and functioning.
RWANDA BUILDING CODE – 2019	Facility	Sets forth construction-related definitions, matters to be controlled, requirements, and specifications. For the construction of school buildings, the required performance of water supply facility capacity, ventilation, environment, etc. is described.
National Pre-Primary Education Minimum Standards and Guidelines for Rwanda(MINEDUC、2018)	Facility	Establishes standards for facilities, operation and management of pre-primary schools, teachers, and collaboration with the community.
Child Friendly Schools Infrastructure Standards and Guidelines(2009)	Facility	Provides standards and guidelines for the layout of facilities and classrooms required of a school. The required facilities are described in detail from category 2 to 6.

The constitution in Rwanda was enacted in 2003, with the most recent revision in 2015 (Official Gazette nº Special of 24/12/2015). Article 8 stipulates that the national language shall be Kinyarwanda and the three official languages shall be Kinyarwanda, English and French.

Regarding education, the right to education is enshrined in Article 20, which states that "Primary education is compulsory and free in public schools."[5]

The Basic Law on Education is currently ORGANIC LAW Nº02/2011OL OF 27/07/2011 GOVERNING ORGANIZATION OF EDUCATION as amended in 2011 and the latest amendment is Official Gazette nº Special of 18/2/2021. The latest amendment is in the Official Gazette nº Special of 18/2/2021.

In “Article 5 Levels of formal education,” the curriculum is divided into four courses: Nursery, Primary, Secondary and Higher education. However, in the latest official gazette and official documents, the use of the term “Nursery” has been drastically reduced. The term “Pre-primary” is used more frequently instead.

Based on the Basic Law on Education, the education system under MINEDUC's jurisdiction in Rwanda as of 2021 is as follows.

[5] Article 57of the Basic Education Law also states that education shall be free in government-subsidized schools.

Table 3-2 Rwanda's current education system

	Classification		Notation	Target age	Other
	Pre-primary education Pre-primary education		N1～N3	3 to 6 years old	Nursery
Basic education	Primary education Primary education	Lower primary education Lower primary	P1～P3	7 to 12 years old Six years	
		Upper primary education Upper primary	P4～P6		
	Secondary education Secondary education	Lower secondary education Lower secondary[6] Ordinary level	S1～S3	13-15 years old 3 years	
		Upper secondary education Upper secondary Advanced level	S4～S6	16-18 years old 3 years	Others, TVET L1 to 5, TTC Y1 to Y3
	Higher education/ Tertiary education			19-23 years old	Others, TVET L6-7

Under Article 18 of the Law, there are three types of schools in Rwanda: public, government-subsidized (or government-aided), and private.

Public schools are schools that are primarily operated with GoR funding. Government-subsidized schools are those that are privately financed either for their buildings, equipment or land, and are otherwise financed and operated by the GoR. A private school is a school run by the private sector.

Article 51 provides for the provision of meals in schools (school lunches) and stipulates that meals shall be provided to those who attend school during the day (children and students) in public and private schools.

In addition, the above-mentioned official gazette states that the minimum ages for entry into pre-primary education, primary education, and secondary education are three, six, and 12 years old, respectively[7]. It specifies the age and duration of schooling and national examinations (final examinations) for each educational stage.

3.1.2 Global policy trends

(1) Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a set of goals adopted by the United Nations in 2015 with a deadline of 2030. There are seventeen goals, each with its own detailed set of targets, making a total of 169 targets.

(Source: United Nations Information Center website)

[6] The first and second semesters of secondary education are sometimes referred to as Junior and Senior. In this document, the notation ESSP3 is used.

[7] Article 53～60

The goal directly related to education is Goal 4, which is outlined below.

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	
Target	
4.1	By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.
4.2	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education.
4.3	By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.
4.4	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship.
4.5	By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.
4.6	By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy.
4.7	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.
4.a	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all.
4.b	By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries.
4.c	By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

(Excerpt from Ministry of Foreign Affairs data)

(2) Human Capital Development

The World Bank has long considered Human Capital Development (HCD) as one of the pillars of its development. Drawing from accumulated information to date, it announced the Human Capital Index (HCI)[8] in October 2018, committing to increased investment in HCD. HCD is seen as a foundation for growth, including the cross-cutting impetus needed to achieve the SDGs and post-SDG development.

Human capital−the knowledge, skills, and health developed over a lifetime−has been an important factor behind the sustained economic growth and poverty reduction rates of many countries in the 20th century, including East Asian countries.

"For the poorest people, human capital is often the only capital they have," World Bank Group President

[8] The index, published by the World Bank, provides a country-by-country assessment of the next generation of workers in terms of health and education. It is based on three areas: survival, education/academic skills, and health/well being. It is calculated on a score with a highest value of 1 to lowest value of 0.

Jim Yong Kim said. “Human capital is a key driver of sustainable, inclusive economic growth, but investing in health and education has not gotten the attention it deserves. This index creates a direct line between improving outcomes in health and education, productivity, and economic growth. I hope that it drives countries to take urgent action and invest more—and more effectively—in their people. ”
“The bar is rising for everyone,” Kim added. “Building human capital is critical for all countries, at all income levels, to compete in the economy of the future. ”[9]

HCD also fits into Rwanda's national policy as a concept that has a strong relationship with the first pillar of Rwanda's Vision 2050: Health and Education.

Furthermore, the World Bank announced its Africa Human Capital Plan in April 2019[10], affirming its commitment to increased human capital investment in Africa. In the announcement, the World Bank mentions priorities such as child mortality reduction, stunting prevention, academic achievement, digital transformation, private sector growth, while placing a central focus on strengthening women's empowerment. It lists nutrition, health care, education, social protection, skills, employment, and productivity as key components for Africa's human capital.

(3) Human Capital Index

The HCI projects the size of the human capital that a child born today will have by the age of 18. It takes into account the risks that the country faces, such as inadequate health services and poor quality education. The gap between the ideal state of adequate education and perfect health for children born today is also assessed on a country-by-country basis based on the HCI.

Analysis based on the HCI shows policy makers that improving child health and learning outcomes can significantly improve national and subnational incomes in the long term.

Globally, 56% of children born today will lose more than half of the lifetime income they would have earned because of inadequate investment by governments in health, education and job skills, according to HCI.[11]

Sub-Saharan Africa has the lowest HCI score among the seven regions defined by the World Bank.[12] In addition to the high mortality and stunting rates in the region, inadequate learning outcomes have been cited as a factor. Both of these directly affect economic productivity.

Rwanda's HCI was 0.38 in 2020, which is lower than the average for sub-Saharan Africa. This suggests that Rwanda is only achieving 38% of its maximum productivity, while 62% is being undermined.

From the World Bank website, in September 2020 the HCI for Rwanda and the average for sub-Saharan Africa, which has the lowest value per district as defined by the World Bank, are as follows.[13] Rwanda's HCI is lower than the average for sub-Saharan Africa because of the expected years of school and

[9] World Bank website : From press release, October 11, 2018.
[10] https://www.worldbank.org/en/region/afr/publication/africa-human-capital-plan
[11] World Bank website : From press release, October 11, 2018.
[12] East Asia & Pacific, Europe & Central Asia, Latin America & Caribbean, Middle East & North Africa, North America, South Asia, Sub-Saharan Africa
[13] https://databank.worldbank.org/data/download/hci/HCI_2pager_RWA.pdf?cid=GGH_e_hcpexternal_en_ext

harmonized test scores[14] in Component 2, and the child stunting rates in Component 3.

Table 3-3 HCI in Rwanda (2020)

Indicator	Rwanda			Sab-Sahara Africa
	Male + Female	Male	Female	Average
HCI Component 1: Survival Probability of Survival to Age 5	**0.965**	0.962	0.968	0.934
HCI Component 2: School Expected Years of School	**6.9**	6.6	7.1	8.3
Harmonized Test Scores	**358**	351	365	374
HCI Component 3: Health Survival Rate from Age 15-60	**0.814**	0.787	0.842	0.735
Fraction of Children Under 5 Not Stunted	**0.617**	0.570	0.665	0.688
Human Capital Index 2020	**0.38**	**0.37**	**0.39**	**0.40**

(Prepared by the research team based on information from the World Bank's website)

3.1.3 Policy trends in Rwanda

The current policies on education mainly include the following.

Table 3-4 Education-related policies

Policy	Classification	Summary
Vision 2050	Long-range national plan	The target period is from 2020 to 2050. With regard to education, Human Development is listed as the first of the five pillars, with the aim of strengthening the HCD perspective and transforming the country into a market-driven economy. The plan mentions three points: healthcare, education, and workforce.
National Strategy for Transformation -1	Medium-term economic development plan	NST1 covers a seven-year period from 2017 to 2024. Regarding education, the report positions education as a key to economic transformation. It refers to areas such as the following: the importance of science and technology-based education, strengthening post-primary learning with a focus on basic skills in language and math, strengthening ICT-based teaching and learning, strengthening STEM education, minimizing dropout rates, and promoting ICT innovation.
Education Sector Policy 2003	Education policy	It is an education policy issued in 2003 and is the current education policy as of December 2021. It was formulated based on the goals of Vision 2020, NST1. The mission is stated as "The global goal of the Government of Rwanda is to reduce poverty and in turn to improve the well-being of its population. Within this context, the aim of education is to combat ignorance and illiteracy and to provide human resources useful for the socio-economic development of Rwanda through the education system." It mentioned the introduction of 9 Years Basic Education (9YBE), the achievement of Education for All (EFA), and the use of ICT for education. The latest Education Sector Policy is in the process of Cabinet approval as of December 2021.
Education Sector Strategic Plan	Educational plan	Describes a five-year plan for the education sector with the goal of achieving Vision 2020/50 and NST1, details of

[14] NESA told us that Rwanda's harmonized test scores are calculated from the LARS results.

2018/2019-2023/2024 (ESSP3)		which are provided below.
COVID-19 Response Plan 「Keeping the Doors Open for Learning」	Educational plan	Formulated by MINEDUC in April 2020 in response to the COVID-19 pandemic. Describes measures to deal with the COVID-19 pandemic, develop remote learning, and prepare for the reopening of schools, with the goal of protecting health and continuing quality learning.
ICT in Education Policy	Educational ICT plan	Describes plans for the introduction and use of ICT in education to improve the quality of education. Covers the period up to 2020. Policies for 2021 and beyond are still being formulated as of November 2021.
Competence-Based Curriculum Framework	Curriculum	An educational curriculum that was phased in starting in 2016. As a quality and competency-based curriculum, it emphasizes the development of certain qualities and competencies.
Teacher Development and Management Policy	Teacher policy	A teacher policy formulated in 2007. The content was aimed at achieving EFA targets for 2015. No teacher policy has been formulated since then.
The National Teacher CPD Framework	Teacher development and training	An in-service teacher training system framework established in 2019. Its objective is to take a comprehensive view from training to in-service, and to enhance certain qualities and capacities through continuous professional development (CPD), and to have an impact on learning.

(1) Vision 2050

The target values for education in Vision 2050 are as follows.

Table 3-5 Vision 2050 Goals for Education

No.	Contents	Current survey results	2035	2050
12	Net enrollment rate in pre-primary education	24.6% (2019)	99%	99%
13	Academic achievement of Numeracy and Literacy in S3	Numeracy Overall: 78.8 Male: 81.8 Female: 75.9 Literacy Overall: 78.8 Male: 71.3 Female: 77.6 (2017)	99%	99%
14	Rate of advancement to secondary education	72.2% (2019)	94.30%	97%
15	TVET advancement rate	33.6% (2019)	60%	60%
16	Average years of schooling	4.4	6.9	10.9
17	Graduation rates for STEM-related education	Overall: 36.9 Male: 42.6 Female: 29.9%	44.26%	50%
18	Youth employment rate	Overall: 56.8 Male: 59.0 Female: 54.5	77.48%	80.18%
19	R&D expenditure as a percentage of GDP	0.66% (2016)	1.50%	3.00%
20	Percentage of university staff involved in research and publications related to socioeconomic development.	Overall: 23.0% Male: 22.0% Female: 26.7	38.30%	52.00%

(Excerpt from Vision 2050)

(2) ESSP3

The Education Sector Strategic Plan (ESSP) describes the five-year plan for the education sector with the goal of achieving Vision 2020/50 and NST1. The current version, ESSP 2018/2019-2023/2024 (ESSP3), was published in 2019, succeeding the earlier ESSP 2013/14-2017/18, which targeted objectives such as revisions for the new curriculum (CBC: Competence-based Curriculum) and the transition to 12YBE.

According to MINEDUC, the mid-term evaluation of ESSP3 was planned for 2022. Preparations had begun as of November 2021.

ESSP3 aims to empower Rwandans with the right skills (technology, knowledge, and attitude) to contribute to socioeconomic transformation by strengthening their capabilities, including their work skills, and being competitive in the global marketplace. In line with this, the following nine strategic goals and 18 expected outcomes are described.

Table 3-6 Priorities for ESSP3

Strategic priorities	Results	
1 Enhanced quality of learning outcomes that are relevant to Rwanda's social and economic development	1-1	All learners achieve basic levels of literacy and numeracy in early years and beyond
	1-2	All learners enter primary school at the correct age and successfully complete 12 years' basic education
	1-3	TVET and HEI programmes are responsive to both labour market needs and the social and economic development of Rwanda
2 Strengthened continuous professional development and management of teachers across all levels of education in Rwanda	2-1	All school teachers, TVET instructors and higher education lecturers have appropriate levels of skills and competencies to deliver the curriculum
	2-2	Improve management and deployment of teachers in order to attract and retain high quality teachers in the teaching profession
3 Strengthened STEM across all levels of education in Rwanda to increase the relevance of education	3-1	STEM strengthened across all levels of education
4 Enhanced use of ICT in teaching and learning to support the improvement of quality across all levels of education in Rwanda	4-1	ICT strengthened across all levels of education
5 Increased access to education programmes especially at pre-primary, TVET and higher education	5-1	All children complete school readiness programmes
	5-2	Increased number of students enrolled in TVET and higher education programmes
	5-3	Increased literacy and numeracy for students aged 15 years and above
6 Strengthened modern school infrastructure and facilities across all levels of education in Rwanda	6-1	All schools, TVET institutions and HEIs have appropriate infrastructure, facilities and resources
7 Equitable opportunities for all Rwandan children and young people to all levels of education	7-1	Ensure gender equality in participation and learning outcomes for youth and children with disabilities and special needs education in all curricula
	7-2	Improving the participation and learning outcomes of youth and children with disabilities and special needs education in all educational programs
8 More innovative and responsive research and development to community challenges	8-1	Increased research and development that responds to community challenges with innovative approaches
	8-2	Rwanda becomes an active contributor to the international knowledge-based economy
9Strengthened governance and accountability across all levels of	9-1	Improved leadership in schools, TVET and higher education institutions, as well as administration,

education		management and support services.
	9-2	Improved public-private partnerships in education
	9-3	Improved linking of central and decentralised education planning

(Prepared by the research team based on ESSP3)

The first priority is to improve the quality of learning appropriate for Rwanda 's socioeconomic development. This includes improving the educational statistics of basic education (P1-S3) [15]in addition to improving academic performance. These indicators include academic performance by Literacy and Numeracy at P3, P6, and S3, NIR P1 (Net Intake Rate in P1), NIR S1(Net Intake Rate in S1), dropout rate, retention rate, GIR P6 (Gross Intake Rate in P6), GIR (Gross Intake Rate in S1), dropout rate, retention rate, GIR P6 (Gross Intake Rate in P6), GIR S3 (Gross Intake Rate in S3), and advancement rate (from primary to secondary education).

As this shows, the areas being actively addressed in the education sector are: enrollment at the correct age, completion of basic education without retention or dropout (improving the internal efficiency of education), and meeting basic academic skills as indicated by Literacy and Numeracy. Literacy and Numeracy are specifically mentioned as areas for strengthening in lower primary education.

The use of ICT for both teaching and learning at all levels of education is positioned as a means to improve the quality of education. To practice effective teaching using ICT in the classroom in a way that is suitable for CBC, the report specifically mentions the strengthening of teachers' ICT capabilities and ICT training, and the need to use ICT to transform the classroom from teacher-centered to learner-centered. At the same time, the need for urgent development of ICT infrastructure in schools is also mentioned.

The plan states that the development of digital content in basic education will be strengthened to improve the quality of teaching, and that online and remote education will be strengthened in parallel.

In addition, targets are set for each year using various indicators ranging from academic performance and enrollment rates to the sufficiency of educational facilities and schools.

(3) Competence- Based Curriculum Framework

The Rwandan education curriculum as of 2021 is the Competence-Based Curriculum (CBC), which was developed in 2015.

It was developed through consultations with various stakeholders with the support of UNICEF, DfID (now FCDO) and others, following the proposal of the Harmonized Curriculum Framework at the EAC in 2013. MIGEPROF and MoH were also included in the development consultations.[16] ECD-related content is reflected into the CBC.

Enforcement was done in three phases starting with P1, P4, S1, and S4 in 2016; P2, P5, S2, and S5 in 2017; and P3, P6, S4, and S6 in 2018. Along with this, CBC teacher training had been conducted. The CBC also includes a pre-primary curriculum. The REB also provided CBC training and distributed materials to caregivers in 2016, when the CBC was implemented.[17]

While the previous curriculum was knowledge-based, the CBC, as its name suggests, is described as a quality- and ability-based curriculum that emphasizes the development of certain qualities and competences.

In line with the policies of Vision 2020 and ESSP3, the aim is to develop 21st century skills in children

[15] P stands for Primary and S for Secondary. For example, P1 means the first grade of primary education.
[16] From interviews with the REB Curriculum Development Section.
[17] 2015/16 Backward-Looking Joint Review of the Education Sector Summary Report

and students. Another strong focus is the development of work skills development aspect for economic development in international markets.[18]

The CBC focuses on the formation of competences such as problem-solving, critical thinking, and creativity. It does this by addressing certain issues through the appropriate combination and use of knowledge, skills, attitudes, values, and attitudes that students acquire in school education. For this reason, classes need to change from the conventional simultaneous classes focusing on knowledge transfer by teachers to interactive teaching methods using group work, discussion, and collaborative learning. A shift is needed from teacher-centered classes to child/student-centered interactive classes. The subjects and number of hours specified in the CBC are as follows.

Table 3-7 Subjects in pre-primary education

Pre-primary	**Age**	**Required learning areas**
Grade 1	3- 4 years	Discovery of the World; Numeracy; Physical and Health Development; Creative Arts and Culture; Language and Literacy: (Kinyarwanda and English); Social and Emotional Development
Grade 2	4-5 years	
Grade 3	5-6 Years	

[18] Competence-Based Curriculum: Summary of Curriculum Framework Pre-primary to Upper secondary 2015 (MINEDUC/REB, 2015) and Competence-BasedCurriculum: Summary of Curriculum Framework Pre-primary to Upper secondary 2015 (MINEDUC/REB, 2015)

Table 3-8 Courses and hours in lower primary education

Subjects in Lower Primary	**Weight (%)**	**Number of periods (1 period = 40 min.)**		
		P_1	P_2	P_3
1. Kinyarwanda	27	8	8	8
2. English	23	7	7	7
3. Mathematics	20	6	6	6
4. Social and Religious Studies	13	4	4	4
5. Science and Elementary Technology	7	2	2	2
6. Creative Arts: Music, Fine Art and Craft	7	2	2	2
7. Physical Education	3	1	1	1
Total (number of periods per week)	100	(30)	(30)	(30)
Total number of contact hours per week		20	20	20
Total number of contact hours per year (39 weeks)		780		

Table 3-9 Courses and hours in upper primary education

Subjects in Upper Primary	**Weight (%)**	**Number of periods (1 period = 40 min.)**		
		P4	P5	P6
1. Kinyarwanda	13	4	4	4
2. English	23	7	7	7
3. Mathematics	23	7	7	7
4. Social and Religious Studies	13	4	4	4
5. Science and Elementary Technology	17	5	5	5
6. Creative Arts: Music, Fine Art and Craft	3	1	1	1
7. Physical Education	3	1	1	1
8. French	3	1	1	1
Total (number of periods per week)	100	(30)	(30)	(30)
Total number of contact hours per week		20	20	20
Total number of contact hours per year(39 weeks)		780		

Table 3-10 Subjects and hours in primary and secondary education

Core subjects	**Weight (%)**	**Number of Periods (1 period = 40 min.)**		
		S1	**S2**	**S3**
1. English	11	5	5	5
2. Kinyarwanda	7	3	3	3
3. Mathematics	13	6	6	6
4. Physics	9	4	4	4
5. Chemistry	9	4	4	4
6. Biology and Health Sciences	9	4	4	4
7. ICT	4	2	2	2
8. History and Citizenship	7	3	3	3
9. Geography and Environment	7	3	3	3
10. Entrepreneurship	4	2	2	2
11. French	4	2	2	2
12. Kiswahili	4	2	2	2
13. Literature in English	2	1	1	1
Sub Total		**41 periods**	**41 periods**	**41 periods**
II. Elective subjects: Schools can choose 1 subject				
Religion and Ethics	4	2	2	2
Music, Dance and Drama	4	2	2	2
Fine arts and Crafts	4	2	2	2
Home Sciences	4	2	2	2
Farming (Agriculture and Animal husbandry)	4	2	2	2
III. Co-curricular activities (Compulsory)				
Physical Education and Sports	2	1	1	1
Library and Clubs	2	1	1	1
Total number of periods per week	100	45	45	45
Total number of contact hours per week		30	30	30
Total number of hours per year (39 weeks)		1170	1170	1170

(Source: CBC Subjects & Advanced Level Combinations (REB))

Law N° 010.2021 of 16.02.2021 determining the organization of education[19] states that curriculum revisions will be implemented in a minimum of five years. The current CBC has been in development for more than five years. The REB Curriculum Development Section told us that they are not considering revising the CBC for the time being. However, there is a possibility of adopting new content as a result of recent developments in technology, ICT, or the field of ECD.

[19] Article 20

In addition, the development of a new curriculum based on the CBC at the TTCbegan around 2016 in line with the above, with implementation beginning in stages in 2019. The Year 1 curriculum of the TTC took effect in 2019, Year 2 in 2020, and Year 3 in 2021. Until implementation, the syllabus developed by UR-CE was still being used as before.[20]

The number of class hours per option specified in the new TTC curriculum is as follows. An asterisk (*) indicates subjects for the final exam in Year 3.

Table 3-11 Number of class hours per option in the new TTC curriculum

Science and Mathematics Education (SME)

SN	SUBJECT	PERIODS PER WEEK		
		Y1	Y2	Y3
1	Foundations of Education *	6	5	5
2	Mathematics*	6	6	6
3	Integrated Sciences	11	0	0
4	Chemistry*	0	5	5
5	Biology*	0	5	5
6	Physics*	0	5	5
7	English*	5	4	4
8	Kinyarwanda*	2	2	2
9	Creative Performance (Music & Fine arts)	2	2	2
10	Physical Education	1	1	1
11	French	2	2	2
12	Entrepreneurship*	2	2	2
13	ICT	2	2	2
14	Teaching Methods and Practice (TMP)*	6	4	4
15	Special Needs Education (SNE)	2	2	2
16	Religious education (RE)	1	1	1
17	Kiswahili	1	1	1
18	Social studies	2	2	2
19	Co- Curricular	1	1	1
	Individual Study	8	8	8
	School Attachment			1st Term
	TOTAL	60	60	60

Social Studies Education (SSE)

SN	SUBJECT	PERIODS PER WEEK		
		YEAR1	YEAR 2	YEAR 3
1	Foundations of Education*	6	5	5
2	Social studies	11	0	0
3	Geography*		5	5
4	History *		5	5
5	Economics*		5	5
6	Religious education*	4	3	3
7	Creative Performance*	4	4	4
8	Physical Education	2	1	1
9	English*	5	4	4
10	Kinyarwanda*	2	2	2
11	Integrated Science	1	1	1

[20] Summary of The Curriculum Framework for TTC (REB, 2020)

12	Mathematics	3	3	3
13	French	2	2	2
14	Entrepreneurship*	2	2	2
15	ICT	2	2	2
16	Teaching Methods and Practice (TMP)*	4	4	4
17	Special Needs and Inclusive Education (SN&IE)	2	2	2
18	Kiswahili	1	1	1
19	Co-curricular activities:	1	1	1
20	Individual Study	8	8	8
21	School Attachment			1st Term
	TOTAL	60	60	60

(Note: TMP includes TMP of Social Studies, Religious Education, Physical Education and Creative Arts.)

Languages Education (LE)

SN	SUBJECTS	PERIODS PER WEEK		
		YEAR1	YEAR 2	YEAR 3
1	Foundations of Education*	6	5	5
2	French*	7	7	7
3	English*	7	7	7
4	Kinyarwanda*	5	6	6
5	Creative performance (Music & Fine Arts)*	4	4	4
6	Physical education	1	1	1
7	Integrated Science	1	1	1
8	Mathematics	2	2	2
9	Kiswahili*	5	5	5
10	Entrepreneurship*	2	2	2
11	ICT	2	2	2
12	Teaching Methods and Practice (TMP)*	4	4	4
13	Special Needs Education (SNE)	2	2	2
14	Religious education	1	1	1
15	Social Studies	2	2	2
16	Co-Curricular activities (clubs, sports, public lectures)	1	1	1
17	Individual study (Research, library, Teaching Resource Center, etc)	8	8	8
	School Attachment			1st Term
	TOTAL	60	60	60

Early Childhood and Lower Primary Education (ECLPE)

SN	SUBJECTS	PERIODS PER WEEK		
		YEAR1	YEAR 2	YEAR 3
1	Foundations of Education*	6	6	6
2	English*	5	5	5
3	Kinyarwanda*	5	5	5
4	Mathematics*	3	3	3
5	Integrated Science*	4	4	4
6	Social Studies*	4	4	4
7	Creative Performance (Music and Fine Arts)*	4	4	4
8	Physical Education	1	1	1
9	Entrepreneurship*	2	2	2
10	ICT	2	2	2
11	TMP*	7	7	7
12	SNE	2	2	2

13	RE	1	1	1
14	French	4	4	4
15	Kiswahili	1	1	1
16	Co-Curricular	1	1	1
17	Individual Study	8	8	.8
	School Attachment			1st Term
	TOTAL	60	60	60

(Note: TMP includes TMP of pre-primary and all subjects taught in lower primary.)

(Summary of The Curriculum Framework for TTC (REB, 2020))

(4) The National Teacher CPD Framework

The National Teacher CPD Framework (REB, 2019) is a document that sets out the framework for the in-service teacher training system in Rwanda. The program adopts a comprehensive view of training and in-service education. Its objective is to use Continuous Professional Development (CPD) to enhance teachers' qualifications and capacities throughout their teaching careers and to make them more effective in teaching and learning. The structure of this framework is as follows.

Table 3-12 CPD framework structure for national teachers

Part 1: CPD Framework for National Teachers	Explanation of the background and purpose of setting up this framework
Part 2: Teacher Competence	Overview of teacher competencies, levels and specific narratives for each competency
Part 3: CPD System for National Teachers	Overview of the CPD system, mechanisms and models for implementing the CPD system, staff responsible for CPD, reflective practice, responsibilities of principals, role of administrative staff in CPD (SEI, DEO, REB)
Part 4: Teacher Career Framework and Assessment	Teacher career framework, teacher evaluation, and teacher profiles
Appendix	CPD records, examples of CPD activities, CPD plans, CPD portfolio teacher competency evaluation methods, class evaluation sheets, etc.

(Prepared by the research team based on The National Teacher CPD Framework)

Teacher competence is divided into classroom practice and school behavior. There are four standards related to classroom teaching practices and two standards related to school behavior. Each of these has three sub-standards, amounting to a total of 18 items. The qualities and capacities are further explained in more detail with examples.

Table 3-13 Competence of teachers

Classroom Practice	1. Create and sustain an inclusive, child-friendly learning environment	1.1 Ensure a clean, safe classroom for learning
		1.2 Ensure positive and respectful behavior.
		1.3 Maximize time for learning
	2. Plan and assess for learning	2.1 Plan learning outcomes and objectives

		2.2 Monitor and assess learning and participation
		2.3 Use assessment information for learning and teaching
	3. Communicate to enable learning	3.1 Use a range of communicative resources
		3.2 Use the medium of instruction
		3.3 Use questions to confirm and promote learning
	4. Facilitate activities and use resources for learning	4.1 Set and provide a range of learning activities
		4.2 Give instructions and guidance
		4.3 Use teaching and learning resources
Behavior at school	5. Engage in professional development	5.1 Continually improve teaching and learning
		5.2 Use CPD opportunities and resources
		5.3 Collaborate to plan and assess teaching and learning
	6. Support student learning at the school and in the community	6.1 Communicate regularly with students' families
		6.2 Ensure the school is clean, safe, and welcoming for all
		6.3 Provide extracurricular activities and resources

(Prepared by the research team based on The National Teacher CPD Framework)

The following four levels of performance, which indicate the level of the above qualities and capacities, have been presented as one of the requirements for promotion.

Table 3-14 CPD performance levels

Level	Behavior	Teaching career
Outstanding	Almost always performs Competence. Almost always effective. Almost always adapts for different learners. Leads teams of teachers to develop their practice.	Master Teacher Level
Very good	Regularly/often performs Competence. Usually effective. Regularly/often adapts for different learners. Independent and supports other teachers to develop their practice.	Senior Teacher Level
Good	Sometimes performs Competence. Effectiveness sometimes limited. Sometimes adapts for learners. May need some guidance.	Achievement level at the end of the one-year probationary period after employment
Basic	At times performs Competence. Effectiveness may be limited. Rarely adapts for different learners. Often needs guidance.	Achievement level at the end of teacher training and upon entry into the profession

(Prepared by the research team based on The National Teacher CPD Framework)

In this framework, CPD begins while the teacher is enrolled in a teacher training institution and includes training for newly qualified probationary teachers, in-school training, district and sector level training, and central training as well as courses for certification. It is hoped that such a CPD system will function effectively to help more teachers acquire outstanding qualities and capacities. For this purpose, administrative and technical support for the CPD system is essential. The responsible persons and departments have each been designated as shown in the table below.

Table 3-15 Responsible person for each CPD layer

	Administrative management support	Technical assistance
National level	REB	REB、URCE、DPs
District level	Mayor, DEO/DCC	DPs、DEO/DCC
Sector level	SEO/SCC	SEI/SCC、MTs
School level	Principal/Vice Principal, Head of Academic Affairs	SBM, faculty

(Prepared by the research team based on The National Teacher CPD Framework)

The main feature of this framework is the linkage between qualities and capacities and teacher careers. It is a system that allows teachers to continuously improve their qualifications and capacities through CPD. Teachers are promoted to the next career level when they reach the required level through teacher evaluation.

Table 3-16 Faculty Career Promotion and Evaluation

Expertise level: Category	Performance level	Minimum requirement, years of service	Primary and secondary responsibility evaluation matrix
Evaluation for promotion decisions			DDE/DEO/REB
Annual teacher evaluation			SEI/DDE/DEO
Headmaster	Leadership Level	More than 9 years	
Evaluation for promotion decisions			SEI/DEO/REB
Annual teacher evaluation			HT/SEI/DEO
Master teacher	Outstanding	6-9 years or more	
Evaluation for promotion decisions			SEI/DEO/REB
Annual teacher evaluation			HT/SEI/DEO
Senior teacher	Very good	3-6 years or more	
Evaluation for promotion decisions			SEI/DEO/REB
Annual teacher evaluation			HT/SEI/DEO
Junior teacher	Good	Regular teaching license, minimum 3 years	
Obtain official license and registration			REB
Evaluation at the end of probationary period for professionally qualified teachers			HT/SEI/DEO
Newly qualified teachers	Basic	Teaching license, Diploma, Bachelor's degree	
Initial recruitment			DEO/MINALOC
Final evaluation and certification at teacher training institutions			Teacher training institutions/REBs
Training and education students	S3 End Level	Passed S3 national exam	
Enrollment in teacher training			Teacher training institutions/REBs

*HT: Principal, SEI: School Education Inspector, DDE, DEO: District Education Officer

(Prepared by the research team based on The National Teacher CPD Framework)

The report form for CPD implementation is attached at the end of the report. Measurement of performance level appears to be biased toward quantitative measurement, suggesting a need for concrete measures to enable qualitative measurement.

(5) Comprehensive Assessment

Comprehensive Assessment (CA) is a method of assessing education that was introduced[21]in 2019. It is the responsibility of the National Examination and School Inspection Authority (NESA).

CA focuses on primary and secondary education (including TTC and TVET). Its objective is to use assessment results to improve the quality of education, to strengthen learning and teaching, and to spread a culture of assessment in education. The CA evaluation consists of the following three levels:[22]

Table 3-17 The three levels of Comprehensive Assessment

Phase	Description	Method
(1) Classroom level assessments	School level In-class assessment, end-of-unit assessment	・In-class assessment ・End-of-unit assessment
(2) End-of term assessments	District level End-of-term assessment for each school	・End-of-term assessment
(3) End-of year assessments	Country level (REB) End-of-year exam, final exam, sample-based assessment	・Year-end assessment

(Prepared by the research team based on the Ministerial　Guidelines Governing CA (MINEDUC, 2019))

The marking of the first and second semester exams is conducted in each school under the supervision of the school leader, SEO (now SEI), and the district. The grading of the trimester final exams is managed by the district. Arrangements are made so that the graders do not grade students from their own schools. Student assessment results for each period are submitted to the district and reported to the REB.

Using these assessments, teachers are expected to provide effective feedback and appropriate support to learners. Teachers are expected to prepare for feedback and remediation based on daily assessments, unit assessments, and class-level assessments, and to take quick, systematic action when areas of difficulty are identified.

(6) National Examination System

The current national examination system at the end of each basic education course is as follows. The National Examination (NE) is required at P6, S3, and S6, respectively, and is part of the above CA. Like the CA, the NE is handled by NESA.

Table 3-18 Rwanda's final examination system

Course	School year	Examination name	Certificate name
Primary education	P6	Primary Leaving Examination	Primary Leaving Certificate
Lower secondary education	S3	Ordinary Level National Examination	Ordinary Level Certificate
Upper secondary education	S6	Advanced Level National Examination	Advanced General Certificate of Secondary Education

[21] A notice from the Minister was issued nationwide in June 2019.

[22] Ministerial Guidelines Governing Comprehensive Assessment（MINEDUC、2019）

The final examinations for basic education are the Primary Leaving Examination and the Ordinary Level National Examination. The subjects for each examination are as follows.

・Completion of primary education: five required subjects (Kinyarwanda language, English, mathematics, social studies, science and technology)

・Completion of lower secondary education: nine required subjects (Kinyarwanda language, English, mathematics, physics, chemistry, biology, geography, history, entrepreneurship)

In P6 and S3, students are supposed to register for the exam with NESA in the first semester and write down three schools of their choice. The registration fee is free for P6 and RWF 3,000 for S3. Each school registers this information with SDMS. NESA uses this information to assign test numbers and select test sites.

The test results are converted from marks (prime score, score percentage) to aggregates (score band) and then divided into divisions (ratings).

Candidates can view their results online,[23] where they can check the aggregate for each subject, its total, and the division as the overall assessment. The selection of higher education institutions is mainly determined by NESA based on the aggregate.

The divisions used as test results are mainly data for publication. These are divided into Division I to Division IV, which are the best in the pass range, and Division U, which is a fail.

In the past, those in Division U have been able to advance to higher education according to their own wishes. Starting from 2021, however, they are required to repeat their final year.

There is also a Division II or higher requirement[24] for admission to boarding secondary schools. In recent years, Division II or higher is required for admission to TTC.[25]

(7) Qualifications

The educational levels after basic education are classified as follows. (Q: Qualification)

Table 3-19 Qualifications for completing the education program

Education level	General Education	TVET	Teacher Education	General Higher Education
Postgraduate			Postgraduate Q for Higher Education	Postgraduate Masters and above
A0			(3 years) Degree Bachelor's in Education Q for Upper Secondary Education	(3 – 4 years) Degree
A1		Diploma TVET G1	Diploma Q for Lower Secondary Education	
A2	A-Level Certificate	TVET G2	Certificate Q for Primary Education	
Completion of basic education	O-Level Certificate	TVET G3		

(Prepared by the research team based on interviews with UR-CEs, based on ESSP 2010-2015 (MINEDUC, 2010))

[23] http://www.results.nesa.gov.rw/

[24] There is a gender gap in the boarding school admission standards. The standards for girls are lower than for boys, due to the fact that there are many boarding schools for girls.

[25] Summary of The Curriculum Framework for TTC (REB, 2020)

3.2 External support

3.2.1 Framework for coordination with development partners

Aid coordination in the education sector is centered on the Education Sector Meeting. It is chaired by the Permanent Secretary (PS) of MINEDUC and the UK representative is the lead donor. In addition to the leader, the United Kingdom, the United States, Germany, Japan, the World Bank, and the African Development Bank have been selected as core members.

In addition to the quarterly meetings, a Joint Review of the Education Sector (JRES) is held twice a year, where the GoR and the Development Partner (DP) jointly review the progress of the education sector projects against the ESSP and NST1. The JRES is a forum for the GoR and Development Partners (DPs) to jointly review and reflect on the progress of the education sector projects against the ESSP and NST1. The results of that review will be reported to MINECOFIN.

In addition, all project activities supported by development partners in MINEDUC are coordinated, managed, and implemented by the newly established Single Project Implementation Unit (SPIU).

3.2.2 Support by development partners

(1) World Bank

Based on the concept of HCD, the World Bank also provides support in the Rwandan education sector. The World Bank projects currently being implemented in Rwanda are as follows.

Table 3-20 Current World Bank projects (education)

Approval date	Projects	Type
December 2020	First Programmatic Human Capital for Inclusive Growth DPF (P171554)	Policy loan
June 2020	Rwanda Priority Skills for Growth Additional Financing(P172735)	Results-based financing program (Additional financing for P252350)
May 2020	Additional Financing to Rwanda Quality Basic Education for Human Capital Development Project(P174046)	Investment-type project financing (Additional financing for P168551)
July 2019	Rwanda Quality Basic Education for Human Capital Development Project(P168551)	Investment-type project financing
July 2017	Rwanda Priority Skills for Growth (PSG)(P252350)	Results-based financing program

(Prepared by the research team based on information from the World Bank official website)

Among these projects, one that is particularly relevant to the field of basic education is RQBE. Basic information on this is provided below.

Table 3-21 RQBE basic information

Period	July 2019 - October 2024
Budget	US$200 million
Objective	Improving teacher competence as well as student continuity and learning in basic education
Minor objectives	Contents
Improving teacher competence	・P1-S3 teachers' English proficiency at or above the standard level ・Increase in mathematics and science test averages for lower middle school teachers
Improving students' continued school attendance	・Improve the continuation rate from P1 to P6
Improving learning	・Achieve grade level equivalent English proficiency among children in P3 public and government-supported schools ・Achieving grade level equivalency in numeracy for children in P3 public and government-supported schools

(Prepared by the research team based on information from PID)

The implementation system of RQBE is mainly divided into MINEDUC SPIU for hardware components and REB SPIU for software components. It is overseen by the Coordinator and PS of MINEDUC SPIU, and the implementation system is as follows.

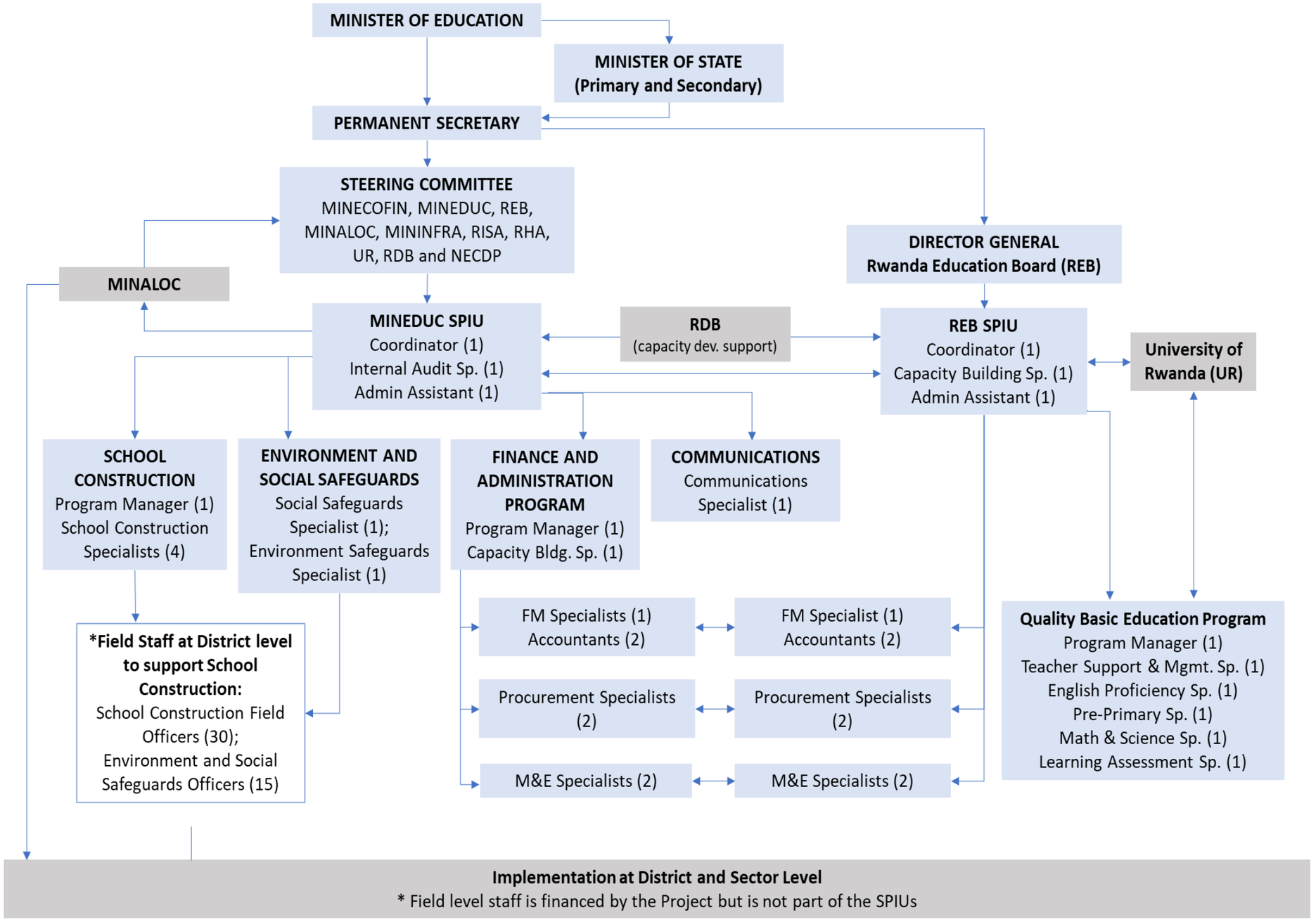


Diagram 3-1 Implementation system of RQBE

The main components are as follows. The specific number of facilities for Component 2 is planned to include approximately 11,000 additional classrooms and 15,000 additional toilets.

Table 3-22 RQBE Component Overview

Project Component		Target and scope	Person in charge of implementation
Component 1	**Strengthening teachers' effectiveness in improving student learning**	Budget: 46.5 M USD	
Subcomponent 1.1	Improving teachers' English proficiency and digital literacy	National in-service teachers Pre-primary-S3	REB
Subcomponent 1.2	Supporting the professional development of mathematics and science teachers	National and TTC teachers and students P4-S3	REB、UR
Subcomponent 1.3	Strengthening the preparation of new teachers	TTC Students in S4 to S6	REB、MINEDUC
Subcomponent 1.4	Developing model schools for innovative practice	TTC and UR-CE Teachers and students Pre-primary-S6	REB、MINEDUC
Component 2	**Improving students' learning environment at school**	Budget: 140.5 M USD	
Subcomponent 2.1	Reducing classroom overcrowding and commuting distances	National Teachers and Students Pre-primary-S6	MINEDUC
Subcomponent 2.2	Improving the learning environment for pre-primary education and lower primary education	National Teachers and Students Pre-primary-S6	REB
Subcomponent 2.3	Supporting gender-sensitive teaching and learning environments	Model schools and TTC teachers and students S1-S6	REB
Component 3	**Developing institutional capacity to enhance teaching and learning**	Budget: 13 M USD	
Subcomponent 3.1	Support for quality assurance systems	All related organizations	REB、MINEDUC
Subcomponent 3.2	Strengthening capabilities in project management, implementation, and monitoring	All related organizations	MINEDUC、REB、 RDB
Total		**200.0 M USD**	

(Obtained from MINEDUC and prepared by the research team)

As of November 2021, the construction of schools and classrooms was proceeding steadily despite the COVID-19 pandemic. On the other hand, one concern that remains is the provision of basic infrastructure, such as safe water and electricity, for schools in remote rural areas.

According to the SPIU Coordinator, some components have been delayed due to the impact of the COVID-19 pandemic. While the hard components are progressing as planned, the effectiveness of soft components, such as the development of teaching materials, depends on face-to-face discussions. This has led to delays stemming from the prohibition or reduction of face-to-face meetings due to the COVID-19 pandemic. The complexity of Rwanda's procurement procedures was also reported to be a factor.

However, discussions are being held with the World Bank to extend the project for one year due to the impact of the COVID-19 pandemic.

For reference, the following is an excerpt from the list of support items from the BOQ of the schools supported by RQBE. The items being provided include: new classrooms, renovated classrooms, kitchen/dining rooms, toilets, guard rooms, rainwater tanks and drainage systems, and furniture.

Table 3-23 Overview of RQBE project support

Item	*ELEMENTS*	*QTY*
101	ADMINISTRATION & PRIMARY BLOCK B	*1*
102	PRIMARY BLOCK A	*1*
104	KITCHEN & DINING	*1*
105	REHABILITATION BLOCK D, STOCK &GIRLS ROOM	*1*
107	SMART CLASS ROOM	*1*
108	SECONDARY CLASS ROOMS REHABILITATION	*1*
109	LABORATORY BLOCK REHABILITATION	*1*
110	TOILET BLOCK FOR SECONDARY	*1*
111	TOILET BLOCK FOR PRIMARY	*2*
112	SECURITY HOUSE	*1*
114	EXTERNAL WORKS	*1*
115	MAIN POWER DISTRIBUTION	*1*
116	INTERNAL MECHANICAL	*1*
117	FURNITURES	*1*
118	Implantation of Environmental and Social Management plan (ESMP) refer the details in tender document.	*1*

QTY：quantity

(2) UNICEF

UNICEF has seven main areas of activity in Rwanda: Child Health, Nutrition, ECD, Education, Child Protection , WASH, and Social Policy. The current year 2021 is within the implementation target period of July 2018 to June 2023.[26]

In the field of education, the support provided is mainly as follows.

Table 3-24 Summary of UNICEF support (Education)

Support for the development of the Teacher Management Information System, a nationwide database of teachers
Support for education policy development focusing on pre-primary education and inclusive education
Support the development of a national strategy on gender and education
Support for the implementation of CBC focusing on learner-centered pedagogy through a school-based mentorship program
Training support for 16 TTCs across the country, including development of the CBC syllabus, creation of training guides, and support for building skills in learner-centered education
Support for the introduction of STEM education into pre-primary and lower primary education (in cooperation with the LEGO Foundation)
Piloted remedial clubs in schools targeting children and students, especially girls, who are lagging behind in mathematics and language learning.

(Prepared by the research team based on interviews with UNICEF and on information from UNICEF's official website)

[26] Consistent with the Rwandan government's fiscal year.

(3) FCDO (formerly DfID)

The UK's Department for International Development (DfID)[27] has been implementing Learning for All (LfA), a combined financial and technical assistance (TA) program in the education sector, since 2016. Within this program, the TA launched in 2017 is Building Learning Foundations (BLF), which is still being implemented as of June 2021.

The current LfA/BLF is being implemented by MINEDUC and REB in collaboration with the British Council, VSO, etc. through the ODA(UK aid) of the Foreign, Commonwealth and Development Office (FCDO). The original plan targeted 2015 to 2021, but due to the impact of the COVID-19 pandemic, this has been extended to 2023. The BLF team is based at BHCK (British High Commission Kigali).

The BLF has three objectives: (1) Improved teaching of Primary English and Mathematics, (2) Improved school leadership, and (3) Strengthened education systems. It has so far targeted P1-P3 teachers (English and mathematics), but plans to expand to P4-P5 after 2021 (LfA Annual review (6) 204463, 2021).[28] The main activities of the LfA, including the BLF, are as follows.

Table 3-25 Summary of FCDO support

Contents	Role/Responsibility
Leadership training for HTs, including inclusive education practices	Ukaid、BLF、BHCK
Support for School Improvement Plan (SIP) development in primary school	BLF
Competence building training for P1-P5 English teachers and mathematics teachers, implementation of in-school training (School-based Community of Practice), use of BLF Toolkit	BLF
Developing Inclusive Education Focal Teachers (IEFTs)	BLF、BHCK
English proficiency training for primary teachers	BHCK
CBC training for primary and secondary teachers	Undecided on implementation after 2020
Distribution of textbooks to primary and secondary schools	LfA, undecided on distribution schedule beyond 2022
School Capitation Grants (SCGs) support	Undecided on implementation after 2020
Distribution of BLF materials (P2-P5: English, P1-P5: Mathematics, P1-P5: Classroom Kit)	BLF
Training in child assessment in primary education, support for implementation of CA, support for implementation of LARS (P3, P6, S3), use of CAMIS (Continuous Assessment Management Information System)[29]	BLF
Supporting the use of data for policy formulation	BLF、BHCK
Develop and broadcast radio lessons for P1-P3 English and mathematics, to be broadcast weekly from April 2020 (COVID-19 pandemic support)	BLF

(Prepared by the research team based on interviews with the BLF team and on the LFA Annual review 2020)

The teaching materials (BLF Toolkit) distributed throughout the country by the BLF were mainly paper-based guidebooks and worksheets for teachers' self-improvement. In the second phase (2019 onward),

[27] DfID was reorganized into FCDO (UK Department of Foreign and Commonwealth Development) from 2020.

[28] FCDO website; https://devtracker.fcdo.gov.uk/projects/GB-1-204463/documents

[29] http://assessment.reb.rw/new/

digital content was used. The Toolkit for P1-P3, the first phase of the program, has already been distributed to primary school nationwide in 2019 for both English and mathematics.

(4) USAID

The activities of USAID (United States Agency for International Development) in Rwanda mainly focus on the areas of agriculture and food security, education, and health. In the education sector, the Learning Enhanced Across Rwanda Now! (LEARN) Project is being implemented for primary education. The 2010-2015 (LEARN 2010-2015) and 2015-2020 (LEARN 2015-2020) phases have been completed. The next phase, LEARN2020-2025, is in the implementation phase. Among these, three projects are being implemented in fields related to school education: Soma Umenye, Mureke Dusoma, and TWIGE.

Soma Umenye will support the improvement of language learning in primary school by providing teaching materials (textbooks for children and teachers' guides), training and mentoring for teachers, and reading comprehension assessments to improve teaching methods. TWIGE is a project that focuses on the development of socio-emotional skills (non-cognitive skills) in addition to language, especially for children with disabilities and pre-primary education.

Table 3-26 Summary of USAID support

Soma Umenye	2016 to December 2021 Implemented with a budget of about US$62 million with the goal of improving reading comprehension in Kinyarwanda from P1 to P3 in public schools nationwide. [30] Activities, which are carried out by outsourcing to a US development consulting firm, include preparation and distribution of teaching materials, training and coaching of teachers, and distribution of ICT devices (tablets) to DDE/SEI and HT (provided by VVOB)
Mureke Dusome	2016 to July 2021. Implemented by Save the Children to support reading comprehension at home and in the community, and to create reading clubs in schools
TWIGE	Focuses on improving language learning for pre-primary and early primary infants and toddlers. Includes teacher training, improving school management, improving access to pre-primary education, training for parents and caregivers, improving language learning in off-campus settings, improving basic professional development for teacher training, and supporting children with disabilities

(Prepared by the research team based on interviews with USAID and on USAID's official website)

Two projects that are planned to start under LEARN in the second half of 2021 are the Schools and Systems Activity and the Homes and Communities Activity. Both of these projects focus on strengthening Kinyarwanda language literacy among pre-primary through P3 infants and toddlers in schools and communities across Rwanda (USAID/Rwanda LEARN Project Gender and Social Inclusion Analysis February 2021).

The Schools and Systems Activity, with a budget of US$30 million and a five-year implementation period, will cover school education (including pre-primary education) up to P3.

The objective is to strengthen literacy by supporting and improving the quality of Kinyarwanda language literacy learning in pre-primary and primary schools and classrooms for all Rwandan children,

[30] Chemonics International, Inc.

and by improving the education system. This activity plans to improve literacy up to P3 by improving the literacy learning environment in schools and classrooms, enhancing the literacy teaching skills of teachers, strengthening the capacity of MINEDUC, REB, NESA, HT, DDE, DEO, SEI, TTC instructors, etc., and improving literacy learning opportunities for children with disabilities.[31]

The Homes and Communities Activity, with a budget of US$17.75 million and a five-year implementation period, targets education (including pre-primary education), community, health and nutrition up to P3.

Its goal is to support literacy in the Kinyarwanda language for all Rwandan children and to create a safe, educationally stimulating home and community environment. The activities are planned to improve literacy up to P3 by improving the household literacy environment, increasing community involvement in promoting literacy among children, and improving literacy learning opportunities for children with disabilities. Components planned include: improving the Kinyarwanda language literacy and social and emotional skills (non-cognitive skills) of children (pre-primary to primary) at home and in the community, improving nutrition, supporting community-based ECD centers, supporting community libraries, and supporting reading clubs.[32]

USAID has also implemented the Itegure Gusoma "Get Ready to Read" (2017-2020) program for pre-primary education in the past, working with UNICEF and VSO to improve instruction in 80 pre-primary level classrooms near TTCs. The target group was N3, and the training was mainly provided by VSOs to pre-primary teachers, school principals, and parents.

In addition, as past projects there were the L3 Initiative (L3) and the L3 Plus project, which were implemented by USAID with the REB as the CP and EDC (Education Development Center, Inc.) as the core, together with VSO and IEE. L3 refers to Literacy, Language, and Learning. The period was five years, from 2011 to 2016. The program aimed to improve the Literacy and Numeracy of English and Kinyarwanda in primary education P1-P4 children by developing teaching materials and training teachers. The L3 Plus project was implemented for about 1.5 years starting in 2015, targeting the field of special needs education within L3. TTCs were also included as a target in L3. Since around 2011, L3 materials have been distributed free of charge. In 2015, they were officially adopted as learning and teaching materials for Kinyarwanda and English in public education.

(5) KOICA

KOICA (Korean International Cooperation Agency) has supported music education in the past, donating pianos to TTCs and other institutions. It is currently implementing the Capacity Development of Information Communication Technology use in Education (CADIE) project with MINEDUC to promote ICT use in education in Rwanda.

CADIE has a budget of US$7 million and an implementation period of 2019-2023 to improve the quality of learning through the use of ICT in student learning for secondary school teachers and others. The project is being managed by REB SPIU. The project team consists of six members: a program manager, an administrative assistant, an accountant, a monitoring and evaluation specialist, an ICT

[31] As of June 2021, an implementer was being selected.
[32] As of June 2021, an implementer was being selected.

infrastructure specialist, and a capacity development specialist. The main components are as follows.

Sixty teachers selected from 30 districts will be trained as Master Trainers (MTs) to benefit 24,000 teachers nationwide. The project aims to promote the use of ICT in PLE class design (Preview, Learn, Evaluation approach) by introducing applications and web services that are useful for teachers to prepare and conduct classes.

In January 2020, the CADIE Teacher Training Manual (REB, 2020) was developed and is operating under the jurisdiction of the REB. In addition, the component is already running as an online learning course on the REB e-Learning site.

Table 3-27 Overview of CADIE Components

Components	Sub-components
・Development of training programs ・Provide training ・Establishment of a base ・Monitoring and supervision	・Development of training programs for in-service teachers, teacher training school students, SEIs, DEOs, and master trainers ・Establishing a core base ・Implementation of training for master trainers, in-service teachers, students of teacher training schools, and visual science officers ・Development of platforms, policies, procedures and support for monitoring and instrumentation

(6) GIZ

GIZ (Deutsche Gesellschaft fur Internationale Zusammenarbeit: German Corporation for International Cooperation) is active in the field of technical education, mainly in TVET. It does not appear to be engaged in activities in the field of basic education at this time. However, the possibility of expanding support to basic education in the context of STEM education in the future cannot be ruled out, since it is discussing with REB the development of a virtual laboratory (V-Lab) for secondary education.[33]

(7) VVOB

VVOB (Flemish Association for Development Cooperation and Technical Assistance) is a non-profit organization commissioned by the governments of Belgium and Flanders to provide technical assistance in the field of education and development in developing countries. Its headquarters are in Brussels. The activities in Rwanda target pre-primary, primary and general secondary education. In addition to working with many DPs and engaging in a variety of related programs, it also sends English learning volunteers to various locations. The projects under implementation as of June 2021 are as follows.

[33] https://digicenter.rw/using-virtual-labs-for-hands-on-science-classes-in-rwandan-primary-and-secondary-schools/

Table 3-28 Summary of VVOB support

Projects	Target	Summary
IT'S PLAY (Improving Teaching Skills on Playful Learning for Africa's Youngest)	TTC、ECE	Period:2021-2025 CP is the REB. Funded by the LEGO Foundation, coordinates with TTC Muhanga and TTC Byumba to strengthen the capacity of ECE teachers.
Building Resilience through Leading, Teaching and Learning Together (BR-LTLT)	Secondary education	Period:2020-2021 With MCF funding, in-service teacher training in secondary education on strengthening crisis management and response capacity to factors that threaten educational continuity is being conducted online. Main content focuses on support for health and hygiene management and distance learning in schools.
Supporting Coding among Rwandan Adolescents & Teachers through the Curriculum & Clubs Heading for Rwanda 2050	Secondary education	Period: 2020-2022 Supports secondary teachers' use of Scratch (Coding education) for STEM and ICT, mainly for Kayonza District. Provides lesson plans, open resources, teacher guide development, and CPD support in the same field.
Leaders in Teaching	Secondary education	Period: 2018-2021 Funded by MCF, provides CPD support for leadership development, coaching and mentoring training, mainly in secondary STEM subjects. Those who complete the course are awarded a CPD Diploma recognized by UR-CE.
Induction system for Newly Qualified Teachers	Primary education	Period: 2017-2021 Works to improve the quality of new teacher training by developing a mentoring process and a guidance system for new teachers in primary education.
Mathematics Achievements in Rwandan Schools (Girls on MARS)	Primary Education for Girls	Period: 2017-2021 Support for CBC training, leadership training, and mentorship is being provided to improve girls' mathematics skills in primary education.

(Compiled by the research team based on interviews with VVOB and on VVOB's official website[34])

(8) GPE

The Global Partnership for Education, established under the leadership of the World Bank, is the world's only funding platform dedicated to basic education in developing countries. Developing countries can apply for grants in line with the cycle of (1) identifying issues, (2) developing plans, and (3) implementing plans in the education sector. In addition to grants from GPE, developing countries themselves must commit to financial expenditures in the education sector, and 30% of the total amount of aid is results-based. In Rwanda, FCDO and UNICEF will coordinate the GPE activities.

Rwanda received US$10 million to address the learning challenges posed by COVID-19 pandemic. Activities include Activities included equipment for hand washing, water tanks, remedial programs for children at risk of dropping out or staying in school, and teacher training on school safety.

In addition, the Rwanda Education Sector Program Implementation Grant (RESPIG) of $30.8 million (2020-2024) was funded to implement ESSP 3. In response to the priority items of ESSP3, support is

[34] https://www.vvob.org/en/operations/thematically?axonomy_vocabulary_5_tid=All&taxonomy_vocabulary_4_tid=15&field_status_tid=All

provided in four areas: (1) teacher training with emphasis on English language proficiency and inclusive education, (2) development of learning materials from pre-primary to secondary education, (3) promotion of STEM education, and (4) infrastructure development in primary and secondary schools. In order to promote STEM education and inclusive education, emphasis is placed on digitization and ICT utilization.

(9) VSO

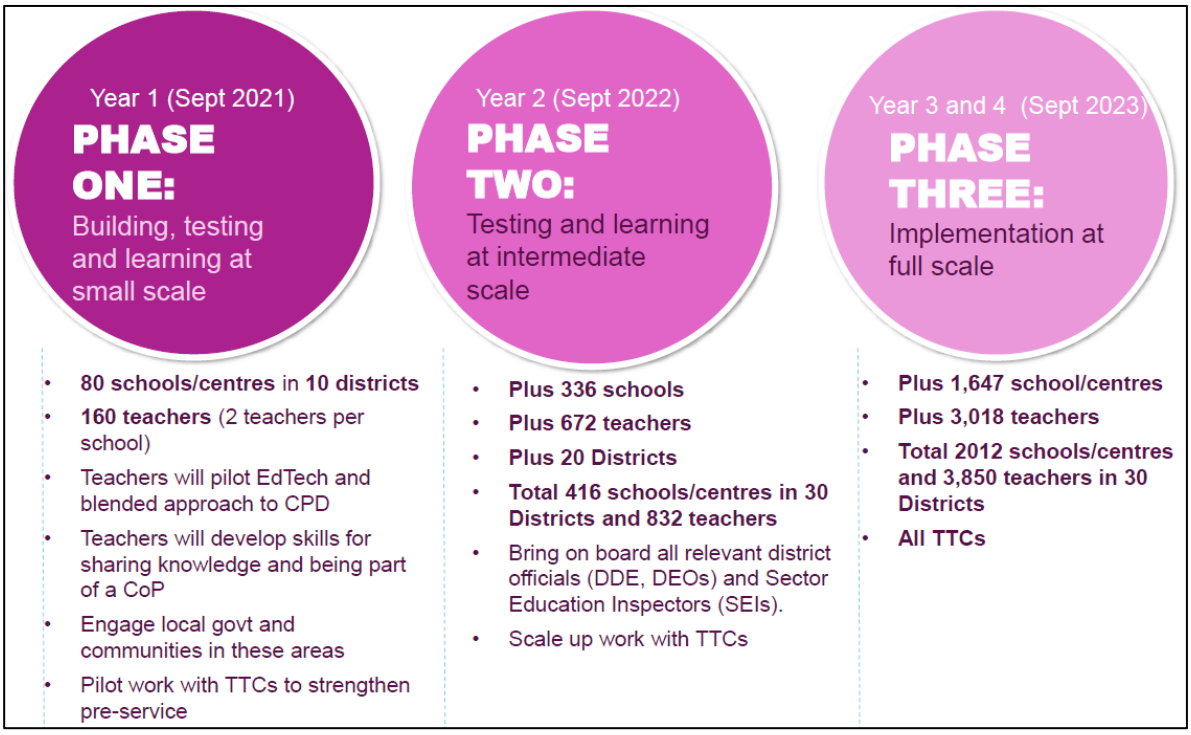
VSO (Voluntary Service Overseas) is a UK-based NPO and the world's largest international volunteer organization. Its activities in Rwanda mainly focus on health, pre-primary education, and basic education. VSO has worked with many DPs and engaged in various related programs, including the aforementioned BLF by FCDO. It has also sent volunteers to many schools, including the TTC, to strengthen English language skills and English education. In the TTC, it supported the development of the Teacher Resource Center (TRC). It is particularly focused on improving health and inclusive education, and is also active in the areas of pre-primary education and ECD.[35]

The current project being implemented by VSO is Twigire mu mikino Rwanda (TMR) in the field of ECCE with the support of the LEGO Foundation.[36] The TMR will be implemented from 2021 to 2025. The inception phase was scheduled to last until August 2021.

The objective is to provide quality and sustainable learning through play in schools and ECD centers for young children aged from three to six years. Components planned include: the development of digital materials for use in the project; training for principals, TTC instructors and students, teachers involved in ECE, as well as parents, caregivers, and community leaders; support for in-service teacher training; and collaboration with the BLF project. The final target is 2,063 schools, 365 ECD centers, 3,850 teachers, and 145,000 parents nationwide. TMR's plan is as follows (from Twigire Mumikino Rwanda PPT document).

[35] https://www.vsointernational.org/our-work/where-we-work/rwanda

[36] “Twigire mu mikino” is a Kinyarwanda phrase that means “Lets' learn through play.”



(Source: Twigire Mumikino Rwanda VSO PPT document)

Figure 3-2 Project TMR by VSO

(10) AIMS

AIMS (African Institute for Mathematical Sciences) Rwanda is an academic research center established in 2016 with the support of the GoR. Rwanda is the fifth center to be established within the AIMS Global Network (AIMS Next Einstein Initiative), which is based in South Africa and has centers in Senegal, Cameroon, Tanzania and Ghana (in order of establishment). Supported by MCF, AIMS Rwanda has so far produced more than 200 master's degree students in the field of mathematical sciences.

One of its main activities is to develop STEM education in Africa, working with the public as well as the private sector to conduct research and provide support.

An initiative that it is currently implementing is the Teacher Training Program (TTP) under MCF support (Mastercard Foundation Leaders in Teaching (LIT) initiative) in collaboration with REB and UR-CE (ACEITLMS). The duration of the program is five years, from 2018 to 2022, and the target audience is science and mathematics departments. The goal is to provide training to 4,500 in-service secondary teachers (760 schools) and 2,100 UR-CE students. The plan is to set up UR-CE and one school base in each district (30 schools), each with multifunctional classrooms.

It is planned that the Mathematics and Sciences for Sub-Saharan Africa (MS4SSA) approach will be adopted in teacher training. According to the description on the AIMS website,[37] MS4SSA is an integrated approach that emphasizes providing support from school leaders and inspectors to teachers. It focuses on teachers' subject knowledge, teachers' innovative classroom teaching practices, teachers' use of ICT, and support for teachers from school leaders and inspectors to improve learning outcomes in

[37] https://nexteinstein.org/teacher_training/teacher-training-in-rwanda/#

secondary mathematics, physics, chemistry, and biology. It also includes support for ICT infrastructure, including the SMART Classroom.

(11) Mastercard Foundation

The Mastercard Foundation (MCF) is an international non-governmental organization (NGO) established in 2006 by the U.S. company MasterCard Worldwide, Inc. It provides support mainly in the areas of education and finance in developing countries.

The Mastercard Foundation Scholars Program (MCFSP) and other programs offer various scholarships for higher education to young people in sub-Saharan Africa.

MCF Rwanda was founded in 2018 and works in the education and financial sectors. In the area of education, the focus is on leadership development. The Leaders in Teaching program is currently underway.[38] This program includes the establishment of the Centre for Innovative Teaching and Learning in ICT as a center to promote the use of innovative ICT in secondary education in particular.

Leaders in Teaching is a program for secondary education that conducts activities for the development of teachers and leaders. Its goal is to improve secondary education (with a focus on STEM) to cultivate a quality workforce that will lead to future economic development. The implementing agencies are VVOB, AIMS, IEE (Inspire Educate and Empower), and UNICEF. The details are as described in VVOB and AIMS above.

Working in collaboration with EdTech-related organizations and the GoR, the Centre for Innovative Teaching and Learning in ICT aims to promote innovation in the use of ICT to improve teaching and learning in secondary education. The Centre is located in the MCF office in Kigali. The following components are planned: consultation on the GoR's use of EdTech, support for EdTech companies and organizations, demonstration of ICT technology in education by EdTech companies and organizations, and networking throughout Africa.

(12) Other

Various other organizations also provide support, such as the WFP for the dissemination of school lunches and the WHO for the improvement of WASH. Some of these provide direct support to schools or individuals without going through MINEDUC or the REB, or enter from the district or sector level. In such cases, the REB may not be aware of them. The following is a summary of the information gathered during the field survey.

[38] https://mastercardfdn.org/our-work/where-we-work-in-africa/rwanda/

Table 3-29 List of support for the education sector by other organizations

Organization name	Support provided
AEGIS Trust	Support for human rights education[39]
APIE	A Partner In Education[40] Implementation of Enhancing Quality Instruction in Pre-Primary (EQUIP) - Rwanda with the support of UK-aid;support for CBC training for pre-primary teachers
BSD	Bureau Social de Développement[41] Tuition support for poor families
CARE	Sports promotion and support through Sports for Change[42]
Caritas	Educational materials support for families[43]
Catholic Association	Tuition assistance for families
Catholic church	Support for religious education, training on psychology of adolescents
CIPAC	Fédération des professionnels de l'art contemporain[44] French language learning volunteers, teaching support
Compassion International	Support on tuition fees for families (in exchange for labor through goat rearing), provision of pens and notebooks for children[45]
DUHAMIC ADRI	Rwandan NPO focusing on rural development[46] Provision of stationery, uniforms, and job training for children in rural areas
FXB	François-Xavier Bagnoud association[47] Support for school enrollment of the poor, implementation of the Sugira Muryango project with support from USAID, and support for ECD improvement through home visits, etc.
Help a Child	International NGO in the Netherlands[48] ECD and community support, curriculum development support for TTC, CBC training support for TTC
Humanity inclusive: handicap International	Support for children with physical disabilities, distribution of tablets to children with disabilities, training for children with disabilities to take classes[49]
IEE	Inspire Educate and Empower[50] Provision of support to the REB on teacher training, training new teachers, training TTC instructors in English,assignment of pedagogical advisors , and developing TRC (Teacher Resource Center)
Imbuto Foundation	Teacher training for pre-primary education
NUDOR	National Union of Disability Organizations in Rwanda[51] Support for children with disabilities, training for teachers, training for children and parents
OIF	Organization Internationale de la Francophone[52] French Language Learning Volunteers
Parents contribution	Support for children's tuition fees, led by PTA
Partner in Education	Training support for ECD teachers

[39] https://www.aegistrust.org/
[40] https://www.apartnerineducation.org/
[41] http://www.bsdrwanda.org/
[42] https://www.careevaluations.org/evaluation/sports-for-change-s4c-baseline/
[43] https://www.caritasrwanda.org/about-us
[44] https://cipac.net/
[45] https://www.compassion.com/
[46] http://www.duhamic.org.rw/
[47] https://fxb.org/
[48] https://www.helpachild.org/explore-help-a-child/where-we-work/rwanda/
[49] https://www.hi-us.org/rwanda、https://hi.org/en/country/rwanda
[50] https://www.iee.rw/
[51] https://www.nudor.org/
[52] https://www.francophonie.org/

Plan International	Support for human rights education, support for teacher training
Right to Play in Rwanda	International NGO headquartered in Canada[53] In-service teacher training support, pre-primary education support
RUB	Rwanda Union of the Blind[54] Support for learning, etc. at LwD schools
Rwanda Action	Formerly known as Rwanda Aid[55] Community support, school construction support, teacher training support
Save the Children	Support for training of pre-primary teachers, support for community education workers, promotion of literacy learning
WASAC	Installation of new toilets in schools
Wellspring	Leadership training, teacher training, community support, etc.[56]
World Vision	English training support for teachers
World vision & Red cross	Toilet and girls' room facilities support

(Prepared by the research team based on interviews during the field survey in June 2021)

3.2.3 Results and status of JICA support

JICA has provided extensive support in the education sector in Rwanda. The main areas of support in the education sector include:

Table 3-30 Results and status of JICA support

Strengthening of Mathematics and Science in Secondary Education in Rwanda（SMASSE Rwanda）
Technical cooperation project Implementation period: 2008 - 2011 The project aims at strengthening educational capacities in mathematics and science, in addition to improving teachers' skills and institutional capacities.
Strengthening School-based Collaborative Teacher Training（SBCT）
Technical cooperation project Implementation period: 2013 - 2015 The project purpose is to introduce and implement planned School-based In-Service Teacher Training (SBI) activities are implemented for changing the lessons more effective for students.
Supporting Institutionalization and Improving Quality of SBI Activity（SIIQS）
Technical cooperation project Implementation period: 2017 - 2019 The project purpose is to strengthen the implementation of CBC-based lesson in the classroom through SBI activities. SBI
Project to Strengthen Primary School Mathematics and Science with the Use of ICT（PRISM）
Technical cooperation project Implementation period: 2021 - 2026 The project purpose is to strengthen capacities of TTCs and DSs for improving teaching and learning Math and Science with the enhanced use of ICT.
Verification Survey with the Private Sector for Disseminating Japanese Technologies for Utilization of ICT to Improve the Quality of Primary Mathematics Education in Rwanda
Public-Private Partnerships Implementation period: 2018 – 2022 The purpose is to verify the effectiveness of the localized Interactive Mathematics software (IM) to improve Math lessons by teachers and performance by students utilizing ICT through the introduction of IM into the pilot schools in Kigali.
JICA volunteer program
Total number of dispatch to Rwanda: 300 (As of March 2021)

[53] https://righttoplay.com/en/countries/rwanda/

[54] https://rub-ura.org/

[55] https://www.rwanda-action.org/

[56] https://thewellspringfoundation.org/

JICA volunteer started dispatching in 1986, and although the dispatch was temporarily suspended by genocide, then resumed in 2006. In recent years, there was an evacuation due to COVID-19. As of June 2021, the dispatch has resumed. The examples of the categories related to this survey are drawing, physical education, public health nurses, nursing, youth activities, science and mathematics teachers, science education, early childhood education, midwives, nutritionists, electronic devices, computer technology, vegetable cultivation and primary school education.

In the survey, these results were confirmed through interviews and visits.

In some of the schools and classes we visited, we were able to see the results of the most recent project, SIIQS. Textbooks were used in lessons at the public schools GS Bihingaa and EP Buhande. There were also comments from the principals of the Teacher Training College (TTC) and of other schools saying that the skills they gained through the project has supported their current practice. One such person is the principal of GS Nyagatare, which is implementing a dropout rate improvement program, as described below. The REB (Rwanda Basic Education Board) has also made a significant contribution to the promotion of continuous professional development (CPD), which is in-service teacher training, through DPs including SIIQS. The SBCT's ex-post evaluation raised concerns about the availability of time for CPD. It was decided that this would be included in the school timetable in the July 2021 Ministerial Order[57].

In the e-Learning portal site promoted by REB, companies from among the 250 startups supported by the ICT Project have entered the site. As of 2021, they are still using it to practice distance education.

Furthermore, REB, which was promoting distance education in the COVID-19 pandemic, used the mathematics software of Sakura Inc. on the official REB e-Learningsite. This is currently being used in the same way as the above. The head of the ICT in Education Division of the REB commented favorably on this initiative, which suggests that it is likely to be used more widely in the future. Many of SIIQS's model classes are available as class videos on this site. They dominate the top rankings in terms of number of views.

The JICA Overseas Cooperation Volunteers have a long history. At TTC Muhanga, which we visited this time, they talked about how they worked together with past members to improve science teaching methods. The principal's office was decorated with photos of the members. The school continues to accept assigned members this year. We have also received comments from other TTCs that they would welcome assigned members.

In terms of JICA's current support for basic education, the first project is the “Dissemination and Demonstration Project for Improving the Quality of Education through the Use of ICT in Primary Arithmetic Education” (commonly known as the Sakura Project), which is a private-sector collaborative project.

The Sakura Project is an overseas development support project that was proposed by Sakura Inc., a Japanese SME. Its main activity is to customize Sakura's Interactive Mathematics (IM) software for teaching and learning mathematics to suit the CBC and introduce it to Rwandan primary education. The period of the project is from October 2018 to December 2022. CBC-compliant IMs have already been

[57] Ministerial instructions N° 002/2021 of 26/07/2021 determining the modalities for the management of school timetable

introduced to primary school to repeat the demonstration. The company is conducting a feasibility study prior to the Sakura project until 2017.

The next project is the "Project for Improving Primary Science and Mathematics Learning through ICT" (PRISM), which is being implemented from September 2021 to October 2026. The main beneficiary institutions are TTCs and surrounding primary schools, with the REB as the CP. The project aims to improve the proficiency of students in the TTC and surrounding schools by improving their science and mathematics skills through: (1) development and digitization of science and mathematics teaching materials, (2) dissemination of model classes using ICT for teachers' self-improvement, and (3) promotion of children's self-learning by strengthening cooperation between schools and parents.

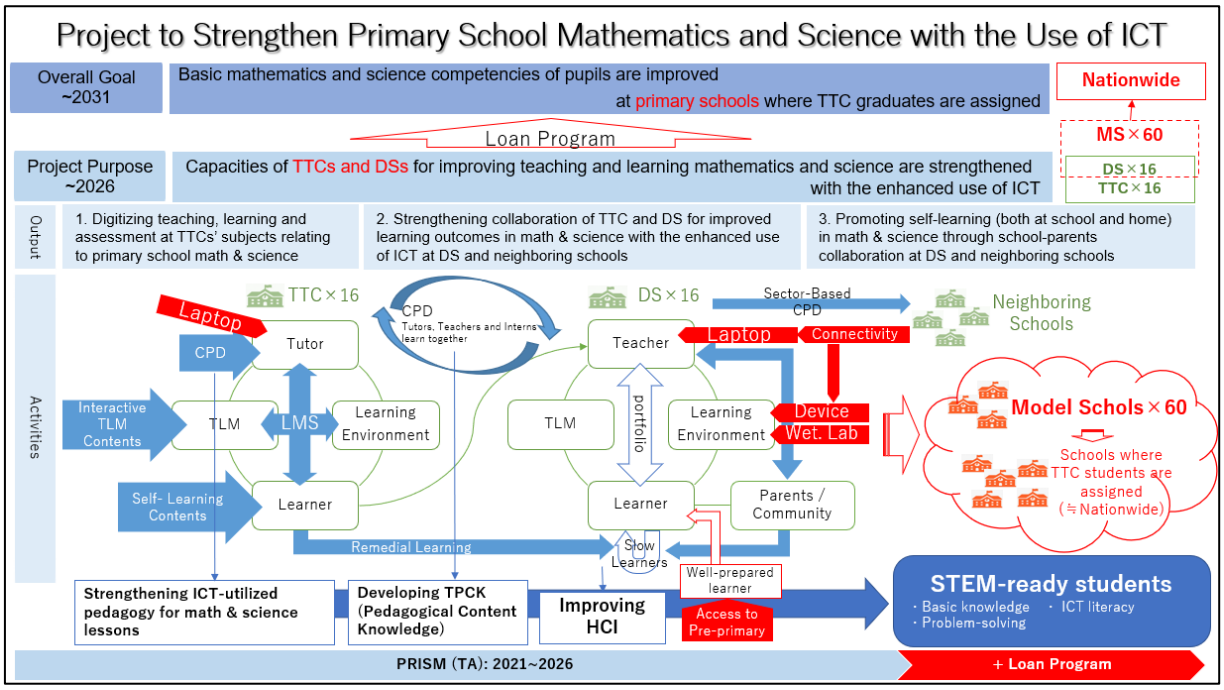


Diagram 3-3 Concept of PRISM (as of November 2021)

Regarding ICT, the ICT Innovation Ecosystem Strengthening Project (commonly known as the ICT Project) is being implemented. The project was originally scheduled to run until November 2020, but was extended until March 2022 due to the impact of the COVID-19 pandemic. The project also supports startups in fields such as EdTech.

In addition, the dispatch of JICA's Japan Overseas Cooperation Volunteers, which had been suspended due to the COVID-19 pandemic, resumed in 2021. In the field of education also, members have been dispatched to TTCs (TTC Muhanga and TTC Nyamata).

3.3 Current Situation and Issues in the Education Sector

3.3.1 Organizational Overview

(1) MINEDUC

The central ministry in charge of education administration is MINEDUC (Ministry of Education). This ministry is located in Kigali and has a capacity of 78 regular staff. The main role of MINEDUC includes the following: oversee the education sector in achieving national goals; formulate, review and supervise education policies and strategies; enact laws and regulations related to education; formulate guidelines; promote education; monitor and evaluate education strategies; monitor education indicators; report to the cabinet; plan promotion of ICT use in education; plan school equipment maintenance, and coordinate with DPs. The organization chart of MINEDUC is shown below (Diagram 3-4).

The Minister of Education oversees the Minister of State in charge of Primary and Secondary Education, the Minister of State in charge of ICT & TVET, and the Permanent Secretary (PS), as well as the Office of the Permanent Secretary (PS). There are four general departments under the Permanent Secretary: the Directorate General of Gender and Digitalization, the Directorate General of Education Policy Analysis, the Directorate General of Education Planning, Monitoring and Evaluation, and the Directorate General of Administration.

In addition, a department called SPIU, which coordinates projects from DPs and other organizations, has been established directly under the Office of the Administrative Vice-Minister. SPIU staff members are employed on a fixed-term basis depending on the project. A total of 85 are working nationwide, including those outside the main ministry (as of June 2021). In SPIU, the PS is at the top of the list, followed by the SPIU Coordinator. The MINEDUC SPIU Coordinator is said to be second only to the PS in terms of voice and authority. The organizational chart of the MINEDUC SPIU is shown below (Diagram 3-5).

・MINEDUC

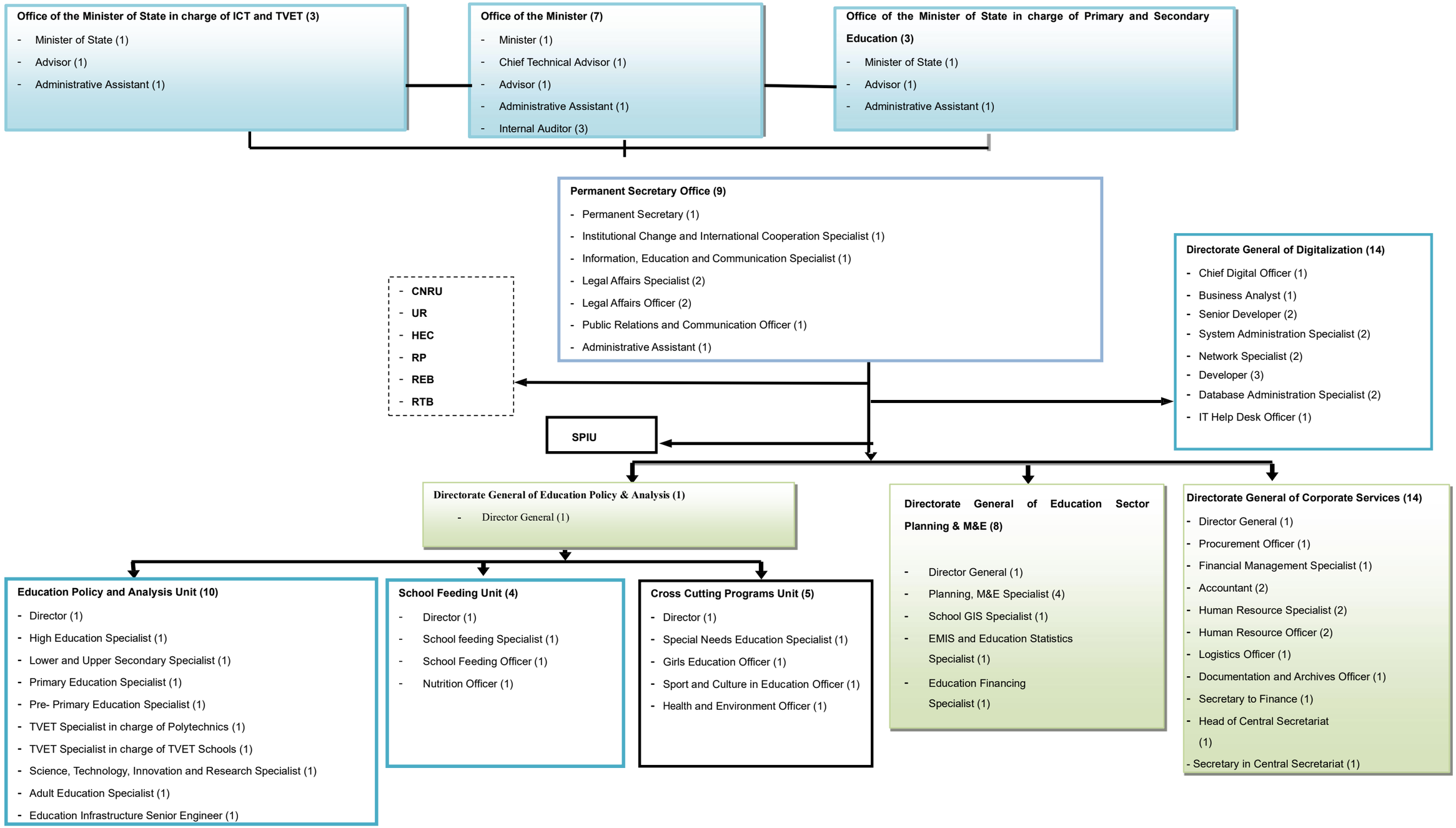


Diagram 3-4 MINEDUC Organization Chart

• **MINEDU SPIU**

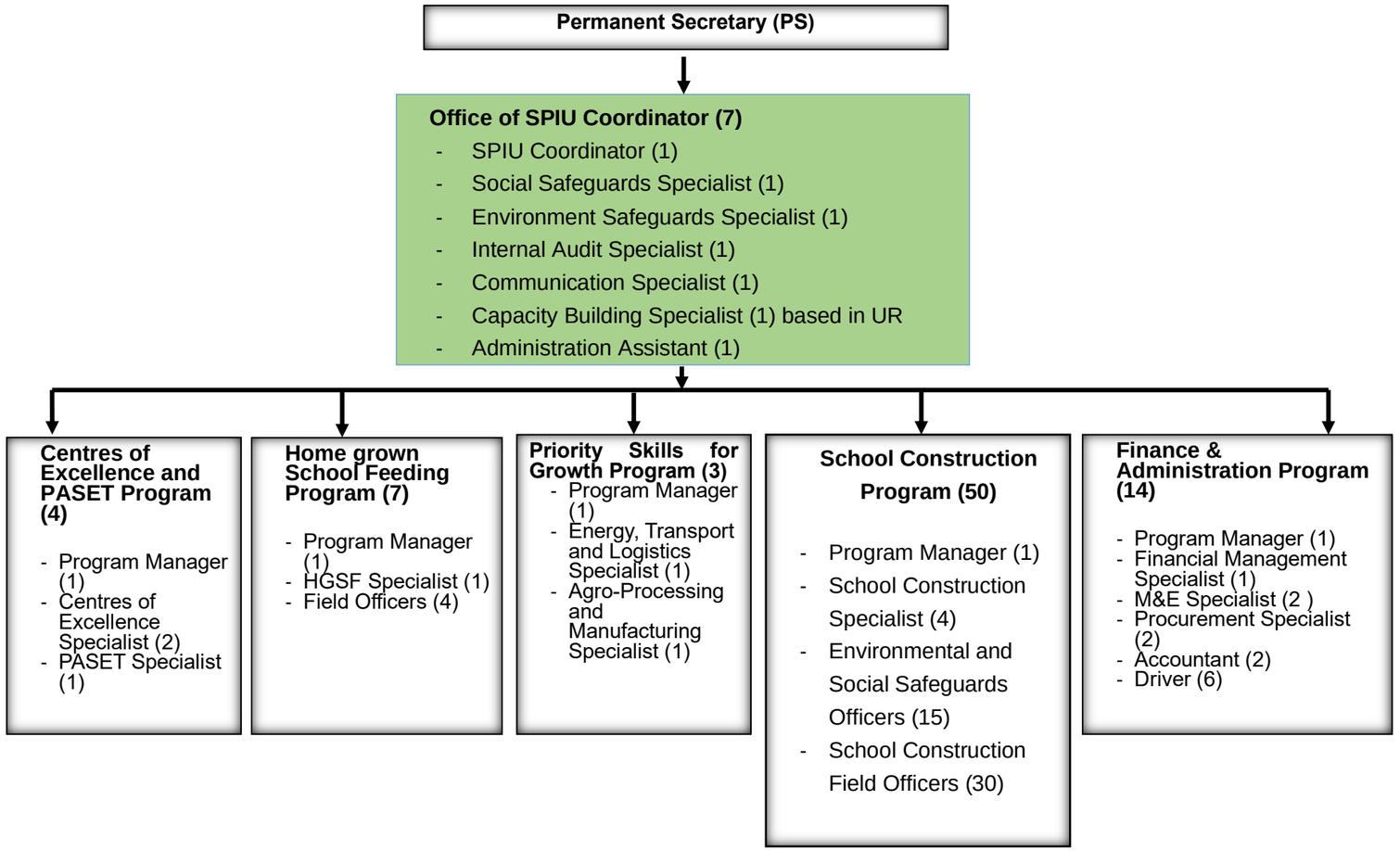


Diagram 3-5 MINEDUC SPIU organization chart

As of June 2021, MINEDUC SPIU has jurisdiction over the following six major projects.

Table 3-31 Projects under MINEDUC SPIU jurisdiction (as of June 2021)

Rwanda Quality Basic Education for Human Capital Development Project (RQBE)	WB、GPE
Priority Skills for Growth (PSG) Program	WB
3Eastern and Southern African Centres of Excellence (ACE II) Project	WB
Partnership for Skills in Applied Sciences, Engineering and Technology (PASET)	WB
Human Capital for Inclusive Growth project	WB
School Feeding Project	WFP、WB

(Prepared by the research team based on interviews with the MINEDUC SPIU Coordinator)

As shown in the organization chart, MINEDUC's policy implementing agencies include REB (Rwanda Basic Education Board), NESA (National Examination and School Inspection Authority), RTB (Rwanda TVET Board) (REB), High Education Council (HEC), Rwanda Polytechnic (RP), University of Rwanda (UR), and other implementing departments. The following text describes the REB, which is in charge of basic education in general, and NESA, which is in charge of the final national examination.

(2) REB

Established in 2011, the REB[58] merged several entities that were previously under MINEDUC: Rwanda National Examination Council (RNEC), National Curriculum Development Centre (NCDC), Student Financial Agency Rwanda (SFAR), General Inspection of Education (GIE) and Teacher Service Commission (TSC). This led to the decentralization of education administration. Certain of MINEDUC's tasks were reportedly transferred to the REB and to District Education Offices.

The official name of the REB was formerly the Rwanda Education Board, but was renamed the Rwanda Basic Education Board in February 2021 (the abbreviation "REB" remains unchanged). Along with this, some changes were made to the internal organizational structure, such as the transfer of the National Examination Section to an external organization. The below diagram (Diagram 3-6) shows an organizational chart of the REB, which has about 100 staff. The REB is located in Remera, Kigali City.

[58]From the official REB website.

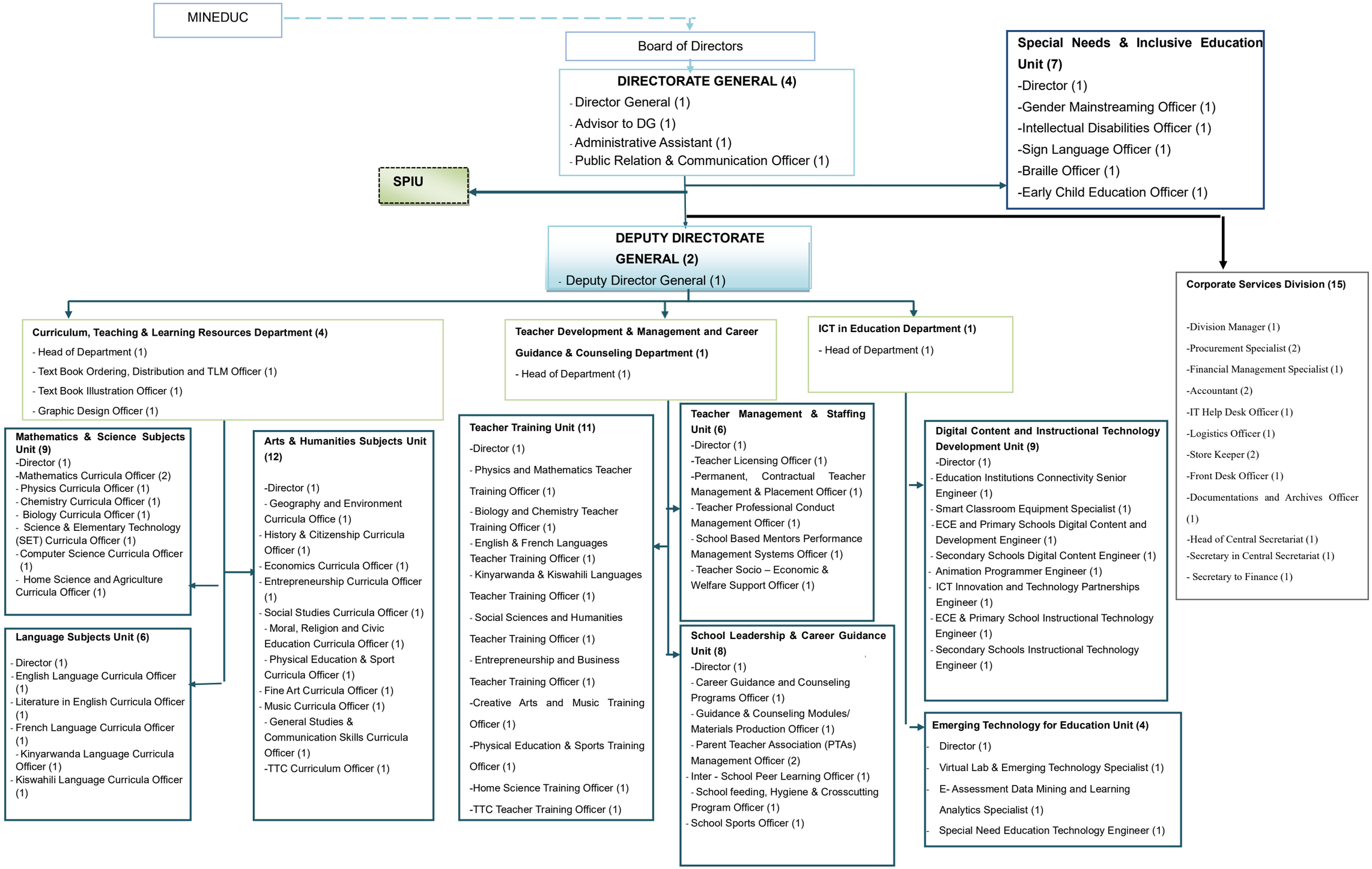


Diagram 3-6 REB organization chart

With the Director General (DG) at the top, the Deputy Director General (DDG) is in place, who oversees the Curriculum and Materials Development Section, the Teacher Development Management and Career Guidance Section, and the Educational ICT Section. In addition, the General Affairs Division, Special Needs and Inclusive Education Unit, and SPIU are positioned directly under the DG. The OLPC (One Laptop Per Child) Unit, which existed directly under the DG until around 2017, has been transferred under the Education and ICT Division.

The SPIU of the REB has jurisdiction over the following two projects as of June 2021.

Table 3-32 REB SPIU Jurisdictional Projects (as of June 2021)

RQBE	WB、GPE
Capacity Development of Information Communication Technology use in Education(CADIE)	KOICA

(Prepared by the research team based on interviews with the REB SPIU Coordinator)

The organizational chart of REB SPIU is as follows.

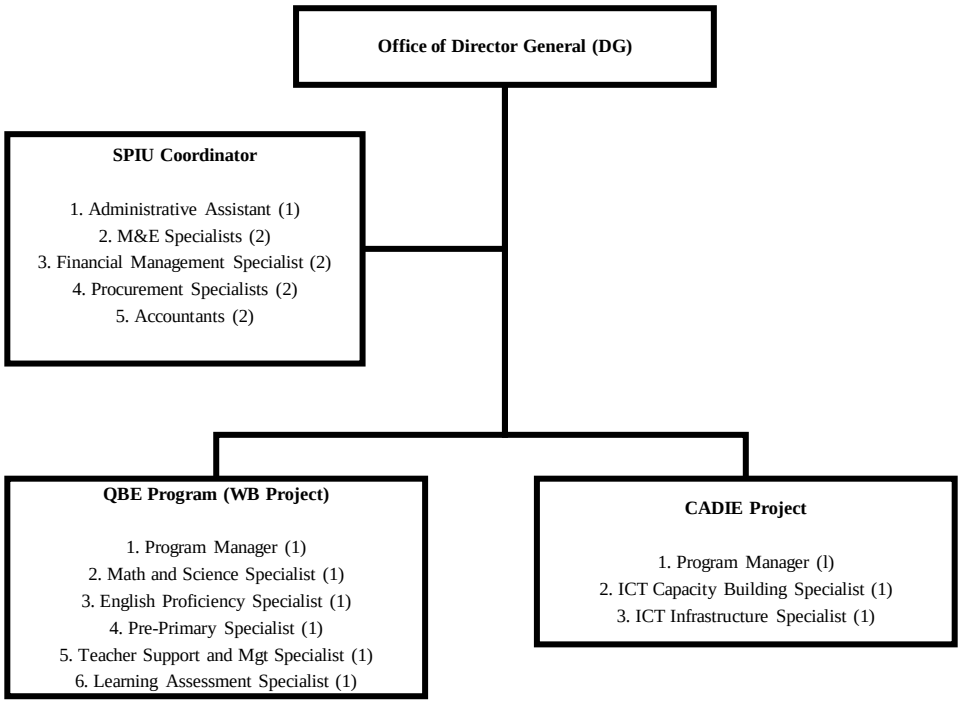


Diagram 3-7 REB SPIU organization chart

SPIU is established in both MINEDUC and REB. In case of a project that managed by both, such as RQBE, a joint Steering Committee in MINEDUC and REB is held once a month to share and coordinate information between them. The chair is PS of MINEDUC, and vice-chair is DG of REB.

(3) NESA

In 2021, the National Examination and School Inspection Authority (NESA) was established by merging the National Examination Division in REB and the Education Inspection Unit in MINEDUC at the same time as the above renaming and reorganization of REB. NESA is a non-commercial public institution with a mandate to conduct national examinations, assessments and quality assurance for basic

education and TVET L1-5. It also oversees the Comprehensive Assessment, which is described below.

The organizational chart is shown below. The DG is at the top, below which are the Basic Education and TVET Examination Section, and the Basic Education and TVET Quality Assurance Section. NESA is located across the street from the REB. However, as of November 2021, it has a temporary office on the REB premises as its own office is under construction.

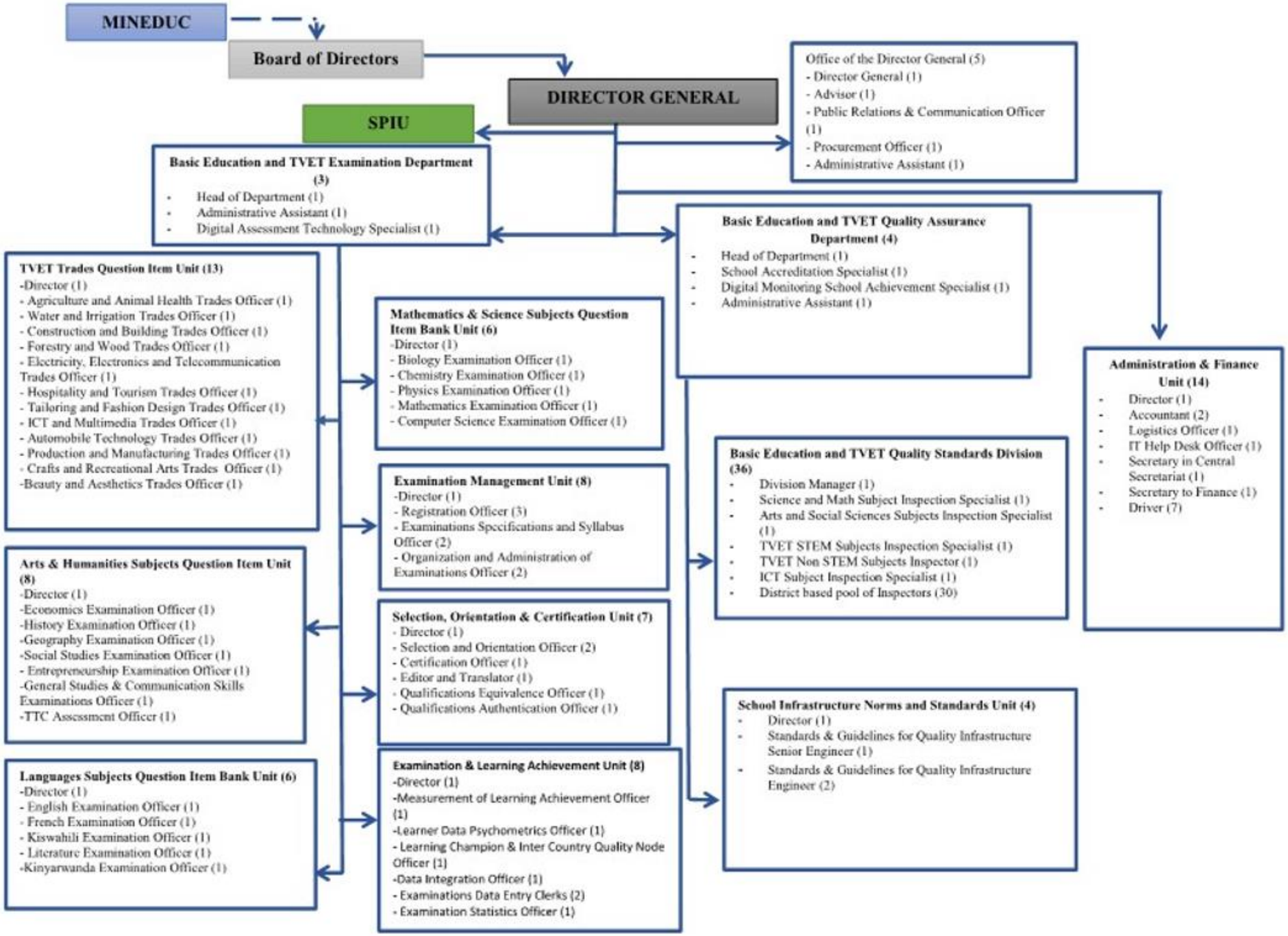


Diagram 3-8 NESA organization chart

3.3.2 Administration of public finances

(1) Educational administration

Rwanda's administrative districts consist of one Capital District (Kigali City) and four Provinces. The provinces are divided into 30 Districts. The districts are divided into 416 sectors. The sectors are divided into 2,148 cells, and there are 14,837 villages under the cells.[59]

The education sector is divided into the same administrative categories, with MINEDUC as the central ministry responsible for pre-primary education, primary education, secondary education, higher education, and vocational training. To implement each policy, sector-specific implementing agencies (or bureaus or committees) such as REB, NESA, RTB, HEC, PR, etc. have been established in Kigali under the jurisdiction of MINEDUC.

Districts are responsible for local education administration, with jurisdiction over all primary and secondary level schools, including TTC and TVET. In each of the 30 districts, a District Education Office is in place in the Education Unit with the Mayor as the highest ranking official, and a District Director of Education (DDE) and a District Education Officer (DEO). There are two DEOs: the Nursery, Primary Education and Adult Literacy Officer and the Secondary and TVET Education Officer. In addition, the sector has a Sector Education Inspector (SEI). The SEIs have been in place since 2018. Prior to that, a Sector Education Officer (SEO) was in place in each sector. The GoR has been promoting the decentralization of education since the early 2000s. In recent years, however, its focus has shifted to improving the quality of education in rural areas. SEIs have replaced SEOs with the aim of effectively intervening in school management. While there are no major changes in the content of their work, there is a stronger emphasis on inspection work.

The roles of DDE, DEO, and SEI are as follows.

Table 3-33 Roles of DDE, DEO, and SEI

Position	Responsibilities	Qualifications
DDE	・Prepare district development plans and activity plans in the education sector based on ESSP and other priorities ・Analyze and update educational status and data for the district ・Develop, implement, monitor, and evaluate district education development strategies and plans ・Unit quality control ・Quarterly activity plan results report (to MINEDUC and REB) ・Management of NGO activities in the field of education ・Create school maps ・Planning teacher recruitment based on the needs of the school ・Preservation of statistical records and service records of teachers ・Budget preparation and implementation monitoring ・Supervise staff ・Planning for additional funding ・Advise supervisors in the field of education ・Management and utilization of intellectual assets	Master's degree in Education with at least two years of work experience in the field of education, or A0 with at least four years of work experience in the field of education
DEO	In charge of secondary education and TVET ・Identify and summarize training needs of TVET education and secondary school teachers	Bachelor of Science in Education

[59] https://www.gov.rw/government/administrative-structure

	・Raise awareness of TVET education and capacity building programs for secondary school teachers ・Conduct administrative audit of TVET education ・Implementation and supervision of district programs and projects for TVET education and secondary school development ・Coordinate between teachers and administration on management of TVET and secondary education ・Coordinate and implement supervision, and evaluation of youth and job training development programs	
	In charge of pre-primary/primary education and adult literacy ・Identify the training needs of pre-primary and primary teachers and educate them on competence building programs ・Conduct administrative audits of pre-primary and primary education ・Implement and supervise district programs and projects for the development of pre-primary and primary education ・Maintain files of pre-primary and primary education teachers and staff ・Oversee informal educational activities and advise implementers ・Audit of Literacy Center ・Coordinate all activities of literacy program agencies and ensure that programs are aligned with district plans, priorities and strategies	A0 and at least two years of work experience in the field of education
SEI	・Conduct financial and administrative audits of primary school, secondary schools, and informal schools ・Confirm hygiene management and hygiene measures in school environments ・Manage food inventories for school children ・Record education and literacy statistics ・Prepare, conduct, supervise, and report on systematic testing at the sector level on a regular basis ・Monitor district-sponsored exams	A0 and at least one year of work experience in the field of education

(Prepared by the research team based on ESSP3, Kayonza District Divisional Chart, and interviews with DDE)

The schools and teachers, including the TTC, are basically under the jurisdiction of the district. The governing body is MINALOC. However, higher education institutions (UR, etc.) are under the jurisdiction of MINEDUC.

As for school construction, one School Construction Engineer has been assigned to the Infrastructure One Stop Centre unit of the district.

(2) Education finance

1) Education sector budget

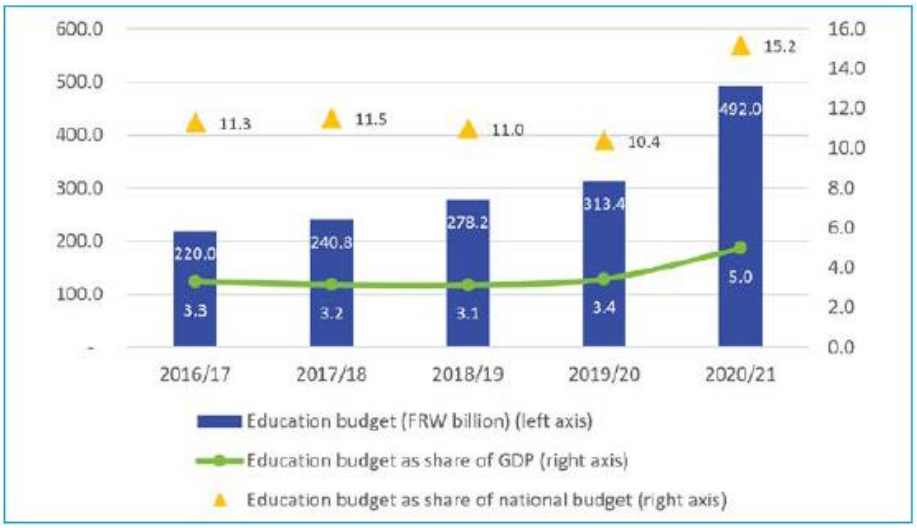
The national budget for FY2020/21 is approximately RWF 3,245.7 billion,[60] and the budget for public education expenditure is approximately RWF 487.132 billion (approximately 55 billion yen in 2020).[61] This amounts to approximately 15% of the national budget, the largest budget share compared to other sectors. The executed budget rate for the same year was approximately 92.7%.

The share of the education budget in the national budget has risen significantly from 10.4% (2019/20) to 15.2% (2020/21). The main reasons for the increase are the allocation of budget for education-related portions of the budget from departments such as health and sanitation and social security, as well as plans to expand classrooms and increase the number of teachers in basic education.

As a result, the total expenditure on educational institutions as a percentage of GDP has increased from over 3% to 5%. Previously, Rwanda's public education expenditure to GDP had been on a downward and flat trend from 2013. As shown in the figure below, it had been low compared to the average for sub-Saharan Africa and neighboring countries until 2018. However, is expected to improve following an increase in 2020.

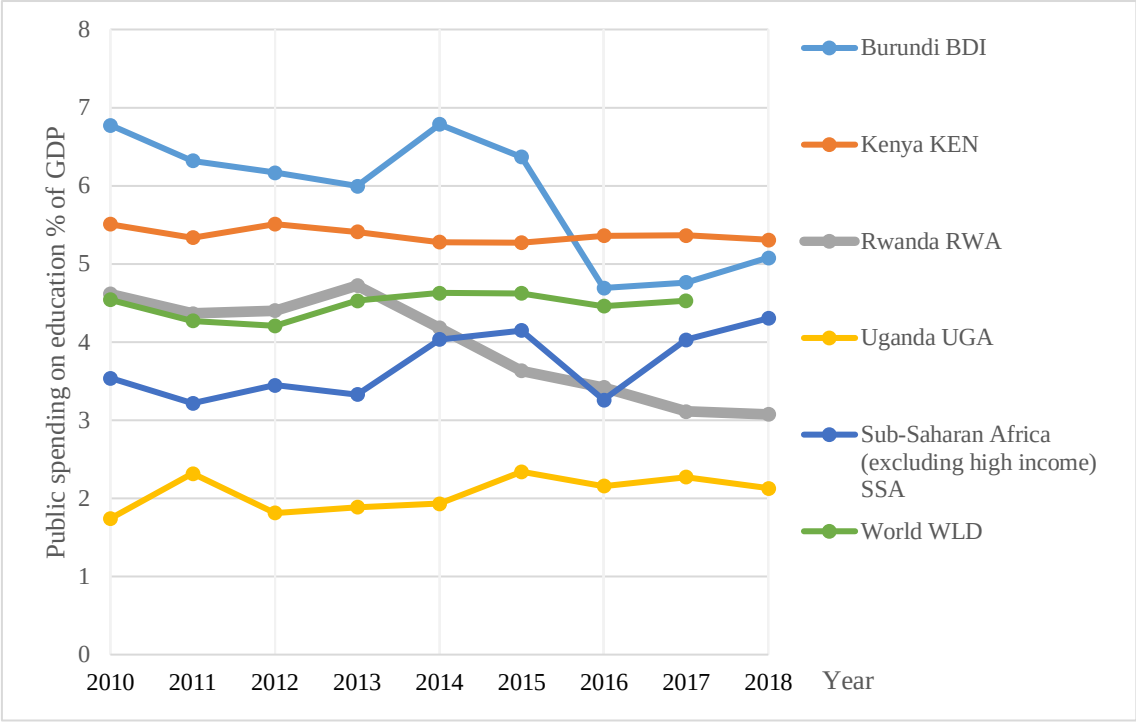
[60] Rwanda's fiscal year begins in July and ends in June.

[61] Exchange rate as of October 2021: 1 RWF = 0.112840 yen (JICA October 2021 Settlement Rate Table)



(Source: Education Budget Brief 2020/2021, UNICEF)

Figure 3-9 Rwanda education sector budget



(Compiled by the research team based on information from the World Bank website[62])

Figure 3-10 Yearly trends and comparison of public education spending vs. GDP

The national budget for 2021/22, proposed by the Minister of State in May 2021, was about 3.8 trillion RWF. The spending priorities were aligned to Vision 2050: improving access to quality health and health care, increasing productivity in agriculture and livestock, expanding social protection, improving the quality of education, and supporting the private sector.[63]

[62] https://data.worldbank.org/

[63] MINECOFIN website; https://www.minecofin.gov.rw/news-detail/default-f4d7602305

The budgets for each sector in the education sector are divided into Recurrent and Development budgets. The share of recurrent budget in the total education sector in 2020/21 was approximately 51.4%.

In FY2020/21, roughly 50% (about RWF 244.5 billion) of the total education sector budget was allocated to the central budget, of which 51.7% (about RWF 126.4 billion) to MINEDUC, 7.5% (about RWF 31 billion) to REB, 6.7% to UR, and 1.3% to NESA.

The total budget for the education sector for the fiscal year 2021/22 is about RWF 442.6 billion. The central share is about 40.7% (about RWF 179.9 billion), which is a decrease from last year's accounts. Accordingly, allocations to the provinces have increased in both proportion and amount, from about RWF 242.6 billionin the previous fiscal year to about RWF 262.7 billion in the current fiscal year.

In future budget plans, the overall education sector budget is expected to increase, mainly with respect to allocations to rural areas.

Total personnel costs, including teacher salaries, for 2021/22 are about RWF 209.7 billion, which is about 47.4% of total public education expenditure.

The budget percentages for each educational level are as follows.

Table 3-34 Budget percentage by education level

Level	Actual 2020/21 (RWF)	% Share	2021/21 Approved budget (RWF)	% Share
Total	**536,473,110,289**	**100%**	**485,192,908,379**	**100%**
Pre-Primary	3,218,838,662	0.6%	5,821,969,754	1.2%
Primary	251,605,888,725	46.9%	229,482,641,130	47.3%
Secondary	151,285,417,101	28.2%	137,786,617,507	28.4%
TVET	56,866,149,691	10.6%	40,268,624,131	8.3%
Tertiary	60,621,461,463	11.3%	58,733,623,912	12.1%
Others	12,875,354,647	2.4%	13,099,431,946	2.7%

(Prepared by the research team based on interviews with 2020/21 BACKWARD-LOOKING JRES[64] and MINEDUC)

In addition, a budget to strengthen teacher training is being implemented based on an extraordinary cabinet decision in January 2019.[65] With regard to tuition fees for TTC students, the GoR began subsidizing half of the tuition fees from 2020. This has been included in the education sector local budget. Furthermore, a resolution was passed to strengthen the career path of teacher training, and a privilege system has been implemented starting in 2020. Under this system, graduates of the TTC who have excellent grades and three years of work experience in primary school settings will be eligible to enter

[64] 2020/21 BACKWARD-LOOKING JOINT REVIEW OF THE EDUCATION SECTOR REPORT (MINEDUC, 2021) https://www.mineduc.gov.rw/fileadmin/user_upload/Mineduc/Publications/REPORTS/JRES_REPORTS/BACKWARD-LOOKING_JRES/2020-2021_BL_JRES_NARRATIVE_REPORT.pdf

[65] PRESS RELEASE ON EDUCATION SECTOR STRATEGIES TO PROMOTE QUALITY EDUCATION, Kigali 05 February 2019 https://www.mineduc.gov.rw/news-detail/press-release-on-education-sector-strategies-to-promote-quality-education-1

UR-CE on a full scholarship. In addition, the system includes the benefit that after five years of work experience in a secondary school after graduation from UR-CE, students are eligible to enter the master's program of UR-CE with half tuition fees.

2) Budget and management of public schools

Funding for the operation of public schools in Rwanda will basically consist of the following funds (2020).

Table 3-35 School operating funds

Capitation Grant (CG)	This is a school operating fund that is allocated to all public schools based on the number of children and students in the school. Payments are made quarterly by MINECOFIN upon application by the district. The amount per student is as follows. Pre-primary: 4,860 RWF/year (to be implemented from 2021) General school (GS, etc.): 4,860 RWF/year[66] Special needs primary school: 11,000 RWF/year (boarding: 21,000 RWF/year) Secondary school (ES): 11,000 RWF/year Boarding secondary and TTC: 11,000 RWF/year (Boarding: 21,000 RWF/year) Special needs secondary school: 11,000 RWF/year (boarding: 21,000 RWF/year) TVET: 11,000 RWF/year (Boarding: 21,000 RWF/year)
Wages and Salaries	Personnel expenses for school management and teachers' salaries, etc.
Auxiliary/Other	・5 chalk sticks per teacher per day as a chalk aid ・School feeding cost: 56 RWF/day per child/student ・Bonuses for the best performers on teacher's day , etc.

(Prepared by the research team based on materials from MINEDUC)

The use of CG that the school receives is determined by the following percentages.

Table 3-36 Applications of CG

pre-primary	30%	40%	30%
Primary	30%	40%	30%
Secondary	40%	30%	30%
Purpose	A: Expenditure on teaching materials ・Stationery and teaching materials for teachers ・Sports goods ・District and sector mock exams ・Expenditure on school sports ・Hygiene-related ・COVID-19 measures ・Development of a nutrition garden	B: Management expenditure ・Running costs (water, electricity, etc.) ・Office equipment ・Social security expenditures ・Taxes ・Salaries of security guards and cleaners ・Internet fee ・Communication expenses for principal, vice principal, treasurer, secretary, etc. ・Transportation and special activity allowances ・Maintenance of ICT hardware and software	C: School infrastructure development ・Building renovation and repair ・Installation of water and electricity ・Internet maintenance and renovation of the SMART classroom

[66] Exchange rate as of October 2021: 1 RWF = 0.112840 yen (JICA October 2021 Settlement Rate Table)

		・International and National day celebrations ・ Travel expenses for audit committee members ・ Travel expenses for school committee and school audit committee ・First aid kit	

(Prepared by the research team based on materials from MINEDUC[67])

Regarding the disbursement of Capitation Grant (CG), the schools aggregate the data of the number of pupils/students through SDMS, then report it to the district (DDE, DEO) via the sector (SEI). The districts confirm and approve it with the support of MINEDUC, and apply to MINECOFIN. These are processed through SDMS. MINEDUC sets a focal point for consulting throughout and monitors the application status through SDMS.

3) Education expenditure in households

In pre-primary education, the above-mentioned CG distribution is being implemented from 2021. Various fees are being collected from families to the schools as tuition fees, etc. As a result, enrollment in pre-primary education is generally a major burden for each family.

Although tuition is free for public basic education, in reality, various fees are collected from families. While 12YBE schools are basically free of tuition fees, later secondary schools other than 12YBE may charge various fees for tuition and other expenses.

School feeding, which has begun to be rolled out nationwide in basic education, is also subsidized by the government. Families generally pay part of the cost of school lunches. Some schools allow for in-kind substitutions.

Based on the information gathered from principals and others at various locations, the following are some of the expenses that families must cover for schooling. This information is for reference only. The following items vary greatly by region and school from whether or not a fee is charged, to the amount, the name, and in-kind services.

Table 3-37 Household expenditure on education

Pre-primary education	Tuition: 6,000-15,000 RWF/Term School lunch fee: 500-2,500 RWF/month *Provide 1kg of beans to the school every month.
Primary education	Incentive cost for teachers: several hundred to 4,000 RWF/Term Exam preparation fee: 1,500-2,000 RWF/Term School lunch: 200 RWF/day, 500-2,000 RWF/month, etc. *Provide 1kg of beans to the school every month. Uniform cost: 8,500-12,000 RWF/year
Lower secondary education	Student registration fee: 1,000 RWF/year Incentive cost for teachers: 2,000-5,000 RWF/Term Exam preparation fee: 300-2,000 RWF/Term *S1 and S4 provide one bundle of paper to the school. National exam registration and implementation fee: 3,000 RWF (S3, S6 only) School lunch: 200 RWF/day, 1,600 RWF/month, 2,000-15,000 RWF/term,

[67] EDUCATION SECTOR EARMARKED TRANSFERS GUIDELINES FOR FY 2021/2022 (April 2021) etc.

	36,000-45,000 RWF/year, etc. Uniform cost: 10,000 - 30,000 RWF/year

(Prepared by the research team based on interviews during the field survey)

According to the EICV5, the average annual consumption per adult equivalent is 570,000 RWF (47,500 RWF/month) in urban areas and 216,000 RWF (18,000 RWF/month) in rural areas. The poorest quintile spends 86,000 RWF (7,200 RWF/month).

3.3.3 Current situation and issues in the education sector

Based on the survey results, the issues in the education sector can be summarized as follows. The details are described in the respective sections.

Table 3-37 Current Situation and Issues in the Education Sector Overview

Pre-primary education		
	Current situation and issues	Underlying factors
Access	➢ About 700,000 children are not in school ➢ Low enrollment rate (GER: 29.8%, NER: 24.6% in 2019)	➢ Insufficient number of schools ➢ Burden on families in terms of tuition fees, etc. ➢ Ambiguity in policy jurisdiction ➢ Insufficient number of teachers ➢ Government budget shortfall
Internal efficiency	➢ No data on dropouts or retentions ➢ Students seem to be advanced automatically, but in some cases students of different age groups are taking classes at the same time	➢ Lack of data development in pre-primary education
Impartiality	➢ Insufficient number of schools prevents students from attending school ➢ Many young children are unable to attend school due to the obstacle of tuition fees ➢ The quality of the facilities at each school varies widely ➢ Slightly higher enrollment of girls, but fewer girls enrolled in school to begin with	➢ Low parental awareness of pre-primary education ➢ Burden on families in terms of tuition fees, etc. ➢ The policy position on pre-primary education is unclear
Quality of learning	➢ Significant variation between schools and teachers ➢ No teaching materials	➢ Pre-primary education has just begun to spread, and materials are not well distributed
Teaching staff	➢ Significant variation between schools in terms of qualifications or lack of qualifications, competence, etc. ➢ Play-based learning is recommended, but it is divided between learning in preparation for school and straightforward play	➢ The concept of play-based learning is difficult to understand ➢ Teaching in training courses
Community	➢ Not willing to participate in pre-primary education	➢ The school is too far away and accompanying children is a burden ➢ Tuition fees are a burden on the household budget ➢ School lunches are not provided at the school
Primary education		
	Current situation and issues	Underlying factors
Access	➢ High enrollment and school age (Over-age) GER：138.8% (2019) ➢ Due to their older age, students who have had to repeat a grade they tend to drop out easily ➢ High risk of staying or dropping out of school due to age	➢ Low participation rate in pre-primary education ➢ Domestic help and child labor due to family circumstances (poverty)
Internal efficiency	➢ High retention rate (10%) and dropout rate (7.8%) ➢ More than half of the children stay behind a ➢ Differences in the measures taken to prevent students from dropping out of school and staying in school,	➢ Insufficient sharing of innovations and best practices among districts and schools

	year at least twice before reaching P6 ➢ The number of students staying or dropping out of school from P1 to P2 is higher than in other promotions	as well as regional differences in approaches and effectiveness ➢ Differences in approaches to countermeasures by school administrators ➢ Low quality of lower primary education classes ➢ No public safety net after leaving school	➢ The time it takes for younger children to adjust to school is not taken into account ➢ Double shifts in lower primary grades, the shift to English, competence of classroom teachers, quality of teachers
Impartiality	➢ Slightly higher percentage of girls enrolled in school, with boys experiencing difficulties in retention, dropout, grades, etc.	➢ Many facilities are not suitable for receiving LwD students	➢ In many cases, boys are in the labor force due to poverty ➢ Insufficient budget for facility maintenance
Quality of learning	➢ HCI test scores lower than the average for sub-Saharan Africa ➢ LARS results are low (basic academic skills are about 50%) ➢ Class size defined by policy goals is large (46)	➢ The quality of classes is low, making it difficult to acquire sufficient academic skills through classes alone ➢ Textbooks are not used, making supplemental classes or self-study impossible	➢ No use of textbooks or teaching materials ➢ Classes where textbooks and teaching materials are not distributed to children, being used only by teachers ➢ Writing on the board is not appropriate ➢ Review of policy goals
Teaching staff	➢ Low quality of teaching ➢ Increasingly higher standards required, such as English language requirements ➢ Insufficient ability to use ICT	➢ Teacher (teaching method) centered, instead of being learner centered ➢ Teaching and evaluation methods have been reduced to a mere formality as teachers are too fully occupied with preparing classes	➢ Focus is on teachers' classroom practice (doing CA, CBC, CPD), instead of being on developing children's academic skills ➢ Not recognizing children as individuals ➢ Overcrowded class size ➢ Overcrowded curriculum ➢ Lack of training in ICT application skills at training institutions
Community (Self-study)	➢ No environment for self-study ➢ No time for self-study ➢ No tools for self-study	➢ No environment to help students retain what they learn in school. ➢ No environment is provided for self-study	➢ No habit of home study (self-study) ➢ After returning home, students must help with household chores ➢ No access to self-study materials
Secondary education			
	Current situation and issues		Underlying factors
Access	➢ Low enrollment rates (GER: 53.0%, NER: 31.5% in 2019)		➢ Older age at completion of primary education ➢ Lack of academic achievement at the end of primary education ➢ Burden on families in terms of tuition fees, etc. ➢ Difficulty in attending school due to work ➢ Insufficient number of schools ➢ Lack of school facilities
Internal efficiency	➢ With a high dropout rate of 9.1% (2019), students are more likely to drop out than stay in school		➢ Lack of academic achievement at the end of primary education ➢ The cost of attending school has become a burden
Impartiality	➢ Low enrollment rate in early secondary education (basic education) ➢ Not enough schools to accommodate all primary education graduates ➢ Low percentage of girls entering post-secondary education, and low percentage entering the sciences ➢ Variations between schools in facilities (labs, SMART classrooms, girls rooms, etc.)		➢ Lack of academic achievement at the end of primary education ➢ Insufficient budget for facility maintenance ➢ Insufficient maintenance ➢ Lack of consideration for adolescents ➢ Gender balance in the teaching profession
Quality of learning	➢ LARS3 results show low sufficiency in English (71.3%) ➢ The class format is centered on writing on the board, with insufficient practical training such as science experiments		➢ Inadequate facilities ➢ Insufficient teacher competence

Teaching staff	➢ Smaller percentage of qualified and trained teachers compared to primary teachers ➢ Insufficient number of teachers (especially female teachers) ➢ Insufficient ability to use ICT	➢ Few training institutions for secondary school teachers ➢ Many UR-CE graduates go on to other well-paying jobs ➢ Lack of training in ICT application skills at training institutions

(1) Education Statistics and Policy Goals

Education statistics in Rwanda are available from education statistics published by MINEDUC, EICV(NISR), the World Bank and other DP websites and reports. The following refers to MINEDUC education statistics, 2019 Education Statistics (MINEDUC, 2019), reviewing the current situation in comparison with policy goals.

The following table shows the numbers of students enrolled in each educational program and the population of suitable age for schooling in 2019.

Table 3-38 Numbers of students enrolled in school and the suitable age population in Rwanda

(persons)

	2016	2017	2018	2019	
	Number of students enrolled	Number of students enrolled	Number of students enrolled	Number of students enrolled	Population of suitable age
Pre-nursery	No data	5,234	6,491	6,690	1,350,751
Nursery	185,666	220,435	226,706	282,428	947,252
Primary	2,546,263	2,540,374	2,503,705	2,512,465	1,810,665
Lower secondary	346,783	382,661	422,093	481,138	908,132
Upper secondary	206,956	228,311	236,192	250,966	812,637

(Excerpt from 2019 Education Statistics)

The following table shows the level of achievement by a comparison of education statistics (2019) with the current situation of the ESSP3 2019 plan.

Table 3-39 Comparison of educational statistics and ESSP3 targets

2019	Indicator	Present condition	ESSP3 target	Status
Pre-primary education	NER	24.6	27.6	Not achieved
	GER	29.8	33.5	Not achieved
	Number of children per qualified teacher	40	42	Achieved
	Number of children per trained teacher	71	80	Achieved
Primary education	NER	98.5	98.3	Achieved
	GER	140.8	131.4	Not achieved
	NIR P1	80.4	83.2	Not achieved
	Dropout rate	7.81	4.3	Not achieved
	Repetition rate	10.0	12.5	Achieved
	GIR P6	95.4	82.3	Achieved
	Transition rate	72.2	79.6	Not achieved
	Number of children per qualified teacher	58	57	Not achieved
	Number of children per trained teacher	60	59	Not achieved

Lower secondary education	NER	31.5	33.5	Not achieved
	GER	53.0	49.9	Achieved
	NIR S1	17.1	17.9	Not achieved
	Dropout rate	9.1	5.0	Not achieved
	Repetition rate	5.0	6.2	Achieved
	GIR S3	40.1	42.1	Not achieved
	Transition rate	86.1	87.9	Not achieved
Secondary education	Number of children per qualified teacher	30	28	Not achieved
	Number of children per trained teacher	38	34	Not achieved
Gender	GPI for pre-primary NER	1.05	1.02	Many girls
	GPI for primary education NER	1.00	0.99	Almost equal
	GPI for early secondary education NER	1.27	1.05	Many girls
LwD	Percentage of primary schools that meet the criteria for enrollment of children with disabilities	23.2	23.5	Not achieved
	Percentage of secondary schools that meet the criteria for enrollment of children with disabilities	35.6	27.8	Achieved

Indicator		Present condition	ESSP3 target	Status
Percentage of schools with Internet access (%)[68]	Primary	34.8	40.8	Not achieved
	Secondary	61.1	52.5	Achieved
Number of children and students per PC (persons)	Primary	10	8	Not achieved
	Secondary	8	7	Not achieved
Percentage of schools with access to a PC (%)[69]	Primary	83.4	74.9	Achieved
	Secondary	85.4	85.1	Achieved
Percentage of schools with electricity supply (%)	pre-primary	40.0	49.1	Not achieved
	Primary	60.8	66.0	Not achieved
	Secondary	76.6	77.5	Not achieved

(2) Pre-primary education

There is a tendency to confuse pre-primary education with ECD services. In some respects, the line is not clearly drawn in statistics or government policy. In Rwanda, the terms "pre-primary" and "nursery" are used interchangeably to refer to pre-primary education. However, one can also find definitions of “pre-primary” as consisting of pre-nursery and nursery (Education Statistics) or descriptions of “pre-primary” as synonymous with ECE. In recent years, “pre-primary education” has been used to refer to education, while “nursery school” has been used to refer to schools. Pre-primary education is described in the MINEDUC jurisdiction, although the term is not clearly defined.

Within pre-primary education, Rwanda has two schools that are classified as CEAPS. CEAPS is the French abbreviation for Centre Expérimental d'Activités Préscolaire. This translates as "pre-primary experimental school. These schools were established in the late 1980s, mainly for the purpose of childcare, jointly by UNICEF and the ministry that is now MIGEPROF. Later, MINEDUC became involved, in

[68] Number of schools with internet connectivity: The line speed at school varies.

[69] It does not take into account the number of PCs in the school, nor whether these are in good working order. Therefore, even if the ESSP3 target is achieved, it does not provide a real picture as an "indicator of ICT use in school management and classroom teaching".

anticipation of future educational needs. MINEDUC used the facilities as training centers for pre-primary teachers, providing insight into the establishment of the pre-primary major course at UR-CE.[70] It also provided knowledge when the UR-CE established a major course in pre-primary education. These are the oldest public pre-primary schools in Rwanda. Until 2020, they were among a small number of pre-primary schools to receive full government support (CG). However, from 2021, CG allocation to Nursery schools fell under the jurisdiction of MINEDUC.

In terms of policy, MINEDUC has not developed a policy specific to the sector since the Integrated Early Childhood Development Strategic Plan 2011/12-2015/16 was formulated in 2011.

According to interviews with the concerned parties, in recent years, the jurisdiction of ECD for children (infants) has been mainly MIGEPROF and NCD. ECD services are mainly provided in the areas of nutrition, health and education. MINEDUC is reported to have jurisdiction over the part of the ECD service that mainly concerns schools and education, or Early Childhood Education (ECE), for young children aged three to six years. A pre-primary curriculum has therefore also been developed for the CBC. As stipulated in the CBC, the teaching content of pre-primary education consists of six areas: discovery, mathematics, language (Kinyarwanda and English), arts, health, and social (non-cognitive) skills. It also includes reading and listening to stories.

In recent years, however, MINEDUC has in some cases organized community-based ECD centers under its jurisdiction and MINEDUC pays the salaries of caregivers (in this case, they are not caregivers but nursery teachers). In some cases, while the term ECD center is used, its operation is similar to that of a nursery school under MINEDUC, which counts the center as a nursery school. As of November 2021, in pre-primary education discussions are underway concerning the roles of the nursery school (MINEDUC) and the ECD center (MIGEPROF) and the integration of these.

Currently, the biggest challenge in pre-primary education is the low enrollment rate. As mentioned earlier, NER and GER in 2019 are 24.6% and 29.8% respectively. Neither figure achieves the ESSP3 plan targets for 2019.

Vison 2050 set the goals for pre-primary education of NER 99 % in 2035. MINEDUC sets the development and expansion of pre-primary education as one of the priority areas in ESSP3. However, the challenge in pre-primary education is low school enrollment.

This is due to several factors: a shortage of nursery schools; the higher costs associated pre-primary education for families compared to other forms of primary education; ambiguity in the definition of pre-primary; and a lack of clarity regarding the jurisdiction of ministries.

The following is a summary of the areas of particular concern.

[70] Based on an interview with a former CEAPS principal.

Table 3-40 Current situation, issues, and factors of pre-primary education

	Current situation and issues	Underlying factors
Access	➢ About 700,000 children are not in school ➢ Low enrollment rate (GER: 29.8%, NER: 24.6% in 2019)	➢ Insufficient number of schools ➢ Burden on families in terms of tuition fees, etc. ➢ Ambiguity in policy jurisdiction ➢ Insufficient number of teachers ➢ Government budget shortfall
Community	➢ Not willing to participate in pre-primary education	➢ The school is too far away and accompanying children is a burden ➢ Tuition fees are a burden on the household budget ➢ School lunches are not provided at the school

According to the 2012 education statistics,[71] the number of students enrolled in school was about 130,000. This has increased over the years, doubling to about 280,000 in 2019, with no significant gap between men and women. Although the situation is improving, the school-age population is about 950,000, with nearly 700,000 not enrolled in school.

While in some cases there may be confusion of pre-primary school facilities with ECD centers, but statistics show that pre-primary school facilities increased to about 3,400 schools in 2019, of which 40% were private facilities. From 2014/15, the efforts of DPs, NGOs, religious groups, PTAs, communities, and others have had a significant impact in expanding facilities. In addition, in 2019, religious organizations that operate faith-based ECD centers in various locations have agreed to cooperate with MINEDUC to expand public nursery schools[72]. For this reason, the number of nursery schools run by religious organizations as public government-supported schools is likely to increase going forward.

In 2019, the number of nurseries attached to facilities providing primary education and above was 2,299 in 2019. Some 67.6% of pre-primary school facilities were located on the same site as primary and higher education facilities. The expansion of this type of nursery school is being advanced as the nursery school (or nursery class) under the jurisdiction of MINEDUC.

In terms of the number of young children per classroom (class size), the average was 48 in 2019.This compared to 62 in public facilities and 61 in government-supported facilities, with private facilities having roughly half that at 36.

Large regional disparities also become apparent when class sizes per district are calculated from education statistics. The district with the largest number of people is Nyaruguru, Southern Province, with 96 people. The district with the smallest number is Kicukiro, Kigali, with 28 people. The difference of 68 indicates that regional disparity is extremely large.

[71] Education Statistic published by MINEDUC

[72] Reported in The New Times on December 6, 2019

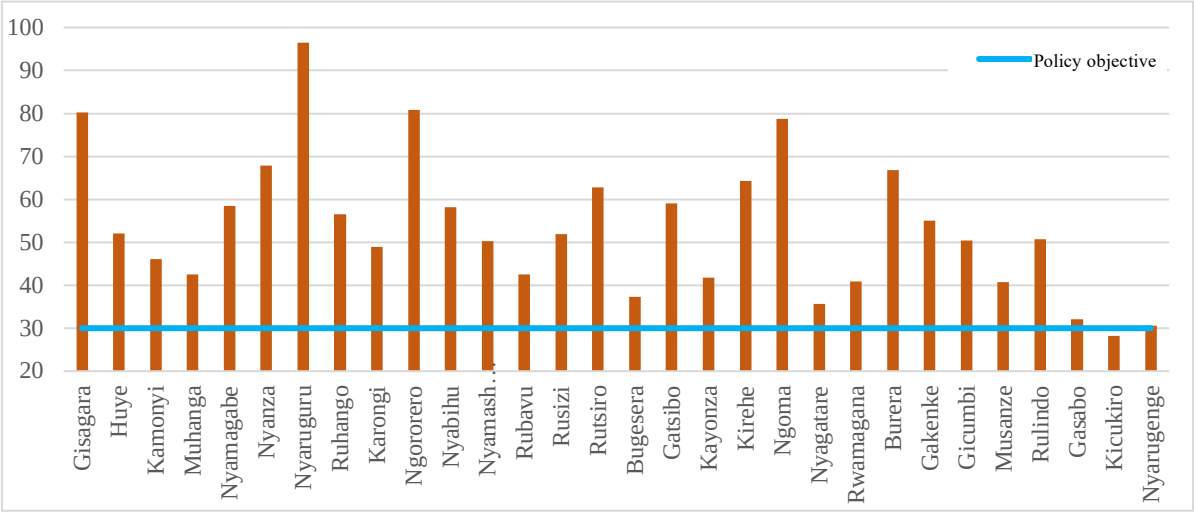


Figure. 3-11 Class size per district in pre-primary education (2019)[73]

If the policy target class size of 30 were to be applied to 1 million people, a simple calculation shows that 33,000 classrooms would be needed. However, the existing number of classrooms is about 6,000 (in 2019), leaving a significant shortage of classrooms. There is also a significant shortage of stand-alone nursery schools in locations where young children can walk to school.

Teaching staff in pre-primary education are sometimes referred to as caregivers in ECD centers. In nursery schools they are sometimes referred to as teachers. Here again, the statistical treatment is unclear. Taking this into account and checking the statistics on teaching staff already mentioned, the number of teachers was about 7,000 in 2019. Of this, 89% were qualified teachers. As mentioned above, however, some statistics are unclear. With regard to training in particular, the percentage of teachers who have attended training is about 50%. However, because various organizations and groups conduct various training programs, there are differences in the official treatment of training programs and the recognition of MINEDUC and REB in the first place. It is therefore assumed that the statistics do not accurately reflect the actual situation.

Regarding the increase in the number of teachers, MINEDUC is planning to increase the number of regular pre-primary teachers. MINEDUC has prioritized budget applications for increasing the number of pre-primary teachers. However, the increase in the number of teachers means an increase in recurrent expenditure, which is strictly reviewed by MINECOFIN. This has made it difficult to obtain budget as planned.[74] This has made it impossible to hire a significant number of teachers for pre-primary education. A budget was requested to hire about 3,000 teachers in 2020. However, only 580 could actually be hired with the education sector budget. An additional 3,000 hires are planned in 2021.

Due to this situation, many of the public pre-primary school facilities we visited during the survey had a mix of grades from N1 to N3 using one classroom. This resulted in a disparate age range and crowded

[73] 2019 Education Statistics（MINEDUC、2019）
[74]Based on interviews with REB SPIU staff.

classrooms. In such a classroom situation, it is impossible for teachers to provide proper instruction. While some schools had only one classroom for one grade level, others did not have a dedicated classroom for pre-primary education and rented a nearby church. The number of children is growing faster than the number of classrooms. It is clear that there is a shortage in the number of schools and classrooms. According to MINEDUC, the development of pre-primary education is a priority area that will be greatly expanded. Its incorporation as part of basic education is under consideration. The number of children enrolled in school will increase, which will further exacerbate the shortage of classrooms. This will become a major factor preventing children from attending school.

In addition, the locations of school is also creating a hindrance to access. The National Pre-Primary Education Minimum Standards and Guidelines for Rwanda stipulate that commuting to pre-primary school facilities must be within 2km. It is also stipulated that children must be accompanied by a parent. However, in many cases where there are no facilities within 2km. Considering Rwanda's hilly terrain, especially in rural areas, there are many ups and downs even within a distance of 2km. This make many places difficult for young children to walk. Commuting becomes even more difficult in the event of rain. The lack of an adequate number of pre-primary school facilities in suitable locations is a contributing factor to the insufficient number of facilities.

In a similar vein, the circumstances for school commuting is also considered to be a factor in the low enrollment rate. It is difficult for small children to commute to school by themselves, both in terms of physical exertion and safety. Only families who can provide transportation are able to enroll their children. One factor behind the lack of growth in the school attendance rate is reported to be the awareness of parents. It is assumed that a key reason for the lack of positive awareness of parents is the anxiety and burden of accompanying young children to and from school.

Pre-primary education may also require tuition fees, which vary from school to school. This is because nursery classes, which are mainly located in public schools, are not supported by the government but are established and run by the community and parents. In recent years, the rollout of school lunches has given rise to the need for school lunch fees. In addition, many pre-primary schools are private, and private institutions naturally require tuition fees. This is due to the fact that the financial burden on families is greater in pre-primary education than in primary education.

The families interviewed in the survey indicated that nursery schools were preferred by parents over ECD centers in terms of academic achievement. However, many nursery schools do not provide meals such as porridge, etc. In many cases, students are sent to ECD centers on the basis that they offer a slight saving on tuition fees and provide meals.

(3) Primary education

In primary education, as mentioned earlier, Rwanda is actively working to improve school age, retention and dropout, and academic performance－in other words, internal efficiency－from the perspective of HCD in Vision 2050.

As a result of the survey, we can say that the main reason for the challenges in primary education is in lower primary education (P1-P3). The factors contributing to the challenges of lower primary education

were first examined separately for before and after school, for after school, separately for on-campus and off-campus. The following is a summary of the issues that need to be addressed.

Table 3-41 Current situation, issues, and factors in primary education

	Current situation	Issue	Underlying factors
Access	➢ Many pupils at inappropriate age GER：138.8% (2019)	➢ Pupil at inappropriate age is easy to repeat and dropout.	➢ Low enrollment of pre-primary education ➢ Poverty hinders the schooling at right age
		➢ Many of pupil at inappropriate age did not enroll pre-primary. They tend to have higher risk of repetition & dropout.	➢ Low enrollment of pre-primary education ➢ Poverty hinders the schooling at right age.
Dropout, Repetition, Promotion	➢ Repetition rate 10%, Dropout rate 7.8% ➢ 56% of P6 pupils have repeated at least twice (UNICEF 2019). ➢ Highest number of repetition at P1 to P2	➢ Difference in the measures to prevent repetition & dropout at schools ➢ Few public safety net works to support dropped out pupils.	➢ Not enough sharing of good practices to prevent repetition & dropout between districts, schools etc
		➢ Not enough quality of lessons in lower primary education	➢ Double-shift, English as learning language, low quality and capacity of class teachers ➢ Not enough care to lower grade pupils to get used to learning at school
Learningout come	➢ Harmonized test score of HCI is lower than Ave. of SSA. ➢ Lower performance at LARS (approx. 50%) ➢ Overcrowded classroom	➢ Pupils do not acquire enough competence due to low quality of lessons at schools.	➢ Textbooks & T/L materials are not appropriately used at lessons. ➢ Textbooks & T/L materials are not distributed to pupils.
		➢ Pupil do not have study habit out of school because they do not have opportunity to review and self-study after school.	➢ Pupils can not use textbooks for review & self-study after school. ➢ Teacher's board writing is not sufficient for pupils' learning.
		➢ Class management is difficult for teacher due to huge PCR.	➢ Target number of PCR in ESSP3 (46) is still not appropriate for lower grades.
Teacher	➢ Low quality of lesson ➢ Higher requirements to teachers ➢ Not sufficient utilization of ICT ➢ Overcrowded classroom	➢ Not sufficient learner-centered lesson but teachers dedicate to utilize new methods and meet new standards.	➢ Teachers do not focus pupils' learning but dedicate to meet new standards. ➢ Teachers do not recognize individual pupils' learning.
		➢ Teachers do not use teaching method and assessment in right way.	➢ Huge PCR. ➢ Too much contents in curriculum.
		➢ Low capacity of teacher ➢ Low skill of ICT utilization of teacher	➢ Not suitable contents in Teacher education & development, training. ➢ Insufficient training for ICT utilization at TTC & teacher training.
Community	➢ No place, time, materials for pupils to do self-study	➢ Pupils can not do review & self-study due to lack of environment after school.	➢ No secure place for self-study ➢ No habit to study at home ➢ Pupils need help with housework after school. ➢ Pupils can not get learning materials after school.

ICT utilization	➢ Internet coverage 1/3, computer distribution 10 pupils, 14 teachers / a computer ➢ ICT training conducted with DPs ➢ Pupils learn XO in P4-P6. ➢ REB provides digital learning materials and e-learning platform.	➢ More improvement of teachers' ICT skill is necessary.	➢ Teachers do not have own devices. ➢ Teachers do not have enough experience and knowledge to use ICT.
		➢ Good practices for ICT utilization in lessons are so few.	➢ Some teachers think the preparation and maintenance for utilizing ICT in lesson is so hard.
		➢ Not effective use of ICT at homes of lower primary pupils because the maintenance of ICT at homes has been delayed.	➢ Parents do not recognize the importance of ICT for learning at home.

(Prepared by the research team based on survey results)

Access

Access to primary education has improved significantly since free education was introduced. The NER for 2019 is 98.5%, with no significant gap between men and women. The NER meets the 2019 target set in ESSP3, which is higher than the average for sub-Saharan Africa (57%), although the statistics are for 2018. Primary education enrollment is one measure that is improving rapidly in Rwanda.

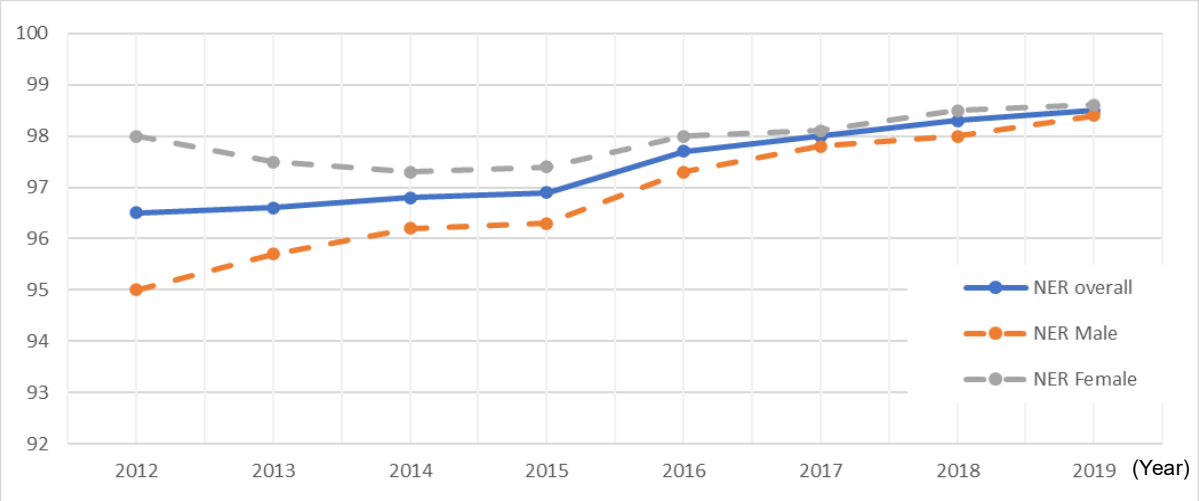


Figure 3-12NER in primary education(%)[75]

However, the NIR P1 (net enrollment rate) is still low at 80%, which does not reach the planned value (83.2%) set in ESSP3. The GER has also not reached the planned value for ESSP3 and is stagnating at a much higher value. The high GER is a unique challenge for Rwanda compared to other neighboring countries. It has remained high since 2013, when it exceeded 130%. In the 2019 statistics (GER: 131.4%), comparing data on the World Bank website, neighboring Burundi had a GER of 119%, while the average for the Northeast African countries was 104%, and the average for Sub-Saharan Africa was 99%. Rwanda has long remained the highest among its peers.

[75] 2019 Education Statistics（MINEDUC、2019）

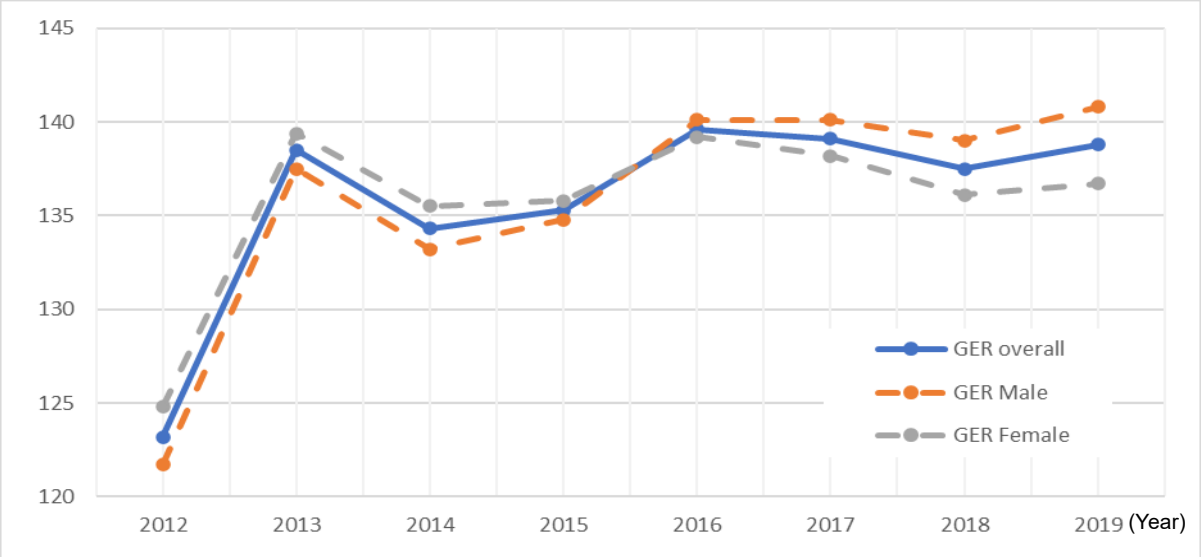


Figure. 3-13 GER in primary education (%)[76]

In 2018/19, the GER increased by 1.3 percentage points compared to an increase of 0.2 percentage points for the NER, representing a large number of children not enrolled in school at the appropriate age (about 700,000) and a high retention rate due to this situation. The NIR at P6 is below 30%[77], indicating that most of the students have been retained before reaching the final grade.

The regional disparity in enrollment rates was also pointed out in ESSP3.[78] The magnitude of the disparity can be seen by analyzing the Net Attendance Rate (NAR) of the EICV5. Although the statistics are for 2016, as a comparison based on the fact that both GER and NER in 2016 are not significantly different from 2019, the NAR is 87.6% on average nationwide. This compared to 78.4% in Nyagatare, the lowest district, and 93.8% in Burera, the highest district, a gap of 15 percentage points.[79]

Applying this difference to the number of children (enrolled) in school by district in 2016, the number of children not actually attending school is about 25,000 in Nyagatare, the lowest NAR,compared to about 5,000 in Burera, the highest, amounting to a difference of 20,000.

[76] 2019 Education Statistics（MINEDUC、2019）
[77] 2019 Education Statistics（MINEDUC、2019）
[78] EICV5: Integrated Household Living Conditions Survey ,abbreviated to EICV from the French Enquête Intégrale sur les Conditions de Vie des Ménages.
[79] EICV5 Fig. 3.1

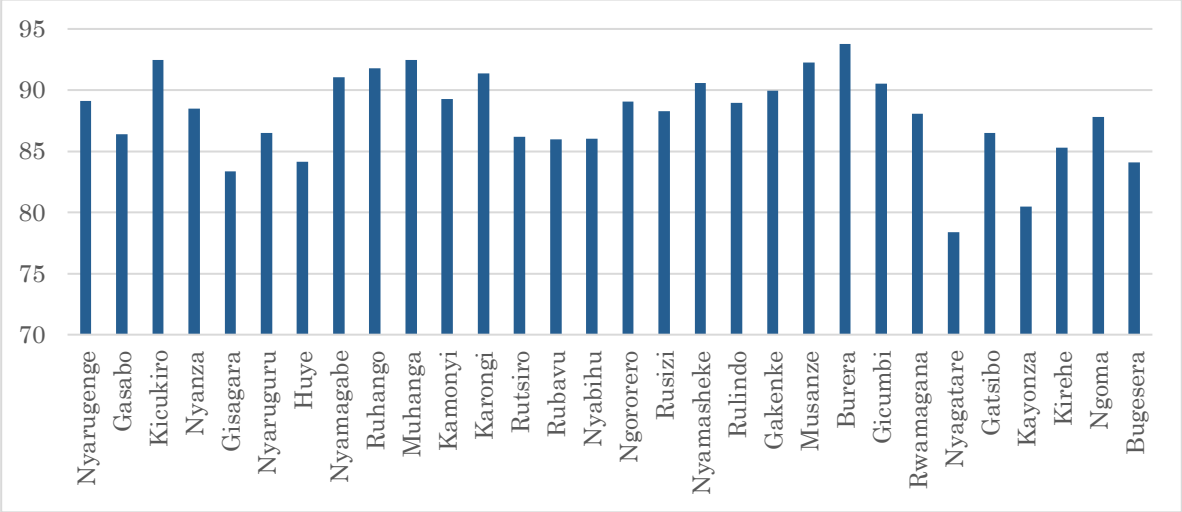


Figure 3-14 NAR per district in primary education (%)[80]

Although the statistics are from 2017, most children who are not of a suitable age entered primary education one to three years behind. The majority of P6 are 14 and 15 years old. Nearly 50% of them are 15 years old or older. During the survey, we had the opportunity to meet P5 children who were over 15 years old and P6 children who were 17 years old. From the interviews through the principal, we learned that they were late in starting school because they gave priority to helping their parents (babysitting, etc.). They only had time to go to school after their younger brothers and sisters became old enough to work. Even then, it was difficult for him to attend school while working. They had to repeatedly stay behind to finally advance to P5. At a certain age, their classmates are much younger than them, which makes them feel uncomfortable. Most of them stop coming to school (drop out) due to mental stress. They also indicated that they do not intend to go on to secondary education for the same reason. It was not only that going to secondary school at an older age involved intolerable levels of mental stressful. Working for a living was also a higher priority than going to secondary school.

The results of other surveys[81] highlight that retention increases the risk of dropping out, while school attendance at an older age increases the risk of retention. In other words, the higher the age of enrollment and school attendance, the higher the risk of retention and dropout. According to the results of the survey, inadequate school readiness and family poverty were often cited as contributing factors.

School readiness mainly refers to pre-primary education, where the age of entry into primary education is optimized through pre-primary education. In addition, school readiness involves instilling academic skills. However, as mentioned earlier, the enrollment rate in pre-primary education is still quite low. This situation affects many issues, especially in lower primary education.

School readiness mainly refers to pre-primary education, and if universal pre-primary education is spread and systematically established, the age of children attending pre-primary institutions will be fixed and the age of entry into primary education will be optimized. Age-appropriate Instruction will enable students to enter primary education at the appropriate age with necessary basic skills. However, as

[80] EICV5

[81] Understanding Dropout and Repetition in Rwanda (MINEDUC and UNICEF, 2017)

mentioned earlier, the enrollment rate in pre-primary education is still quite low, and this situation affects many of the issues, especially in early primary education.

As mentioned above with regard to family poverty, children around the age of seven are also already considered as part of the labor force in the home. They are required to stay at home and take care of small children while their parents are at work. This means that they are unable to properly attend school at school age. When the younger children reach a certain age, the older children are able to attend school. But at this point they are beyond school age. It is not hard to imagine that by the time they complete their primary education, either by repeated grade retention or by dropping out and returning to school, they will be over 16 years old.[82]

It is hoped that such cases could be improved by promoting enrollment in pre-primary education. If young children can go to pre-primarys and ECD centers, the children who had been taking care of them will be freed from babysitting, enabling them to attend school.

Retention, withdrawal and advancement

The retention rate improved to 10% in 2019, achieving the ESSP3 target. However, it has remained high for several years. The dropout rate for 2019 was 7.8%. This did not meet the ESSP3 target and represents a deterioration since 2016.

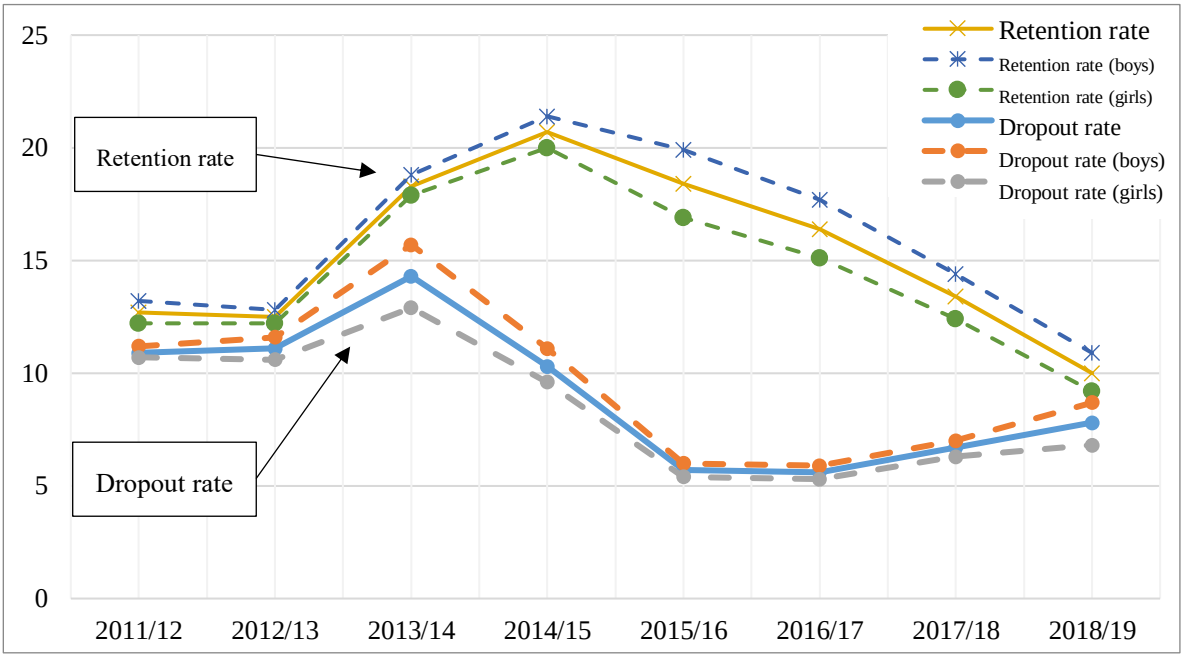


Figure. 3-15 Trends in retention and dropout rates in primary education (%)[83]

While the retention rate has improved, the dropout rate remains high. This suggests that children who are unable to advance to the next grade are increasingly likely to drop out rather than stay in school. It

[82] In Japan, they would be in their first year of high school.
[83] 2019 Education Statistics（MINEDUC、2019）

has been highlighted in other surveys that the older the school age, the more likely students are to drop out.

Retention in primary education is based on the ability to read, write, and calculate. A consultative decision made by the School Council or Deliberation Committee when a child does not meet the level of proficiency to be acquired in each grade.[84] In addition, with the introduction of the Comprehensive Assessment (CA), the decision will be made based on a comprehensive assessment using the results of the final exam as well as the results of tests for each unit.

Furthermore, the percentage of children who complete primary education and go on to secondary education has remained almost unchanged, although there has been a slight improvement in recent years. Looking at the statistics since 2013, the advancement rate has stagnated below 75% and has yet to improve. Furthermore, of children who advance to P6, only 27.5% do so at the appropriate age. A UNICEF survey (Laterite, 2019) found that 56% of P6 children have been retained at least twice.[85]

With regard to the current situation described above, the number of students who are retained or who drop out of school is statistically extremely high at the time of advancement from P1 to P2, amounting to about 100,000. The breakdown is approximately 77,000 students being retained and about 23,000 students dropping out. In other words, the biggest challenge is the child's schooling status during the year in P1 and the readiness status before that (prior to school attendance).

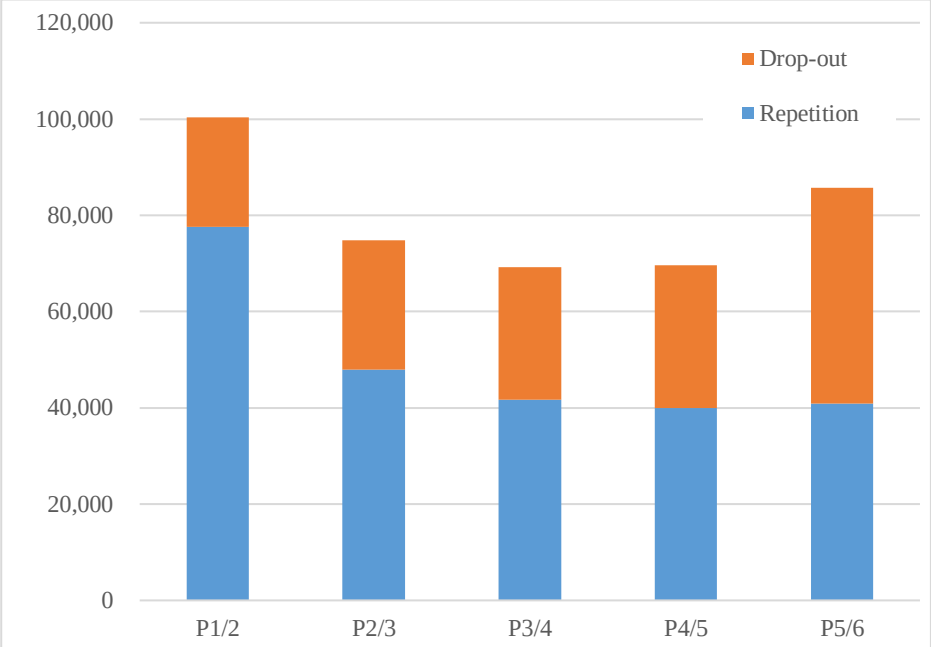


Figure. 3-16 Breakdown of retention and dropout by grade level in primary education (No. of students)[86]

Retention is mainly determined by academic skills, with challenges noted in language and mathematics

[84] Ministerial Instructions N° 001/MINEDUC/2020 of 21/2/2020 REGULATING THE PROMOTION, REPETITION, DISMISSAL AND TRANSFER, Article 19

[85] Factors and drivers of dropout and repetition in Rwandan schools（Laterite、2019）

[86] Prepared by the research team based on 2019 Education Statistics (MINEDUC , 2019)

(Laterite, 2019). If the foundation of academic skills is not sufficiently developed in lower primary education or earlier, this will later have an impact on advancement, retention, or withdrawal. This point will be covered later.

The points made so far, as noted at the beginning of this report, stem from the inability to start primary education in an appropriate manner. It therefore appears that an effective solution lies in preparation for entry into primary education−that is, promotion of enrollment in pre-primary education.

MINEDUC has identified retention and dropping out of school as priority issues. As measures to address them, it has been implementing the Quality Education Enhancement Awareness Campaign and rolling out school lunches. The former involves school visits and awareness-raising activities accompanied by ministers and other dignitaries. It had been carried out three times by 2019.

According to the DEOs and principals interviewed during the survey, some of the above issues and factors have been improved through certain school management approaches. Many of the principals, vice principals, and other administrators had received leadership training from entities such as the REB. Many of them responded in a similar manner about their efforts to prevent retention and dropout. However, there were differences in responses from schools that were actually improving the retention and dropout rates.

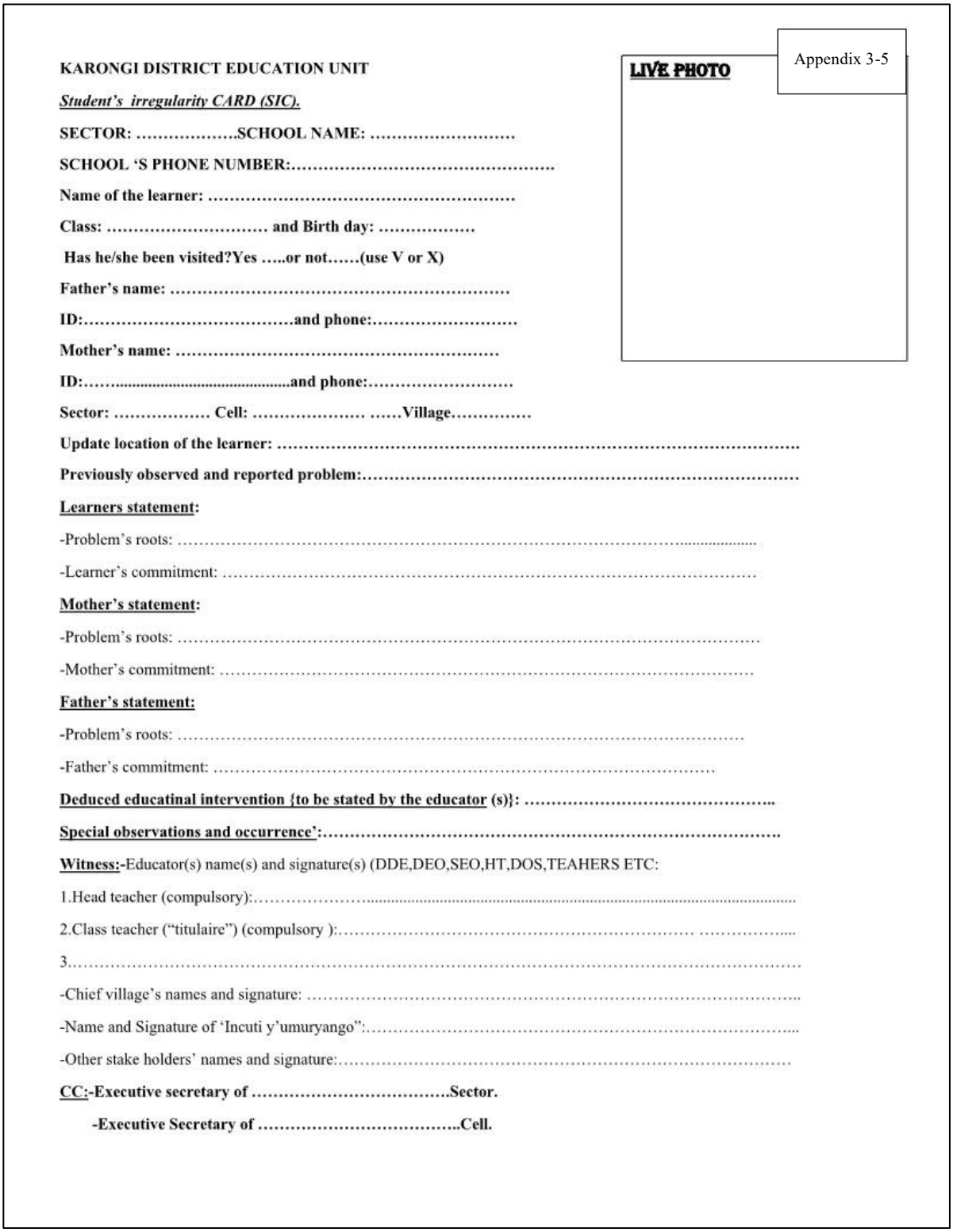
As mentioned above, REB is promoting activities to prevent repetition and dropout at schools through leadership training, etc. as mentioned above. In fact, it appears that the actual activity is managed by schools at the field level, and their efforts vary from school to school.

Most of the principals and other staff surveyed responded that in the case of children who have been absent for more than a few days, they followed an approach like that taught in leadership training. First they would to contact and call the parents for children, contact community leaders, visit the families in collaboration with village leaders, and friends of the family, persuade them, work with the SEI and DEO to understand the situation, and seek help from the sector, district, church, and NGOs for economic issues. However, even among those schools, there were differences in the timing of contacting parents. In a few schools, children were absent without permission for two consecutive days. In schools with the longest absences, the gap was five days. The interviews did not reveal any schools that do not conduct follow-up outreach at all. The timing of home visits and the participating members also varies from school to school. It can be said that the policy on how to deal with the situation in the field is left to the discretion of the school.

On the other hand, schools and districts that have improved dropout rates have had consistent and effective efforts from the district to the child (family) and there has been strong commitment from the principal to these efforts.

As an example of this, during our visit to the DEO in Karongi District, Western Province, we heard about an interesting initiative unique to this district. According the DEO we interviewed, Karongi District has created and is using its own form called Student's Irregularity Card (SIC) (see below). A single card contains information on each child, including family information. This enables the individual child to be identified both the field level and the district level. The progress of the response is shared at all levels each time. We also heard about this measure from the principals of the schools in the same district, which suggests that it is widely known. In the DEO's view, the measures have been successful in reducing the

dropout rate by enabling schools to identify individual high-risk children and adopt a tailored approach. The measure is reportedly not being used nationwide.



Appendix 3-5

KARONGI DISTRICT EDUCATION UNIT

LIVE PHOTO

Student's irregularity CARD (SIC).

SECTOR: ……SCHOOL NAME: ……

SCHOOL 'S PHONE NUMBER:……

Name of the learner: ……

Class: …… and Birth day: ……

Has he/she been visited?Yes …..or not……(use V or X)

Father's name: ……

ID:……and phone:……

Mother's name: ……

ID:…….....and phone:……

Sector: …… Cell: …… ……Village……

Update location of the learner: ……

Previously observed and reported problem:……

Learners statement:

-Problem's roots: ……

-Learner's commitment: ……

Mother's statement:

-Problem's roots: ……

-Mother's commitment: ……

Father's statement:

-Problem's roots: ……

-Father's commitment: ……

Deduced educatinal intervention {to be stated by the educator (s)}: ……..

Special observations and occurrence':……

Witness:-Educator(s) name(s) and signature(s) (DDE,DEO,SEO,HT,DOS,TEAHERS ETC:

1.Head teacher (compulsory):……

2.Class teacher ("titulaire") (compulsory):…… ……

3.……

-Chief village's names and signature: ……

-Name and Signature of 'Incuti y'umuryango":……

-Other stake holders' names and signature:……

CC:-Executive secretary of ……Sector.

-Executive Secretary of ……..Cell.

Figure 3-17 Student's Irregularity Card

Next, there is the example of GS Nyagatare, where P1 was made into a single shift and priority was given to ensuring that children become accustomed to the school. This later resulted in a significant

improvement in retention and dropout rates.[87] Making the lower primary education a single shift and P4 a double shift enabled students to settle into school and academic skills during lower primary education. As this example shows, the double-shift system in school administration can be considered a key factor behind retention and dropouts. With students still unaccustomed to the school soon after joining, the complicated double-shift system of classes detracts from the quality of learning. It also places a heavy burden on P1 teachers. This makes it difficult for the school administration to guarantee quality as it is hard to cater to children individually. In addition, GS Nyagatare has divided the roles of school administration to take care of the children outside the classroom. The aim is to lighten the burden on teachers to allow them to focus more on carrying out their lessons. As a result, the administration became more aware of the individual needs of each child. The school was able to provide better overall care of the children. The change in approach also increased opportunities for communication with parents, leading to an improvement in retention and dropout rates.

We did not hear about the above good practices in other districts or schools visited in the survey. This suggests that they are not fully shared as good practices.

As for P1, which is also an important period for children to become accustomed to school, the quality of classes is also pointed out as a key issue to be addressed. In addition to the double-shift system in lower primary education, several factors have increased pressure on teachers: the shift to English as the language of instruction in lower primary education starting in 2020;[88] the class teacher system and class size under such circumstances; and differences in the children's ages and levels of readiness for school. These points will be discussed later. Even as the standards required of teachers have become higher, the quality of teachers has declined in relative terms. This has affected the quality of teaching. In addition, this is a stage at which providing sufficient care for each child individually is vital. But teachers have not had enough time to do so. Poor subject knowledge and teaching skills can be cited as contributing to the low quality of teachers in lower primary education. However, external factors such as those mentioned above are also involved.

On the other hand, if we look at factors outside of school, for families, livelihood takes priority over schooling. Even where there is an understanding of the importance of education, children cannot go to school if it will interfere with their livelihood. Poor households tend to have complicated circumstances within the family. Factors we were heard in the survey included: marital disagreements, divorce or bereavement, separation, no income due to joblessness, repeated relocations in search of work, etc. Some children, even primary school children, have run away from home or become delinquent due to such family environments. In such cases, no matter how much the school, the sector, or the district tries to provide supplementary teaching materials or to persuade the parents, they rarely succeed in enabling the child to return to school. This situation was reported to be more frequent in rural than in urban areas, with marital discord being the most frequently cited reason.

The principal interviewed for the survey said that by persevering under such circumstances it had

[87] Based on an interview with the principal of GS Nyagatare.

[88] The year 2020 is a transition period, based on a cabinet decision in November 2019.

nonetheless been possible to enable many children to return to school. On Saturdays, the principal gathered children who had dropped out or were on the verge of dropping out of school. The children were encouraged to engage in wide-ranging conversation, sharing about their situations with each other. This fostered a sense of camaraderie that led some of them to return to school together.

For families living in poverty with limited income, it is difficult to send their children to school unless there is a direct benefit to their livelihood by sending their children to school. School lunches are seen as one way to achieve this. However, there have been reports of cases where the burden of school lunch fees has in fact hindered students from attending school. Some schools are more flexible in this regard than others.

In the case of the ECD Center, parents would need to have a means of earning income (work) that can be carried out during the hours that their children are at school. But even in the case of the ECD Center, we did not hear of any success stories during our research.

The Model Village is an example of a district that is actively addressing this issue from the administrative side as well. Most of the residents of the Model Villages, who were forced to move from flood-prone areas, are poor. However, as mentioned above, there are obstacles to sending children to school for families who prioritize their livelihood. For this reason, the Model Village provides support for residents to start their own businesses. It will be beneficial to observe future developments and disseminate best practices.

This survey also confirmed through interviews the status of follow-up on children who had dropped out of school. In almost all schools, despite the background of high dropout rates, there is no official safety net for students after they leave school. Schools, districts, sectors, and communities did not have the capacity to reinstate children after they dropped out of school. In only one of the schools mentioned above, there was a case where the principal gathered the children who had dropped out on Saturdays to discuss how to return to school.

In this way, the safety net is in many cases provided by individuals and churches. There is no public safety net.

Knowledge

The main indicators that ESSP3 focuses on are Literacy (Kinyarwanda and English) and Numeracy in P3 and P6, and the pass rate of the final exam. In particular, the academic performance of P3 and P6 is measured by the national academic achievement survey, Learning Achievement in Rwandan Schools (LARS)[89], which is directly linked to the HDI.

As mentioned earlier, Rwanda is below the average for sub-Saharan Africa in the HCI Harmonized Test Scores. The LARS survey also indicates that about half of the children in Rwanda lack the academic skills needed to complete primary education. The results of LARS are as follows. The percentage is the number

[89]LARS surveys academic achievement on Literacy and Numeracy according to the ESSP indicators. It has been conducted four times in total. The first LARS1 was conducted in 2011 for P3. LARS2 was conducted in 2014 for P2 and P5, LARS3 was conducted in 2017 for P3, P6, and S3. LARS4 was conducted in February 2021 for P3, P6, and S3, during the COVID-19 pandemic. The results of LARS4 have not been published as of November 2021. LARS1 covered two schools per District (60 schools in 30 Districts) with a total of 12,420 P3 children, while LARS3 covered approximately 60,000 children and students nationwide. LARS4 covered 295 schools across all districts, targeting 5,328 students.

of children who have acquired grade-level equivalent academic skills.

Table 3-42 Results of LARS1 to LARS3

SCHOOL GRADE	LARS I: 2011[240]		LARS II: 2014		LARS III: 2017	
	LITERACY	NUMERACY	LITERACY	NUMERACY	LITERACY	NUMERACY
P2			45.3%	32.9%		
P3	63%	54%			54.9%	40.7%
P5			44.1%	38.3%		
P6					56.4%	59%
S3					71.3%	78.8%

(Source: Excerpt from Summative GPE country program evaluation Rwanda 2019)

Furthermore, the DfID report details the results of LARS3, which are as follows.

Table 3-43 Results of LARS3

Grade	Subject	Total 2017	Boys 2017	Girls 2017
P3	Kinyarwanda	54.4%	52.2%	56.4%
P3	Maths	40.7%	40.3%	41.3%
P6	English Literacy	56.4 %	59.8 %	53.2 %
P6	Maths	59.0 %	63.7 %	54.5 %
S3	English	71.3 %	77.6 %	65.3 %
S3	Maths	78.8 %	81.8 %	75.9 %

(Source: DfIFD Annual Review; excerpted from Learning for All 2018)

Rwanda is also keenly aware of the challenges of children and students' academic performance and is taking a multifaceted approach to improvement. This includes improving the quality of education through the use of ICT, improving the learning environment through RQBE, and introducing individual assessment by adopting CA.

The aspect of academic achievement has been regarded as one of the main factors representing the quality of education. This has been the case since he policy of free primary education and other factors gave rise to concerns about a decline in the quality of education. Shifting the focus from the classroom, one of the places where academic skills are formed, to the quality of education, it can be said that one reason for the decline in quality is the lesson, which is the implementation of the curriculum. Classroom activities, or lessons, ultimately affect educational output (the academic performance of students) and educational statistics. Teachers' practices have the greatest weight in shaping their teaching. Many DPs, including those in Japan, continue to cooperate in various ways to improve them. However, many of the lessons found in Rwandan primary school are still in the classic chalk and talk format.

As a result, it is difficult for children to acquire sufficient academic skills through lessons alone. The teachers will be discussed later. Most of the lesson observed in the survey[90] were, as described above,

[90] There were only a few classes that we were able to observe in this survey, and we were not able to observe them in

teacher-centered. Only one lesson used a textbook.[91] A significant number of textbooks for primary education have already been distributed to schools, partly due to support from DPs. In the 2019 education statistics, the number of children to a textbook is between 3 and 6.[92] For each lesson, it is estimated that one book can be used for every one or two children. However, in all the schools we visited, textbooks were kept in the library or in stacks that were gathering dust. They did not appear to be in use. This situation has not changed significantly since the early 2000s. The use of textbooks is effective in supplementing the quality of lessons. However, only the teachers have access to textbooks and they are not distributed to the children. This is one reason for the decline in the quality of teaching. It is also one of the most effective ways to improve teaching.

According to the interview results, he reasons for not using textbooks in class include the following: teachers themselves have not taken classes using textbooks, they are not used to teaching with textbooks, they do not know how to teach with textbooks, and schools do not lend out textbooks easily because of the REB inventory survey (to avoid loss).

In the classes we observed, the children did not take notes in class. The teachers were responsible for all inputs in the classes without textbooks, since children in lower grades such as P1 do not yet have the ability to take notes. However, it is not always easy for the students to understand hat the teacher writes on the blackboard. It also might not be something that can be copied into a notebook and reviewed later. As a result, children cannot review on their own after class, nor can they reflect on the previous lesson during class. This situation can have a devastating impact on academic performance, especially in mathematics, which is an accumulative type of learning. Without basic academic skills such as the concept of numbers and the four arithmetic operations, it will becomes extremely difficult to move to the next stage of learning. However, as with literacy, numeracy is a basic skill that is related to the study of other subjects. It therefore affects overall academic achievement. Aside from the availability or non-availability of textbooks, teachers' writing and planning during class is an area that needs to be improved.

It is also pointed out that even when textbooks are distributed to children, they do not acquire the skills to read them. It can be observed that the textbook specifications are not suitable for age-appropriate.[93] However, it is necessary to prepare for minimum reading and writing skills in pre-primary education.

Teaching staff

Teachers have a direct impact on the output of students through their classroom practices. As mentioned above, the quality of teachers is one of the most important factors in the quality of education.

The percentage of qualified teachers was still above 90% in the 2012 statistics. It remained above 90% until 2019. As of 2019, most teachers were qualified. However, the increase in the number of qualified teachers has not yet exceeded the increase in the number of children. The number of children per qualified teacher has remained flat.

detail from beginning to end.

[91] SIIQS-trained teachers were observed teaching textbook-based lessons in primary school.

[92] There are differences by subject: Kinyarwanda: 3, English: 4 , Mathematics: 6 , Social Studies: 6, SET: 6 .

[93] For example, in a mathematics textbook, the content is written in an easy-to-understand manner with many pictures. However, the number of pages is two to four times that of a textbook for the same grade in Japan, making it difficult for younger children to carry around.

It is essential to revise the teacher policy based on the current situation since it hasn't been updated since 2007.

The percentage of teachers who have taken the training is also high. In supporting teacher training over a long period of time and in developing and implementing CBC, many teachers have learned that the role of teachers is not to transmit knowledge unilaterally, but to support children and students in the formation and use of knowledge. However, there are few cases that have led to changes in actual classroom practice.

With such a high ratio of qualified and trained teachers, the low quality of teaching can be attributed to the teacher training program and in-service teacher training.

Particularly in lower primary education, where we have pointed out issues in the past, the burden on teachers is increasing due to double shifts and the shift to English as the language of instruction. While the standard of quality required is higher, the quality of teachers is relatively low due to fewer changes in the teaching staff.

In this study, we did not make enough observations to be able to verify the quality of the teachers from the classroom observations. However, in the classes we observed, the teachers seemed to be focused on performing the methods they learned in the training. They did not seem to be able to see what the children were learning as a result of such methods. Teaching and evaluation methods have been reduced to a mere formality. Methods that should be means have become ends (means becoming ends), and there is no sign of them producing results. As a result, the class is not viewed from the perspective of children's learning. This does not seem conducive to effective learning for the children. The use of textbooks and a board plan that helps students review their work are among the possible solutions. It is therefore necessary to promote teaching methods that use teaching materials as much as possible. This is particularly true in lower primary education. It is also necessary to improve classes from the perspective of fostering children's academic skills.

Although the introduction of formative assessment has been promoted by the introduction of CA, it was observed that the task of teachers in checking the level of understanding of individual children has already been reduced to a formality. The more advanced and complex a method is, the more likely it is to be reduced to a mere formality (means becoming ends). It is therefore necessary to introduce such methods in stages, with an emphasis on understanding their purpose. Desk patrols and group work are also effective methods, but they have been reduced to formalities. In some of the classes we observed, the classroom teachers did not have an accurate grasp of the number of children or their absences.

The English proficiency of teachers is a particular challenge. The survey found that communication in English with teachers of lower primary education was more difficult than with teachers of second semester primary education and secondary education.

In addition, there appears to be a difficulty in assigning high-quality teachers to lower primary education. This is a stage in which high-quality teachers should be assigned and appropriate classes and instruction should be provided. The reasons for this vary, but there is a tendency among teachers to be less willing to serve in the lower grades due to the heavy workload caused by double shifts and the difficulty of teaching the lower grades. Higher quality teachers tend to flow to fields with higher salaries and lower workloads. Teachers who excel at teaching younger grades are more likely to seek positions in private schools.

This does not necessarily mean that the teachers are less competent. The main factor appears to be

various institutional and environmental pressures on teachers of lower primary education to perform appropriate teaching in the classroom. As mentioned earlier, a lot of effort is put into adapting to the many changes, including the shift to English, double shifts, class sizes, high retention and dropout rates, child care, and the introduction of CA.

Against this backdrop, at GS Nyagatare, which was mentioned earlier, the school was managed with a clear separation between administration and teaching. With the aim of enabling teachers to concentrate on conducting classes, other duties such as child care and home visits are carried out by personnel from the administration. This reduces the burden on teachers from activities outside the classroom.

Class size is one factor that hinders the practice of teaching. Class size in primary education is 82 in government schools and 75 in government aided schools in 2019. These figures do not meet the targets of ESSP3. In private schools, the figure is about half, at 32. The final target value for ESSP3 is 46, which is still large for class size, especially for lower primary education.[94]

The RQBE and MINEDUC have added 22, 505 classrooms for pre-primary, primary and secondary education (of which 11,501 were added by the GoR and 11,004 by the RQBE[95]). However, there are large regional disparities in class size. The highest class size was 90 students in Kirehe, Eastern Province, and the lowest was 57 students in Kicukiro, Kigali−a difference of 33 students.

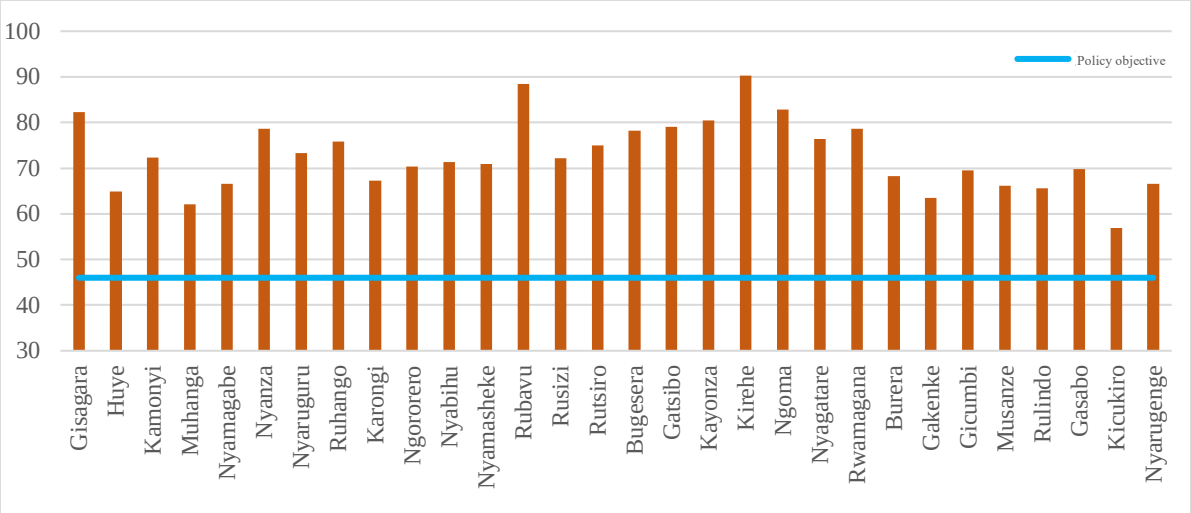


Figure. 3-18 Class size per district in primary education (2019)[96]

Community

Under the circumstances described above, it is difficult to acquire academic skills through class activities alone, particularly in lower primary education. Outside of school, there are very few situations where students can use or review what they have learned in class, which is detrimental to the retention of academic skills. This environment is markedly different from that of Japan, where there are numbers, figures, clocks, letters, and information everywhere. As a result, there is a huge difference in the educational capacity of the society.

[94] The OECD average for 2019 is about 20 students. Even the national standard for neighboring Kenya recommends no more than 40.

[95] 2021/22 Forward-Looking Joint Review of the Education Sector, 2020/21 Forward-Looking Joint Review of the Education Sector, 2020/21 BACKWARD-LOOKING JOINT REVIEW OF THE EDUCATION SECTOR

[96] 2019 Education Statistics（MINEDUC, 2019）

Children who return home after class need to help with household chores. They generally do not have the habit of studying at home, and few homes have learning materials. There are often no apparent suitable places to learn, particularly in rural areas, with low electrification rates. In addition, as mentioned earlier, notes are not written in such a way that they can be reviewed. This makes self-study outside of the school extremely difficult.

For this reason, it is necessary to distribute textbooks or equivalent reference books, workbooks, and other materials that enable students to do home work and revision. It is also necessary to educate parents and guardians to develop the habit of self-study and the ability to learn on their own.

Improving the quality of the teachers is also important. However, the students will not be able to retain what is taught if their proficiency is too low. This applies regardless of how high the quality of the teachers or of the teaching materials may be. Developing basic skills on the part of learners is equally important. For example, Ending Learning Poverty (World Bank, 2019) focuses on developing reading skills by the age of 10 as the ability to continue learning.

Rwanda's classrooms have many challenges that cannot be solved by a single teacher. Not everything can be solved in the classroom. As mentioned above, there are various other issues, such as the textbook issue, the lack of teaching materials, overcrowding, and variations in the attendance of children. It is necessary to develop an environment that supports self-study by children and off-campus self-study in cooperation with parents, community, etc.

School lunch

MINEDUC has positioned the development of school feeding as an effective measure to prevent retention and dropouts. In line with this, as of 2021, Rwanda is in the process of rolling out school lunches to all grades of basic education.

At school, many children come to school hungry due to poverty and other reasons. Furthermore, in schools where a school lunch is not provided, they do not have a decent meal for lunch. The survey results also showed that some children and students were unable to concentrate in class due to hunger.

Expectations are high for school lunches to improve the quality of learning. They are highly effective in improving nutrition, promoting school attendance, preventing dropouts, and improving academic performance. A study of the impact on children's academic performance conducted in conjunction with WFP's school feeding support (UR-CE, 2020)[97], also shows striking results.

Although policies have been put in place for current primary education, there is a lack of on-campus cooking facilities to provide school lunches. In addition, school lunches involve costs. The schools visited in the survey that provided school lunches also provided lunches to children who did not pay for school lunches. However, the cost was borne by the school. They were concerned about the pressure on school management as well as inequality among the children.

ICT Utilization

The importance of using ICT in education was mentioned in the Education Policy of 2003. In 2008, the OLPC program was launched and XO laptop computers were distributed to primary school children. The

[97] Food for Thought: School Feeding and Cognitive Performance in Rwanda（Justice Tei Mensah, Aimable Nsabimana, UR-CE, 2020）

GoR and DPs have long been in agreement that ICT utilization is a “trump card” for improving the quality of Rwandan public education.

ICT utilization at the primary level is still in the phase of hardware support and infrastructure development. Progress has been slower than at the secondary level. There are almost no examples of ICT being actively used in general subject classes by teachers or in learning by children (at school and at home). It has not yet reached the stage where it is can provide an educational benefit.

On the other hand, the introduction of SDMS and TMIS (Teacher Management Information System) has increased the speed and accuracy of data management for school administration, school education administration and finance, and personnel management of teachers and staff. This has contributed to more effective management of school affairs and implementation of school education administration.

In addition, there is a system to manage student attendance, store learning history, record grades (Continuous Assessment), and record final exam grades. The system is expected to function as a source of feedback for teachers to improve their teaching, to support slow learners, and to aid the government in understanding the needs of families. However, the system has not yet reached this stage.

The REB is working to improve teachers' ability to use ICT. To this end, it is securing the cooperation of many DPs and private companies in conducting teacher training and promoting the development and dissemination of online learning portals and digital materials for distance education. One of the motivations for countries, aid organizations, and private companies to provide ICT support is to secure a standard (first-mover advantage) for online learning environments. The GoR is at the stage of empirical testing to identify the best environment and ICT utilization necessary for the solution to realize school education and human resource development based on CBC.

(4) Secondary education

Secondary education is categorized into lower secondary education and upper secondary education, with lower secondary education being part of basic education. While lower secondary education includes only General Education, upper secondary education is more diversified. TTC is included in upper secondary education.

Rwanda is focusing on strengthening its market-based labor force, creating jobs, and developing ICT and science and technology human resources (STEM education). Secondary education is an important stage that directly contributes to these efforts.

Many of the challenges in secondary education can be attributed to the low internal efficiency of primary education. As for the early secondary education, various issues need to be addressed, especially NER, low GER, high dropout rates, and facilities. The following is a summary of the current situation, issues, and factors.

Table 3-44 Current situation, issues, and factors in general secondary education

	Current situation and issues	Underlying factors
Access	➢ Low enrollment rates (GER: 53.0%, NER: 31.5% in 2019)	➢ Older age at completion of primary education ➢ Lack of academic achievement at the end of primary education ➢ Burden on families in terms of tuition fees, etc. ➢ Difficulty in attending school due to work ➢ Insufficient number of schools ➢ Lack of school facilities
Dropouts	➢ With a high dropout rate of 9.1% (2019), students are more likely to drop out than stay in school	➢ Lack of academic achievement at the end of primary education ➢ The cost of attending school has become a burden
Equipment	➢ Insufficient number of schools and classrooms ➢ Lack of equipment for using ICT (SMART classrooms, etc.)	➢ Government budget shortfall ➢ Insufficient maintenance

Access

Overall enrollment in secondary education remains low. In 2019, the NER and GER for early secondary education were 31.5% and 53.0%, respectively. The NER has not yet met the ESSP3 target for 2019.

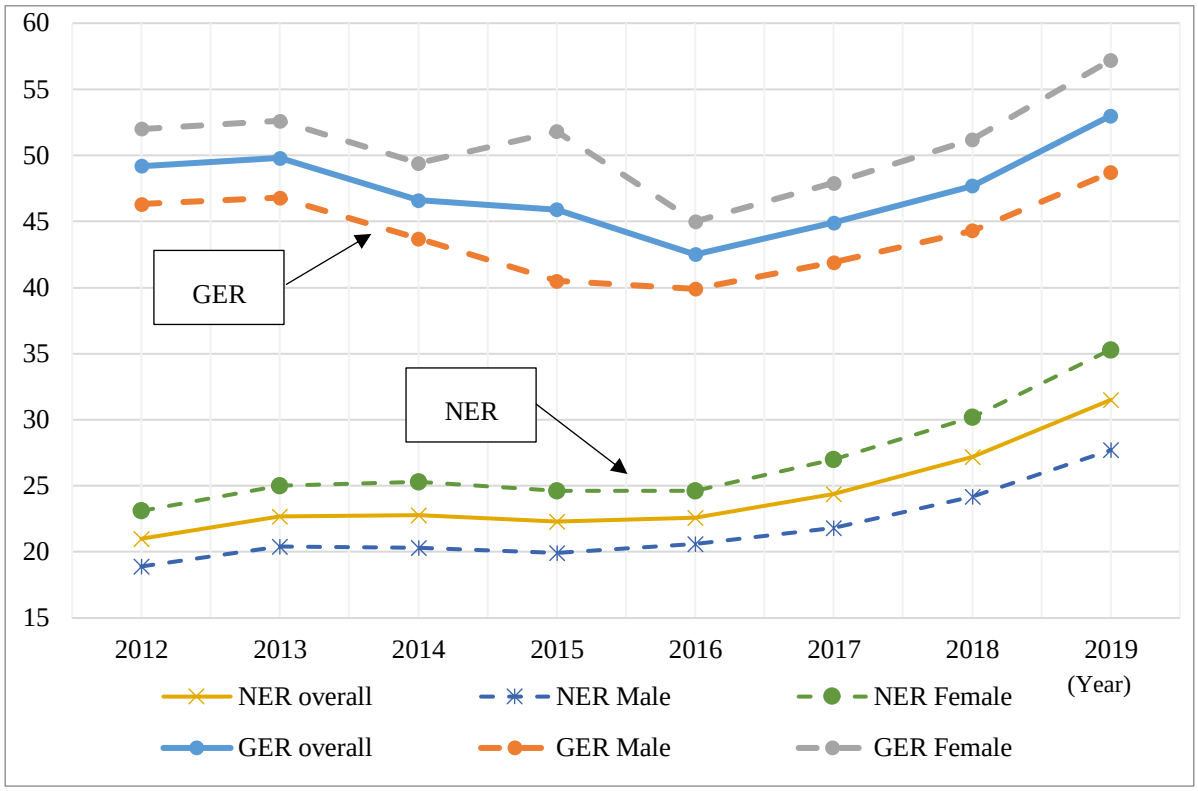


Figure. 3-19 GER and NER in lower secondary education (%)[98]

The value of NIR S1 is very low at 17.1%. Similarly, the ESSP3 target for 2019 has not been achieved. The transition rate from primary education to higher education has leveled off in the low 70s since 2015, with no significant improvement. The ESSP3 target for 2019 has not been achieved.

The main reason for this is that children at the completion of primary education are already overaged and academically inferior. In the view of the principals and others interviewed, starting school late and staying behind in primary education become a psychological factor that prevents students from going on to secondary education. It is even more difficult for girls to continue their studies. Similarly, overage students are expected to support their families through work rather than continuing their studies. This is a factor that prevents them from entering secondary education. In some cases, girls are prevented from advancing to higher education due to early marriage. However, in Rwanda, girls tend to complete primary education better than boys, and thus have a higher rate of higher education.

Furthermore, although early secondary education is positioned as basic education, there are not enough facilities to accept all students who have completed primary education. Compared to the number of primary schools, there are only about 60% as many schools and only 54% as many classrooms. The issue of location is also pointed out as an issue stemming from the small number of schools. Particularly in rural areas, there are cases where students who have the learning skills to go on to secondary education give up due to transportation costs or other issues if the school is located far away. In addition, there are differences in the state of facilities, with SMART classrooms and science labs varying substantially between schools and regions. Along with this, the number of teachers is not sufficient to accommodate all the graduates of primary education.

[98] 2019 Education Statistics（MINEDUC, 2019）

Retention and dropouts

Retention in early secondary education is decided after consultation with the Deliberation Committee. This is done when the overall results of the examinations in each semester do not meet the competencies to be acquired in each grade. With the introduction of CA, the results of each end-of-term test (school level, district level, and national level) are mainly used to evaluate whether students need to repeat a grade or not. The retention rate for 2019 is 5.0%. This has been improving over the past few years and has reached the target for ESSP3.

The dropout rate in the early secondary education is 9.1%. The target for ESSP3 has not been achieved. Most of the reasons for withdrawal are financial reasons and academic reasons.

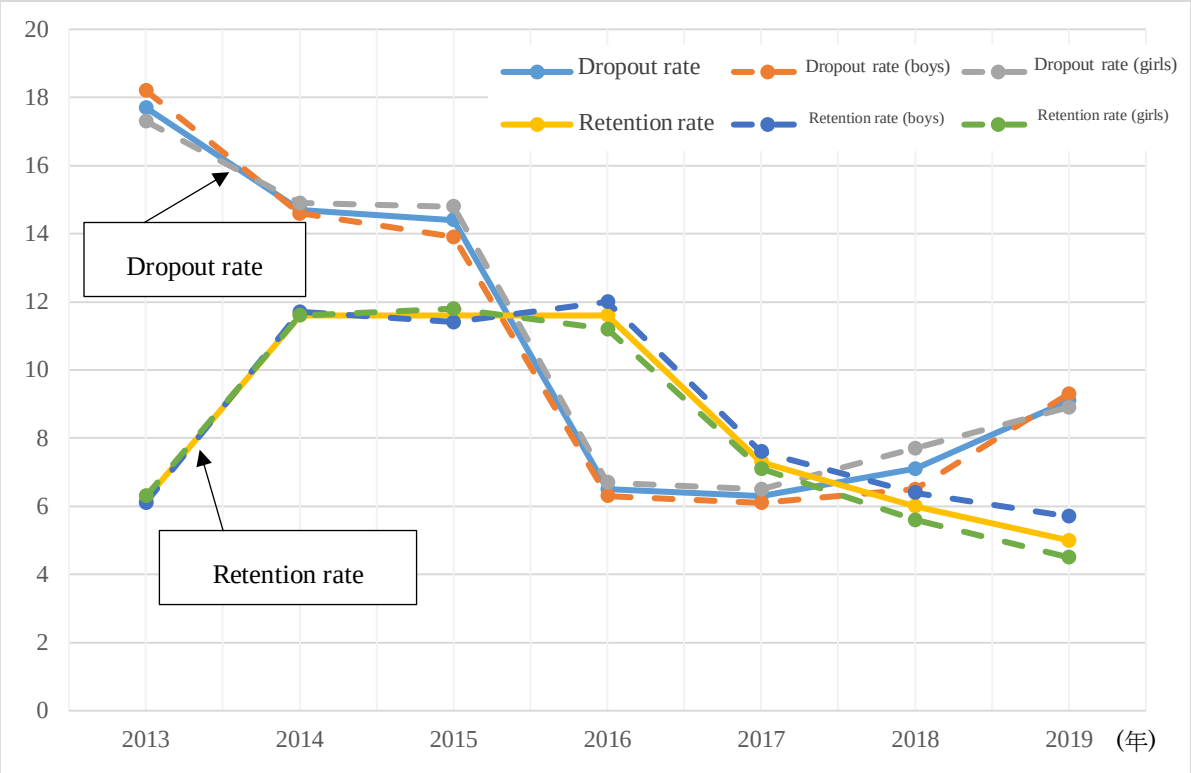


Figure 3-20 Retention and dropout rates in early secondary education (%)[99]

In public basic education, the so-called "tuition" is free. However, other family expenditures are necessary for schooling, as mentioned earlier.[100] According to the interviewees, the annual expenditure for secondary education is about five times higher than that for primary education. The main expenses are for uniforms, school lunches, and teaching materials. However, in the case of secondary education, transportation becomes a major burden if there is no school nearby to enroll in. In many cases, students drop out of school because they are unable to continue their education due to the increased cost of attending school.

In terms of academic skills, a key issue is that the academic skills acquired in primary education are insufficient for learning in secondary education, mainly due to English language skills. In many cases,

[99] 2019 Education Statistics（MINEDUC, 2019）

[100] 3. See 3.2 (2) 3) Education expenditure in households.

when students are retained due to lack of learning skills, they are left with no choice but to drop out due to the abovementioned expenses.

Facilities

As secondary education is divided into lower and upper stages, the number of secondary schools can be divided into the following five patterns according to the courses offered by the educational facilities, with the number of schools in 2019 as follows.

Table 3-45 Types of secondary education

Total	1,783	
Primary + O-level	574	9YBE
Primary + O&A level	532	12YBE
O level only	42	
A level only	335	TTC is included here.
O&A level	300	

(Excerpt from 2019 Education Statistics)

Overall, the number of schools has increased by about 200 since 2016. Schools implementing 9YBE and 12YBE account for 62% of the total. However, as mentioned earlier, the number of schools and classrooms is still insufficient to cover all the students who have completed primary education.

In addition, the class size for secondary education as a whole was 40 in 2019,[101] having increased for several years. This figure achieves the ESSP3 target.

In terms of equipment, although Rwanda is promoting the use of ICT, there is a lack of ICT infrastructure and SMART classrooms. Internet connections are unstable. In the schools visited in the survey, it is difficult for all students in a class to access the Internet at once. The policy goal for SMART classrooms is to have at least two rooms per school. However, as of 2021, the achievement rate is only about half with about 900 schools having met this goal. Regarding ICT infrastructure development, including devices, the survey results indicate a lack of maintenance, which will be discussed later. Other facilities include the lack of laboratories and food service facilities, which will be discussed later.

(5) Teaching staff

1) Teacher Certification and Teacher Training Programs

In Rwanda, securing a position in the education civil service requires acquiring a teaching certificate.

Teacher training programs are offered by the public UR-CE (National University of Rwanda - College of Education) by the 16 TTCs (Teacher Training Colleges) throughout the country, and by the following private institutions: University of Kigali (UoK), Institute of Applied Sciences (INES), University of Lay Adventists of Kigali (UNILAK), Adventist University of Kigali (AUK), and Mount Kenya University.

TTC is equivalent to late secondary education and lasts for three years from Year 1 to Year 3. UR-CE

[101] Class size in early secondary education as of 2016 was 38. Class size statistics for early secondary education are only available until 2016, after which they are summarized as secondary education.

is equivalent to higher education and lasts for three years. The qualifications available for TTC and UR-CE are different. Upon graduation from the TTC, a student receives an A2 (education level) and is certified to teach in primary education. Upon completion of three years of college educationat UR-CE, students receive an A0 (Bachelors in Education), which qualifies them to teach in both primary and secondary education. This is also the degree required to obtain a TTC instructor position.[102]

Statistics for 2019 (MINEDUC, 2019) show that the percentage of qualified teachers is as follows.

Table 3-46 Percentage of qualified teachers by course

2019	Pre-primary education	Primary education	Secondary education
Number of school staff (A)	7,865	46,325	30,779
Number of qualified personnel in A	6,183	45,714	24,385
%	**89.2**	**98.7**	**79.2**
Number of children per qualified teacher	**40**	**58**	**30**
Number of trainees in A	3,432	43,669	19,270
%	49.5	94.3	62.6
Number of children per trained teacher	71	60	38

(Prepared by the research team based on 2019 Education Statistics)

Many of the TTCs are historically old. Since many of them began with a religious position many of the schools are located in quite remote areas. Most TTCs have a church-based platform.

More than half of the 16 schools are located more than an hour's drive from the main road on dirt roads deep into the mountains. In addition, there are schools that have been converted from old secondary schools to TTCs or from girls' schools to TTCs. Some of these are noticeably underequipped and decrepit. The list of TTCs and the locations of TTCs and UR-CEs are shown in the following chart.

TTC Cyahinda and TTC Muramba were established around 2012. TTC Kabarore, TTC Mwezi, and TTC Nyamata are relatively new, having been established in around 2015. There is reported to be a proposal to establish a new TTC in Kigali.[103] In addition, all TTCs except TTC Gacuba II are boarding schools.

Table 3-47 TTC list

* Alphabetical order of TTC names

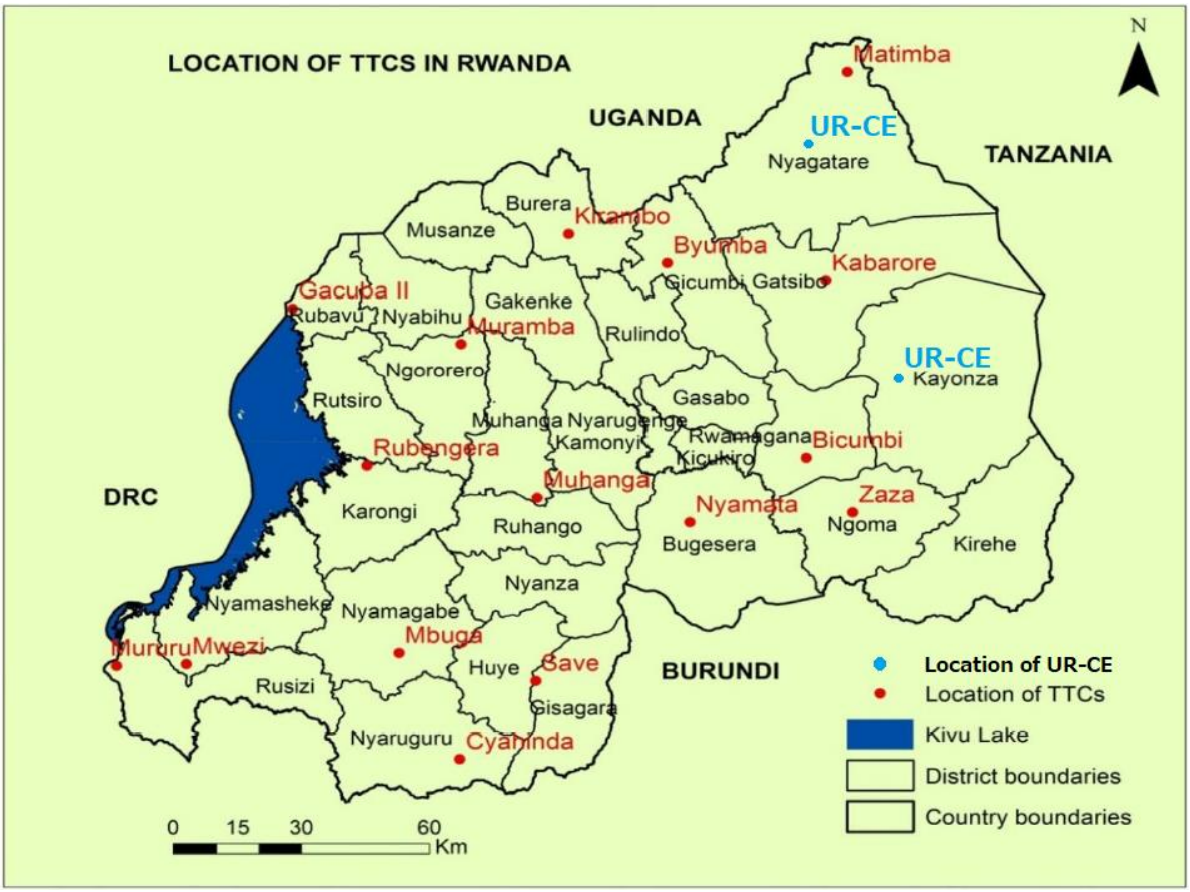
School Name	Province	District	Sector	Cell
TTC BICUMBI	Eastern	Rwamagana	Nzige	Akanzu
TTC BYUMBA	Northen	Gicumbi	Byumba	Nyamabuye
TTC CYAHINDA	Southerm	Nyaruguru	Cyahinda	Cyahinda
TTC GACUBA II	Western	Rubavu	Gisenyi	Umuganda
TTC KABARORE	Eastern	Gatsibo	Kabarore	Kabarore

[102] In addition to this, UR-CE offers a two-year Diploma course, the Lower Secondary Teaching Diploma (LSTD). Those who complete this course alone will receive A1 and will be qualified to teach in primary and lower secondary education. On the other hand, those with an A0 in a non-educational specialty can obtain a teaching certificate in primary and secondary education by completing a one-year Teaching Diploma course at UR-CE.

[103] Based on interview with REB SPIU Coordinator.

TTC KIRAMBO	Northen	Burera	Cyeru	Butare
TTC MATIMBA	Eastern	Nyagatare	MATIMBA	Matimba
TTC MBUGA	Southern	Nyamagabe	Uwinkingi	Munyege
TTC MUHANGA	Southern	Muhanga	Shyogwe	Mubuga
TTC MURAMBA	Western	Ngororero	MATYAZO	Gitega
TTC MURURU	Western	Rusizi	Mururu	Gahinga
TTC MWEZI	Western	Nyamasheke	Karengera	Mwezi
TTC NYAMATA	Eastern	Bugesera	Nyamata	Kanazi
TTC RUBENGERA	Western	Karongi	Rubengera	Gacaca
TTC SAVE	Southern	Gisagara	Save	Gatoki
TTC ZAZA	Eastern	Ngoma	Zaza	Ruhembe

(Prepared by the research team based on information from MINEDUC)



(Source: The Rwandan Journal of Education Vol 3, No. 2 (2016), with additions by the research team)

Figure 3-21 TTC and UR-CE Locations

TTC generally offer four options[104].

Table 3-48 TTC Teacher Training Program Options

Abbreviation	Option name	Study subjects
SME	Science and Mathematics Education	All science and mathematics courses and lower primary education courses
SSE	Social Study Education	All social humanities courses and lower

[104] As of June 2021, no SSE option is available at TTC Nyamata or TTC Kabarore.

		primary education courses
LE	Modern Language Education	Language courses and all courses in lower primary education
ECLPE	Early Childhood & Lower Primary Education	All courses in pre-primary education and all courses in lower primary education

(Prepared by the research team based on information from the Summary of The Curriculum Framework for TTC (REB, 2020))

The non-ECLPE option offers a teaching certificate in primary education. The ECLPE option allows students to obtain teaching certification in both pre-primary education and lower primary education (P1-P3). Originally, the ECE option was only for pre-primary teacher certification. However, with the establishment of the Department of Early Childhood & Primary Education at UR-CE in 2013, the TTC was reorganized into the ECLPE option.

In addition, according to local interviews, the ECLPE option is the most unpopular for TTC applicants. SME and SSE are the most popular. Depending on the TTC, it is possible to change options during the period of study. ECLPE tends to be avoided by students because of a perception that teaching younger children and infants is difficult. Furthermore, there are relatively few job opportunities for students who complete the ECLPE due to the lack of expansion of pre-primary education facilities.

As of June 2021, the total number of students (for all three grades) for each option in the country is as follows.

Table 3-49 Number of students at TTC (2021)

Option	Men and women	Number of people	Percentage of total TTC
SME	Total	3,268	31.3 %
	M	1,452	
	F	1,816	
SSE	Total	2,820	27.0 %
	M	1,174	
	F	1,646	
LE	Total	2,459	23.6 %
	M	983	
	F	1,476	
ECLPE	Total	1,884	18.1 %
	M	525	
	F	1,359	
Overall TTC	Total	10,431	(100 %)
	M	4,134	
	F	6.297	

(Prepared by the research team based on information from MINEDUC)

The breakdown of the number of students per option and per gender (for the three grades) in each TTC school is shown below.

Table 3-50 Number of students per TTC (as of June 2021)

Record of registered TTCs students per subjects and per gender during academic year 2020 / 2021

(As of June 2021)

	ECE			TSM			TSS			TML			Total
School Name	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	
TTC BICUMBI	24	72	96	69	87	156	65	80	145	55	68	123	520
TTC BYUMBA	28	126	154	132	130	262	108	104	212	85	70	155	783
TTC CYAHINDA	24	95	119	107	211	318	127	234	361	70	196	266	1,064
TTC GACUBA II	32	59	91	65	70	135	30	36	66	29	30	59	351
TTC KABARORE	51	87	138	67	74	141	0	0	0	51	87	138	417
TTC KIRAMBO	41	96	137	95	120	215	85	95	180	80	78	158	690
TTC MATIMBA	51	114	165	101	86	187	77	105	182	73	88	161	695
TTC MBUGA	31	57	88	63	98	161	89	161	250	52	80	132	631
TTC MUHANGA	45	99	144	71	90	161	71	86	157	111	177	288	750
TTC MURAMBA	22	121	143	66	147	213	80	143	223	37	90	127	706
TTC MURURU	57	61	118	106	116	222	70	115	185	58	67	125	650
TTC MWEZI	15	83	98	59	89	148	48	95	143	29	88	117	506
TTC NYAMATA	27	115	142	102	99	201	0	0	0	59	89	148	491
TTC RUBENGERA	30	68	98	114	111	225	98	109	207	53	77	130	660
TTC SAVE	25	54	79	107	147	254	111	147	258	98	115	213	804
TTC ZAZA	22	52	74	128	141	269	115	136	251	43	76	119	713
Total	525	1,359	1,884	1,452	1,816	3,268	1,174	1,646	2,820	983	1,476	2,459	10,431

(Prepared by the research team based on

MINEDUC 's statistics on the total number of students in the TTC and the number of students by gender are available. The number of TTC students was about 6,000 in 2012 (there were 13 TTCs at that time). After more TTCs were added, it exceeded 10,000 for the first time in 2021. In 2012, there were about 250 more girls than boys, with a GPI of 1.09.[105] However, since 2014, the number of girls has been on the rise. By 2018, the GPI had risen to 1.64. By 2021, the GPI was 1.53, with 2,163 more girls.

We questioned the TTC principal, students and others about this matter. The response given was that the reason was a lack of options for girls when they enter secondary school later in life. TTC and TVET are often seen as parallel, and students who do not go on to General Education tend to choose between TVET and TTC. While among boys there is no opposition to going to TVET, for girls, TVET, which is a technical education, is not an option. This leaves them with no other choice but TTC. Since it is not yet common for girls to go into technology, there is a bias towards TTC, although this is not unique to Rwanda.

Regarding the quality of the TTC students, the principal of the TTC told us that starting with the 2021 intake of TTC students, students who have scored Division I in the Lower Secondary Education Completion Examination will also be admitted to the TTC. In the past, the trend has reportedly been for TTCs to be mostly around Division III, with few I's. As mentioned earlier, the Framework for the new curriculum (REB, 2020) also states that it is Division II or higher. Since the selection process is done by REB, it is believed that the selection criteria are being revised to improve the quality of future faculty.

In addition, the number of students who choose TTCs is increasing. As mentioned earlier, from 2021, half of the TTC's tuition will be paid by the government. This greatly reduces the burden of tuition on parents. TTC tuition fees (including dormitory fees) vary between TTCs, ranging from 60,000 RWF to 100,000 RWF per term.[106] The government covers half of these tuition fees. Furthermore, the career

[105] Since the Gender Parity Index is used in ESSP3 as an index of gender disparity in the education sector, the GPI is used here also.

[106] As of June 2021, based on interviews with each TTC.

paths for teachers are being enhanced based on the 2019 Cabinet decision.[107] This includes the opportunity to study on a scholarship to the UR-CE, as well as UR-CE master's programs.

In all of the above options, students must complete an educational internship to obtain a teaching certificate. Educational training at TTCs varies between TTCs, but generally takes place during Year 2 at a demonstration school near the TTC (when classes are in session). During the first three months of the first term of Year 3 (the final year), the demonstration school or a school near the student's hometown (nationwide for selection) will be used as a school attachment, similar to working at a school.

Students summarize their activities in a report of about 20 pages. The DS principal visits 10 classes and scores them according to certain perspectives, attaching a score sheet to the abovementioned report. The DS visit by TTC instructors and the practical training guidance to students are essential activities. However, the principal recognizes the problem of being unable to provide careful educational training guidance due to the large number of sites visited.[108]

Table 3-51 Examples of TTC educational training

Year 1	Whole period	Micro-teaching practice in addition to classroom lectures at TTC
Year 2	1st term	Take four classes per week at the training school during the period
	2nd term	As above
	3rd term	As above
Year 3	1st term	School attachment at demonstration school or other school Take eight classes per week during the term
	2nd term	Review, etc. at TTC
	3rd term	Take the practical test at the Demonstration School

(Prepared by the research team based on interviews at TTCs)

In the final practical exam, a randomly selected unit is administered at the demonstration school. However, only the ECLPE course requires a total of two units, one each from pre-primary education and lower primary education.

The TTC reports demonstration schools to the REB. There is no set number of schools. The requirements for a demonstration school are that it should have a pre-primary to primary level of education, have competent and qualified teachers, and have good teaching materials.[109] The REB further indicates that a single shift for all grades is preferable. With this goal in mind, RQBE has selected one school from the DS (generally within walking distance) in the vicinity of the TTC to build a facility. This is called a Model School (MS). As of November 2021, an MoU between the TTC and MS as a designated training school is to be signed and is in draft in the REB SPIU.

The following is a list of MS (RQBE eligible schools) and DS for each TTC as of November 2021.

[107] PRESS RELEASE ON EDUCATION SECTOR STRATEGIES TO PROMOTE QUALITY EDUCATION, Kigali 05 February 2019

[108] Based on interviews at TTC Zaza

[109] Summary of The Curriculum Framework for TTC (REB, 2020) andinterviews with TTC & ECE curricular staff of REB and TTC officer.

Table 3-52TTC/MS/DS list (as of November 2021)

SN	TTC		Model School		Other DS(s)		
1	KABARORE	Public	G.S Bihinga	Public	1	Kabarore New Vision School	Public
					2	G.S Nyarubuye	Public
					3	Musterd Seed School	Private
2	MATIMBA	Public	G.S Matimba	Public	1	Fountain View Academy (Nursary & ECD)	Private
					2	Victory Academy Nursary & Primary	Private
3	NYAMATA	Public	G.S Mayange A	Public	1	E.P Gitwe	Public
					2	G.S Maranyundo	GA
4	BICUMBI	Public	G.S. Akanzu	public	1	Free Methodist School	Private
					2	E.P Kigarama	Public
					3	Jesus Eucharistic (Nursary)	Private
5	ZAZA	GA	G.S. Zaza A	GA	1	G.S. Zaza B	GA
6	BYUMBA	GA	G.S Byumba Catholique	GA	1	G.S. Inyange	Public
					2	G.S Gacurabwenge	Public
					3	Academy de la Salle; private	Private
					4	EAR-Byumba (Anglican)	GA
7	KIRAMBO	GA	G.S Jean de la Menais	GA	1	E.P Kirambo	public
					2	E.P Byumba	GA
8	CYAHINDA	GA	G.S St. Laurent Cyahinda	GA	1	G.S Muhambara	public
					2	G.S Kagarama	GA
					3	E.P Gasasa	GA
					4	E.P Mirabyo	GA
9	SAVE	GA	E.P. Save A	GA	1	E.P. Save B	GA
					2	Ecole Secondaire Save (In construction)	public
10	MUHANGA	GA	G.S St. Etienne	GA	1	G.S. Mbare	GA
					2	Isonga Academy	Private
11	MBUGA	GA	G.S. Uwinkomo	GA	1	E.P Mbuga	GA
					2	E.P Musa	GA
12	GACUBA 2	Public	G.S Umubano II	GA	1	G.S Umubano I	GA
					2	G.S Umubano II A	public
					3	E.P Kivumu	public
					4	House of Children, Ubumwe Community Centre (nursery & primary)	Private
13	MWEZI	Public	G.S. Nyarusange	GA	1	E.P Mwezi	GA
					2	E.P. Nyanunda	GA
					3	E.P Rurama	public
14	MURAMBA	GA	G.S Muramba B	GA	1	E.P Muramba A	GA
15	MURURU	GA	E.P Mururu	GA	1	E.P. Kirabyo	GA
					2	E.P. Mutongo	public
16	RUBENGERA	Public	E.P. Rubengera 1	GA	1	E.P. Rubengera II	GA
					2	E.P. Gacaca	GA
					3	G.S. Nyarubuye	Public

(Prepared by the research team based on interviews with MINEDUC and TTC principals)

At TTC Kirambo, the pre-primary school facility, which is also a training site, is located in the TTC.

There is significant variation among schools in terms of MS facilities. Some schools do not have SMART classrooms, while others lack Internet access. It is planned that all MS facilities will be improved with support from RQBE.[110]

[110] As of June 2021, the required equipment for the model schools had been identified. Most of the model schools were undergoing feasibility studies prior to construction.

The number of students also varies depending on the school, ranging from 1,000 to 3,000. There are issues with various aspects of the training sites. For example, some MSs do not have pre-primary education attached. However, the RQBE plans to improve this aspect.

In addition, RQBE is constructing a new MS on the premises of the UR-CE Rukara campus. This will bring the total number of MSs to be developed by RQBE to 17.

As of November 2021, the status of MS development by the RQBE had not yet started construction. It was still undergoing the feasibility study for construction.

According to an interview with the SPIU Coordinator at REB, the number of MS schools is insufficient with one MS school for every TTC school. In fact, based on the above-mentioned situation of educational training and the number of TTC students, the number of TTC students who undergo educational training outside the university can be calculated at 5,000 to 6,000 per year. Not all of the trainees are concentrated due to differences in training courses and timing. However, a simple calculation shows that the number of trainees accepted by one MS school is more than 300, which confirms the fact that there are not enough MS.

The following is a description of UR-CE, which is also a three-year teacher training institution. UR-CE used to be located in Kigali City as KIE (Kigali Institute of Education) (now UR Remera Campus). It was later integrated into UR and moved to Rukara and Nyagatare. The Rukara campus houses UR-CE operations and research institutes. It provides teacher training in STEM and pre-primary education. The Nyagatare campus offers teacher training in the humanities and economics.

The courses offered at UR-CE are as follows.

Table 3-53 List of UR-CE courses

School of Education
- Department of Humanities, Arts and Languages Education
- Department of Early Childhood and Primary Teacher Education
- Department of Foundations, Management and Curriculum Studies
- Department of Mathematics, Sciences and Physical Education
School of Inclusive and Special Needs Education
- Department of Special Needs Education Studies

(Prepared by the research team based on the UR-CE official website[111] and interviews with UR-CE)

The number of undergraduate students in 2021 is as follows.

[111] https://ce.ur.ac.rw/Departments

Table. 3-54 Number of undergraduate students by course in UR-CE (2021)

		ECE&PTE	MS&PSE	Languages	Humanities	Inc&SNE	Total
1st Year	M	233	626	196	174	91	1,320
	F	164	454	109	42	77	846
	M+F	397	1,080	305	216	168	2,166
2nd Year	M	336	551	316	836	104	2,143
	F	338	327	204	395	81	1,345
	M+F	674	878	520	1,231	185	3,488
3rd Year	M	104	601	71	111	25	912
	F	57	383	31	42	19	532
	M+F	161	984	102	153	44	1,444
Total	M	673	1,778	583	1,121	220	4,375
	F	559	1,164	344	479	177	2,723
	M+F	1,232	2,942	927	1,600	397	7,098

(Prepared by the research team based on data obtained from UR-CE)

In addition to the above, there are about 120 students in the two-year Diploma program, 560 students in the Open Distance and e-Learning (ODeL) program, and about 300 students in the graduate program. Some of the graduate students come from neighboring countries such as Uganda, Malawi, Tanzania, Burundi, Kenya, Zambia, Sierra Leone, Nigeria, and Ghana.[112]

Including the above, UR-CE has a total of about 8,000 students.

2) Recruitment of teachers

The Teacher Special Act (2020)[113] establishes the following procedures for teacher recruitment and hiring. These are to be implemented jointly by the District, MINEDUC, and MIFOTRA (Ministry of Public Service and Labor).

1. A list is submitted to MINEDUC for vacant posts from pre-primary to secondary school (including TVET schools) for Kigali City or for each district.
2. The Ministry in charge of education publishes the announcement of vacant posts based on all teaching subjects in nursery, primary,
   secondary and TVET schools through the public service e-recruitment portal. The announcement must contain the following details: 1) job position title; 2) requirements of the job position; 3) closing date of submission of application file.
3. The Ministry in charge of Education shortlists and publishes the list of admitted candidates for examination and non-admitted and the reasons for non-eligibility. The list is published through the public service e-recruitment portal.
4. The shortlisted candidates are informed on the date, time and venue for the examination at least two (2) days before examination. Examination is conducted on a working day and during working hours, and only a written examination is taken.
5. Shortlisting of candidates, conducting
   examinations, publication of results and appointment of teachers must not exceed sixty (60) days

[112] Many of them are graduate students of ACEITLMS (African Centre of Excellence for Innovative Teaching and Learning Mathematics and Science), a research institute within UR-CE.

[113] No 064/01 of 16/03/2020 Presidential Order establishing special statutes governing teachers in nursery, primary, secondary and technical and vocational schools

starting from the closing date of submission of job applications.

6. Before appointment, a teacher must submit to the City of Kigali or the District the following documents:[114]
7. The Mayor of the City of Kigali or the Mayor of District appoint teachers in accordance with the list transmitted by the Ministry in charge of education.

MIFOTRA manages the process of recruitment and appointment of teachers through the public service e-recruitment portal. MIFOTRA also maintains, for a period of twenty four (24) months, a valid database of all successful candidates who are eligible for appointment and placement.

3) Treatment of teachers

In Rwanda, teachers are divided into the categories in the table below.

Table 3-55 Categories of teachers

Category	Grade	Description
Junior Teacher	Grade II	Newly appointed teachers (who have completed their probationary period)
Teacher	Grade III、IV	DoS (Deputy of Studies) is this category and above.
Senior Teacher	Grade V、VI	A principal is this category and above.
Principal Teacher	Grade VII、VIII	
Senior Principal Teacher	Grade IX、X	
Master Teacher	Grade XI、XII	

(Prepared by the research team based on Official Gazette n° 10 of 16/03/2020)

Grades in the above table are categories directly linked to the amount of civil servants' salaries, which is determined byMIFOTRA (Ministry of Public Service and Labour). The REB is primarily responsible for the recruitment, appointment, and assignment of faculty.

The probationary period for teaching is basically 12 months, after which the student begins his or her career as a junior teacher. In addition to teaching experience, there are other requirements such as annual performance and completion of CPD courses.

The salaries of teachers in Rwanda's public schools are as follows Teachers in Rwanda's public schools are paid at a lower level than other civil servants.[115] This has been a concern for NST1. A 10% increase in the pay scale was implemented in 2019. A further 10% increase is planned for 2021.[116] The teachers' union estimates that the desired salary is said to be 150,000 RWF per month. This suggests that the issue of treatment is particularly pronounced in primary and pre-primary education.

Table 3-56 Public School Teachers' Salaries

Pre-primary and primary education	A2 (High School Diploma)	44,000 RWF per month
Lower secondary education	A1(Diploma)	90,000 RWF per month
Upper secondary education	A0 (University graduate)	120,000 RWF per month

(Prepared by the research team based on interviews with stakeholders and the November 2018 monthly report of the Japanese Embassy in Rwanda)

[114] A detailed curriculum vitae; a photocopy of identity card or passport; a certified copy of degree or certificate; a passport photo in colour; a criminal record; a medical certificate.

[115] Interviews with stakeholders and the November 2018 monthly report of the Japanese Embassy in Rwanda.

[116] The 2021/22 Forward-Looking Joint Review of the Education Sector (MINEDUC, 2021)

4) In-service teacher training

As mentioned above, in-service teacher training as of 2021 is mainly mandated CPD as School-based In-Service Teacher Training (SBI), as specified in The National Teacher CPD Framework. It is also integrated into the school timetable. CPD evaluation is also a requirement for faculty members to receive promotion and salary increases.

In-school CPD, or SBI, which is conducted closest to the students' learning, is important. The principal is ultimately responsible for SBI. According to the above Framework, the role of the Head Teacher (HT) in SBI should be as follows.

Table 3-57 Role of the Principal in SBI

Role to be fulfilled	Specific activities
1. Enable teacher CPD at school	1.1 Ensure teachers have time for CPD
	1.2 Ensure teachers have support for CPD
	1.3 Ensure teachers have resources for CPD
2. Monitor teacher performance	2.1 Establish performance contracts with all teachers
	2.2 Monitor teacher classroom practice and behaviour at school
	2.3 Appraise teachers annually to identify strengths and areas for improvement
3. Lead school CPD	3.1 Coordinate school CPD planning
	3.2 Oversee implementation and monitoring of school CPD
	3.3 Communicate about and report on CPD at the school, sector and district levels

(Prepared by the research team based on The National Teacher CPD Framework)

In schools, in addition to the director of studies (DoS), school subject leaders (SSL), and school-based mentors (SBM), senior teachers and master teachers among the general teachers have one of their main duties to support other teachers' CPD. Among them, the SBM plays a significant role in CPD. According to the School-based Mentor Program Framework (2016), at least one SBM is required to be assigned to each school. The SBM is expected to reduce the number of classroom hours he/she is responsible for by half, to 15 hours, spending the rest of the time fulfilling his/her responsibilities as a mentor. It is expected that 120 minutes of CPD time will be set aside each week to help teachers improve their English language skills, encourage reflective teaching practice (RTP), and support other teachers as teaching professionals. In the CPD framework, SBMs are expected to assist HTs and DoSs in SBI and to conduct the following activities.

Table 3-58 SBM's role in SBI

➢ Evaluation of teachers' qualifications and capacities using teachers' self-evaluations, classroom observations, and results of surveys of colleagues and learners.
➢ Identify teachers' strengths and areas for improvement
➢ Preparation, monitoring and evaluation of teachers' CPD plans
➢ Sharing good practices among teachers by organizing and facilitating a variety of CPD activities, including workshops, collaborative lesson planning and teaching practices, and peer lesson observation schedules
➢ School CPD planning, supervision, and evaluation

(Prepared by the research team based on The National Teacher CPD Framework)

Regarding reporting on CPD implementation, faculty, SBMs and SSLs are expected to report monthly on the number of CPD hours participated in and provided and the activities undertaken. Reporting forms for this purpose (CPD record form, individual CPD plan template, and class evaluation sheet) are attached at the end of The National Teacher CPD Framework as an appendix. A standardized format makes the documentation easier. Eventually, the CPD records of individual teachers will also be submitted online.

However, one issue is that the level of teacher qualities and competence to be developed through CPD is seen as a quantitative expansion rather than a qualitative deepening. For this reason, the difference in performance between junior teachers (good) and senior teachers (excellent) on the same quality and competence items is expressed as a difference in the number of times they appear in the classroom. This leaves the impression that, in its current form, the record is little more than a mere checklist. To enable evaluation as a higher level of performance, a more specific description of the differences from qualitatively lower levels is needed, with examples provided.

Reaching higher performance levels presumably requires a different CPD approach, with a different focus, scope, and form of learning. It would also be preferable to have a guide that SBMs and SSLs who have school CPD responsibilities could refer to when providing support.

The “Teacher Professional Standards” (REB, 2020) are similar to the teacher strengths (qualities and competence) presented in this framework. This subdivides teacher performance into three domains: (1) professional knowledge and understanding (8 standards), (2) professional skills (8 standards), and (3) professional attitudes and values (10 standards), with standards and sub-standards under each domain. The total number of sub-standards is 130. This standard is a set of behavioral indicators that teachers need to effectively implement the CBC that Rwanda has introduced. It will be necessary for all those involved in primary and secondary teacher training to discuss who will use it in the field, for what purpose, how it will be used, how it needs to be revised, its implications for training education, its relation to CPD, and to change it into something that is easy to use and useful in the field.

As examples of SBI, this framework includes teachers’ self-learning as well as collaborative learning with the classroom at its core, such as planning lesson plans collaboratively, assessing student learning, observing other teachers' classes, mock classes, model classes, and class research. Since the ministry has been required to set aside two hours of CPD time each week, it is necessary to make an annual plan at the beginning of the year, determining through trial and error how to implement SBI that is focused on classroom practice.

(6) Gender

Rwanda has a relatively stable Gender Parity Index (GPI) and is said to have achieved gender equality in education. A comparison of the ESSP3 and 2019 statistics is shown below.

Table. 3-59 Comparison with ESSP3 targets for GPI (2019)

Indicator (%)	2019	ESSP3	Status
GPI for pre-primary NER	1.05	1.02	Many girls
GPI for primary education NER	1.00	0.99	Almost equal
GPI for early secondary education NER	1.27	1.05	Many girls

(Prepared by the research team based on2019 Education Statistics and ESSP3)

In primary education, for the past several years, girls have fared better in terms of retention and dropout rates, promotion and advancement rates, and passing rates for the primary education completion examination.

In lower secondary education, the situation is similar to that of primary education. However, girls have a lower pass rate than that of boys in the the final examination, which marks the final stage of lower

secondary education. Boys have a higher rate of advancement to upper secondary education. This is where the trend so far is reversed. In terms of the percentage of students who go on to post-secondary education, 88.6% of boys and 83.9% of girls go on to post-secondary education. This situation has not changed since 2016, when the statistics were compiled. The low percentage of girls entering post-secondary education compared to boys has been identified as a challenge.

Furthermore, the retention and dropout rates in the latter half of secondary education are both higher for girls, while the advancement rate is lower for girls. The pass rate for the final exam for post-secondary education is also lower for girls. Although the rate of enrollment in higher education is not specified, the GPI of higher education enrollees in 2019 is calculated to be 0.756, which is different and skewed.

In other words, girls who appear to have demonstrated consistency and excellence in completing their basic education are unable to continue their education to upper secondary and higher education. It can be assumed that there are issues that inhibit girls from going on to higher education during their enrollment in lower secondary education. One factor that has been cited the physical characteristics of girls in terms of development. Support for girls' room maintenance and health guidance is being promoted. Secondary schools have a relatively high proportion of male teachers. Efforts are being made to promote the advancement of girls by increasing the number of female teachers and providing counseling services.

In addition, looking at the education statistics regarding girls' chosen field of higher education, fewer girls are entering STEM education from upper secondary education. A high percentage of girls enter TTCs.

While the case of the TTC is as described earlier. The low enrollment rate of girls in STEM education is often attributed to socio-cultural reasons, according to interviews with principals at several schools. Some of the responses were from women majoring in ICT. They also said that girls tend to shy away from science and mathematics courses for cultural reasons. Responses included the following: "Theoretical studies (science and mathematics) are not suitable for girls" (several principals); "Literature and education are more suitable for (preferred by) women, so they do not go into the sciences" (a principal in her forties). Most of these responses were from managers in their forties or older. This suggests that it is essential to change the mindset of those at the top of the school organization.

On the other hand, there are many girls who like mathematics and science but who worry about this social aspect. Principals also responded that in order to change this situation (in line with the goals of ESSP3), the current guidance on career development for students in secondary education needs to be transformed and appropriate career guidance needs to be provided. To address this issue, the Imbuto Foundation has been working to get girls interested in STEM. Efforts toward improvement include holding ICT workshops for girls during TTC vacations.

In what is referred to as the "STEM gap," the low enrollment of women in STEM education and the low number of women in STEM professions has long been an issue. This true not only in Rwanda but also around the world. The paper,[117] which studies the stereotypes of STEM among secondary school students, points out that this is due to the "masculine" nature of today's science and mathematics subjects. The paper highlights a need to change this image of the subject. Other points raised include: the impact of the reality that STEM is male-dominated in today's social environment; the challenge of mindset

[117] The Gender Gap in STEM Fields: The Impact of the Gender Stereotype of Math and Science on Secondary Students' Career Aspirations (Elena Makarova et al, 2019)

influenced by parents and teachers while growing up; and the situation in which there are few female science and mathematics teachers when children are considering their career paths.[118]

With these points in mind, an overview of the situation in Rwanda shows that while there are indeed many female primary teachers (2019 Teaching staff were 44.5% male and 55.5% female), there are almost three times as many male secondary teachers as female teachers (2019 Teaching staff were 71.7% male and 28.3% female). The impact of this gender-imbalanced environment is one possible factor, given that career guidance by teachers is highly influential when students have completed their basic education and are starting to think about their next career path.

While it is necessary to increase the number of female teachers in secondary education, it is also necessary to change the mindset of adults involved with students, such as in-service male teachers, female teachers, and administrative staff. They must understand the impact of the gender-differentiated environment so that they can provide students with appropriate career guidance and consulting.

(7) Educational facilities

1) Trends in the numbers of facilities

a) Summary of survey results

According to the 2019 EDUCATION STATISTICS, the population aged 1-18 and the number of students enrolled in school are categorized as shown in the table below. Issues include the low enrollment rate of pre-primary children (about 700,000 are not enrolled) and the mismatch with the appropriate age for primary education (enrollments exceed this by a gap of about 700,000).

Table 3-60 Trends in the number of students in each school[119]

Category	Official age range	Population	Enrollment	Difference
Pre-nursery	1-3 years	1,350,751	6,690	1,344,061
Nursery	4-6 years	947,252	282,428	664,824
Primary	7-12 years	1,810,665	2,512,465	-701,800
Lower secondary	13-15 years	908,132	481,138	426,994
Upper secondary	16-18 years	812,637	250,966	561,671
Tertiary	19-23 years	1,168,850	86, 206	1,082,644
TVET NEP			9,932	
Adult literacy			127,117	
Total		**6,998,287**	**3,756,942**	

Table 3-61 Trends in the numbers of schools[120]

	2017	2018	2019
Pre-Nursery	90	96	87 schools
Nursery	3,186	3,210	3,401
Primary	2,877	2,909	2,961
Secondary (※1)	1,567	1,728	1,783
TTC	16	16	16

[118] Why So Few? Women in Science, Technology, Engineering, and Mathematics (AAUW, 2010)
[119] MINEDUC (2019). EDUCATION STATISTICS P2
[120] MINEDUC (2019). EDUCATION STATISTICS P4, P9, P21, P38

Table 3-62 Trends in the number of children/ students[121]

	2017	2018	2019
Pre-Nursery	5,234	6,491	6,690
Nursery	220,435	226,706	282,428
Primary	2,540,374	2,503,705	2,512,465
Secondary (※1)	521,980	569,711	639,627
TTC	9,397	9,186	9,320

(*1) Numbers of schools and students are broken out into lower secondary and general upper secondary because there are special schools such as TVET and TTC.

Based on the 2019 EDUCATION STATISTICS, we have organized below the annual changes in the number of schools, students and classrooms, and facilities by province for 2019.

Table 3-63 School count survey results (by province)

	Northern (5 districts)	Eastern (7 districts)	Western (7 districts)	Southern (8 districts)	Kigali (3 districts)	Total
Pre-Nursery	7	45	9	12	14	87 schools
Nursery	693	684	980	740	334	3,401
Primary	508	685	767	754	247	2,961
Secondary	328	425	419	453	158	1,783
TTC	2	5	5	4	0	16

Table 3-64Number of students/classroom at primary education facilities

	Northern (5 districts)	Eastern (7 districts)	Western (7 districts)	Southern (8 districts)	Kigali (3 districts)	Total
Number of students	394,512	699,068	600,110	608,377	209,317	2,511,384
Number of classrooms	5,915	8,691	8,169	8,487	3,206	34,468
Number of children/classroom	67	80	73	72	65	73

Calculating the class size of primary schools in the state and nationally resulted in an average of 73 students per classroom. This can be attributed to the fact that the primary school operates a two-part system in the morning and afternoon.

The ESSP3 policy target of 46 students per classroom has not been achieved in any province.

Table 3-65 Secondary education: Number of students/classroom

	Northern (5 districts)	Eastern (7 districts)	Western (7 districts)	Southern (8 districts)	Kigali (3 districts)	Total
Number of students	119,994	171,664	172,621	197,245	66,214	727,738
Number of classrooms	3,311	4,376	4,221	4,999	1,779	18,686
Number of children/classroom	36	39	41	39	37	39

The ESSP3 policy target of 46 students per classroom has largely been met. However, this is due to high retention and dropout rates in primary education, as well as low enrollment in the first place.

[121] MINEDUC (2019). EDUCATION STATISTICS P1

b) Primary education facilities: Trends in the number of children and schools

In the first place, the problem is that the registered population is too large (about 700,000 people in excess) relative to population of children at the appropriate age.

The number of children in 2017 to 2019 remained largely unchanged. On the other hand, the number of schools has been steadily increasing. However, it is necessary to improve the current situation of about 73 students per classroom against the policy target of 46 students per classroom.

Table 3-66Primary education facilities: Number of children and schools

	2017	2018	2019
Number of children	2,540,374	2,503,705	2,512,465
Number of schools	2,877	2,909	2,961

c) Trends in the number of children and schools in secondary education facilities

To begin with, the issue is that the registered population is low (about 1 million short) relative to the appropriate age population.

In 2017 to 2019, the number of students in lower secondary schools increased by about 60,000 per year while the number of students in upper secondary school increased by about 10,000 per year. The number of schools is also increasing. Going forward, as the number of registered students increases, the number of students per classroom may exceed the current level of about 39. It will therefore be necessary to continue to secure schools and classrooms.

Table 3-67 Number of students and schools in secondary education facilities

	2017	2018	2019
Number of students (O-Level)	382,661	422,093	481,138
Number of students (A-Level)	139,319	147,618	158,489
Total number of students	521,980	570,521	639,627
Number of schools	1,567	1,728	1,783

d) Teacher training institutions: Trends in the number of students and schools

Both the number of students and the number of schools have remained mostly unchanged. It is calculated that to allocate 300,000 students to a school year at 46 students per classroom, 6,500 teachers are needed. TTCs have 3,000 students per school year. If only TTC graduates are used the number of teachers will fall short of the policy target.

Table 3-68 Teacher training institutions: number of students and schools

	2017	2018	2019
Number of students	9,397	9,186	9,320
Number of schools	16 schools	16 schools	16 schools

2) Current situation and issues of facilities

a) Summary of results of survey on school facilities

To summarize the current situation and issues of school facilities, we prepared questionnaires. We used these to gather summaries of the facilities. We used interview sheets to confirm the details, and conducted surveys on the following facilities. The survey result sheets for each of the target schools and centers were prepared as a school chart and compiled in the appendix at the end of this report.

Table 3-69 Survey targets and summary of survey results (for school charts)

Number of survey sites	Current situation of the facility	Issue
34 primary education facilities	➢ Due to high student enrollment, the average is 73 students per classroom, well above the policy target	➢ There is a high number of students in the first place ➢ Since the average class size is about 73 students, a double shift system of morning and afternoon classes is used in the early grades. This should be improved to the policy target of 46 students ➢ There are many issues with water supply facilities and cooking areas ➢ Poor Internet connection
30 secondary education facilities	➢ Due to low student enrollment, the average is 39 students per classroom, which meets the policy target	➢ According to the enrollment statistics, about 900,000 children are out of school ➢ Regarding SMART classrooms, the policy target of two classrooms has not been met ➢ Poor Internet connection
10 Teacher Training Centers (TTC)	➢ Only 16 schools nationwide	➢ Shortage of training schools for students to conduct educational training, as well as a shortage of classrooms and dormitories due to an increased number of students ➢ The number of graduates per year is about 3,000. However, to achieve the policy target of 46 students per class, the number of teachers needs to be 300,000/46 ≒ 6,500 per school year. Even if all of the graduates were to become teachers, there would still be a shortage.

b) Survey method and selection of survey targets

According to the "2019 EDUCATION STATISTICS," the statistics include 87 pre-primary schools, 3,401 nurseries, 2,961 primary school, 1,783 secondary schools, and 16 teacher training schools.

In line with this, pre-primary school facilities, primary schools, secondary schools, and teacher training schools were surveyed. With regard to the schools surveyed, the survey focuses on the World Bank's support schools, WFP's support schools, teacher training schools, and demonstration schools. In addition, Rwanda is divided into five provinces, and the survey was conducted for each province while maintaining a geographical balance in the number of schools visited.

Table 3-70 Number of schools visited (for school charting)

	Northern (5 districts)	Eastern (7 districts)	Western (7 districts)	Southern (8 districts)	Kigali (3 districts)	Total
ECD	1	3	4	1	2	11
Nursery	3	9	7	6	3	28
Primary	4	10	9	7	4	34
Secondary	3	11	5	6	5	30
TTC	2	3	2	3	0	10
						113

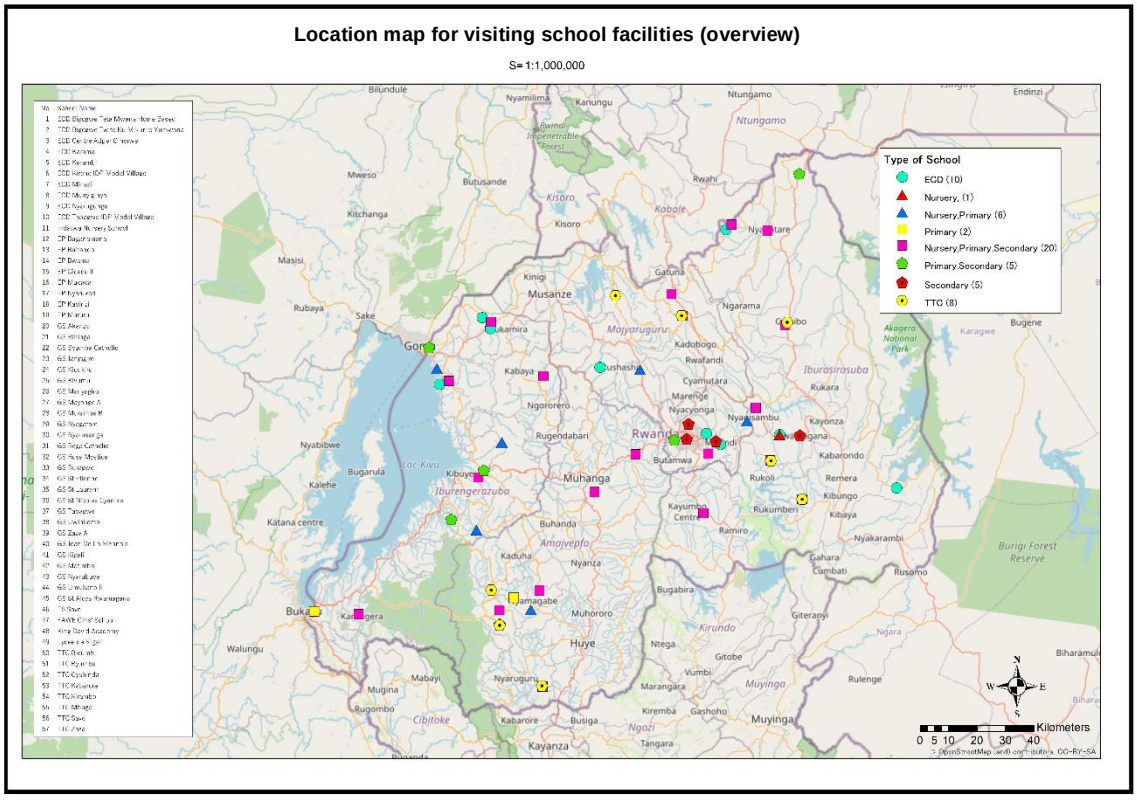


Diagram 3-22 Location map of visited schools (for preparation of school chart)

The A3 size drawings are organized with the school chart at the end of this report.

c) Organizational structure, operation, and budget for school facilities

This section details the organizational structure, operation, and budget for school facilities based on the interview results.

Table 3-71 Summary of organizational structure, operation, and budget for school facilities

Classification	Contents	Summary
School facilities	Organizational structure	➢ There are two organizations under the direct control of MINEDUC: "School construction in Department of Planning" and SPIU (Single Project Implementation Unit), which is organized by project unit. ➢ For the construction of new schools, MINEDUC engineers and inspectors will conduct a site survey to determine whether or not a new school should be built. This is done after receiving requests from each province and district.
	Operation	➢ The principal of each school is responsible for the maintenance and management of the school, which is carried out based on the budget provided by the government. The budget distributed by the government is divided into three major categories: teaching materials costs, operating costs, maintenance and repair costs. Each will be allocated in the range of 30-40%. ➢ Teaching materials costs are used for teaching materials, sports equipment, and health and hygiene. Operating costs are used for electricity, water, office supplies, cleaning staff salaries, and Internet access. Maintenance and repair costs are used for facility repairs and infrastructure repairs.
	Budget	➢ The amount allocated to general schools is 4,860 RWF/year/person. ➢ If the school has 1,000 students, the annual cost would be 5 million RWF. If 30% of that is for maintenance and management, the cost would be 1.5 million RWF. However, since the cost of building new toilets is about 5 million RWF, the renovation would take several years.

d) Monitoring indices in the education sector

From ESSP3, the monitoring indices related to school facilities are organized as follows. In 2024, the final year of the plan, some items have generally achieved 100% of the index, while others (colored in red) have not.

According to the monitoring indices for 2018, 2021, and 2024, the contents with the lowest level of achievement in the plan (generally below 80%) include science laboratories and laboratory equipment, water supply, primary education classrooms, and Internet access.

Table 3-72 Trends in monitoring indices[122]

	2018	2021	2024
■Priority3：STEM			
Science labs in primary and secondary schools	27.2%	44.1%	61.0%
Laboratory equipment in primary schools	41.0%	53.0%	65.0%
Laboratory equipment in secondary schools	71.0%	85.5%	100.0%
■Priority4：ICT			
Internet access in primary schools	32.9%	56.5%	80.0%
Internet access in secondary schools	46.9%	63.8%	80.6%
Two Smart rooms in primary schools	21.2%	55.0%	88.8%
Two Smart rooms in secondary schools	17.8%	53.0%	88.3%
■Priority 6: School infrastructure			
Class size 30:1 in pre-primary school facilities	39.3%	67.7%	96.2%
Class size in primary school 46:1	24.5%	52.3%	80.0%
Electrification in pre-primary school facilities	40.7%	65.9%	91.1%
Electrification in primary schools	60.9%	76.2%	91.5%
Water supply in pre-primary school facilities	30.1%	48.5%	66.8%
Water supply in primary schools	56.7%	68.0%	79.2%
Flushing toilets in pre-primary school facilities	75.5%	85.3%	95.0%
Flushing toilets in primary schools	88.6%	93.6%	98.6%
Hand washing stations in pre-primary school facilities	34.9%	67.4%	100.0%
Hand washing stations in primary schools	69.8%	84.9%	100.0%

[122] Source: "Education Sector Strategic Plan 2018-2024 (ESSP3) MINEDUC"

In this section, we compare, where possible,the ESSP3 targets against the statistical values in the 2019 EDUCATION STATISTICS to assess the degree to which ESSP3 targets have been achieved.

The comparison shows that for many items, the targets have not been achieved, especially in the case of school infrastructure facilities.

Table 3-73 Comparison of monitoring indices and statistical values

	Statistics[123] 2019	ESSP3 Targets for 2019[124]	Level of achievement
■Priority3 : STEM			
Science labs in primary and secondary schools	25.5%	32.8%	Not achieved
Laboratory equipment at primary level	38.7%	45.0%	Not achieved
Laboratory equipment in secondary school	79.9%	75.8%	Achieved
■Priority4 : ICT			
Internet access at primary level	34.8%	40.8%	Not achieved
Internet access at secondary level	61.1%	52.5%	Achieved
PC installations at primary level	83.4%	74.9%	Achieved
PC installations at secondary level	85.4%	85.1%	Achieved
■Priority 6: School infrastructure			
Electrification at pre-primary level	40.0%	49.1%	Not achieved
Electrification at primary level	60.8%	66.0%	Not achieved
Water supply at pre-primary level	29.1%	36.2%	Not achieved
Water supply at primary level	54.1%	64.0%	Not achieved
Hand washing stations at pre-primary level	29.3%	45.7%	Not achieved
Hand washing stations at primary level	67.5%	74.9%	Not achieved

[123] Source: " 2019 EDUCATION STATISTICS MINEDUC "

[124] Source: "Education Sector Strategic Plan 2018-2024 (ESSP3) MINEDUC"

e) Description of school facilities

i. Standard classroom layout

The World Bank's support is being provided mainly through Community Driven Development (CDD) or Home Grown Solution (HGS), a participatory construction method, using the same plan as the concurrent government-funded classroom supply project. Despite being implemented with support from the World Bank support, there are reportedly no special plans. Most of the primary school are one-story brick buildings.

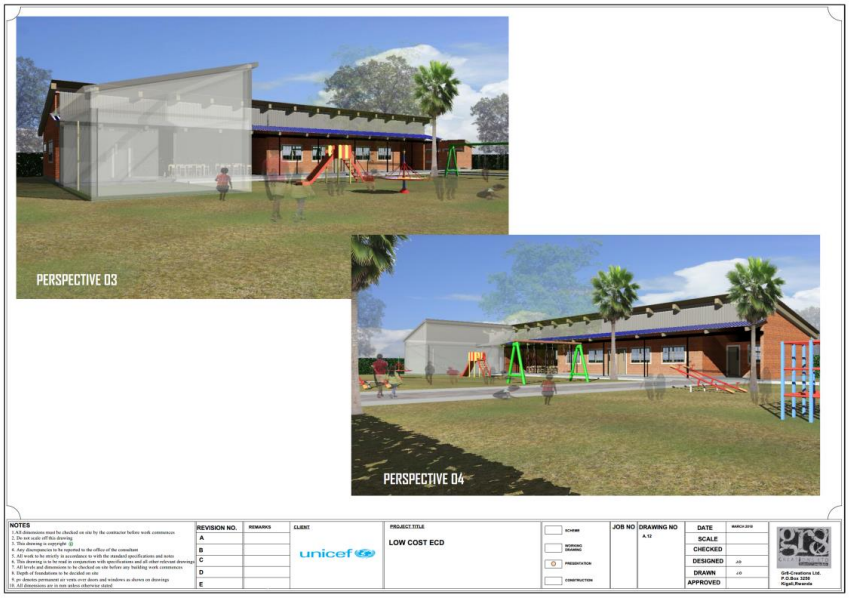


Figure 3-23 Model ECD center image.[125]

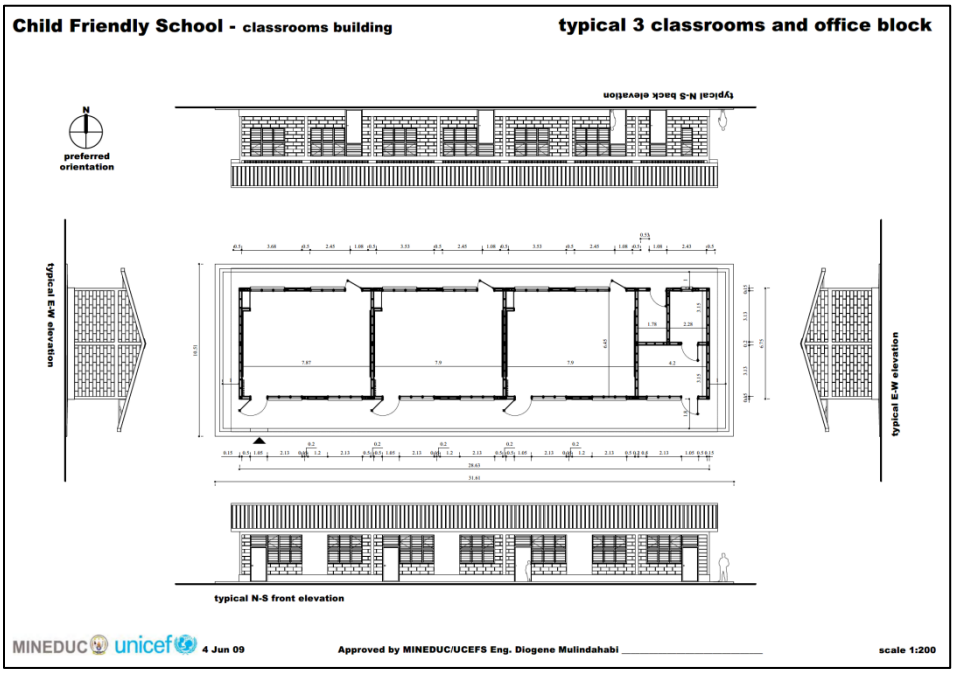


Diagram 3-24 Standard drawing of primary education facilities[126]

[125] Source " ECDs drawings Kayonza " UNICEF
[126] Source: "Typical drawings of school building and toilet block" MINEDUC

ii. Standard drawing of a toilet

The standard drawing of toilets supported by UNICEF is 12 private rooms and one accessible toilet as standard.

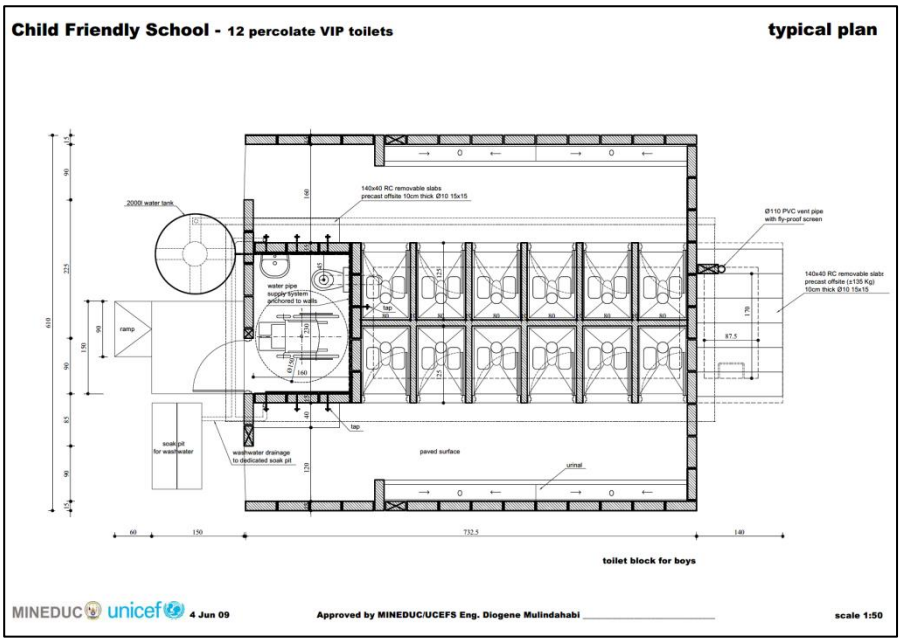


Diagram 3-25 Standard drawing for a toilet[127]

iii. SMART Classroom

The basic facilities of the Smart Classroom are designed to accommodate 5 computers per table x 10 locations = 50 students at a time.

1. Newly proposed smart classroom (9/ 10 meters) with 50 Laptops, back view

Diagram 3-26 Image of Smart Classroom development[128]

[127] Source: "Typical drawings of school building and toilet block" MINEDUC
[128] Source: " Smart Classroom Design Specifications and Plan 2018 ," REB

iv. Model schools and demonstration schools

TTCs have several demonstration schools and register the demonstration schools that have the best facilities and environment. The RQBE calls this school a model school (MS).

Based on the World Bank's support for the TTC and MS, the MS has invested in materials and equipment such as computers, scanners, headphones, projectors, software, and equipment for smart classrooms.

Table 3-74 List of World Bank support contents[129]

S/N	RQBEHCD PURCHASE ICT EQUIPMENTS FOR TTCS & MODEL SCHOOLS
1	Laptops for teachers in TTCs & Model schools Modem. for teachers in TTCs & Model schools
2	Earphones per TTC
3	Projector for TTCs
4	Tablettes for each TTCs
6	Education software for TTCs
7	Scanner Printers for TTCs
8	Laptops for smart classrooms for each models schools
9	Scanner printers for model schools
11	Headphones for model schools
12	Projectors for Model schools
13	Education software (Licensed JAWS software&DuxburyBraille Translator for Windows)
14	Sound system/speakers ((with its accessories)
16	Internet connectivity & subscription
	Tables in smart classroom
17	Chairs(stools) in smart classroom
18	Curtains in smart classroom

[129] Source: " WBQBE request list0604 ".

v. Facility guidelines

The facilities required of schools are organized based on the Child Friendly Schools Infrastructure Standards and Guidelines. The guidelines define categories 2 to 4 as facilities and equipment that are "MUST" items. Facilities and equipment in categories 5 to 6 are "SHOULD" or "MAY" items. Category 1 has not been defined in detail, so it is listed starting with Category 2.

Table 3-75 Categories of facilities that should be in schools[130]

Classification	Item	Detailed content
■"MUST" items		
Category 2 (Minimum environment)	1) Safe and secure classroom	➢ Is it a comfortable classroom with plenty of space?
	2) Toilet and hygiene facilities	➢ Is there a separation between genders and a separation from facilities used by staff?
	3) Hand washing stations	➢ Is there an adequate amount of hand washing stations?
	4) Potable water	➢ Is there sufficient potable water?
	5) Principal's office	➢ Is there adequate space for meetings?
	6) Multi-purpose toilet	➢ Are there wheelchair-accessible toilets?
Category 3 (Basic environment)	1) Desks and chairs	➢ Is there enough space for everyone to sit?
	2) Schoolyard	➢ Is the playground well maintained?
	3) First-aid kit	➢ Is there a first aid kit?
	4) Sanitary napkin	➢ Are sanitary products stocked?
	5) Educational products	➢ Are there study supplies such as large triangles, maps, etc.?
	6) Sports equipment	➢ Basketball, soccer, volleyball, table tennis equipment
	7) Staff room	➢ Is there a room for teachers and staff?
	8) Library room	➢ Is there a library or bookshelf?
Category 4 (Standard environment)	1) Barrier-free facilities	➢ Is it possible for wheelchair users to move smoothly?
	2) Fence	➢ Is the school surrounded by a fence?
	3) ICT Room	➢ Is there an ICT room with full equipment?
	4) Special needs room	➢ Is there a special needs room?
	5) Drainage equipment	➢ Are gutters and drainage equipment in place?
	6) Storage space	➢ Is there space to store various supplies?
	7) Science laboratory	➢ Is there a science lab?
■"SHOULD" items		
Category 5 (Above standard facility)	1) External facilities	➢ Are there outside educational facilities or a vegetable garden?
	2) Rainwater collection tank	➢ Is there a tank to store rainwater?
	3) Facilities for the visually impaired	➢ Are there facilities for guiding the visually impaired?
	4) Incinerator	➢ Is there an incinerator that can safely dispose of waste?
	5) Compost heap	➢ Is there a system for making compost?
	6) Cooking equipment	➢ Is there efficient cooking equipment?
	7) Facility Information	➢ Is there a facilities guide for each classroom?
■"MAY" items		
Category 6 (Excellent facility)	1) Sustainable materials	➢ Are bricks used?
	2) Sustainable energy	➢ Is solar power generation adopted?
	3) Multi-purpose hall	➢ Is there a multi-purpose hall for meetings, meals, etc.?
	4) Kitchen	➢ Safe and clean food preparation, cleaning, and storage areas
	5) School infirmary	➢ Are there desks and beds in the infirmary?

[130] Source: " Child Friendly Schools Infrastructure Standards and Guidelines (2009) MINEDUC .

f) Information collection on school construction

i. Flow of school construction

The following shows differences in school construction between the general procurement method by MINEDUC and the World Bank-supported procurement method, based on the results of interviews with MINEDUC.

The procurement process by MINEDUC is checked by each district office to ensure that there are no urban planning issues. The contractor is then awarded the contract and the school is built by the contractor.

However, in the case of World Bank support, a project team will be formed within MINEDUC.The school will be built with the participation of local residents with the approval of the Department of School Construction and the Department of Social and Environmental Affairs after confirming that there are no problems in urban planning.

In general procurement, the cost is 20-30% higher than that of World Bank support because of quality maintenance by contractors.

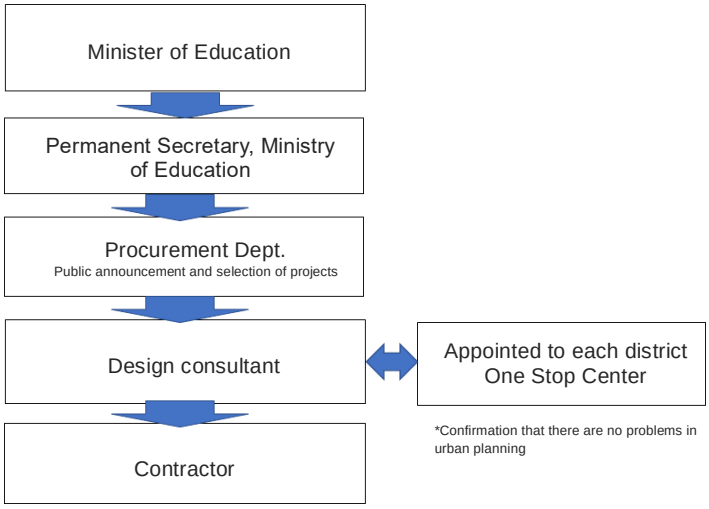


Figure 3-27 General procurement method of MINEDUC

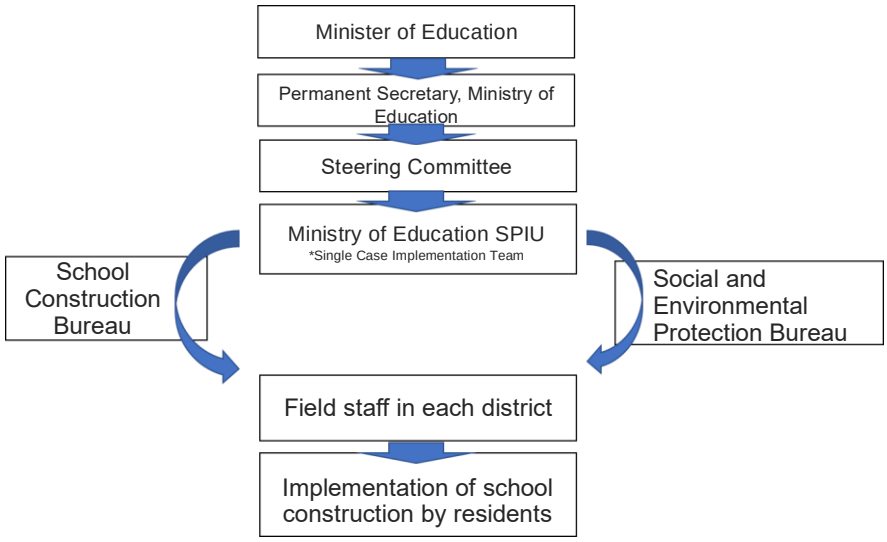


Figure 3-28 School procurement method with World Bank support

ii. Bidding and procurement methods

The procurement of school construction is advertised by the Procurement Division based on the Technical Specifications (TOR) prepared by the engineers of the School Construction Division. The procurement will be carried out through the online procurement system "UMUCYO" under the jurisdiction of the RPPA. Everything from the submission and acceptance of proposals to the scoring of technical evaluations by the client, the opening of bids, the tabulation of the overall evaluation, and the announcement of the results is conducted online.

iii. Construction cost (cost of BOQ)

Two examples of BOQs from schools supported by RQBE are shown below. Checking the lower cost of this BOQ reveals that facility contents have a good service level with electrical equipment and fire detectors taken into consideration.

Table 3-76 BOQ Case Study 1)

SUMMARY OF BILLS OF QUANTITIES FOR ST ETIENNE

Item	*ELEMENTS*	*QTY*	*unit price*	*Total Price*
101	ADMINISTRATION & PRIMARY BLOCK B	*1*	*289,677,106*	*289,677,106*
102	PRIMARY BLOCK A	*1*	*228,858,976*	*228,858,976*
104	KITCHEN & DINING	*1*	216,561,936	*216,561,936*
105	REHABILITATION BLOCK D, STOCK &GIRLS ROOM	*1*	36,808,228	*36,808,228*
107	SMART CLASS ROOM	*1*	60,163,186	*60,163,186*
108	SECONDARY CLASS ROOMS REHABILITATION	*1*	22,538,000	*22,538,000*
109	LABORATORY BLOCK REHABILITATION	*1*	139,053,970	*139,053,970*
110	TOILET BLOCK FOR SECONDARY	*1*	27,158,718	*27,158,718*
111	TOILET BLOCK FOR PRIMARY	*2*	26,358,718	*52,717,436*
112	SECURITY HOUSE	*1*	3,337,485	*3,337,485*
114	EXTERNAL WORKS	*1*	265,308,351	*265,308,351*
115	MAIN POWER DISTRIBUTION	*1*	5,349,600	*5,349,600*
116	INTERNAL MECHANICAL	*1*	45,455,230	*45,455,230*
117	FURNITURES	*1*	139,246,000	*139,246,000*
118	Implantation of Environmental and Social Management plan (ESMP) refer the details in tender document.	*1*	*44,000,000*	*44,000,000*
TOTAL FOR THE PROJECT				*1,576,234,224*

Table 3-77 BOQ Case Study 2

SUMMARY OF COSTS			
S/N	ITEM DESCRIPTION	CURRENCY	TOTAL AMOUNT
1	PRELIMINARY AND GENERAL WORKS	Frw	232,944,938
2	BLOCK FOR SECONDARY SCHOOL	Frw	442,945,753
3	ADMINSITRATION BLOCK+TRC	Frw	118,320,410
4	LABORATORIES	Frw	160,831,627
5	BLOCK FOR PRIMARY 2	Frw	105,033,101
6	BLOCK FOR PRIMARY 1	Frw	84,847,564
7	DINING HALL AND KITCHEN	Frw	83,485,674
8	BLOCK FOR NURSERY SCHOOL	Frw	57,858,498
9	GIRL'S ROOM	Frw	13,789,192
10	LATRINES FOR SECONDARY	Frw	27,800,585
11	LATRINES FOR PRIMARY	Frw	20,752,410
12	LATRINES FOR NURSERY	Frw	13,617,268
13	CONFERENCE ROOM	Frw	120,833,589
14	EXTERNAL WORKS	Frw	314,157,567
15	DISABILITIES RESOURCE CENTER	Frw	101,429,969
	TOTAL (TAXES EXCLUSIVE)		1,898,648,144
	TAXES 18%		341,756,666
	GRAND TOTAL (Taxes inclusive)		2,240,404,810

iv. Construction cost (cost based on interview results)

The reference costs for school construction (per classroom, per toilet, per kitchen) based on the results of the REB SPIU interviews are summarized below. In the case of this result, the price of electrical equipment and other structures is considered to be only the minimum necessary.

Table 3-78 Costs associated with school construction[131]

Item	In case of World Bank support and community participation	In case of contractor procurement
Cost per classroom	Approx. 12 million RWF	Approx. 18 million RWF
Cost per toilet (12 rooms)	Approx. 5 million RWF	Approx. 7 million RWF
Cost per kitchen	Approx. 4 million RWF	Approx. 6 million RWF

v. Status of local contractors

Rwanda's contractors are classified into categories A-F according to their eligibility for procurement participation. Interviews were conducted with companies with experience in the construction of school facilities, ranging from large companies in Category A to medium-sized companies in Categories D and E, which are the main players in the construction of school facilities.

The company with the highest rank in the category, Rank A, told us that it is unlikely that a normal brick school building would participate in Rank A. For normal schools, it seems that most bids are submitted by construction companies of rank C to E.

Table 3-79 Status of qualified vendors[132]

Category	Scale of operations eligible for participation	Number of registered companies (Building sector: 2021-2022)
A	RWF 2 billion or more	27
B	RWF 1.5 billion or more, but less than 2 billion	4
C	RWF 800 million or more, but less than 1.5 billion	28
D	RWF 300 million or more, but less than 800 million	118
E	RWF 100 million or more, but less than 300 million	65
F	Less than RWF 100 million	2,088

[131] Results of interview with School Infrastructure Construction Engineers in Rwanda Housing Authority

[132] Source: PRRA http://rppa.gov.rw/fileadmin/files/CompanyCategorisation/Categorisation_2019_2020/Works%20Categories%20published%2020052020.pdf

g) Information collection on the model village

The GoR is promoting a MINALOC-led project called the Integrated Development Program (IDP) model villages for rural development. Interview MINALOC and others to organize the progress and future plans of the IDPs, and to identify support needs and components that can be linked. To examine the possibility of using the model village as a base for strengthening the national ICT network, information on the program (mainly related to the model village) was collected in stages.

Diagram 3-29 Example of a model village arrangement

i. Construction cost of the model village

For the newly established KINIGI IDP Model Village in July 2021, the construction cost is shown below. The total construction cost for this model village is RWF 26.6 billion (about JPY 3 billion).

Table 3-80 Construction cost of model village

Item	Details	Cost
Residence	➢ 24 apartments (each with 2 bedrooms, a living room, a dining room, and a kitchen), 2 buildings ➢ 24 apartments, (each with 3 bedrooms, a living room, a dining room, and a kitchen) , 4 buildings ➢ Appliances and furniture included	8(billion)RWF (Approx. JPY 880 million)
Health center	➢ Outpatient hospital ➢ Ward capacity: 26 patients	1.5(billion)RWF (Approx. JPY 170 million)
School/ ECD	➢ 33 updated classrooms ➢ 11 newly constructed classrooms ➢ 6 ECD rooms	3.3(billion)RWF (Approx. JPY 360 million)
Agricultural and livestock product facilities	➢ Cowshed, chicken coop ➢ Feed and feed storage rooms ➢ Horticultural area, orchard	1.9(billion)RWF (Approx.JPY200 million
Other infrastructure	➢ Water, roads, electricity	12(billion)RWF (Approx.JPY 1.28 billion)

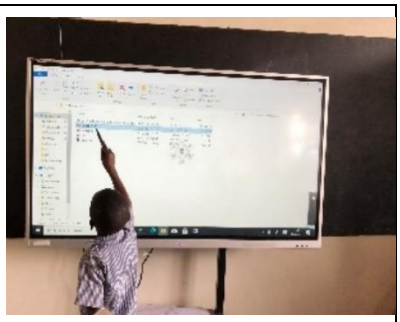
ii. Model village survey results

1) Karama Model Village

We visited the Kalama Model Village and GS Kigali in the Kalama district of Kigali City. The government is relocating residents from nearby flood-prone areas. Rent-free public housing is being provided free of charge. The roads in this area are paved and the atmosphere is generally calm.

GS Kigali is equipped with a four-story school building, laboratories, SMART classrooms (two rooms), and other facilities that are of a higher standard than other government schools. In addition, touch-screen monitors have been installed to demonstrate the use of ICT in the classroom. The grounds are constructed with concrete, and include basketball and volleyball courts.

One of the features of the school is that the number of students per class is kept at about 40. While class sizes in general public schools are usually 50 to 60 students or more, most of the classes here have 40 students. The number of students is adjusted accordingly.

		
Residence	School building	Touch panel monitor

2) Gishuro Model Village

We visited the Gishuro Model Village in the Gishuro district of the Nyagatare group. The model village has infrastructure facilities such as water and electricity. Facilities include a dairy farm, a poultry farm, and a pineapple and banana farm operated as an agricultural business by a cooperative. In addition, the model village is well equipped with infrastructure, including a hospital and meeting space.

The Model ECD Center, a relatively well-equipped ECD facility, has been established. It is attended by 99 children who live in and around the Model Village. The center is surrounded by a fence to ensure the safety of the children. The school also has playground equipment (swings, slides, etc.), classrooms, a kitchen, and a teacher’ s office.

		
Residence	Hospital	ECD facility

(8) ICT Utilization

1) Policy and Current Situation of ICT Utilization in Education

The use of ICT in the education sector had started to be discussed within the education sector in the early 2000s as a policy in line with Vision 2020. The Education Sector Policy of 2003[133] already mentions the use of ICT.Phase II of the National ICT Strategy and Plan NICI (2011-2015), a previous national ICT strategy, also mentions the implementation of OLPC programs. SMART Education is mentioned in the SMART Rwanda Master Plan (Ministry of Youth and ICT, 2015[134]), which replaced NICI in 2015.

In 2016, an ICT in Education Policy was developed by MINEDUC with a view to adopting ICT in education. The policy mentions the purpose of using ICT to improve the quality of education, as well as specific details such as the use of ICT to improve the quality of teaching and learning using digital content, monitoring and evaluation of pupils' learning, and enhancement of teachers' job skills. At the same time, the CBC came into effect, and it set the goal of "21st century skills" as competency that learners (students) should acquire through the introduction and use of ICT. ICT is positioned as one of the Basic Competences along with Literacy and Numeracy. The OLPC program for primary education, which has been in operation since 2008, was integrated into the SMART Classroom program in 2016. The OLPC program for primary education was continued, as well as the maintenance of PC rooms for secondary education. The reduction of costs and use in actual classes were cited as important priorities.

Among the key strategies of the SMART Classroom program is the development of activity-centered learning digital content aligned with the new curriculum (CBC). The program notes the need for Rwanda-specific digital content that enables learner-centered and interactive teaching methods suitable for the CBC.

In parallel with the development of ICT infrastructure in schools, ESSP 3 also plans to develop infrastructure such as electrification of schools, which is being addressed by the Directorate General of Gender and Digitalization of MINEDUC, the ICT in Education Division of REB, and others.

The reasons for promoting the use of ICT in school education in Rwanda can be summarized as follows.

- To make up for the shortage of teachers in terms of quantity
- To make up for the lack of ability of teachers (subject knowledge, teaching methods, English skills)
- To improve the ability and skills of children and students to use ICT
- To promote individualized and optimized learning through the use of ICT ⇒ especially for slow learners
- To improve the efficiency of communication, coordination, and budget management for school operations and finances, and to reduce costs
- To visualize issues and respond quickly to schools and communities that require further action
- To facilitate the updating of teaching materials and curriculum

The use of ICT in education has gradually progressed in accordance with the above policies. The development of equipment such as OLPCs and SMART Classrooms have taken the lead, followed by the

[133] 1.4 International Development Targets

[134] Ministry of Youth and ICT (MYICT) is the current Ministry of ICT.

more recent development of platforms and networks. However, to link the use of ICT to the improvement of students' academic performance, it is necessary to develop effective ICT-based classes (learner-centered and interactive classes) in the classroom. The absence of digital content for achieving this combined with inadequate skills of teachers for using ICT have long been issues.[135]

In addition, in 16 TTCs nationwide, all 9 schools interviewed about ICT facilities cited issues of maintenance and repair of ICT equipment and Internet speed at all 9 TTCs. Similarly, challenges in the maintenance and repair of ICT equipment and slow internet speeds were noted in most of the schools interviewed in the survey.

In fact, 30 computers were still out of order at TTC Kabarore, 20 at TTC Zaza, and 15 at TTC Nyamata, which were visited during this survey. In the SMART Classroom, about 100 laptops are distributed to each school, so 10% to 30% of them were out of order. Although the TTC is relatively well-maintained compared to other schools, the fact that the situation is similar at the TTC suggests that other schools may have more problems with breakdowns and maintenance.

Considering that so many ICT devices have spread to schools and will continue to do so in the future, it is necessary to train and deploy personnel who can repair[136] and maintain the hardware for proper ICT utilization.

In addition, according to what we heard from the TTC, each class conducts two ICT classes per week. This means that the two SMART Classrooms are completely occupied with class activities only. As a result, teachers could not take time to learn about ICT-based teaching. At least one more SMART Classroom is seen as necessary.

2) Current situation and issues of ICT use

The following is an overview of the current situation and issues related to the use of ICT in the education sector

Table 3-81 Current situation and issues of ICT use in education

	Current situation, practical examples and plans	Issue
Communication infrastructure	National electrification rate: 37% in 2018 => 63% as of May 2021 => 100% in 2024 (The African Development Bank has agreed to provide support). Internet coverage in public schools is 35% for primary and 61% for secondary as of 2019.	According to UNICEF's GIGA initiative, there are about 1,800 schools that want to provide Internet access. There are 726 teachers and students at each site and 1,156 residents within a 1km radius. Providing Internet access to all of them would benefit a total of 3.3 million people, bringing GDP growth equivalent to JPY 40 billion.
Status of PC	Most schools (83.4%) have computers for	The ICT literacy of teachers

[135]Report on completion of a project to improve the quality of education through the use of ICT in primary level mathematics education in Rwanda (JICA, 2017).

[136] Currently, RISA and REB are considering establishing guidelines for the useful life of school devices (seven years for desktop PCs, five years for laptop PCs, and three years for tablets) and budgeting for device maintenance and management accordingly.

deployment in schools and classrooms	children and students. The number of secondary schools with at least one SMART Classroom is about 54% (2021). REB started the One Laptop Per Teacher (OLPT) program. With the support of the DP, REB is conducting ICT training for teachers.	themselves is insufficient. As far as could be gathered directly from teachers during our school visits, almost all teachers own cell phones. However, only about half of them own smartphones, and only a few own personal computers. When trying to use the Internet during class, the speed is extremely slow due to the concentration of access by students. The policy goal of installing at least two SMART Classrooms per school has still not been achieved in about 900 schools[137].
Status of application to subject study	Some schools have been provided with Content Access Points (CAPs) by Positivo (February 2020: distributed to 1,613 schools). The content is a REB-certified PDF textbook that can be viewed in Moodle on an XO or PC with a WIFI connection. In some schools there were good examples such as the following. ☆ The ICT room is opened to students during lunch break for students to engage in self-study of mathematics using YouTube (English content) Computer-based testing (using Google Forms, etc., created by teachers) for small unit tests	Since many teachers do not know how CAP works or how to use it, there is a lack of practical examples in the classroom. The "use of ICT in subject classes" is limited to viewing REB textbook PDFs and teachers' own PowerPoint materials on projectors and students' use for research and learning. We have yet to see a good example of a tool that can be used to promote and realize learner-centered and interactive learning.
Responding to COVID-19	・During the period of school closure due to the COVID-19 pandemic after March 2020, the REB developed various digital teaching materials (video and audio) and made home learning materials available on TV, radio, YouTube, and the REB e-learning portal. In collaboration with DPs, the REB has opened several private online learning portals to the public free of charge to enhance home study materials.	■For all services, uptake appeared to be slow. Awareness among parents, students, and pupils is limited.
STEM Elite Education	・The Rwanda Coding Academy (RCA), which was established in 2019, is currently training practical ICT professionals on a full scholarship basis. The training is provided to students with exceptionally high grades (Physics, Mathematics, English) at S4-6 level, targeting 60 students per year. Each class has 20 students, with one PC per student, and roughly equal numbers of male and female students. ・ KOICA will reportedly build a school building in two years (with a budget equivalent to JPY 900 million). ・There is also a plan to set up one similar	■The post-graduation career path is an issue that will need to be addressed.

[137]Based on interviews with the REB ICT in Education Section (August 2021).

	school in each province. (A new school is expected to open in the southern province in September 2022.)	
REB Education Portal	・Access to a wide variety of data on school education administration (calendar, curriculum, maps)	■Scattered examples of outdated, inconsistent, or inaccurate information.
School Data Management System (SDMS)	・It is possible to print out a list of children and students, and the number of children and students enrolled by grade, age, and gender ・The person in charge of data entry and management at the school can be the principal, vice principal, secretary, or teacher in charge of ICT	■Attendance and absences are entered at the end of each month, and the number of students who have been retained or dropped out of school is entered at the end of each year, which tends to be delayed.

The current situation of electrification of schools related to communication infrastructure is as follows.

Table 3-82 Electrification rate and type of power supply in schools

	Primary school electrification rate			Secondary school electrification rate		
	2017	2018	2019	2017	2018	2019
Grid electrification	55.8%	58.2%	60.8%	71.2%	74.2%	76.6%
Solar	24.6%	20.8%	19.0%	19.4%	18.3%	16.8%
Power generator	4.8%	5.5%	5.7%	23.1%	25.0%	24.4%
Biogas	0.2%	0.4%	0.2%	4.2%	2.8%	2.9%

(Source: 2019 Education Statistics)

The status of PCs and other equipment in primary and secondary schools is as follows.

Table 3-83 Status of ICT and STEM development in primary schools

Indicator	2017	2018	2019
Number (%) of schools with computers installed	1991 (69.2%)	2,195 (75.5%)	2,468 (83.4%)
Number of computers for children (number of children/number of computers)	242,407 (1/11)	243,494 (1/10)	247,756 (1/10)
Number of staff computers (number of staff/number of PCs)	3,175 (1/1)	3,694 (1/1)	3,762 (1/1)
Number of computers for teachers (number of teachers/number of PCs)	4,823 (1/9)	2,850 (1/15)	3,084 (1/14)
Number (%) of schools with ICT facilities for classroom use	1,267 (44.0%)	1,612 (55.4%)	1,718 (58.0%)
Number of schools with a science kit (%)	1,065 (37.0%)	1,065 (34.4%)	1,147 (38.7%)
Number of teachers with ICT skills (%)[138]	3,824 (9.2%)	3,828 (9.1%)	3,828 (8.7%)

(Source: 2019 Education Statistics)

[138] The definition of "teachers with ICT skills" is unclear, but given that the statistics for 2016 are blank, it is likely to refer to teachers who attended ICT training for in-service teachers in 2017 and 2018. The main content of the training is the basic operation of the Windows Laptop computer used by teachers (names of the parts of the PC, how to turn it on, how to use the mouse) and the operation of Email, MS Word, Excel, PowerPoint, etc. It does not cover the practical use of ICT in the classroom.

Table 3-84 Status of ICT and STEM development in secondary schools

Indicator	2017	2018	2019
Number (%) of schools with computers installed	1,327 (84.7%)	1,456 (84.3%)	1,523 (85.4%)
Number of computers for children (number of children/number of computers)	67,133 (1/9)	80,517 (1/8)	89,444 (1/8)
Number of staff computers (number of staff/number of PCs)	3,783 (1/2)	4,240 (1/2)	4,582 (1/1)
Number of computers for teachers (number of teachers/number of PCs)	3,402 (1/6)	5,106 (1/5)	6,310 (1/4)
Number of schools with Internet access(%)	647 (41.3%)	914 (52.9%)	1,089 (61.1%)
Number (%) of schools with ICT facilities for classroom use	944 (60.2%)	1,118 (64.7%)	1,187 (66.6%)
Number of schools with a science kit (%)	1,038 (66.2%)	1,103 (63.8%)	1,425 (79.9%)
Number of schools with science labs (%)	338 (21.6%)	338 (21.6%)	445 (25.5%)
Number of teachers with ICT skills (%)	2,571 (11.7%)	3,071 (13.3%)	3,071 (13.0%)

(Source: 2019 Education Statistics)

UNICEF's GIGA initiative mapping site has compiled information on Internet access and connection speeds in primary and secondary schools across Rwanda.

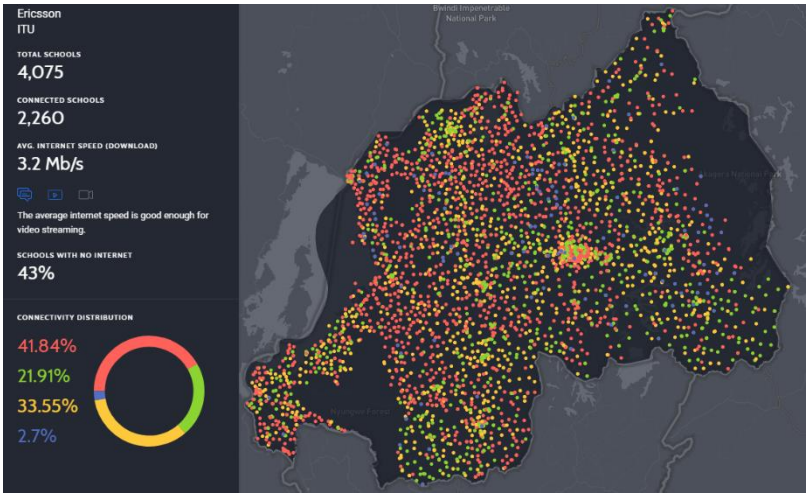
According to the survey, 2,260 of Rwanda's 4,075 primary and secondary schools, or 55.4% (61% of secondary schools and 35% of primary schools), have Internet access, with an average connection speed of about 3.2 Mbps.

All of the 16 TTCs visited during the field survey had 4G or fixed broadband Internet access. However, when we visited the surrounding primary and secondary schools, only about half of them had Internet access as a school. There were many cases of teachers using their own smartphones for tethering. (In some cases the school covered the cost of the data plan, while in other cases the individual had to cover it.)

According to GIGA, close to 97% of Rwanda's land area is covered by 3G or 4G lines and 2% by 2G lines. As far as the teachers at the schools visited in the survey are concerned, all of them have cell phones and about half of them use smartphones daily (WhatsApp, Twitter, Instagram, YouTube, Facebook, etc.).

Table 3-85 Internet Access in Rwandan Schools

<table>
<tr><th colspan="3">Internet connection</th></tr>
<tr><td colspan="2">Yes 55.46%</td><td rowspan="2">None/Unknown
44.54%</td></tr>
<tr><td>21.91%</td><td>33.55%</td></tr>
<tr><td>5 Mbps or above</td><td>Less than5 Mbps</td><td>0Mbps</td></tr>
</table>



(Source: https://gigaconnect.org/rwanda/ viewed on July 31)

In this way, the movement to install Internet access at schools is steadily progressing, following the spread of cell phones (3G, 4G) and the progress of rural electrification. Correspondingly, ICT rooms and SMART Classrooms[139] have been set up in schools. Many primary school have XO and secondary schools have Windows OS laptops for student use.

Progress in ICT hardware deployment in secondary education has been faster than in primary education. The distribution of student computers has steadily improved. However, there are still a small number of devices in schools that are unusable due to faulty electronics, password loss, viruses, etc. In schools, the proper management and maintenance of such devices is usually left first to the teacher in charge of ICT, who contacts the REB if it is beyond his or her control. However, it can be presumed that there are many cases where the response from the REBs is slow and problems are left unresolved. The ICT in Education Division of the REB also acknowledges to some extent that action is not being taken in time, but points to cases where schools lacked awareness of device maintenance and management.

3) Use of ICT for learning

The GoR has been conducting ICT training for teachers with the technical support of several DPs. However, it has not yet reached the point where ICT is used for subject learning in general classrooms and learner-centered and interactive teaching is practiced. The recognition that the majority of teachers do not own computers and have insufficient ICT literacy was mentioned in many interviews with school expressed. The Director of the ICT in Education Division of the REB also indicated a desire to proceed with the One Laptop Per Teacher Initiative[140] as soon as possible, with a requests being made to DPs, including Japan, to give priority support.

Some primary and secondary schools have two SMART Classrooms (50 XO laptops for 50 students,

[139]The SMART classroom is a facility designed mainly for secondary schools to use ICT in the classroom. On the other hand, the ICT room is a facility for learning about the use of ICT. The Computer Lab is a facility for learning about computer operation and programming. The equipment used is different, with the SMART Classroom being equipped with a projector and screen. （DoS, RCA）

[140] REB announced in April 2021 and distributed 12,000 PCs to teachers by November. Currently, the ICT section of REB is preparing a concept note.

one laptop PC for teachers, and a projector). Some schools have 4G routers to provide an Internet environment.

The use of ICT in primary school mainly involves the basic operation of the XO (hardware and software), which is taught as a unit of Science and Elementary Technology (SET) from P4 onwards. The use of ICT in other subjects is not as advanced as the level expected by CBC. In other words, as summarized in the table below, P4-P6 students learn the basics of ICT in nearly 50 out of 180 science classes (usually 5 classes per week) every year. They engage in advanced and practical learning while using XO laptops.

Table 3-86 ICT-related units taught in primary school science

School year	Unit (Number of lessons)	Study contents
P4	Unit 3: Computer My Friend (16) Unit 4: Writing Skills (8) Unit 5: Graphics and Multimedia (5) Unit 6: Programming for Children (20) **(49 out of 180 science lessons will be ICT lessons)**	Observation of XOs and cell phones as ICT tools, basic functions, explanation of OS operation, etc. Explanation of how to create, design, and save documents in MS Word Explanation of the operation of the drawing software in XO Explanation of the operation of Scratch and Turtle Art, the programming education software in XO
P5	Unit 4: Computer My Friend (9) Unit 5: Writing Skills (8) Unit 6: Computer Research (8) Unit 7: Programming for Children (20) **(45out of 180 science lessons will be ICT lessons)**	Learning about the XO and attached and peripheral devices as ICT tools, especially data and memory Creating tables in documents, pasting photos and images Connect to the Internet for web browsing and searching Drawing with Turtle Art , arithmetic calculation, cartoon with Scratch, speech
P6 (52/180)	Unit 4: Writing Skills (17) Unit 5: Computer Research (10) Unit 6: Programming for Children (25) **(49 out of 180 science lessons will be ICT lessons)**	Basic operation of Abiword document creation software and Spreadsheet spreadsheet software in XO Connect to the Internet for web browsing and searching Drawing 3D shapes with Turtle Art and creating animations with Scratch

(Source: Compiled by the research team based on REB-approved textbooks)

The COVID-19 pandemic from March 2020 has triggered a sense of urgency on the part of the public education supply side, including GoR , MINEDUC, REB, etc. The provision of ICT-based distance learning has advanced rapidly. All schools were closed on March 16 of the same year, and until the schools reopened. Students were encouraged to continue their distance learning (self-study) at home, and parents were also requested to provide support.

Specifically, the REB, with support from DPs such as UNICEF, USAID, JICA, BLF, and World Bank, developed class videos for each grade level and subject, which were made available free of charge through TV, radio, a YouTube channel,[141] and e-learning platforms. Each video is about 30 minutes long and equivalent to a full class session. The grades, subjects, and units are specified, with the assumption is that

[141]Number of registered usersas of the end of July 2021: 5,890
https://www.youtube.com/channel/UCCSm2s9wZC8B611SIslsUWg

students will be able to study on their own at home by watching on TV, radio, or YouTube. It is not structured in such a way that teachers can use these videos as an introduction or summary of the class. The main audience is therefore students conducting self-study, interested parents, and teachers who will use it as a reference for class preparation. Although the viewing history on TV and radio is unknown, the top 10 most viewed primary level classes among the more than 1,000 class videos uploaded to the YouTube channel were as follows.

Table 3-87 Number of views of primary lesson videos uploaded to the REB e-Learning Channel

	School year	Subject	Teaching unit	Number of times played	Remarks
1	P4	Arithmetic	Reading and writing decimals	3,755	Model class for SIIQS project
2	P4	Science	Plants	3,336	Model class for SIIQS project
3	P5	Science	Soil	3,180	Model class for SIIQS project
4	P4	Arithmetic	Length measurement	3,066	Model class for SIIQS project
5	P1	National language	Culture of values	2,147	USAID-supported audio lessons
6	P4	Science	Mammals	2,135	Model class for SIIQS project
7	P3	National language	Traditional occupations	1,307	USAID-supported audio lessons
8	P2	National language	Culture of peace	1,218	USAID-supported audio lessons
9	P3	National language		864	USAID-supported audio lessons
10	P1	English		846	Audio lessons supported by BLF, UK

(Source: Prepared by the research team by viewing the relevant YouTube channel as of the end of July)

BLF, which supported the creation of some class videos, conducted an interview-based survey regarding the use of distance education provided by the REB for emergency response to the COVID-19 pandemic. The survey involved visits to schools (principals and teachers of 36 schools), families (P2-P3 children and their parents), etc. in 12 districts and 36 sectors nationwide.[142]

The overall tone of the survey results confirmed that distance learning at home by lower primary school children is difficult. This is due to the following reasons: parents do not have enough time or money to provide TV, radio, and Internet access for their children to study at home; there is no Internet connection or connection device (smartphone, PC) at home; children are not accustomed to watching TV or radio without explanation by teachers. In the first place, schools do not inform parents and children that they can access video and audio of classes via the Internet, so parents and children are not aware of distance learning.

While the videos in the table above have received a large numbers of views, given that there are about 400,000 students in each primary school year, even in the case of the most-viewed videos, the percentage of students who have viewed the videos is less than 1%. Most of the videos and audio remain at the

[142] https://www.educationdevelopmenttrust.com/EducationDevelopmentTrust/files/28/28af41c7-0ec7-4491-9b85-2967b6635700.pdf "An Inequity Impact Assessment of Primary 2 and 3 pupils in Rwanda"

double-digit level of views. Considering that the target audience of this YouTube channel is P1-S6 students, it means that less than 0.2% of the total number of about 3 million people have registered. Therefore, while we assess positively the progressive initiative taken by the REB and BLF in setting up the environment for distance learning (media and teaching materials), we recognize that their educational impact has been limited and that there are issues in the dissemination of this content.

The main use of ICT in secondary schools is in the actual use of ICT in the subject of "ICT," which starts from S1. It involves 72 lessons at the lower secondary level (S1-S3) and 252 lessons in the science course at upper secondary level. During the field survey, we had the chance to observe ICT classes at several secondary schools and TTCs. It was apparent that both teachers and students were somewhat familiar with the operation of ICT devices. A timetable is posted in the SMART Classroom, and it appears to be in use everyday. The TTC, which is basically a boarding school, is open for students to study on their own on weeknights and weekends. Some of them have access to YouTube videos for studying advanced mathematics on their own. In addition, there are a number of teachers who are actively involved in the use of ICT, such as those who prepare computer-based unit tests with four-choice questions using Google Forms, etc., to speed up grading and feedback to students. In addition, as part of CPD within the school, some teachers promoted the storage of PowerPoint lesson plans and supplementary materials prepared by teachers in the CAP for sharing within the school.

In addition, although there are still few examples of "learning with ICT" in the classroom for regular subjects, we could see that the number of teachers using ICT is gradually increasing. This includes, for example, showing related YouTube videos in biology class.

Table 3-88 Unit structure of the subject "ICT" studied in lower secondary education

Topic areas	**Sub-topic areas**	**Number of periods(Period=40minutes)**				**%Subtopic areas**	**%Topic areas**
		S1	S2	S3	Total		
Introduction to ICT	ICT fundamental	18	10	4	32	15%	19%
	Safety and security	4	4	0	8	4%	
Application Software	Word Processing	20	8	14	46	19%	59%
	Spreadsheets	0	26	8	34	16%	
	Presentation	0	0	6	6	3%	
	GIS	12	8	10	28	14%	
	Graphics and multimedia	0	0	16	16	7%	
Computer network and Data communication		8	6	6	20	9%	9%
Programming for juniors(Scratch)		10	10	8	26	13%	13%
Total		**72**	**72**	**72**	**216**	**100%**	**100%**

Table 3-89 Unit structure of the subject "ICT" studied in upper secondary education (science course)

Topic area	Sub-topic area	Number of periods(period=40 min)					
		S4	S5	S6	TOTAL	%	%
Computer system, Arithmetic &maintenance	Computer System	16	8		42	6%	16%
	Computer arithmetic	36			36	5%	
	Maintenance	46		12	40	5%	
Data structure and algorithms	Algorithm	36	18	0	54	7%	7%
Programming	Procedural programming	72	20	0	92	12%	47%
	Object Oriented Programming	0	36	18	54	7%	
	Event Oriented Programming	0	48	34	82	11%	
	Web Programming	28	60	36	124	16%	
Operating system	Operating System concepts	18	0	0	18	2%	7%
	Process Management	0		12	12	2%	
	File and Memory Management	0	0	26	26	3%	
Networking	LAN Technology	0	26	16	42	6%	9%
	Network protocol	0	0	24	24	3%	
Database	Relational database concept and		36	36	72	10%	10%
Graphics and multimedia				38	38	5%	5%
Total		252	252	252	756	100%	100%

Regarding the use of class videos uploaded to the REB YouTube channel, when comparing primary and secondary education, the number of video views for secondary education is generally higher than that for primary education. Given that there are 300,000 to 500,000 students per school year in primary school and about 100,000 students per school year in secondary school, the high viewership rate in secondary school becomes even more pronounced. It is estimated that the viewership rate of the S3 math video lesson, which ranked first in terms of views, was close to 10%. In addition to this, the same video was also broadcast on TV and radio, but we were unable to obtain information on the frequency of access.

Table 3-90 Number of views of secondary school lesson videos uploaded to the REB e-Learning Channel

	School year	Subject	Teaching unit	Number of times played	Remarks
1	S3	Mathematics	Sets and elements	7,459	Model class for REB production
2	S6	Mathematics	Integers	7,239	Model class for REB production
3	S1	English	Listening, Reading	5,884	Model class for REB production
4	S2	English	Eastern Africa	5,420	Model class for REB production
5	S4	Biology	Circulatory system	4,874	Model class for REB production
6	S1	Physics	Laws of motion	4,763	Model class for SIIQS project
7	S2	Mathematics	Vector	4,370	Model class for REB production
8	S3	Physics	Refraction of light	4,211	Model class for REB production
9	S3	English	Human rights	4,164	Model class for REB production
10	S2	Mathematics	Midpoint theorem	3,832	Model class for SIIQS project

(Source: Compiled by the research team by viewing the relevant YouTube channel as of the end of July 2021)

An example of a public-private partnership is O'Panda's online STEM learning material [143](mainly

[143] https://youtu.be/Qzlix009O9s

experiment simulation videos), for which MCF provides financial support and the REB supports quality control of the material. The service was provided free of charge to secondary students in Rwanda until the end of 2021, supporting home and distance learning for secondary students in the COVID-19 pandemic. It is estimated that 78.4% of secondary schools in Rwanda do not have science labs. This service offers a tool to support students amid a lack of opportunities to consolidate theory and knowledge from textbooks by conducting science experiments. MCF and the REB are considering continuing support after January 2022, based on an evaluation of the impact of this support activity.

A learning portal site[144] operated by the South African company Siyavula is an example of a similar case where MCF provided financial support. That program also supports Rwandan secondary level science and math learning (S1-S4 mathematics, physics, and chemistry). However, unlike O'Panda, which emphasizes experimental simulation, this program focuses on practice and explanation of exam questions.

4) Use of ICT for academic affairs

We examined the differences between the Learning Management System (LMS) at the REB and the LMS (School Data Management System: SDMS)[145] at MINEDUC, the possibility of improving efficiency through their integration, and the use of existing ICT such as the Education Portal. We investigated how they can be used effectively in the future.

The REB's e-Learning platform[146] allows students (P1-P6), teachers (S1-S6, TTC), and teachers (CPD activities supported by CADIE, BLF, AIMS, UR-CE, etc.) to access learning and training at home or other remote locations. Users can obtain a personal account by registering their e-mail address, etc., and can save their learning records and history. However, it is not designed to be linked to the personal ID number assigned to each child/student in the SDMS, as described below. There are no plans to integrate this platform with the SDMS.

The SDMS that MINEDUC has installed in all of its schools allows for the instant tabulation and printing of student lists and enrollment figures by grade, age, and gender. A visit to any school and the above mentioned list is now printed out immediately on the spot. This is a substantial advance that has been made in the past few years. The person in charge of the SDMS varies from school to school, from the principal to the vice principal, secretary, or ICT teacher. Entering and maintaining this kind of academic data is a condition for money to flow from the central government to the school, which provides an incentive for the school principal. On the other hand, there are concerns about cases where data entry is postponed. This may be because it does not affect the flow of money in the school, or because it is only necessary to compile the attendance records of students at the end of each month and the records of students who have dropped out or stayed in school at the end of each year.

The TMIS (Teacher Management Information System),[147] developed with the support of UNICEF and MCF, stores the personnel data of individual teachers (qualifications, promotion, work evaluation,

144 https://rw.siyavula.com/
145 https://sdms.gov.rw/sas-ui/
146 https://elearning.reb.rw/
147 http://www.education.rw/tmis/

CPD status, etc.). MINEDUC officially launched[148] the TMIS on June 1, 2021. TMIS training for principals began on June 4[149].

5) Use of ICT in school management

In the trend to promote the use of ICT in primary education, the GoR has procured and adopted[150] the school management and lesson expertise of Bridge International Academies (BIA)[151]. It is considering a plan to disseminate the entire system to public education (Rwanda EQUIP) based on demonstration activities including capacity building support to the government.[152]

BIA, which has already managed a number of private schools in African countries including Kenya and Uganda, has accumulated a remarkable track record. By pursuing efficient school management and class formats that fully utilize ICT, and by adopting high-quality teaching materials developed for local use by its U.S. headquarters, BIA has been able to produce a large number of high-achieving children while keeping tuition fees low.

When BIA enters Rwanda, BIA’s digital teaching materials, curriculum, teaching methods, LMS, etc. will become the standard for ICT-based classes in public primary school. There is a possibility that a scene unique to the BIA will be realized, where at the same time all across Rwanda, young teachers will hold tablets in their hands and write out the same content on the board while reading it aloud.

6) Use of ICT in teacher training

A female English teacher we interviewed at TTC Mbuga, which we visited during our field research, had been provided with a tablet with an MTN SIM card and Internet bundle with support from the UK government. After 5 months of CPD online training for Rwandan teachers (6 modules x 6 hours/module) using the British Council's online English training course[153] and passing the exam, teachers can obtain certification as an e-Moderator. This then positions them to support the online CPD activities of teachers in surrounding districts.

7) Use of ICT for teacher training

While the SMART Classroom is being developed, we will investigate the content, frequency, and results (classroom practice) of teacher training on ICT use, and identify issues related to teacher training on ICT use. We will also ascertain the current situation of faculty labor in academic and teaching affairs, and examine the possibilities of improving efficiency through the use of ICT. From the perspective of the participating faculty members, all of these activities are positioned as training and CPD activities

148 https://twitter.com/Rwanda_Edu/status/1399692486243725318

149 https://twitter.com/REBRwanda/status/1400730790036754434

150 https://www.ktpress.rw/2020/06/govt-proposes-bia-software-to-improve-quality-of-education/

151 https://bridgeinternationalacademies.com/

152 Unofficial information: 4 years, 736 schools, grades: Pre Primary and P1-P6, beneficiaries: 825 ,000children. The Rwandan government has procured school education reform services, including CBC-compliant digital teaching materials (for all subjects and in English), LMS and instant monitoring system, teacher training, provision of Android tablets and smartphones, distribution of textbooks, homework books and teacher guides, and dispatch of supervisors. The total amount was equivalent to about JPY 9 billion. https://rwandaequip.org.rw/

153 https://www.britishcouncil.org/climate-connection

organized by MINEDUC/REB. In reality, however, they are co-sponsored by DPs from the public and private sectors and use training content that draws on their respective areas of expertise and successful practices from the past and from other countries.

Teacher training on ICT use started around 2012, with records showing that 10,000 teachers participated in ICT training[154], and that 60 teachers and 60 students from 11 TTC schools were trained in the operation of software, mainly MS products[155].

In 2013-2014, OLPC conducted a basic ICT training for teachers[156] to learn the basic operation of XO hardware and software. At this time, they began to use UNESCO's ICT Competency Framework for Teachers (ICT CFT) as a model, and in 2017, ICT Essentials for Teachers[157] was published with the support of UNESCO and KOICA (Online training content[158] for REBs has also been developed). In addition, since around 2015, ICT has been part of the training to introduce and promote the CBC to in-service teachers, as ICT is one of the seven competencies set out in the new CBC curriculum[159].

As mentioned earlier, KOICA and MINEDUC are implementing the CADIE project starting in 2019 to promote the use of ICT by the PLE classes below. The REB's online learning portal has a number of resources available, including the project's teacher training manual.[160]

Table 3-91 PLE classroom design and ICT utilization through CADIE project MT training

Lesson design	App/website used	Memo
Preview Preparation, review, and preparation	MS Office (Word, Excel, Power Point) Youtube	
Learn Learning and teaching	Kahoot Google Slide Google Doc	https://kahoot.com/
Evaluation Review and evaluation	Quizlet Plickers Google Form	https://quizlet.com/ https://get.plickers.com/
Training tools	MS Teams REB e-Learning Portal	 https://elearning.reb.rw/

The MT training is intended to support the “learner-centered and interactive teaching practice” targeted by CBC. It provides an opportunity to introduce the usefulness of the above-mentioned apps and online services. and to encourage teachers to learn how to operate them through their own classroom practice (as a forum for relationship building and information sharing among teachers). In fact, one of the instructors of the TTC SAVE has participated in the MT training, and using Google Forms, which he learned there, he has made the unit tests of the TTC students computer based tests. This allowed the students to answer the questions on the computer screen themselves, which automated the grading process, digitizing the presentation of answers and explanations. In addition, the MTs themselves have been practicing the use of ICT in school education in a voluntary and progressive manner, and have been enjoying sharing the

154 http://www.biztechafrica.com/article/rwanda-releases-ict-sector-profile/5174/
155 https://www.biztechafrica.com/article/rwandan-educators-get-ict-training/3323/
156 https://twitter.com/OLPC_REB_Rwanda/status/308505623039983616
157 https://unesdoc.unesco.org/ark:/48223/pf0000261451
158 https://ict-essentials-for-teachers.moodlecloud.com/
159 https://mudarwan.files.wordpress.com/2015/08/curriculum_framework_final_printed-compressed.pdf
160 https://elearning.reb.rw/course/view.php?id=697

outcomes with their colleagues and students.

MCF's Leaders in Teaching initiative aims to improve the quality of secondary education in Africa, to develop a high-quality workforce, and to improve the employment of young people by providing comprehensive support for the recruitment, capacity building, and career development of teachers who are at the forefront of secondary school education. The goal of the initiative is to enable teachers to practice high quality teaching (particularly in STEM subjects).

In Rwanda, the program aims to help more than 250,000 students gain 21st century skills by providing support to more than 10,000 teachers and school leaders (principals and vice principals) over a five-year period starting in 2018. The project provides financial support for teacher and leader training through VVOB's "Leading Teaching and Learning Together" project, the AIMS teacher training program, and works with a number of partners including Carnegie Mellon University (CMU) , UR-CE , and UNICEF. The following four elements of activities are being implemented.

Table 3-92 Overview of the Leaders in Teaching Initiative

Four elements	Contents	Partners
Recruit Employment	Secure as teachers young, talented people who have an interest in education.	CMU IEEE Rwanda UNICEF
Train Training	Increase opportunities for teacher education and the use of ICT as a tool for teaching and learning. The goal is to improve teaching skills, particularly in STEM subjects.	AIMS UR-CE VVOB
Lead Leader Development	School administrators will help create a positive educational environment for teachers through mentorship and coaching opportunities.	AIMS UR-CE VVOB
Motivate Incentive	Elevate the status of teachers by recognizing and praising their achievements.	

The World Bank RQBE project also has subcomponents that utilize ICT. These include: subcomponent 1.1, an e-Learning platform for improving teachers' English language proficiency and digital skills; 1.2, an introduction of Scripted Lesson to support professional development of late primary and post-primary science and mathematics teachers; 2.2, the establishment and utilization of REB Multimedia Studio in expanding the early learning environment (1.4, model lesson development); and 3.1, support for a quality assurance system.

A launching seminar on the implementation of Scripted Lesson was held on June 10, 2021. [161] According to the REB announcement, the development of Scripted Lesson is underway, REB and UR-CE will be in charge of its validation. It will cover P4-P6 mathematics, science, S1 biology, S2-S3 mathematics, physics, chemistry, and biology. The approved Scripted Lesson will be stored online in OneNote, with training for P4-S3 science and mathematics teachers based on this system scheduled to start soon. The lesson scripts developed through this initiative, as well as the platform for storing them, have the potential to become the standard for ICT-enhanced lessons in primary and secondary schools.

[161] https://twitter.com/REBRwanda/status/1402906943551852545

One of the products envisioned for purchasing and distributing as ICT-based evaluation materials for primary school mathematics classes is an application called Plickers.[162] This is used on smartphones such asAndroid and iPhone. The person in charge of procuring teaching materials for REB SPIU staff explained how it is used. In the middle or at the end of a mathematics class, when the teacher wants to check the students' understanding by practicing a problem, the teacher writes a four-choice question on the board. The teacher then asks the students to raise their hands with a designated card for the answer. The teacher can then read the answers with a smartphone or tablet camera and immediately view the answers of each child (automatically stored in the cloud). The intention of the person in charge was to disseminate the Formative Assessment to teachers (implementing it in mathematics classes) as a means to implement the CBC’s intended Formative Assessment in a frequent and efficient manner.

Each teacher has an account (accounts are not required for the children). They can project their own materials (four-choice questions) that they have prepared in advance, or can share or make the materials available to a limited group of people. In addition, many teaching materials on mathematics and science are available to the public, which can also be used. This will be useful not only during mathematics classes, but also for checking attendance or quickly compiling simple questionnaires for children.

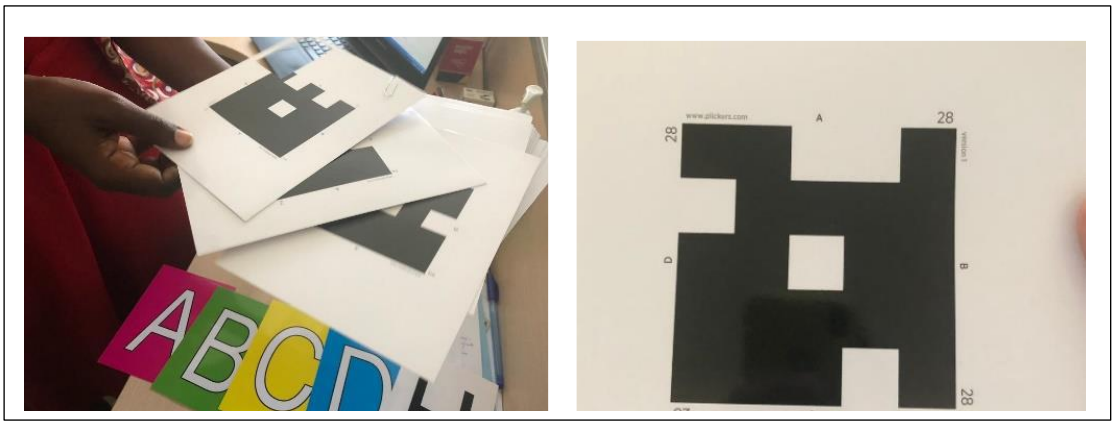


Figure 3-30 Plickers and Cards

[162] https://www.plickers.com/discover/earlyMath

Chapter 4 Current Situation and Issues of the ECD sector

4.1 Policy Trends

4.1.1 Definitions of related terms

There are several terms similar to ECD (Early Childhood Development), such as ECCE (Early Childhood Care and Education) and ECEC (Early Childhood Education and Care), and it is sometimes called “pre-primary education.”

The International Standard Classification of Education (ISCED 2011)[163] is a framework for the classification of educational programs developed by UNESCO. The ISCED refers to educational programs provided before the start of primary education as “early childhood education” and defines it to be at Level 0. Level 0 is further divided into 010 (zero to under three years old) and 020 (three years old and above, up to entry into primary school) according to the age. 010 is called “early childhood educational development” and 020 is called “pre-primary education.”

Those classified as Level 0 are educational programs that include intentional educational activities, and purely informal childcare at home and day-care services and care (health and nutrition) without intentional educational activities are excluded from this classification. At the Level 0 stage, as a guide, target educational programs are those that are implemented two hours a day for approximately 100 days a year.

Table 4-1 Pre-primary education programs according to the International Standard Classification of Education

Level name	Level	Category	Educational activities
Early childhood educational development	0	01 Under 3 years old	Provide a visually stimulating and linguistically rich learning environment for children to develop self-expression skills using language in interaction with caregivers (adults) while caregivers watch over them. In addition, coordination of motor skills is promoted through play.
Pre-primary education		02 3 years old and above, up to entry into primary school	Not only further improve the skills children have developed through interactions with friends and caregivers, but also develop their logical reasoning skills. Children will be exposed to the concepts of letters and numbers, and will be encouraged to actively work with the environment by themselves. Acquire sociality and independence through playful activities to enhance school readiness[164].

Since the ISCED defined by UNESCO is a framework specific to the formal education system, it provides the concept of early childhood education (ECE) as an educational stage prior to primary education, but does not include the concept of care. Because of its historical background, the function of

[163] http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf

[164] “School readiness” refers to the state of having acquired the skills and attitudes necessary for learning after entering primary school. “School preparedness” is also used synonymously in this report.

care was often perceived as a welfare program to support mothers' employment, and because competent government agencies are different, cognitive stimulation and educational activities tended to be neglected. The same was true in Rwanda, where the health sector gave priority to health, hygiene, and nutrition improvement as infant care, while the education sector placed emphasis on pre-primary education to prepare for primary education (Abbott & D'Ambruoso, 2019).

There is no standardized definition of ECD. In general, ECD refers to "cognitive, physical, linguistic, motor, and socio-emotional development" (all aspects of development) of "children from conception and pregnancy to age 8" (the period considered early childhood). Because of the diversity of factors that influence development, there is a common understanding that it is a "comprehensive concept that spans multiple sectors". Definitions of ECD by representative international organizations are given below.

Table 4-2 Definitions of ECD by representative international organizations

International organization	Definition
UNICEF[165]	ECD refers to the holistic and multidimensional development of children from prenatal to age eight. Key elements of healthy ECD include health, nutrition, protection, care sensitive to the signals children give, and opportunities for early learning.
WHO[166]	ECD refers to the cognitive, physical, language, motor, social, and emotional development of zero-to eight-year-old children.

According to the MIGEPROF Ordinance (2020), the definition of ECD in Rwanda is as follows.

> ECD: Changes in intellectual and socio-emotional development that a child experiences during the period from conception to age six.

This definition is similar to pre-primary education by UNESCO's ISCED in that it targets children from zero to under six years old and limits development only to intellectual and socio-emotional development. However, the ECD National Strategic Plan, like UNICEF and WHO, interprets ECD to include physical and motor development.

4.1.2 Global policy trends

While ECD has been identified as one of the key issues in international development today (OECD-DWG, 2018; World Bank, 2018), recent policy debates have been characterized by a greater emphasis than ever before on the importance of ECD not only as a child's right but also from the perspective of human capital investment.

(1) Sustainable development goals

Of the SDGs, the international development agenda, 4.2 refers to ECD, but 2.2 (nutrition and stunting), 3.2 (neonatal and infant mortality), and 16.2 (child protection) are also closely related.

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[165] UNICEF. (2019). *A world ready to learn: Prioritizing quality early childhood education.* https://www.unicef.org/reports/a-world-ready-to-learn-2019

[166] WHO. (2020). *Improving early childhood development: WHO guideline. Geneva: World Health Organization.* https://www.who.int/publications/i/item/97892400020986

Table 4-3 ECD and related SDGs

2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under five years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
2.2.1	Prevalence of stunting (height for age < -2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age
2.2.2	Prevalence of malnutrition (weight for height > +2 or < -2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)
3	Ensure healthy living and promote the well-being of all people of all ages
3.2	By 2030, end preventable deaths of newborns and children of age five years and under, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and mortality of infants of age five years and under to at least as low as 25 per 1,000 live births
3.2.1	Under-five mortality rate
3.2.2	Neonatal mortality rate
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
4.2	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
4.2.1	Proportion of children under five years of age who are developmentally on track in health, learning and psychosocial well-being, by sex
4.2.2	Participation rate in organized learning (one year before the age of entry into primary school), by sex
16.2	End abuse, exploitation, trafficking and all forms of violence against and torture of children
16.2.1	Proportion of children aged one to 17 years who experienced any physical punishment and/or psychological aggression by parents, etc., in the past month
16.2.2	Number of victims of human trafficking per 100,000 people, by sex, age and form of exploitation
16.2.3	Proportion of young women and men aged 18–29 years who experienced sexual violence by age 18

(Provisional translation by the Ministry of Internal Affairs and Communications: https://www.soumu.go.jp/main_content/000562264.pdf)

(2) G20 Summit

The G20 Summit established the G20 Development Working Group (G20 DWG) in 2010, and from 2016, the G20 stated that it would implement financial and economic policies and assistance to developing countries as the G20 while ensuring consistency with the SDGs (OECD & UNDP, 2019). The G20 launched the "G20 Initiative for Early Childhood Development" at its 2018 meeting, declaring that the G20 would actively support the dissemination of ECD. As the title "G20 Initiative for Early Childhood Development: Building human capital to break the cycle of poverty and inequality" suggests, ECD is effective and important for low-income developing countries to break the cycle of poverty and inequality that is passed down from generation to generation, and that ECD involves multiple dimensions such as health, nutrition, nurturing, physical and emotional safety, and early learning stimulation, and requires a comprehensive approach. It called on governments of the respective countries, international organizations, NGOs, and other stakeholders to take action to promote the dissemination of ECD, especially in terms of

financial investment in ECD, data collection, monitoring and evaluation, and further international cooperation and knowledge sharing.

The importance of ECD was reaffirmed at the G20 Summit held in Japan the following year in 2019. In the "G20 Initiative on Human Capital Investment for Sustainable Development," it was pointed out that improving the quality of ECD is important as a basis for realizing children's rights and potential, and called for further investment in expanding access, training and capacity building of caregivers, and improving working conditions.

(3) World Bank

In its "World Development Report 2018 — LEARNING to Realize Education's Promise (2018)," the WB raised an alarm over the learning crisis, where school enrollment period is not linked to learning, despite improved schooling opportunities. The report argued that investing in early childhood is important and economically effective as "a firm foundation in early childhood supports later learning and skill development."

According to the report, the provision of integrated ECD services is an effective measure, but only one in five children in low-income countries participates in pre-primary education. In addition, one in four children worldwide is stunted. It points out that the reasons behind this are that governments of the respective countries do not understand the importance and economic benefits of ECD, that they are unable to bear the costs due to poverty, and that parents are stressed due to poverty. Some of the countermeasures that have been found to be effective include strengthening the capacity of caregivers (Jamaica), conditional cash benefits to parents (Mexico), and center-based ECD service provision (Argentina, Bangladesh, Uganda, and China). In particular, caregiver skill development has a significant effect on young children's development, and the most effective intervention programs are those that not only have systematic training and curriculum, but also opportunities for caregivers to practice what they have learned and get feedback. Center-based ECD services will not be effective unless quality ECD services are provided. The effectiveness of ECD is determined by the quality of the interaction between the caregiver and the child. Owing to well-trained caregivers in the cases of Indonesia and Mozambique (3-6 -year-old children), center-based ECD is achieving results that are worth the infrastructure investment. For infants under three years of age, it suggested that strengthening parenting abilities of parents may be the most cost effective in poor districts with limited resources.

Since ECD is extremely important in the calculation of HCI indicators, the WB is engaged in a wide range of activities to prevent and reduce stunting, including support in the areas of health, nutrition, and agriculture, information provision for ECD dissemination and promotion[167], and education policy support using SABER[168] as a tool.

(4) World Health Organization (WHO)

WHO believes that "it is the role and responsibility of the health sector to help children get the best possible start in life," and therefore promotes comprehensive nurturing care, which includes nutrition, health, early learning, responsive care to sensitively and appropriately respond to the child's signals, and child safety and protection of children, up to the age of three, a critical stage in the child's development. The nurturing care promoted mainly by WHO is based on the concept of UHC with primary care at its

[167] https://www.worldbank.org/en/topic/earlychildhooddevelopment#1

[168] Systems Approach for Better Education Results (SABER) is a tool for evaluating educational policies and programs. Starting with ECD, SABER tools are being developed for each level and area of the education system. Several ECD country assessment reports have been issued, but Rwanda is not included. https://saber.worldbank.org/index.cfm?indx=8&sub=0

core. WHO has issued guidelines for improving ECD services for children up to the age of three, based on the concept of nurturing care[169].

(5) UNICEF

UNICEF (United Nations Children's Fund) is the leader of ECD promotion and is working with various organizations to disseminate ECD. In 2016, it launched Early Childhood Development Action Network [170] (ECDAN) with WB to achieve the SDGs. ECDAN is a broad network of international organizations, foundations and NGOs interested in "improving the lives of children from conception to under five years of age," and as part of its activities, ECD-related knowledge and technical tools are shared.

UNICEF is developing an indicator to measure progress on SDG 4.2, the Early Childhood Development Index 2030 (ECDI2030)[171]. The ECDI2030 is a tool that measures "4.2.1 Proportion of children under five years of age who are developmentally on track in health, learning and psychosocial well-being, by sex" and consists of 20 questions on learning, socio-psychological well-being and health for children aged 24 to 59 months (two to under six years of age).

SDG 4.2 reads , "By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education," with "so that they are ready for primary education" being the higher-level goal. UNICEF is promoting ECD and universal pre-primary education. Comprehensive ECD services include school readiness education, calling for the provision of education in the final year of school readiness education (ISCED 020), i.e., one year before the start of primary education, especially to poor children in developing countries[172].

4.1.3 Policy trends in Rwanda

Rwanda has ratified the "Convention on the Rights of the Child" and various other international treaties and protocols related to the rights and protection of children, and is actively promoting and protecting children's rights. It has also signed international conventions related to the rights and protection of children within Africa. The development of ECD policies will be coordinated to ensure compliance with these conventions and the realization of children's rights.

Table 4-4 International conventions relating to the rights and protection of children

Convention on the Rights of the Child
Optional Protocol on the Sale of Children, Prostitution and Child Pornography
International Convention on the Rights of Persons with Disabilities
Hague Convention on International Adoption of Children
African Charter on the Rights and Welfare of the Child
African Charter on Human and Peoples' Rights

Rwanda also divided its policies related to ECD between the health sector, which has jurisdiction over

[169] WHO, op.cit.
[170] https://www.ecdan.org/
[171] https://data.unicef.org/resources/early-childhood-development-index-2030-ecdi2030/
[172] https://www.unicef.org/education/early-childhood-education

infant nutrition and maternal and child health, and the education sector, which is concerned with pre-primary education as school readiness education (Abbott & D'Ambruoso, 2019). Although the importance of ECD was recognized early on, it was not until the government's Seven-Year Plan in 2010 that ECD was mentioned for the first time in the national development plan. The plan set a goal of establishing one ECD center in the sector by 2017. On the other hand, the Economic Development and Poverty Reduction Strategy (EDPRS II) has made it a priority to provide one-year pre-primary education for every child. The 2010 Education Sector Strategic Plan (ESSP : 2010-2015) included a plan to roll out a one-year pre-primary preparation program for every five- to six- year-old child. The ESSP (2010) also suggested a gradual expansion of three-year pre-primary education for all children.

Table 4-5 Major policies related to ECD

Policy document	Policy outline
Early Childhood Development Policy (2011)	Put together the first ECD policy and strategy with MINEDUC as the responsible ministry.
Early Childhood Development Policy (2016)	Designate MIGEPROF as the responsible ministry, and clarify roles and responsibilities among relevant ministries for the implementation of the comprehensive ECD policy.
NECDP National Strategic Plan : 2018-2024	Provide strategies to accelerate the ECD policy and expand access to ECD while being consistent with the National Development Plan.
MIGEPROF Ministerial Order (2020)	Ministerial order that establishes rules and regulations for the implementation of various ECD programs.
National Food and Nutrition Policy(2013-2018)	Provide strategies to reduce malnutrition for infants under two years of age and make available the food they need for life (food security).
National Health Promotion Policy	Promote community participation in activities for disease prevention promotion, community use of health information, and health promotion.
Rwanda Health Sector Strategic Plan IV (2018-2024)	Provide strategies for full implementation of health-related programs, strengthening systems, enhancing service delivery, and improving the effectiveness of governance to ensure that quality health services are available to all citizens.
National Sanitation Policy (2016)	A comprehensive policy that sets out guiding principles for all aspects of sanitation, including various types of waste.
Environment Health Policy (2008)	Shift government strategy from a curative to a preventive approach to diseases due to a hygienic environment.
Maternal, Neonatal and Child Health National Strategy(2018-2024)	Propose a strategy as a new direction for maternal and child health based on the concept of lifelong, continuous, comprehensive, and quality health care that not only reduces mortality, but also ensures healthy growth and the ability to reach one's full potential.
Disability Mainstreaming Guidelines (2014)	Set forth guiding principles to promote the realization of the rights of people with disabilities.

In 2011, the first ECD policy and strategic plan were compiled with MINEDUC as the responsible ministry (MINEDUC, 2011), but later, in 2014, the responsible ministry was transferred to MIGEPROF, and in 2016, the ECD policy was revised and the Early Childhood Development Policy (MIGEPROF, 2016) was formulated.

(1) Early Childhood Development Policy(2016)

This is a revised version of the Early Childhood Development Policy (2011). The rationale for the revision is to ensure consistency with the government's economic development strategy and other laws, as well as to take into account important issues that were not adequately addressed in the 2011 ECD policy, clarify the roles and responsibilities of relevant ministries and agencies, develop effective ways to support awareness raising, and develop a monitoring and evaluation framework. The 2016 policy document is characterized by an emphasis on parental responsibility and positive parenting to prevent stunting, malnutrition, gender-based violence in the home and child abuse among children aged zero to three[173].

The objectives of the ECD policy were defined as follows[174].

Table 4-6 Objectives of ECD policy

Objectives of ECD policy	
1.	Better prepare students to succeed in primary school
2.	Promote optimal child development
3.	Increase community involvement in positive parenting and child protection
4.	Reduce malnutrition and stunting in infants
5.	Reduce infant mortality of the age of five and under and maternal mortality
6.	Foster children's self-awareness, self-esteem, and self-confidence
7.	Eliminate physical, moral, and psychological abuse
8.	Increase access to ECD services for children with special needs

In addition, the issues identified for ECD include the following.

Table 4-7 Issues in ECD

Issues in ECD	
1.	Unclear coordination and reporting framework
2.	Lack of approved minimum operating standards
3.	Insufficient human resources
4.	Multiple ECD models
5.	Limited local awareness and ownership
6.	Inadequate infrastructure
7.	Sustainability of the program
8.	Limited consideration for children with special needs
9.	Limited attention to the needs of children aged zero to three
10.	Consideration for vulnerable children and families

The biggest issue for the ECD policy is the budget, referring to partnerships with the private sector and corporations. It is stated that “the plan is to create one model ECD center in every cell and one ECD center in every village, and for the budget required for this, the ECD fund will be established and the allocated

[173] UNICEF and Save the Children provided technical support for the revision, and after the policy was established, both organizations sent early childhood education experts to MIGEPROF for two years to help implement the policy (Abbott & D'Ambruoso, 2019).

[174] Early Childhood Development Policy, 2016, p.29.

funds from public finance and collateral funds will be allocated."

After the establishment of this policy, a specialized unit, NECDP (National Early Childhood Development Program), will be created within MIGEPROF in 2018 with the main task of cooperation among relevant ministries and agencies and provision of integrated administrative services[175]. NECDP (now NCD) has put together a multi-sectoral strategic plan (NECDP National Strategic Plan 2018-2024) to develop ECD policies. There have been active developments, including hosting a two-day international ECD conference on "Investing in Early Childhood for Optimal Human Resource Development" in June 2019.

(2) NECDP National Strategic Plan 2018-2024

According to this strategic plan[176], the mission of the NECDP is to "combat stunting through integrated ECD." The NECDP guidelines for action are based on children and family-centered care, integrated service approach, lifecycle approach, development of integrate ECD service systems, leaving no child behind, and child rights-centered approach. Integrated ECD includes five areas:[1] maternal and child health and nutrition, [2] school readiness, [3] parenting and early stimulation, [4] child protection and inclusion, and [5] water, sanitation, and hygiene (WASH). In each area, issues are extracted from the analysis of the current situation, and the issues in the areas closely related to this survey are listed below.

Table 4-8 Issues by ECD service area

[1] Issues of maternal and child health and nutrition
Stunting rate of children under five years old is 38%
Wasting disease rate in children under five years old is 2%.
Significantly higher stunting rates among poor families in rural areas
25% of children in the top quintile of economic class are stunted, suggesting factors other than poverty
Health indicators are lagging behind for newborns
Obesity rate in children under age five is 8%.
18% of children aged six to 23 months are on the three diets recommended by the IYCF[177]
37% of children aged six to 59 months and 19% of women of reproductive age are anemic
7% of women of reproductive age are underweight, 17% are overweight, and 4% are obese
[2] Issues of school readiness (as of 2018)
20.8% of children attend a pre-primary education program, and approximately 80% are not in school
Repetition rate in P1 is 20.5%
Low number of qualified teachers
Community-based and home-based ECD centers cannot be used due to cost, location, and number[178]

[175] The NECDP changed its name to the National Childhood Development Agency (NCD) in April 2020. Web pages of NECDP and NCD exist (confirmed on August 1, 2021), but the amount of information is larger on the NECDP pages because the information has not been transferred.

[176] UNICEF provided technical support for the development of the strategic plan, while WB and the Global Financing Facility (GFF) provided financial support (MIGEPROF, n.d.).

[177] IYCF (Infant and Young Child Feeding) is an attempt to establish appropriate infant feeding guidance by bringing together expertise in infant feeding, breast-feeding, and weaning.

[178] The number of community-based ECD centers increased from 1,369 in 2014 to 3,210 in 2018. The number of home-based ECD centers is 205, which is only 5% of all ECD centers (3,306 facilities) (MIGEPROF, p. 9).

No public incentive system for ECD center caregivers
[3] Issues of parenting and early stimulation
The percentage of parents who play with their children is still low at 51%
1% of children under five years old have three or more books at home
7% of children aged three to five years have normal development in language and quantitative domains
ECD index scores are highly correlated with socioeconomic class and parents' education level
Parents are not involved in their children's learning activities, especially fathers' participation is low
Few families have toys for effective early stimulation and nurturing care
Parenting curriculum is not distributed
Nursery helpers are not trained
VUP[179] budget is not sufficient to support poor households

In order to solve the above issues, NECDP is responsible for coordinating services by cooperating with other parties involved to ensure that integrated ECD services are provided efficiently and reliably to those who need them. NECDP's unique responsibilities include the following.

Table 4-9 Responsibilities of NECDP (now NCD)

Responsibilities of NECDP (now NCD)
1. Reduce malnutrition and stunting in infants
2. Promote optimal early childhood development
3. In order to protect children, increase positive parenting and community participation
4. Help children become better prepared for the primary school environment and improve their cognitive development and school performance
5. Eliminate physical, moral, and psychosocial abuse of young children
6. Increase equitable access to ECD services for children with disabilities and special needs

(3) Food and Nutrition Policy (2013-2018)

The main focus is on reducing stunting, especially for infants under two years of age, and on food security for the most vulnerable households. Decentralization, community participation, multi-sectoral cooperation and partnership, and empowerment are the principles that the MoH (Ministry of Health) , MINALOC (Ministry of Local Government), and MINAGRI (Ministry of Agriculture and Animal Resources) will mainly promote.

The importance of district efforts to improve stunting of children under the age of two is emphasized. Develop a “community-based food and nutrition program for the first 1,000 days of life” to raise awareness of the importance of the “first 1,000 days of life” at the village level. In addition to stunting, a wide range of topics are covered, including breast-feeding recommendations and appropriate dietary intake for pregnant and nursing mothers and weaning children. This is an important policy for ECD as well, since the intervention program covers many activities[180] that are closely related to stunting

[179] VUP (Vision 2020 Umrenge program): A program of MINALOC that provides technical and financial assistance to poor families.

[180] Examples include kitchen gardens, mosquito nets, deworming, cooking demonstrations, micronutrient intake, and

reduction. The policy also recommended that MINAGRI's activities such as GIRINKA (free distribution of one cow to a poor household), One Cup of Milk per Child (free distribution of one cup of milk per child twice a week), and School Nutrition Garden (school vegetable gardens) be further promoted as they contribute directly or indirectly to food security.

(4) MIGEPROF Ministerial Order No. 1 (2020): Establishing Regulations on the Implementation of the ECD Program

This Ministerial Order[181] sets forth the rules governing the implementation of the ECD program. The definitions of the various ECD centers according to the Ministerial Order are given below.

Table 4-10 Definition of ECD programs and services[182]

Type of facility/service	Description
Model ECD center	A place that meets all requirements, has qualified caregivers, adequate toys and learning materials, and is designed to provide services to children zero to six years of age (Ministerial Order)
Community-based ECD center	A facility owned by another owner that has been converted into a place of learning for young children aged three to six years (Ministerial Order)
Home-based ECD center	A place designated as a center where 10 to 15 households form a group to provide ECD services to young children aged three to six years(Ministerial Order)
ECD center	A center where children attend for intellectual and social-emotional development (Ministerial Order)
Center-based ECD	A center for early learning and development where children aged three to six years are sent to receive support for sensory-motor, socio-emotional, and cognitive-linguistic development and school readiness training from experienced caregivers (NECDP)
Workplace ECD setting	A facility that meets all requirements and is located near workplaces to provide care for children so that parents can work without undue worries (NECDP)
Home visitation	A service in which caregivers visit families who, for some reason, cannot use ECD facilities. In addition to pregnant and nursing mothers, children with disabilities and special needs are included. Possible contact persons include ECD caregivers, CHWs, IZU (Inshuti z ' Umuryango: Friends of the Family) , and community volunteers. (NECDP)
Health facilities-based ECD services	Provision of comprehensive health guidance, nutritional guidance, early detection of disabilities and developmental delays, hygiene, parenting and early stimulation through HCs and HPs (NECDP)

These definitions do not always make clear the treatment of pre-primary schools in MINEDUC jurisdiction. The statistical information on ECD centers by district includes school-based ECD centers, which are not categorized above and are supposed to refer to pre-primary schools. In some districts, both school-based ECD centers and center-based ECD are registered. This lack of uniformity in the

developmental monitoring.

[181] MINISTERIAL ORDER N°001/MIGEPROF/2020 OF 03/06/2020 ESTABLISHING REGULATIONS ON THE IMPLEMENTATION OF THE EARLY CHILDHOOD DEVELOPMENT PROGRAMME: Official Gazette n° Special of04/09/2020 。

[182] Official Gazette n° Special of04/09/2020 NECDP (2019), *Integrated ECD models guidelines.*

classification of ECD centers raises questions about the reliability of the statistical data.

The procedure for establishing each ECD center, criteria for accreditation, and monitoring are shown in Table 4-11.

Home-based ECD centers are serviced by parents, but they can also hire caregivers. A leader is selected from among the parents of households that send their children to the ECD center. Two caregivers will be in charge each day, one will be in charge of care and the other will be in charge of safety and health. Working hours are from 7:00 a.m. to 12:00 p.m., but the parent-teacher association may decide to increase or decrease the hours.

Table 4-11 ECD establishment criteria and monitoring system

	Model ECD/ Center-based ECD	Community-based ECD	Home-based ECD
Eligibility certification and registration	• Submit documents to the district • Detailed ECD implementation plan, including continuity	• Submit documents to the district • Detailed ECD implementation plan, including continuity	• Submit documents to cell office for certification
Conditions for certification as an ECD center	• The building must be constructed in accordance with minimum standards • Employ qualified personnel • Provide training to community-based ECD and home-based ECD centers • Have play-based learning [183] and play equipment • Provide ECD services	• Operated by renting a church, mosque, government office, or building built by local residents • The building must meet the minimum standards for accepting children • Have a trained caregiver to provide ECD services	• Safe house with fences • A garden large enough for children to play in • Clean water • Clean toilets • Clean kitchen • Operated by a person of integrity
Personal information file	• Maintain a personal file containing the name, gender, parent/guardian's name and contact information, and health status of each child attending the center		
Parent-teacher association	• Establishment is mandatory		
Monitoring	• Submit quarterly ECD reports to the person in charge of the sector		• Submit monthly ECD reports to the person in charge of the cell • The person in charge of the cell combines them into one and submits it to the sector
	• The person in charge of the sector summarizes all ECD services on a quarterly basis and submits it to the district		
	• The district summarizes ECD service reports from sectors into one and reports to NCD quarterly on the number of centers, operation status, etc.		
	• NCD reports quarterly on the implementation of ECD services to the MIGEPROF Child Protection Department		
Curriculum	• For children under three years old, use parenting curriculum and parenting guide • For three- to six- year-old children, use CBC (Competence-based Curriculum) in addition to the above		

[183] In Article 9 ,paragraph 4, the phrase “to have based learning” is unclear, but interpreted as “to have play-based learning.”

In all ECD centers that take care of children under three years of age, the parenting curriculum and parenting guide developed by NCD are used. In addition to the above, all ECD centers serving children aged three to six years must use the competence-based curriculum (CBC) developed by the REB. CBC's timetable is the foundation for planning daily learning activities and other activities, which allows the same program to be provided anywhere in the country.

The ECD report submitted monthly by the ECD center must include the following information.

Table 4-12 Information to be included in the ECD report

Information
1. List of attendees
2. Number of children of appropriate age to enter primary school
3. Number of sessions held for parents
4. Hygiene, health, and nutrition status of children
5. Incidents encountered by children and responses thereto
6. Person in charge of providing ECD services
7. Inclusion of children with special needs
8. Issues

4.2 Situation of External Support

4.2.1 Development partner collaboration framework

The importance of ECD centers has been mentioned for some time, but with the exception of UNICEF, technical and financial support for ECD from DPs has been weak. Therefore, INGOs (international NGOs) and LNGOs (local NGOs) were active in activities related to maternal and child health, nutrition, and parent education.

As a child development sub-cluster, NCD has prepared a list of ministries, DPs, and NGOs involved in ECD and shared it among the stakeholders. The list includes relevant ministries (22), private sector (one)[184], religious social service organizations (eight), international NGOs (36), and local NGOs (40). The following 13 institutions are listed as DPs.

Table 4-13 DP list related to ECD sub-cluster

Name of Institution	Main fields of support and projects
USAID	Reproductive health, WASH, community-based nutrition improvement projects, HIV prevention, malaria prevention, and emergent literacy
UNFPA Rwanda	Development of policies for reproductive health, HIV prevention, etc.
UN World Food Programme	Support for the development of policies on school feeding and nutrition improvement
EU Commission	Financial support

[184] Africa Improved Food. https://africaimprovedfoods.com/institutional-products-b2b/

FAO	Food security, livestock, increased fisheries production, and access to nutrient-rich foods
WHO Rwanda	Malnutrition and promotion of nurturing care
Swiss Agency for Development and Cooperation SDC	Financial support for FAO's Malnutrition Improvement Project
World Bank-Rwanda	Improvement of malnutrition
UNICEF	Overall integrated ECD services
DFID	Junior caregiver program, strengthening of the skills of caregivers, program for parents with children zero to three years old
JICA	Nutrition policy advisor
EKN (Netherland)	Support for the Developing Human Capital in Rwanda Project through the Embassy of the Netherlands
UN WOMEN	Broad-based support for women's empowerment

(Provided by NCD)

If an institution belonging to a sub-cluster has practitioner-level experts, the ECD Technical Working Group (ECD TWG) is supposed to have the experts attend. The TWG will support the development of various educational materials to be used in ECD services, including guidelines for a comprehensive ECD model, training materials for ECD caregivers, and materials for parents. The ECD TWG is co-chaired by NCD and Umuhuza (a local NGO), with Save the Children as the Secretary. The TWG and sub-cluster meetings are held on a quarterly basis, which provides a platform to play a role for DP coordination (interview by the survey team at NCD).

4.2.2 Status of support by development partners and NGOs

ECD support by major DPs is listed below. Those that overlap with the education sector are omitted. The activities of major NGOs are summarized in Table 4-18.

(1) World Bank

WB support that is closely related to ECD includes the following.

Table 4-14 World Bank projects (ECD)

Approval date	Project name	Type
December 2020	First Programmatic Human Capital for Inclusive Growth DPF (P171554)	Policy loan
February 2018	Rwanda Stunting Prevention and Reduction Project (P164845)	Investment-type project financing
December 2017	Strengthening Social Protection Project(P162646)	Investment-type project financing

(Prepared by the survey team)

The outlines of two of the above projects are given below.

Table 4-15 WB project outlines (ECD)

	Rwanda Stunting Prevention and Reduction Project (P164845)	Strengthening Social Protection Project(P162646)
Period	December 2017 to December 2021	February 2018 to April 2023
Budget	US$ 86 million	US$ 55 million
Purpose	Improving the effectiveness of social protection systems for the most vulnerable groups in society	Reduction of stunting of young children under five years old (especially under two years old) in the target regions
Target regions	75,000 poor households in 300 sectors	Nyabihu, Ngororero, Karongi, Rubavu,

and groups	nationwide	Rutsiro, Rusizi,Nyamagabe, Huye, Nyaruguru, Ruhango, Gakenke, Kayonza, Bugesera
Related activities	Component 1: As part of the Vision 2020 Umurenge Program (VUP) cash benefits, eligible beneficiaries in target households will serve as caregivers for community-based and home-based ECD services and receive cash benefits.	Component 1: Support home-based ECD , strengthen CHWs, improve WASH, and strengthen maternal and child health services to reduce stunting at the community and household levels Component 2: Health and nutrition service improvement CHWs are assumed to be actively involved in and supportive of home-based ECD

(Prepared by the survey team with reference to the WB official website)

(2) UNICEF

UNICEF has been playing a central role in developing ECD policy in Rwanda and in expanding access to and improving the quality of ECD services. By providing financial and technical support to NGOs that implement ECD services, the organization is working to expand and improve the quality of ECD services. It is also a co-chair of the Technical Working Group on ECD and assists in the coordination between ministries/agencies and stakeholders.

Table 4-16 UNICEF support areas

Provide funding, materials, and expertise to establish model ECD centers of excellence in all districts. It is being promoted in cooperation with eight NGOs, including the Imbuto Foundation.
The National Parenting Curriculum was developed in cooperation with NCD for parents and caregivers. Support for the implementation of national, regional, and community training by using it.
Conduct baseline and end line surveys for the Human Capital Development Project with support from the Dutch government, and share the reports.

(Interview with UNICEF, see UNICEF official website)

(3) USAID

USAID (US Agency for International Development) supports projects related to literacy for pre-primary children.

Table 4-17 USAID project examples

Mureke Dusome[185] Let's read	2016 to July 2021 A literacy project developed by Save the Children in partnership with local NGOs. It was intended to improve reading skills by encouraging children to read at home, in the community, and other places outside of school. A total of 900,000 children participated in reading activities, including 3,600 children with disabilities. 2,500 reading clubs were created and 430,000 Kinyarwanda language stories were distributed.

[185] https://pdf.usaid.gov/pdf_docs/PA00W61G.pdf
https://resourcecentre.savethechildren.net/node/17218/pdf/mureke_dusome_impact_evaluation_endline_report.pdf

	It was intended to educate the parents and make them understand that not only the school but also the parents can help their children learn how to read in various ways. The more books being read, the better a child performs at school. The project also built a community library and promoted reading in the community through community education workers (CEWs).
Itegure Gusoma[186] Get ready to read	March 2017 to March 2020 This is a program implemented by UNICEF for pre-primary N3 (older children) that aims to improve the basics of reading and emergent literacy. In collaboration with MINEDUC, REB, and VSO, it strengthened the capacity of 80 pre-primary teachers and supported 7,738 children in pre-primary classes. The project delivered 25,995 picture books, 1,440 posters, and 1,120 teaching and learning materials to the education sites, developing the ability to create stories based on pictures and to answer questions about the stories after reading them. An instructional manual for teachers was also created and approved by the REB. An emergent literacy guide for principals was also created. The need for early childhood education was remarkably high, and the classrooms were filled with a large number of children. The teachers said that this made classroom management difficult, and that it was quite difficult to teach effectively using picture books.

(Prepared by the survey team with reference to the USAID official website)

(4) WFP

Since 2016, a school feeding program called the Home-Grown School Feeding Programme (HGSF) has been implemented in 104 schools in four districts[187]. According to what was heard from WFP, the feeding program will be expanded to pre-primary schools in FY2022.

(5) Save the Children

Save the Children provides support for each age group: Zero to three, four to six, and seven to nine years old.

For ages zero to three, a parent awareness project is being conducted in four districts through First Steps: Parent facilitator, which is about how parents can interact with their children in a way that promotes their development. When activities could not be carried out due to the Coronavirus pandemic, radio programs to raise awareness were used, and parents were informed of the program times through the parent facilitator. In the age group of four to six, Save the Children worked with UR-CE to develop an ECD curriculum for the TTC, and it also helped REB develop a pre-primary curriculum. In addition, this is the fourth year that Advance School Readiness Phase 2 has been implemented in two districts. A project to distribute picture books to households is being implemented in five districts, and the CEWs are being used to disseminate how to read picture books to children. MINEDUC wishes to scale up to all districts, but CEWs need incentives, as they also check dropouts and attendance, which requires more time with

[186] https://pdf.usaid.gov/pdf_docs/PA00X3Z6.pdf

[187] https://docs.wfp.org/api/documents/WFP-0000110222/download/?_ga=2.26684861.1266419816.1628683285-2050445282.1627334785 https://docs.wfp.org/api/documents/WFP-0000106253/download/

the increased responsibilities.

(6) Imbuto Foundation

The predecessor of the Imbuto Foundation is PACFA (Protection and Care of Families against HIV/AIDS), which was established by the first lady for the purpose of prevention and care of HIV/AIDS. In 2007, the name was changed to the current Imbuto Foundation[188]. At present, the first lady is the chair of the Imbuto Foundation. Because of its name value, many partners[189] provide financial support. Today, it has expanded the scope of its activities to include health, education, youth, and economic empowerment.

One of the educational programs of the Imbuto Foundation is the Early Childhood Development and Family (ECD & F) project. ECD & F was started in 2013 under the initiative of the first lady with the aim of supporting the full development of children aged zero to six years. Of the six model ECD centers included in the scope of this study, five were supported by the Imbuto Foundation's ECD & F project. According to the latest data obtained from the Imbuto Foundation, there are 16 model ECD centers established and supported by the Imbuto Foundation in 17 districts across the country[190].

The ECD centers established by the Imbuto Foundation will provide technical assistance and capacity building for caregivers, while the Imbuto Foundation will cover the salaries of the personnel and operating costs for two years. Training will also be provided on how to support home-based ECD centers around the model ECD center. The Imbuto Foundation regularly visits the centers for observation and evaluation, and also conducts refresher training to maintain and improve quality. Furthermore, it is in charge of training caregivers of the home-based ECD centers using the VUP model.

According to the interview with the person in charge, the issues are to establish at least one model ECD center in the district and to provide capacity building for young people who are expected to be involved as caregivers in the future. It also identified the following needs for support: [1] establishment of ECD centers in rural areas based on the concept of comprehensive ECD services, [2] capacity building of caregivers, especially young people who may be involved in ECD in the future, and [3] capacity building of community-based organizations to provide ECD services.

[188] The meaning of Imbuto is “seed”.

[189] In addition to international organizations such as UNICEF, IKEA, MTN, Tamari Foundation and many others. https://www.imbutofoundation.org/OUR-IMPACT/

[190] Gasabo, Nyarugenge, Kicukiro, Gicumbi, Gakenke, Nyamasheke, Ruhango, Nyamagabe, Nyabihu, Kayonza, Ngoma, Rwamagana, Rutsiro, Nyanza, Ngororero, Burera and Muhanga.

Table 4-18 ECD support activities by NGOs

	Save the Children	World Vision	Plan International	VSO	Imbuto Foundation	African Evangelist Enterprise (AEE)	Parenting Child Care in Rwanda (PCCR)
Features of the organization	An international NGO that provides a wide range of support for children	An international NGO based on the Christian spirit	An international NGO based on the Christian spirit	The world's largest international volunteer organization	A local NGO established by the first lady	A local NGO based on the Christian spirit	A local NGO supported by Korea (Child Fund)
Health and nutrition			✓			✓	✓
Parent education	✓	✓	✓		✓	✓	✓
ECE	✓	✓	✓	✓	✓		✓
Main support activities in Rwanda	• First step: Parent Facilitator 's 16-week parent awareness-raising program • Project to distribute picture books to families • Storytelling by Community Education Workers (CEWs) • Helping to create a CBC curriculum for pre-primary children, emphasizing learning through play • Advance School Readiness Phase 2: ECD center caregiver training, regular monitoring	• Child protection awareness-raising activities for local residents • Learning roots: A program to support children's cognitive development for parents is scheduled to start in October 2021 • Unlock literacy: Implementing reading promotion activities using community libraries and CEWs • Construction of four ECD centers with own funds	• ECD support starts with parent education • Balanced diet, guidance on home vegetable gardening • Establishment of ECD centers (50 or more) • Activities to support school readiness • CBC curriculum training for caregivers • Training on how to make toys and learning materials for parents and caregivers • Remote viewing of model classes using ICT • HC and CHW support	• Dispatch of volunteers to the education and TTC sectors • Distribution of tablets with applications for learning through play to ECD centers • Inclusive education , maternal and child health, and support for newborns will also be considered in the future	• Promote ECD programs alongside UNICEF ・ECD & Family Program • Establishment of 16 model ECD centers across the country • Conduct training for caregivers • Hold a workshop for those who established a home-based ECD center based on the VUP model	• Mainly support women's independence • Have been conducting awareness-raising activities on nutrition and improvement of dietary habits since 2016 • Promotion of food safety and home vegetable gardening • Positive parenting training (with modules) • Economic empowerment and income generating activities (e.g., pig raising)	• Activities for children and their parents • Establishment of 5ECD center • Training for pre-primary teachers and ECD caregivers • Development of learning materials • Educational activities on desirable diets • Development of own training modules
Characteristics			• The newborn registration system used at HCs is developed by Plan			• Entrusted with monitoring of ECD centers in 25 districts nationwide	

4.2.3 Outline of JICA's support

(1) JICA's tax-supported loans in the nutrition sector

In August 2019, a yen loan agreement of up to 10 billion yen was signed between JICA and the GoR for a "sectoral policy loan to improve nutrition through agricultural reform." This loan was made possible due to the GoR's focus on improving nutrition in response to the stunting rate of 33.1% in Rwanda (RDHS 2019-2020), which is higher than the sub-Saharan average of 31.4%, by growing nutrient enriched agricultural products, distributing milk to improve protein intake, and promoting kitchen garden programs and school feeding, etc.

The purpose of this project is to create an environment in which Rwandan children can eat nutritious food by supporting the implementation of high-priority policies and plans for improving nutrition and nutrition-related efforts in the agricultural sector through policy dialogue and financial support. In this project, Japan's agricultural policy experts will start consultations with MINEGARI from 2019, and nutrition policy experts will start consultations with NECDP from 2020. The project is expected to be completed in FY2021.

The target values to be achieved by 2023 in the project are as follows.

Table 4-19 Target values for nutrition improvement

Index name		Standard value (2015)	Target value (2023) [Two years after completion of the project]
1	Number of districts with a district plan that identifies Nutrition Dense Food (NDF) and specifies production targets for NDF.	0 [191]	12
2	Percentage of children under two years old who consumed iron-rich foods within 24 hours in the control group[192] (%)	13.4	45
3	Percentage of children under two years of age who consumed foods containing animal protein within 24 hours in the control group (%)	27.3	45
4	Three services needed to improve nutrition in the control group (access to and consumption of adequate food, health care and hygiene, and infant care) (%)	4.3	8
5	Percentage of children under two years of age who meet the minimum food standard in the control group (%)	15.5	22

(Source: Meeting materials for Expert Group on Agricultural and Nutrition Policy)

[191] Value in 2018

[192] Districts with stunting rates (stunting rates by district in the Comprehensive Food Security and Vulnerability and Nutrition Analysis Survey (CFSVA) 2018) higher than the national average (16 out of 30 districts) that are not covered by the World Bank's Sustainable Agricultural Intensification and Food Security Project.

4.3 Current Situation and Issues of the ECD sector

The following is a summary of the issues in the ECD sector based on the survey results and previous content.

	Current situation	Issues	Factors
Access to ECD	➢ 60% of three- to six-year-old children attend ECD centers (NCD) ➢ Approximately 80% of ECD centers are home-based ECD centers	➢ School enrollment rate by age is unknown ➢ Three home-based ECD centers/village is not achieved ➢ Home-based ECD centers are single-classrooms with mixed-age children	➢ ECD center is far away ➢ Unable to bear the costs associated with attending the school ➢ Anxiety about leaving children in the care of others ➢ Complaints and doubts about the quality of home-based ECD centers
Health and nutrition	➢ ECD center provides porridge and milk to improve nutrition	➢ Low intake of animal protein ➢ Children are also deficient in micronutrients	➢ There is no public subsidy and the day care fee is not enough to cover the cost
ECE	➢ Model ECD center and community-based ECD center are primary school preparatory education ➢ Home-based ECD centers are lacking in quality intellectual stimulation	➢ Play-based learning is less common ➢ Lack of thought-provoking questions and activities ➢ Overemphasis on memorization of knowledge ➢ Limited types of activities	➢ In classroom training on ECD in general, it is difficult to know how to teach it concretely ➢ There are no reference models or teaching materials ➢ Lack of teaching materials and tools for play-based learning ➢ Home-based ECD centers do not have an annual learning plan
Caregiver	➢ Low level of ECE services provided by caregivers in home-based ECD centers ➢ Model ECD centers have high turnover rates of qualified caregivers	➢ Caregivers teach based on their own experiences and beliefs ➢ In some cases, classes cannot be offered due to large class sizes or caregivers leaving their jobs	➢ Caregivers in home-based ECD center are volunteers and untrained and do not know what and how to teach ➢ Qualified caregivers are non-regular employees and their treatment is unstable
Organization and monitoring system	➢ NCD=ECD centers and MINEDUC=pre-primary schools coexist, confusing the definition of ECD centers ➢ The government does not have an accurate understanding of the current situation of ECD centers	➢ There is confusion in the reporting of the number of ECD centers from the district ➢ No guidance and advice on the ECE part at the ECD center ➢ Reports from ECD centers are not sufficiently checked by the sector or district	➢ Nutrition and health and education are separate systems in the local administrative structure, and there is no department that oversees the entire ECD ➢ Lack of understanding of the purpose of monitoring in local government organizations

(Prepared by the survey team based on survey results)

4.3.1 Outline of organizations

(1) National Childhood Development Agency(NCD)

NCD is an independent organization under the control of MIGEPROF. It was newly established in 2018, and then the NECDP and the National Child Commission (NCC) merged to start as the NCD in April 2020. It facilitates the provision of a comprehensive package of child-related health, nutrition, education, hygiene, protection, parenting and disability inclusion services at ECD centers, in addition to playing a role in coordinating the services of ministries and agencies, NGOs, and faith-based organizations (FBOs) involved in ECD[193]. It also plans and implements various campaign activities to raise awareness of the ECD services. The operational units that carry out NCD's own activities are divided into the Nutrition and Sanitation Division and the Early Childhood Development, Protection and Promotion Division.

The regular personnel are as follows.

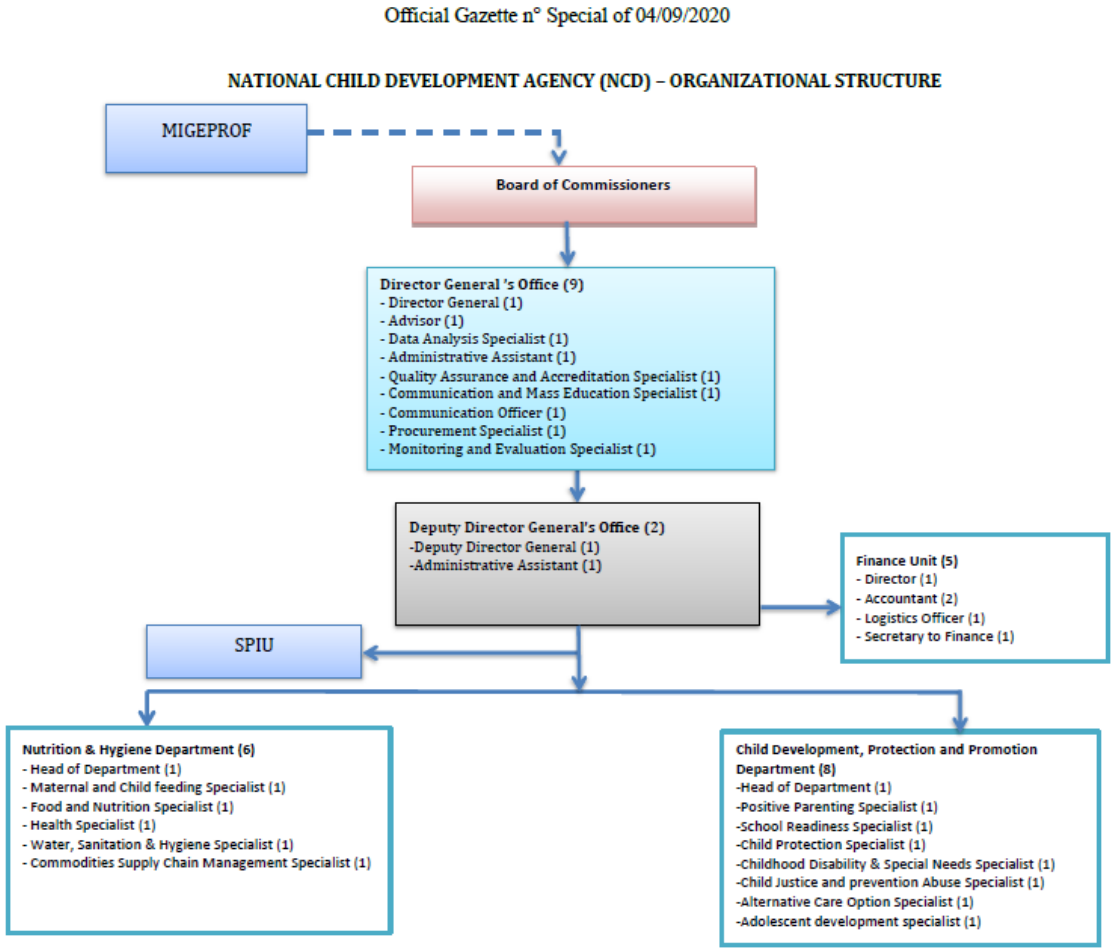


Figure 4-1 NCD organization chart

(Source: Official Gazette Special of 04/09/2020)

[193] NCD was supposed to implement a project for monitoring access to and quality of ECD services in FY2020/2021. According to the report, it is to sign a Memorandum of Understanding (MOU) with the selected entity to conduct monitoring and supervision in the district, and to regularly monitor and report on the current situation of various ECD centers, including home-based ECD centers in the district, and coach them. Due to COVID-19, the start of the project has been delayed and the project itself has not been completed. Therefore, the results are unknown.

Table 4-20 Placement of NCD personnel

Department	Personnel
Director General's Office (9 persons)	In addition to the Director General and an advisor, the following personnel are appointed: one professional person each in charge of data analysis, quality control and certification, public relations and awareness-raising activities, procurement, and monitoring and evaluation, and one each for public relations officer and administrative assistant.
Deputy Director General's Office (2 persons)	Deputy Director General, administrative assistant
Finance Unit (5 persons)	Director, personnel in charge of accounting (two persons) , personnel in charge of logistics, finance, secretary
Nutrition & Hygiene Department (6 persons)	In addition to the Director, the following personnel are appointed as experts. One each in charge of maternal and child diet, food and nutrition, health, public health, and commodity supply chain management.
Child Development, Promotion and Protection Department (8 persons)	In addition to the Director, the following personnel are appointed as experts. One each in charge of parenting, school readiness, child protection, infant disabilities and special needs, child rights and abuse, alternative care for children, and adolescent development.

(Prepared by the survey team)

The following three projects are currently under the jurisdiction of NCD's Single Project Implementation Unit (SPIU).

Table 4-21 Projects managed by NCD-SPIU

Project name	Sector	Source of funds and cooperating organizations
Stunting Prevention and Reduction Project (SPRP) shared with RBC: until 2023	Health and nutrition	WB
Orphans and Vulnerable Children (OVC) until 2024	Social protection	Global Fund
Tubarere mu muryango Program (Let's liaise children in family program) until 2025	Social protection	UNICEF

(Prepared by the survey team based on interviews with NCD)

The establishment of the NCD (2018) and the promulgation of a ministerial order setting out the rules for implementing ECD (2020) were to address the issues identified in the Early Childhood Development Policy (2016) (unclear coordination and reporting framework, lack of approved minimum operational standards), and the system to implement comprehensive ECD services is now in place.

(2) District level

Based on the principle of decentralization and community participation, the district is responsible for the provision and quality assurance of ECD services. Expanding access to ECD is one of the targets set in the district's Imihigo[194] (Performance Contract). The Public Health Department is responsible for ECD services in the district office. There is an ECD/nutrition officer under the Director. The sector has a person in charge of hygiene, who also seems to be in charge of ECD services.

[194] Performance target contract. A system in which ministries, agencies, district offices, etc., set priority goals and targets and evaluate their achievement at the end of each fiscal year.

Pre-primary education facilities (center-based ECD) under the jurisdiction of MINEDUC are supervised by the DEO in charge of pre-primary and primary education. SEIs are assigned to the sector offices to inspect the pre-primary classes attached to schools in the sector. SEIs do not visit the model ECD centers and have little knowledge of the realities of ECD. At the sector level, there is a person in charge of social issues who takes charge of the VUP [195]project, which is a poverty alleviation measure. Monitoring of ECD is positioned as an operation of this person in charge of social issues.

The Vision 2020 Umurenge Programme (VUP) is a comprehensive rural development project launched in 2008 to advance poverty eradication, rural development, and social protection. The aim was to eradicate extreme poverty by 2020. Of the households divided into five categories according to their income, various programs (cash benefits, public works allocation, small loans, free distribution of livestock, etc.) are being implemented especially for those in the poorest Category 1 (poorest) and 2 (vulnerable)[196]. A new LODA-ECD Center project has been launched as part of the Local Administrative Entities Development Agency (LODA) VUP project. The project supports the establishment of home-based ECD centers and provides allowances to caregivers for a limited period of time to help poor households in rural areas. A new project that combines the expansion of home-based ECD centers with poverty alleviation measures has begun with the selection of candidate families and training for caregivers[197].

Table 4-22 Monitoring structure of ECD centers and pre-primary education facilities

<table>
<tr><th>Administrative level</th><th>Health Department (MoH)</th><th>Education Department (MINALOC)</th><th>Social Protection (LODA)
Expanded Public Works</th></tr>
<tr><td rowspan="2">District</td><td>Director of Public Health</td><td>Director of Education</td><td>Director of Social Protection</td></tr>
<tr><td>Personnel in charge of ECD/nutrition</td><td>Personnel in charge of pre-primary/primary education</td><td>Personnel in charge of social issues</td></tr>
<tr><td rowspan="2">Sector</td><td rowspan="2">In charge of hygiene</td><td rowspan="2">Inspector of education</td><td>Personnel in charge of social issues</td></tr>
<tr><td>Supervisor*</td></tr>
<tr><td rowspan="2">Cell</td><td rowspan="2"></td><td rowspan="2"></td><td>Personnel in charge of social and economic affairs</td></tr>
<tr><td>Supervisor*</td></tr>
<tr><td>Village</td><td>Caregiver</td><td></td><td>Caregiver</td></tr>
</table>

Those marked with "*" are contract-based (prepared by the survey team based on interviews on sites)

Table 4-21 shows the implementation system of ECD and pre-primary education services in rural areas, as revealed through interviews conducted by the survey team during May and June 2021.

The Ministerial Order requires monitoring and reporting on a monthly basis for cells and on a quarterly basis for sectors. There are several categories of ECD centers under the jurisdiction of NCD, including

[195] https://loda.gov.rw/programs/vup/

[196] According to news reports, from 2021, there will a revision to introduce five levels, A through E (E being the poorest). https://www.newtimes.co.rw/news/where-do-you-fall-new-ubudehe-categories

[197] https://www.newtimes.co.rw/news/5000-early-childhood-devt-centres-be-established It was reported that 5,000 home-based ECD centers would be opened in 300 sectors nationwide as part of the VUP project. There are also home-based ECD centers of the VUP model that have already started their activities.

model ECD centers. Model ECD centers also provide ECE-related services, and their educational activities are similar to those of pre-primary education facilities (center-based ECD). However, the monitoring system described above does not have personnel who can provide expert advice on ECE[198]. The home-based ECD center as part of the VUP project is still in the process of being established, but since the purpose of the project is to support poor households, allowances will be paid to the caregivers. In contrast, caregivers in home-based ECD centers, which are part of the NCD system, are volunteers. The lack of incentives for caregivers was also pointed out as an issue in the strategic plan. There could be complaints about the unfairness of the treatment.

4.3.2 Administration and public finance

(1) Finance and budget

ECD is included in the nutrition sector in UNICEF's Budget Brief rather than by itself like the education sector because its services span across other ministries and agencies.

The budget for the nutrition sector in FY2020/2021 is 50 billion RWF (US$51.8 million), a six-fold increase from 8.4 billion RWF (US$8.6 million) in FY2017/2018 (Figure 4-2). However, most of the funds are external funds from international organizations, etc., and the percentage of external funds in the total budget is over 70% (Figure 4-3). Major donors include WB , USAID, JICA, EU, and UN organizations. Despite the impact of COVID-19, domestic financing needs to be strengthened in terms of sustainability (UNICEF, 2020).

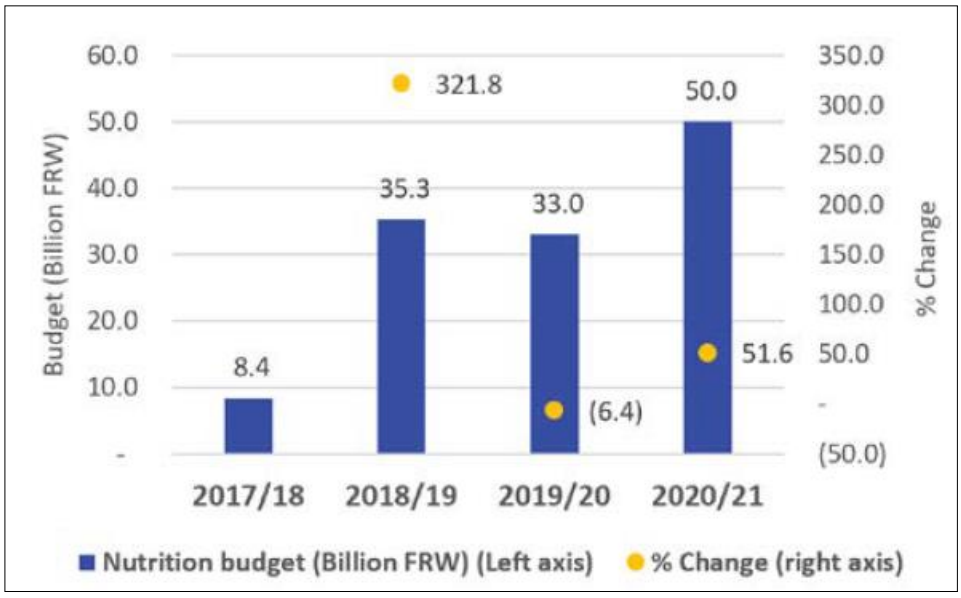


Figure 4-2 Trends in budget for the nutrition sector (2017/2018-2020/2021)

(Source: UNICEF (2020), Nutrition budget brief, p.8[199])

[198] In interviews with ECD centers, some mentioned education as a content of monitoring by the government (see below), but since they are not experts in education and ECE, it is questionable whether they can give advice.

[199] UNICEF. (2020). Nutrition budget brief: Investing in children's wellbeing in Rwanda 2020/21. https://www.unicef.org/rwanda/media/2816/file/Nutirtion-Budget-Brief-2021.pdf

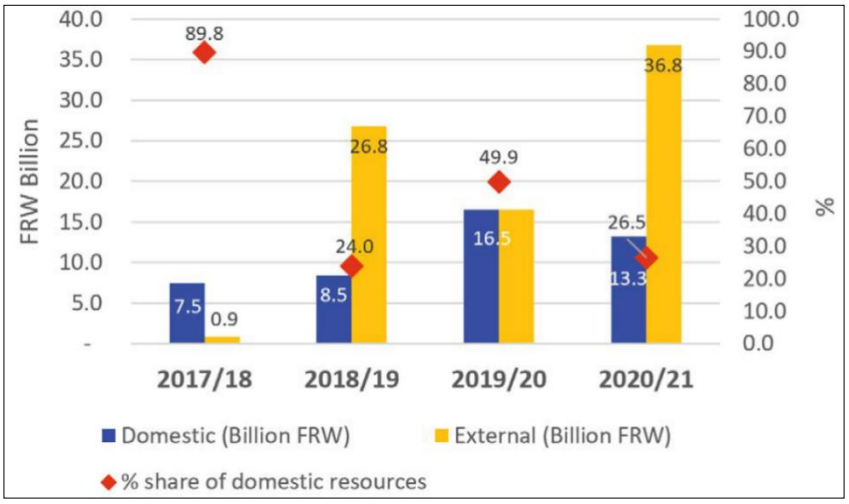


Figure 4-3 Trends in external funds as a percentage of the nutrition-related budget (2017/2018-2020/2021)

(Source: UNICEF (2020), Budget brief, p.10)

By executing ministry and agency, MIGEPROF/NCD , which has jurisdiction over ECD, accounts for approximately 20% of the total budget (Figure 4-4). Table 4-23 shows the trends in budget allocations by nutrition-sensitive and nutrition-focused programs. Nutrition is also closely related to maternal and child health and infant stunting, and the level of budget execution related to nutrition has improved significantly from 55.8% (2017/2018) to 95.7% (2019/2020). UNICEF credits this to the coordination under the leadership of NECDP (now NCD).

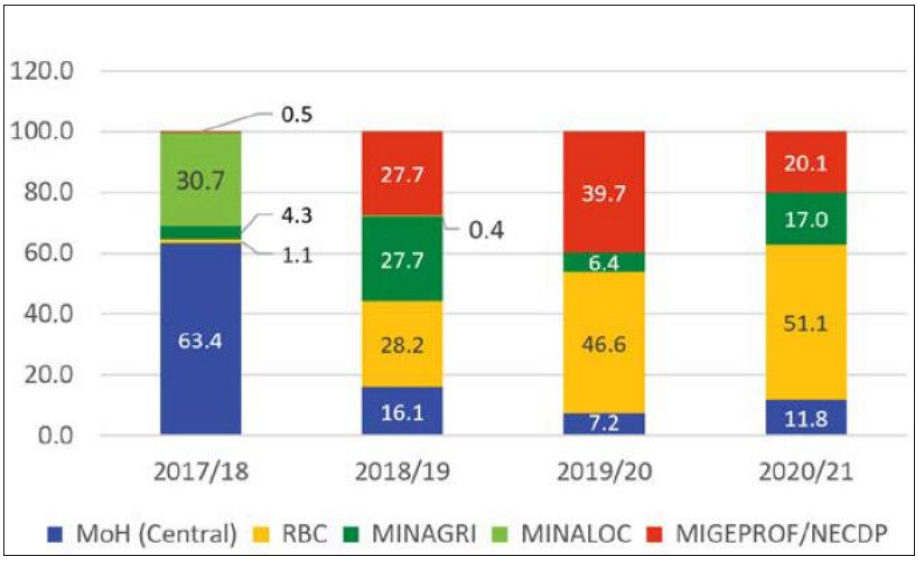


Figure 4-4 Trends in budget by ministry and agency (2017/2018-2020/2021)

(Source: UNICEF (2020), Budget brief, p.10)

Table 4-23 Trends in nutrition-related budget allocations by program (2017/2018-2020/2021)

(Unit: billion RWF)

Sub-programme	2017/18		2018/19		2019/20		2020/21	
	Sensitive	Specific	Sensitive	Specific	Sensitive	Specific	Sensitive	Specific
Maternal and Child Health Improvement	0.4		0.1		0.9		3.4	
Nutrition Support Services		4.9		5.4		0.8		2.0
Hygiene and Environmental health	0.0		0.1		0.7		0.4	
Stunting prevention project		0.1		9.9		10.8		20.2
Reproductive, Maternal and Child development						4.6		5.4
Nutrition Sensitive Agriculture and Resilience Mechanism	0.4		9.8		2.1		8.5	
Nutrition Support Services		2.6		0.1	-	-		
Early Childhood Development Coordination		0.0				13.1		10.1
Total	**0.8**	**7.6**	**10.0**	**25.2**	**3.7**	**29.3**	**12.3**	**37.7**

(Source: UNICEF (2020), Budget brief, p.12)

MINECOFIN allocates earmarked budgets to localities through competent ministries. For the fiscal year 2020/2021, a total of 1.1 billion RWF was allocated to NCDs as local budget for implementing the following programs.

Table 4-24 Earmarked budget allocated to districts (2020/2021)

Program: Social protection		Purpose
Sub-programs: Family protection, women's empowerment		Increase access to ECD at the community level
Output	**Performance indicator**	**Annual goal**
O1: Expanded access to community-level ECD services	Number of low-cost ECD centers built and in operation	Build two low-cost ECD centers per district to be operated by the district
O2: Improved quality of home-based and community-based ECD		
O3: Reduced malnutrition in infants under two years of age (six to 23 months)	Deliver fortified blended food (FBF) to HCs for infants under two years of age and prepare and submit monthly, quarterly, and annual delivery reports to NCD.	All HCs in 30 districts receive FBF without delay to be delivered to children under two years of age

(Prepared by the survey team based on materials obtained from NCD)

A low-cost ECD center mentioned in Output 1 was prototyped with two classrooms, a kitchen, toilets, and a fence, whereas the model ECD center has three classrooms. Adding furniture, kitchen utensils, books, and toys to the budget, the construction cost per school is estimated to be approximately 25.64 million RWF (MINECOFIN, 2020, pp.47-48)[200].

For LODA, as part of family protection and women's empowerment of the social protection program, the goal is set to reduce malnutrition (B104), and approximately 1.28 billion RWF has been allocated for 11 districts to provide milk to children under five years of age.

As the government is promoting decentralization, the operational implementation capacity of the districts and sectors, along with the coordination of NCD, will become increasingly important in the implementation of ECD services.

According to the Official Gazette dated June 30, 2021, the total budget for the fiscal year 2021/2022 is approximately 3.8 trillion RWF. Of this, the total budget for NCD and its breakdown are as follows.

Table 4-25 NCD budget (2021/2022)

NCD	9,365,044,868
Administrative And Support Services	682,918,720
Child Rights Protection And Promotion	1,251,244,322
Early Childhood Development coordination	7,430,881,826

(Source: Year 60 Official Gazette n° Special of 30/06/2021)

[200] MINECOFIN. (2020). *Earmarked transfers guidelines to decentralized entities with legal personalities.*

4.3.3 Current Situation and Issues of the ECD sector

(1) ECD policy and current situation

The goals of ECD are ambiguous. The reason for this is that a common understanding of pre-primary education facilities has not been established until now. The following table picks up the parts of the policy documents and related documents that refer to the goals of ECD services and shows the degree of achievement.

Table 4-26 Achievement of ECD-related policy goals

Policy document	Indicator	Target value	Achieved value
Government's Seven-Year Plan (2010)	Number of ECD centers[201]	One center in every sector	30.5%(2020)
Economic Development and Poverty Reduction Strategy (EDPRS II) (2010)	Pre-primary education	One year of pre-primary education for all 5-6-year-old children	24.6%(2019)
ESSP : 2010 -2015 (2010)	Pre-primary education	One year of pre-primary education for all 5-6-year-old children	24.6%(2019)
SDGs (2015)	Pre-primary education	One year of pre-primary education for all 5-6-year-old children	24.6%(2019)
Early Childhood Development Policy (2016)	Number of ECD centers	One model ECD center in every cell One ECD center in every village	5.9% (2020) 1.34 centers/village (2020)
NST1(2017)	Pre-primary education	Net school enrollment rate of 45% (2024)	24.6%(2019)
Integrated ECD Models Guidelines (2019)	ECD center attendance rate	45%(2024)[202]	24.6%(2019)
Vision 2050 (2019)	Pre-primary education	Net school enrollment rate of 99% (2035)	24.6%(2019)
Strengthening integrated ECD service delivery (NECDP 2020)	Access to ECD services	75% (2024)	70%(2020)

(Prepared by the survey team)

It can be seen that different policy documents have different indicators and target values. However, there has been a recent move to review the situation. First, the most recent revision of the Fundamental Law of Education clearly states that the age for entry into pre-primary education is three years old. This set the age of children enrolled in nursery schools to be from three to six years old, the same as the target population of ECD. The Director General of Education Policy and Analysis of MINEDUC also said that the policy is being reviewed with a view to aligning it with national and international development goals. The Director General mentioned that "MINEDUC is working with home-based ECD centers, community-based ECD centers, and nursery schools to ensure that all children have access to pre-primary education

[201] Model ECD centers were counted.

[202] NECDP (now NCD) understands that nursery schools, which are mainly ECE, are also one of the ECD centers, and therefore it is likely that the numerical goals of NST-1 were set as the target values for ECD centers.

facilities, and is determined to further improve access and quality."[203]

In order to increase the school enrollment rate of pre-primary education, building nursery classes/schools may be considered. For example, according to the 2019 Education Statistics, the population aged four to six years is 947,252, of which 282,428 are registered for pre-primary education. Achieving the goal of 45% school enrollment rate would mean an increase of approximately 143,000 students over the current level. The average number of students per classroom based on statistical information is 48, which means that even with a simple calculation, there will be a shortage of approximately 3,000 classrooms in nursery schools. It would be difficult to cover the construction costs for 3,000 classrooms and the personnel costs for 3,000 additional teachers by the public budget.

As a result, it is unlikely to be achieved without the participation of communities, the private sector, and ECD centers, especially with the expansion of home-based ECD centers. However, as will be described later, the issue of home-based ECD centers is the quality of ECE services. Most of the caregivers in the home-based ECD centers are parents and local residents who have not received any professional training, and the facilities and equipment are extremely poor. There is a need to continue to collect information on how to ensure the quality and quantity of minimum ECE services, the ongoing policy review by MINEDUC, especially the goals for pre-primary education for each fiscal year and measures to achieve them, and the role of home-based ECD centers and quality improvement measures.

(2) Comprehensive ECD services

According to NCD, the number of ECD centers as of 2020 is as shown in Table 4-27. Home-based ECD centers are the places where ECD services are provided by parent volunteers. Center-based ECD refers to ECD facilities with full-time caregivers, most of whom are qualified caregivers, and includes public and private nursery schools (pre-primary schools). When compared to the fact that there were only 205 home-based ECD centers in 2018 (NECDP, 2018), the number is a staggering increase of nearly 100-fold.

Table 4-27 Number of ECD centers (2020)

Type	Number of facilities	Percentage (%)	Number of children
Home-based (3-6 years old)	20,078	77.9	474,800
Community-based	2,149	8.3	Unknown
Center-based (4-6 years old)	3,407	13.2	282,428
Model ECD[204]	127	0.5	Unknown
Total	25,761	100	Unknown

According to DHS 2015, 13% of children aged three to five years received ECD services. Access to ECD services has improved to 18% in 2017 (UNICEF, 2018). According to Education Statistics (MINEDUC, 2019), the percentage of children aged four to six years who attend center-based ECD centers, including nursery schools, is 24.6%. In contrast, 60% (474,800) of children aged three to six years attended home-based ECD centers in 2019 (NECDP, 2020, p.2). However, it is estimated that 9% of all ECD centers provide comprehensive services including health, nutrition, education, water and

[203] New Times, Government seeks new ways to increase pre-primary enrolment.(06/08/2021). https://www.newtimes.co.rw/news/government-seeks-new-ways-increase-pre-school-enrolment#.YQ8-dHe1drQ.whatsapp Accessed August 8 ,2021.

[204] Based on the information provided by NCD personnel, July 3, 2021.

environmental sanitation, and social protection (NECDP, 2018, p.2), with the majority of ECD centers providing only a subset of ECD services.

In terms of inclusive education, MINEDUC's Education Statistics show that 1,931 children with disabilities were enrolled in nursery schools in 2019, which is 0.7% of the total enrollment. Children with physical motor disabilities are the most common, but only 10% of facilities are able to accept children with disabilities, which does not meet the ESSP target of 14.36% (2019). According to the 2012 census, there were 15,831 children aged three to six years with disabilities, leaving a significant number of children with disabilities unable to receive ECD services. Since only about 10% of the teachers and caregivers have received training in inclusive education, the issue is to develop the facilities that accept them and to increase the knowledge and understanding of inclusive education among teachers and caregivers.

NCD (2019) said it would be raised to 45% by 2024, while other documents put the figure at 60% and 75% [205](see Table 4-28).

Table 4-28 Target value for ECD service utilization rate for children aged 3-6[206]

Integrated ECD Models Guidelines (NECDP, 2019)	Strengthening integrated ECD service delivery (NECDP 2020)	First Programmatic Human Capital for Inclusive Growth DPF (P171554)
2024: 45%	2024: 75%	2023: 60%

In the case of Rwanda, there is a significant socioeconomic disparity and a disparity between urban and rural areas in the percentage of children attending ECD centers. This disparity is much larger than in other African countries, and the issue is to improve the school enrollment rate in poor rural areas.

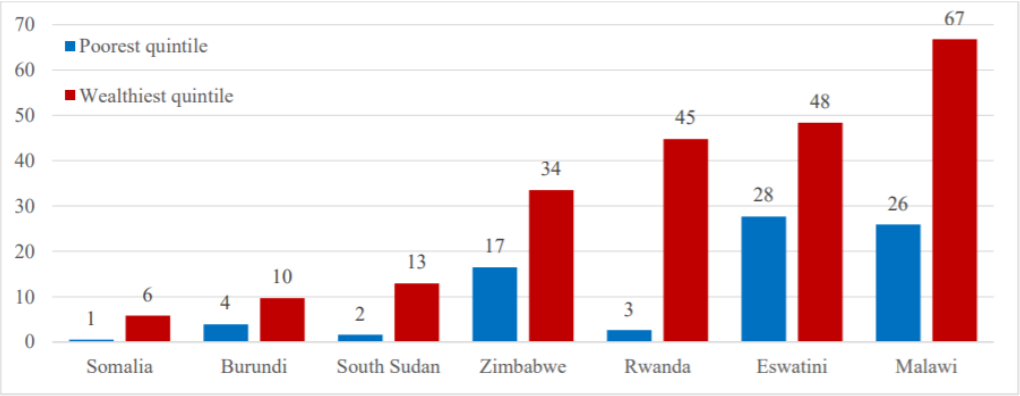


Figure 4-5 Net school enrollment rate by quintile income percentage[207]

(Source: Cameione & Muchabaiwa, 2021, p.16)

[205] The World Bank (2020) estimated it be 60% (2023) and NECDP (2020) 75%. It is assumed that it depends on the definition of minimum ECD services.

[206] The figures are far apart from 13% (DHS 2015) and 18% (UNICEF, 2018), which raises a question about the definition of services, but there is no clear description of the respective definitions.

[207] Based on the most recent data from 2017 or later.

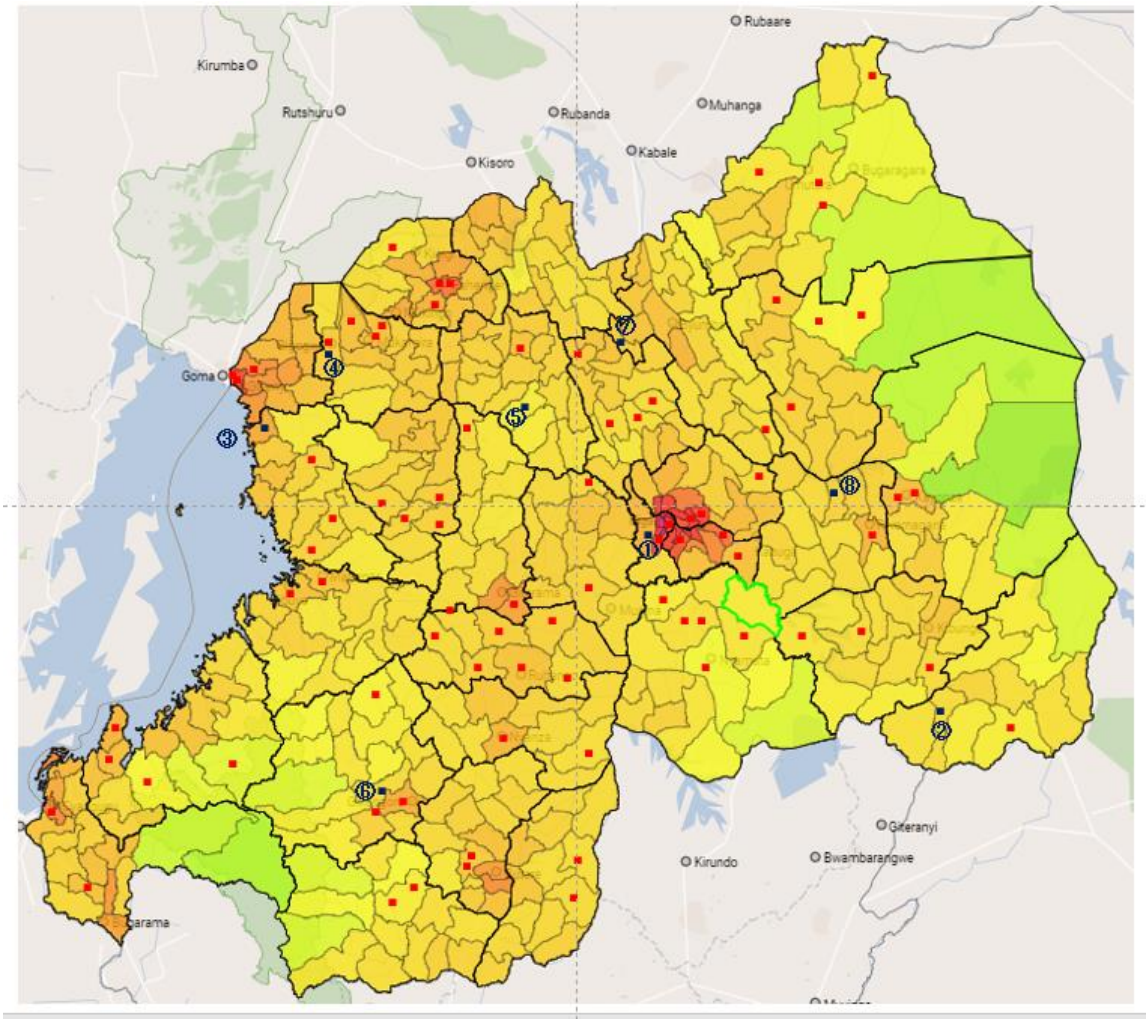


Figure 4-6 Locations of model ECD centers

(Prepared by the survey team)

The locations of model ECD centers (92 locations) obtained from NCD are shown in the sectors (Figure 4-6). The numbers from [1] to [8] indicate the model ECD centers actually visited by the survey team.

The location of the new model ECD center to be established will be determined based on the needs of the community and the commitment of the sector.

(3) ECE

a) Model ECD center

The establishment of the model ECD center involves the Imbuto Foundation, Save the Children, Plan International, and various other NGOs. Normally, when an NGO such as the Imbuto Foundation supports the establishment, the NGO will pay the salaries of the personnel and support the operation for the first two years after the establishment. After that, it will be transferred to the sector.

The classrooms are usually arranged with colorful desks and chairs, although in some cases (Nyabihu), the classes for younger children used mats instead of desks and chairs. Class sizes are large enough for

25-30 children to learn. Various handmade posters with pictures and text along with illustrations were posted on the wall, showing the ingenuity of the caregivers. There is a lockable cabinet in the back of the classroom for storing teaching materials, etc. There are also educational toys distributed by UNICEF and picture books created by the Imbuto Foundation, but they are not managed or organized in such a way that they can be used immediately when needed. Class sizes varied from center to center and class to class, but ranged from 25 students at the smallest to over 60 at the largest[208]. On average, class size is about 35 to 40 students.

The ECD services for children are only available in the morning (around 8:00 to 11:30), and a snack (porridge) is served around 10:00. The personnel responded that their working hours are from 7:00 to 17:00.

The progress of the learning activities for literacy and numeracy was almost the same everywhere, and the activities were in accordance with the CBC of REB. In fact, in some places, the CBC syllabus was placed on the desk of the caregiver. The teaching style is a miniature version of primary school, with the caregiver speaking one way and loudly.

Although there is frequent questioning by the caregivers, it is all about closed questions, so the children respond to questions with “yes” or “no” or with single words or numbers. It was correct answer oriented, and when a child made a mistake, the caregivers did not ask “Why? For what reason?” to help the child understand.

This is a common teaching pattern in primary school as well[209]. Learning through play was rarely observed, and the understanding seemed to be that learning is the transmission of knowledge by caregivers, and play is something that is done using play equipment and toys in between learning. In addition, the number and variety of picture books were not sufficient, and even in the older classes, there were few activities in which children could read and understand picture books on their own[210].

After entering primary school, the language of instruction will be English, and therefore English is being learned, but the level of English among caregivers is low. When young children learn English for the first time, learning through play with concrete objects can be effective. In many classrooms, posters with the alphabet, illustrations with English words, and cards are put up on the walls so that students can unconsciously see them on a regular basis. However, since greetings and simple English responses are often memorized as set phrases, it would be more desirable to have a little creativity[211].

The progress of learning was almost the same, but there were differences in the degree of motivation

[208] Since it was a class of younger children, there was no furniture, and it did not seem to hinder any particular activity. There were two caregivers, like TT, one primarily responsible and one secondarily responsible.

[209] Sawa Iwakuni. (2015). Questioning the Quality of Learning: Focusing on Teaching Methods and Students' Knowledge Building in Secondary School Physics Classes in Rwanda. Journal of International Cooperation in Education, 18(1), 105-117. Iwasaki, K. Y., Sugiyama, R., Ono, Y., Matsuzuki, S., & Ohara, K. (2019). Decentralizing and Contextualizing Teacher Continuous Professional Development in Rwanda. In T. Huber & J. G. O'meara (Eds.), *Teacher education at the edge: Expanding access and exploring frontiers, 179-230.* Charlotte, NC: IAP.

[210] Even if children can read and understand the meaning of words written on the blackboard by their caregivers, it is unclear whether they can understand them as meaningful words when they appear in a sentence. In addition, although they may copy words into their notebooks, they have very little experience writing sentences.

[211] For example, regardless of the time of day or the gender of the other person, they said “Good morning, sir!” most of the time. Illustrations of clocks, sun positions, women, men, etc., may be used to provide different contexts to help children understand appropriate greetings without explanation from caregivers, etc.

and ingenuity of the caregivers[212]. Some centers were also model ECD centers (Rutsiro, Nyabihu) that were actively supporting neighboring home-based ECD centers, as required by the Ministerial Order. From the interviews with the ECD center directors, it was assumed that the insight, vision, and leadership of the ECD center directors were related.

Using model ECD centers is not free of charge. The cost to parents varies from 600 RWF to 1,200 RWF per month depending on the center, but in the areas surveyed, it seems to be around 1,000 RWF per month.

Of the model ECD centers, the ones that the Imbuto Foundation helped establish are using Whatsapp app group talk for experience sharing, capacity building, and coordination. The model ECD centers also vary in the content and scope of their activities, such as workshops to develop teaching materials, meetings to share learning progress and content (Rutsiro), and poultry farming projects for income generation (Nyamagabe)[213]. It would be desirable to have a mechanism to share local issues and to share these good practices widely to solve issues.

School office and director's office (Rutsiro)

Junior class (Nyabihu)

Middle class (Nyabihu)

Senior class (Nyabihu)

b) Home-based ECD center

NCD aims to open three home-based ECD centers in one village. In home-based ECD centers, groups of 10 to 15 families are formed to take care of children on a rotating basis in principle. In all but one case in Rutsuiro (ECD Itetero), the caregivers are actually fixed. The number of children also ranged from 15

[212] For example, how the classroom was decorated, number and types of posters used, whether only oral explanations were given or illustrations were drawn on the blackboard by the teacher to help students understand, and students' answers were checked.

[213] According to the Imbuto Foundation, the model ECD centers are expected to provide technical support to home-based ECD centers, but after handover to the district, the response was that it would vary depending on the district's circumstances.

to 37, making it difficult to move around in some rooms. Nine of the 11 facilities were operated by two or more people. In all home-based ECD centers, toilets were located separate and apart from classrooms, and the rules of hand washing, disinfection, and wearing face masks were strictly followed.

ECD services are provided only in the morning, from 8:30 to 10:30 at the shortest and from 7:00 to 11:40 at the longest. About three hours seemed to be the norm.

Porridge was provided twice a week in two facilities, three times a week in one facility, and daily in seven facilities. There were days when it was replaced with milk. Lunch was provided once a month (seven facilities), once a week (two facilities), or none (two facilities). There was no facility that provided lunch daily among those surveyed. The two facilities that provided lunch once a week were both in the Kirehe district. The parents would bring the ingredients and they would cook and serve them.

CHWs visit home-based ECD centers at least once a month (five facilities) to check the development of children. Some centers are visited biweekly (four facilities) or weekly (two facilities), and regular attention is given to infant nutrition and health through CHWs.

Of the 11 facilities, one (ECD Teta Mwana, Nyabihu) had two rooms to take care of the children due to the large number of children, but all the other facilities had one room with a dirt floor with a mat and different age groups ranging from two or three to six years old. The ECD Ryamirenge in Rwamagana had a separate classroom for ECD services in the premises of a private home with the support of the NGO[214]. The classroom had electricity and wooden chairs for children, but there were no desks and no writing utensils in sight.

Relatively large numbers of toys and learning materials were found in only two of the cases surveyed: ECD Twizerane (Kirehe), which was supported by the German NGO[215], and ECD Itetero (Rutsiro). ECD Itetero had an abundance of teaching materials that were created in workshops on making teaching materials using materials that are readily available under the guidance of the model ECD center. They were not used and stored at the time of the survey because the use of objects directly touched with hands was restricted due to COVID-19.

The main concern of the home-based ECD centers in this survey is the lack of intellectual stimulation. There were few picture books, and in some places, none was seen. Many centers lacked writing utensils and study materials, and there were few handmade posters. Since children were not able to ask questions or interact with the teaching materials, they seemed to repeat what their caregivers said orally or recite them in song and memorize them. There were no writing utensils in sight, and activities to prepare the ground for writing numbers and letters were absent. [216] There was a concern how children would learn the concept of quantity and the correspondence between letters and sounds.

In Nyamagabe's Twite ku buzima Bw'abana bato, broken twigs were used to make the child patiently count them over and over. At the ECD center ADPER Gihogwe in Nyabihu, children were drawing on the ground using twigs in the school yard. It is also possible to practice writing numbers and letters with

[214] Supported by African Evangelistic Enterprise (AEE) with funding from USAID's Ubaka Ejo Project. Ubaka-Ejo aimed to strengthen the resilience of poor households with a primary focus on vocational training and economic independence. https://www.powerofownership.org/usaid-ubaka-ejo-project/

[215] Rhenanil Palatinat, details unknown.

[216] At the home-based ECD center visited informally in Kigali, the children owned notebooks and writing utensils. The disparity between rural and local areas is huge.

a little ingenuity. In addition, "Numeracy for All," a collection of teaching materials produced by VSO[217], contains many useful ideas, most of which are teaching materials and tools for children using free or inexpensive materials. It is necessary to think of ways to make these free resources available.

Since nurturing at a home-based ECD center is basically based on the idea that it is a volunteer activity by parents, no salary is paid. However, they do charge an attendance fee for necessary expenses such as purchasing porridge, firewood, water, and toilet paper. Of the 11 facilities, the fee is paid in cash at four facilities and in cash or in-kind at the remaining seven facilities. In the case of cash, the amount ranges from 100 RWF/month to 3,000 RWF/semester, but the average is about 500 RWF/month per person. There did not seem to be any report on the use of the collected fees or the income and expenditure.

Village chief providing rooms

Rerwa Mwana, Nyamagabe

Children love picture books, but there are not many of them

[217] Voluntary Service Overseas, Numeracy for All. https://www.vsointernational.org/our-work/inclusive-education/numeracy-for-all

ECD Minazi Gakenke

ECD Twite kumikurire y'umwana, Nyabihu

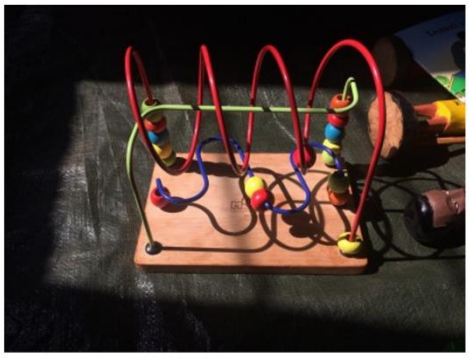
ECD Teta Mwana

ECD Murindi Kirehe

Handmade toys: ECD Itetero, Rutsiro

Handmade poster: ECD Itetero, Rutsiro

Playing with toys: ECD Twizerane, Kirehe



Donated toys: ECD Twizerane, Kirehe

Dedicated school room: ECD Ryamirenge, Kirehe

Game similar to handkerchief drop: ECD Murindi

Using twigs to teach quantity and counting: Twiteku buzima Bw'abana bato, Nyamagabe

c) Community-based ECD center

The community-based ECD centers visited in this study were diverse in terms of the facilities they used, the services they provided, and their class sizes. There were cases of using a church building (one), a building on school grounds (one), and a facility such as a public meeting place (two). With the exception of one case that only accepts one- to three-year-old children, the community-based ECD centers are equal to model ECD centers in that three- to six-year-old children attend, have multiple classrooms, employ and pay full-time caregivers, and provide school readiness education in accordance with the REB's CBC. Community-based ECD centers, such as the satellite of the model ECD center, had rather poor facilities and equipment.

Table 4-29 Outline of the community-based ECD centers visited

	ECD Gatore (Kirehe)	INDATWA Nursery School (Rwamagana)	Mujuga ECD (Nyamagabe)	ADPER Gihogwe (Nyabihu)
Facility used	Classroom on school grounds	Public meeting place	Public meeting place	Church
Number of classrooms	1 (1-3 years old)	2 (3-4 years old, 5-7 years old)	2 (4-5 years old)	1 (3-6 years old)
Total number of attendees	19	92	70	38
Number of caregivers	2	2	2 (2 absent)	1
Porridge	Twice every day	Every day	Every day	Every day

Attendance fee (RWF)	8,500/month	1,000/month	500/month	10,000/semester
Caregiver salary (RWF)	40,000	30,000	104,000 (center director)	30,000
Special note	• Full-day care by two caregivers • Provision of school lunch • After completing the course, students attend nursery school on the premises • There are many posters and a lot of playground equipment	• Adjacent to the model ECD center • Many students apply for admission due to their reputation for excellent grades after entering the primary school • In reality, there are 90 older children and 60 younger children enrolled	• Due to the absence of a caregiver (maternity leave, job change), the center director is in charge of two classes together • Chairs only, no desks	• Supported by the model ECD center • Self-created teaching materials by caregivers available

d) Comparison of model ECD center and home-based ECD Center

ECD centers can be broadly divided into model ECD centers, community-based ECD centers, and home-based ECD centers. Based on the information obtained from the survey, as an example, the following comparison is made to identify the current situation and gaps between model ECD centers, which are of relatively high quality, and home-based ECD centers, which are of low quality.

Table 4-30 Comparison of model ECD center and home-based ECD center

Comparison	Model ECD Center	Home-based ECD Center
Outline	• An ECD center that meets all the guidelines set by NCD, usually with 3 classes per age group • Supports home-based ECD centers in the neighborhoods, and is expected to educate local residents about the importance of ECD to eliminate malnutrition • Children attend for approximately three hours in the morning	• A room in a private house is provided. The requirements include clean water, clean toilet, clean kitchen, and fenced space to play. • Mixed-age classes in a room of a private house with a mat on the floor • One center for every 10 to 15 houses, but 20 or more children can be cared for in a single room • A goal is to establish three centers per village • Children are looked after for approximately three hours in the morning
Caregiver	• Many are trained (TTC graduates) • There is no regular training	• Many have completed secondary education or dropped out • Parents take turns (actually fixed) to take charge • There is no regular training
Education (ECE)	• The center functions almost identically to a public or private nursery school (center-based ECD center), with the top class (older students) providing preparatory education for primary school • Caregivers mostly speak one way, correct answer oriented • Issues in teaching methods (separation of play and learning)	• There were almost no activities such as writing letters, numbers, or drawing pictures. Children memorize by listening to caregivers speak or sing out loud and reciting or singing in chorus. • In some cases, the model ECD center is providing good support (Rutsiro, Nyabihu)
Nutrition and health	• Porridge[218], milk is also provided twice a week • Height and weight are recorded in Excel every month	• Porridge (milk twice a week) • CHWs conduct regular nutrition and health checks
Parental burden	• Caregiver is a district contract employee, renewable each fiscal year. Salary is 30,000 to 50,000 RWF/month. • High turnover due to low pay and instability • A contribution (attendance fee) of 600 to 2,000 RWF/month will be collected from parents.	• Attendance fee ranges from 200 RWF/month to 1,000 RWF/month • Families who cannot afford to pay will pay in kind. • Only one center charges 8,000 RWF (school lunch fee, payment to caregivers)

[218] Porridge: A drink made from a mixture of soybeans, maize, and sometimes sorghum dissolved in hot water. Commonly used as a snack for children.

	Those who cannot afford to pay will provide something in kind (food, etc.).	
Issues	• There is a significant difference in the ability and motivation of the coordinator • NCD recognizes that support for children aged zero to three is insufficient • Lack of capacity building and teaching materials for caregivers	• The hygienic condition of the kitchen could be improved • Since it was started with the aim of improving malnutrition, the home-based ECD center is still considered a place to provide snacks and milk • Lack of intellectual stimulation • Lack of knowledge and ability of caregiver • Learning environment (absolute lack of space, teaching materials and tools)

According to a survey conducted by UNICEF (UNICEF, 2019), both parents and caregivers are concerned about the human, material, and financial differences between model ECD centers and home-based ECD centers as they affect the children who attend them. Infants have a strong curiosity about new and novel things (photos, videos, instant cameras, tablets). Because it is an ECD center in a poor rural area, the ECD center must have something that cannot be found at home, something new and fun to experience, something fun to attend. It is not enough to motivate and enlighten parents about attending ECD centers and learning, but if children themselves enjoy attending ECD centers and learning, it will lead to sustainable and high-quality learning and growth. This is the biggest motivator for parents to send their children to ECD.

The good practices confirmed by going around the model ECD centers were the workshops by the model ECD centers to prepare teaching materials and the meetings to confirm the content of the curriculum to be covered in the following month. It is important to have a mechanism to share these good practices among model ECD centers.

The lack of learning materials was also the case at the model ECD center, where older children were rarely able to read through picture books on their own. It is necessary to think of ways to make the most effective use of available resources, such as a system of lending learning materials and roving reading sessions by community education workers.

NCD should take a leadership role in synthesizing the experience of NGOs and disseminating tips on activities that can be done without goods to rural caregivers through communication channels such as radio, social networking sites (Whatsapp, Twitter, Instagram, etc.) to ensure that they reach them. Considering the ability of the caregivers, it is also useful to provide 20 to 30 minutes of educational programs each day, as well as a collection of tips for daily activities.

(4) Maternal and child health and nutrition

1) Trends in indicators for maternal and child health and infant nutrition

a) Indicators for maternal and child health

After the 1994 genocide, Rwanda, with a vision of equity and provision of comprehensive, integrated and quality services, has been working to improve the health status of the population by developing a health care system and achieving UHC (WHO, 2017). According to WHO (2015), Rwanda is one of the few countries that achieved MDG 4&5 in the maternal and child health sector by reducing the maternal mortality rate[219] by a fifth between 2000 and 2015, and the maternal mortality rate has been steadily decreasing since then.

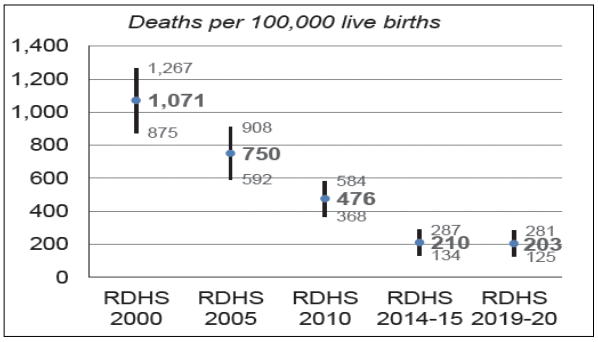


Figure 4-7 Maternal mortality rate

(Source: Maternal mortality ratios: Trends from 2000 to 2019/2020 (RDHS, 2019/20))

According to UNICEF, for infant mortality, the global under-five mortality rate [220]has declined from 93 per 1,000 live births in 1990 to 38 in 2019, a 59% decrease in approximately 30 years. According to RDHS 2019-2020, for infant mortality in Rwanda, the under-five mortality rate was 45 deaths, a decrease of one-fifth between 2000 and 2019, but the value was higher than the global average. 73% of deaths among children under five occur before their first birthday, and 42% occur within the first month of life.

According to RDHS 2014-2015 / 2019-2020, the stunting rate of infants under the age of 5 in Rwanda dropped from 51% in 2005 to 38% in 2014-2015. In addition, in 2019-2020, that value dropped to 33% (Fig. 49). However, the global stunting rate in 2020 was 22%, and the average for African countries was 30.7% (UNICEF). Therefore its value in Rwanda is still alarming level. GoR prioritizes reducing stunting rates under the SDGs. Vision2050 has set a goal of reducing that value to 5.5% by 2035.

[219] Maternal mortality rate: Deaths among women during pregnancy or less than 42 days after termination of pregnancy, as a percentage of 100,000 live births, calculated by dividing the number of maternal deaths by the number of live births.

[220] Indicators of infant mortality

· Under-five mortality rate: Deaths from live birth to age five, as a percentage of 1,000 live births per year

· Neonatal mortality rate: Deaths less than four weeks (28 days) after birth as a percentage of 1,000 live births per year

· Infant mortality rate: Deaths in the first year of life, as a percentage of 1,000 live births per year

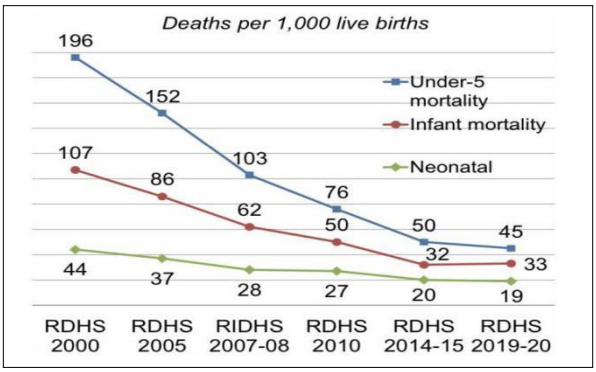


Figure 4-8 Deaths of infants under five years old

(Source: Trends in childhood mortality, 2000 to 2019-20 (RDHS, 2019-20))

b) Indicators of infant nutrition

[1] Nutrition indicators for infants

One in five children under the age of five worldwide is reported to be stunting (UNUCEF). Stunting is a form of malnutrition, in which low nutrition, especially during the 1,000 days from fertilization to two years of age, causes delayed growth, lowered immunity, and delayed development of the brain, which controls cognitive, motor, and language development. Once a child is affected by stunting, it is impossible to recover, affecting not only the child's subsequent growth but also his or her ability to learn. This is perceived as a serious problem by the international community because of its impact on the development of the region and the country.

In Rwanda's nutrition indicators for infants of age five years and under[221], according to RDHS 2014-2015/2019-2020, the stunting rate has decreased from 51% in 2005 to 38% in 2014-2015 and 33% in 2019-2020. However, the global prevalence rate of stunting in 2020 remained alarmingly high at 22% (UNICEF). The GoR has placed reducing the stunting rate high on its list of priority issues to be addressed under the SDGs, and Vision 2050 sets a goal of reducing that value to 5.5% by 2035.

[221] The following three indicators of malnutrition in infants of age five years and under are usuallyused.
- Underweight (low weight for age)
  Weight-for-age less than -2 standard deviations (SD) compared to the median of the WHO children growth standards
- Stunting (short stature for age)
  Height-for-age less than -2 SD compared to the median of WHO child growth standards
- Wasting (low weight for height)
  Weight-for-height less than -2 SD compared to the median of WHO child growth standards
  (Source: WHO. COUNTRY PROFILE INDICATORS Interpretation Guide, https://www.who.int/nutrition/nlis_interpretation_guide.pdf

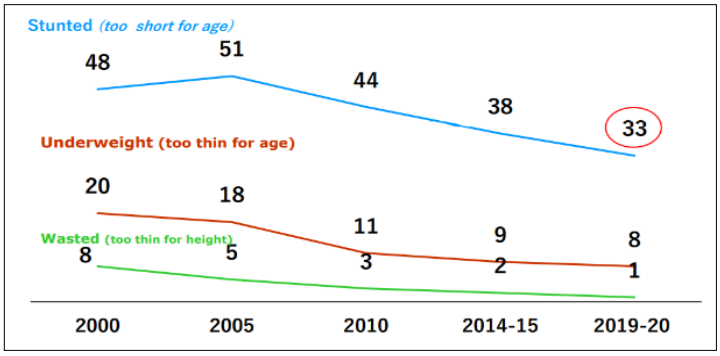


Figure 4-9 Nutritional indicators for infants under five years old

(Prepared by the survey team based on data from RDHS 2014-2015 and 2019-2020)

[2] Prevalence rate of anemia in infants

According to WHO, one in 2.5 children under the age of five worldwide is reported to have anemia[222]. Anemia in children has been associated with impaired physical and mental development (RDHS 2014-15) and increased morbidity and mortality (RDHS 2014-15; Scott, 2014).

Deficiencies in iron, folic acid, vitamin B12, and other nutrients are factors that contribute to anemia due to micronutrient deficiencies.

WHO states that anemia in children of age five years and under is primarily iron deficiency. Iron is also involved in the transport of oxygen to tissues and organs in the body and in the production of energy, making it an essential nutrient for children's growth and functional development. Since iron deficiency in infancy not only results in iron-deficiency anemia but also affects brain growth and development (Sasaki et al., 2019)[223], it is important to prevent iron deficiency before it leads to iron-deficiency anemia.

Iron deficiency is caused by inadequate dietary intake of iron, increased iron requirements during infancy when the child is growing rapidly, and infections such as hookworm disease and schistosomiasis. Factors contributing to anemia due to iron deficiency in Rwanda are inadequate iron intake and infections due to malaria and intestinal parasites (RDHS 2014-15).

According to WHO, in sub-Saharan African countries, with the exception of Rwanda and Zimbabwe, the prevalence rate of anemia among children aged six to 59 months exceeds 40%. The prevalence rate of anemia among Rwandan children in 2019 is 37.9%, of which 21% are mild, 15% moderate, and 1% severe, and the trend in data over the past 10 years has been flat (RDHS 2014-2015/2019-2020).

[222] The hemoglobin levels for the diagnosis of anemia are as follows.
- Adult females and children aged six to 14 years: 12.0 g/dl
- Pregnant women and children aged six months to six years: 11.0 g/dl

(Source: WHO. https://www.who.int/health-topics/anaemia#tab=tab_1)

The severity of anemia is as follows.
- Mild: Hemoglobin level of 10.0 to 10.9 g/dl
- Moderate: Hemoglobin level of 7.0 to 9.9 g/dl
- Severe: Hemoglobin level of less than 7.0 g/dl

(Source: Rwanda Demographic and Health Survey 2014-15)

[223] Marie Sasaki, Takao Takahashi. (2019): Iron Deficiency in Infancy, Japanese Journal of Pediatrics, Vol. 72, (2), 193-197

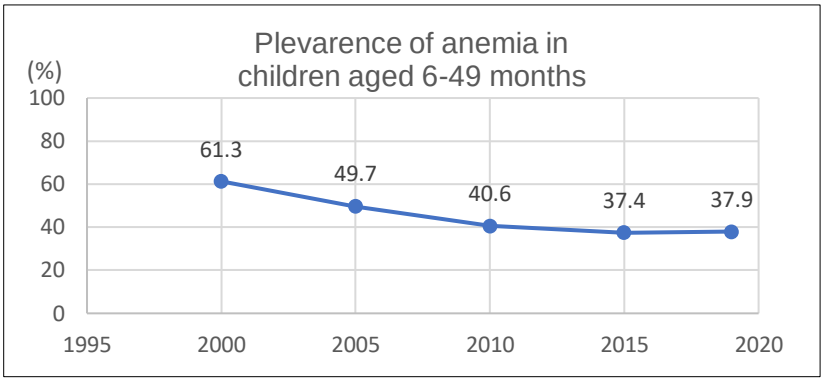


Figure 4-10 Prevalence of anemia in children aged six to 59 months

(Prepared by the survey team based on data from WHO: THE GLOBAL HEALTH OBSERVATORY)

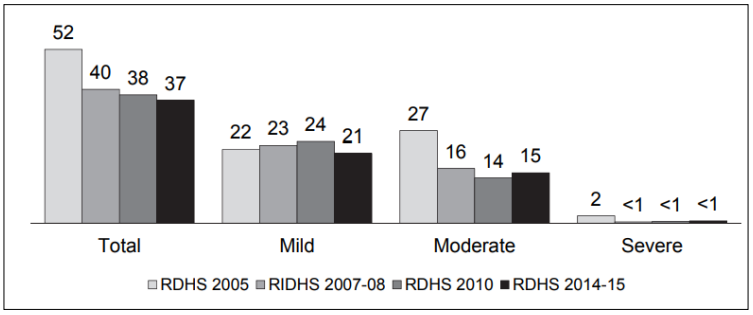


Figure 4-11 Prevalence of anemia in infants

(Source: RDHS, 2014/15)

The percentage of anemia by age in months was 70.1% in children aged six to eight months and 23.5% in children aged 48 months, as reported by RHDS 2019-2020. The prevalence rate of anemia decreased with increasing age of the child, but was highest at the age when complementary food begins. In addition, the prevalence rate of anemia was higher among rural children (37.1%) than among urban children (34.0%), especially among children in Northern Province and Eastern Province (41.4% and 40.9%, respectively). In addition, children of mothers with no education were more likely to be anemic than children of mothers with primary or secondary education, and the incidence was higher among the poor than among the rich (30.4% versus 41.8%).

Background characteristic	Anemia status by hemoglobin level: Any anemia (<11.0 g/dl)	Mild anemia (10.0-10.9 g/dl)	Moderate anemia (7.0-9.9 g/dl)	Severe anemia (<7.0 g/dl)	Number of children age 6-59 months
Age in months					
6-8	70.1	36.5	32.7	0.9	219
9-11	64.3	27.7	36.5	0.0	222
12-17	50.9	28.8	21.5	0.7	411
18-23	39.5	22.6	16.4	0.5	411
24-35	31.6	19.4	11.9	0.3	853
36-47	29.8	19.4	10.4	0.1	820
48-59	23.5	15.3	8.2	0.0	829
Sex					
Male	38.0	21.8	15.7	0.4	1,895
Female	35.1	20.8	14.1	0.2	1,870
Residence					
Urban	34.0	21.3	12.4	0.3	641
Rural	37.1	21.3	15.5	0.3	3,123
Province					
Kigali	36.7	23.3	13.0	0.3	513
South	32.1	18.3	13.5	0.3	761
West	40.9	20.3	20.4	0.1	886
North	41.4	24.4	16.6	0.4	584
East	33.3	21.7	11.3	0.3	1,021
Wealth quintile					
Lowest	41.8	22.4	19.3	0.1	852
Second	37.0	21.4	15.4	0.2	781
Middle	37.1	20.7	15.9	0.5	733
Fourth	35.2	22.5	12.6	0.1	708
Highest	30.4	19.3	10.5	0.6	690
Total	36.6	21.3	14.9	0.3	3,765

Notes: Table is based on children who stayed in the household on the night before the interview and who were tested for anemia. Prevalence of anemia, based on hemoglobin levels, is adjusted for altitude using formulas in CDC, 1998. Hemoglobin in grams per deciliter (g/dl).

Figure 4-12 Prevalence rate of anemia by age in months

(Source: RDHS, 2019/20)

[3] Prevalence rate of anemia in women of reproductive age

According to WHO, one-third of women of reproductive age (15-49 years) worldwide are reported to have anemia. Anemia during pregnancy can affect the growth of the fetus (Yamamoto, 2016). According to RHDS 2014-2015 report, the total amount of women of reproductive age with anemia is 19%, with a high prevalence rate of mild anemia (16%).

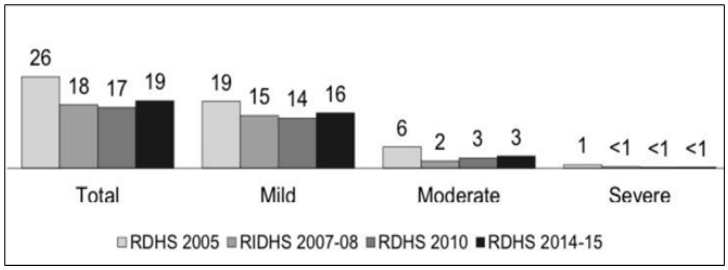


Figure 4-13 Prevalence rate of anemia in women of reproductive age

(Source: RDHS, 2014/15)

The prevalence rate of anemia by age was slightly higher among adolescent females aged 15-19 years at 14.7% as reported in RHDS 2019-2020. In pregnant and nursing women, the value was highest during pregnancy (24.5%). The prevalence rate of anemia increased with the number of births (15.2%) and was higher among educated women (17.6%) and the poor (15.8%).

Background characteristic	Anemia status by hemoglobin level				Number of women
	Any	Mild	Moderate	Severe	
Age					
15-19	14.7	10.7	4.0	0.1	1,620
20-29	12.8	8.1	4.5	0.2	2,158
30-39	12.2	8.6	3.2	0.4	2,116
40-49	13.2	7.4	5.5	0.3	1,371
Number of living children					
0	14.1	9.2	4.7	0.3	2,598
1	12.6	8.7	3.6	0.3	920
2-3	12.1	7.5	4.1	0.4	1,886
4-5	11.5	7.7	3.7	0.1	1,073
6+	15.2	11.0	4.1	0.1	788
Maternity status					
Pregnant	24.5	16.2	8.1	0.2	434
Breastfeeding	11.6	8.4	3.1	0.2	1,797
Neither	12.7	8.1	4.3	0.3	5,033
Residence					
Urban	12.3	7.0	4.5	0.7	1,428
Rural	13.3	9.1	4.1	0.1	5,837
Province					
Kigali	14.5	8.7	5.0	0.8	1,050
South	14.5	9.0	5.2	0.4	1,521
West	12.7	9.0	3.6	0.1	1,604
North	11.4	7.8	3.5	0.1	1,091
East	12.6	8.7	3.8	0.1	1,999
Education					
No education	14.1	9.6	4.5	0.0	721
Primary	12.9	8.7	4.1	0.2	4,131
Secondary	12.5	8.2	4.0	0.3	2,098
More than secondary	17.6	9.8	6.9	0.9	315
Wealth quintile					
Lowest	15.8	10.8	4.9	0.1	1,281
Second	12.9	8.7	4.0	0.1	1,408
Middle	12.2	8.1	3.9	0.2	1,381
Fourth	12.3	9.0	3.3	0.1	1,506
Highest	12.8	7.1	5.0	0.7	1,689
Total	13.1	8.7	4.2	0.3	7,265

Note: Prevalence is adjusted for altitude and for smoking status, if known, using formulas in CDC, 1998. Nonpregnant women with a hemoglobin level below 8.0 g/dl and pregnant women with a level below 7.0 g/dl have severe anemia; nonpregnant women with a level of 8.0-10.9 g/dl and pregnant women with a level of 7.0-9.9 g/dl have moderate anemia; and nonpregnant women with a level of 10.0-11.9 g/dl and pregnant women with a level of 10.0-10.9 g/dl have mild anemia.

Figure 4-14 Prevalence rate of anemia in women by age

(Source: RDHS, 2019/20)

2) Status of nutritional interventions for prevention of stunting in infants

a) Rwanda's health care system

Rwanda's health system is a pyramidal structure with five levels: province, district, sector, cell, and village. The MoH has jurisdiction over all health facilities, both public and private. Public health facilities account for 80% of the total and consist of 36 district hospitals and 499 sectoral health centers (HCs), with the province hospital in each province at the top. In addition, health posts (HPs) have been established in cells that are far away from the HCs so that residents can receive medical services within the framework of the UHC. By 2024, 623 HPs are expected to be established.

The average number of households in a village in Rwanda is between 100 and 150. Each village is staffed with one Agent de Sante Maternelle (ASM), who is in charge of maternal and child health as a CHW, and a male/female pair of Binomes, who are in charge of health services related to checking the development of infants of age five years and under and treating malaria, pneumonia, and diarrhea. Starting in 2019, CHWs will be added to provide disease prevention guidance to residents, with three to four CHWs working in each village. In Rwanda, CHWs are playing an important role in increasing the use of maternal and child health care services.

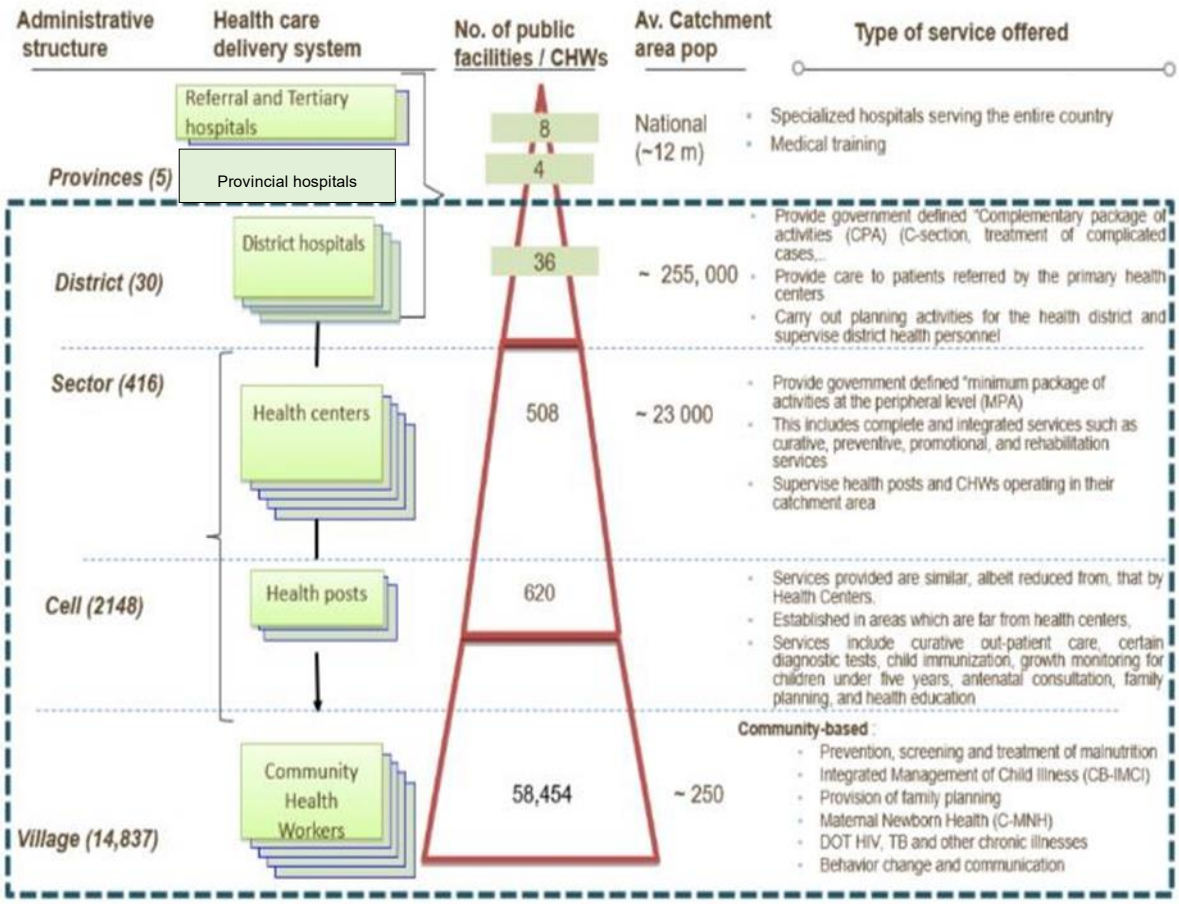


Figure 4-15 Rwanda's health care system

(Source: Prepared by partially editing the figure from National Antenatal Care Guideline 2020)

b) Infant nutrition services and maternal and child health services provided by CHWs

[1] Definition of CHW

In countries around the world where there is a severe shortage of health care providers, CHWs have been incorporated as a strategy to address the shortage of health care workers, act as a bridge between the population and health care services, and promote primary health care (Prasad BM et al., 2007). WHO (2007) defines CHW as follows.

> *Community health workers should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers.*

CHWs do not include formally trained health care providers, traditional or religious healers, and traditional midwives (WHO, 2007).

[2] Selection criteria for CHWs

In Rwanda, CHWs are selected in each village based on the following nine criteria.

- Ability to read, write, and calculate
- Being perceived as sincere by fellow members of the community
- Ability to maintain confidentiality
- Accept the position of being a volunteer
- Must be a resident of the village
- Must be between the ages of 20 and 50
- Not being a leader in the community
- Being exemplary and take an active role
- Must be selected by the community

[3] Operations of CHWs

As already mentioned, the operations of CHWs are divided into three categories: ASM, Binome, and Abakumizi. The following is a description of the operations of each CHW.

Table 4-31 Operations of CHWs

ASM
● Identify, list, and register all women of reproductive age (15 to 49 years) in the village ● Encourage women to use prenatal and postnatal (up to six weeks postpartum) care services ● Advise pregnant women on how to prepare for childbirth ● Encourage pregnant women to give birth in medical facilities ● Encourage pregnant women to get tested for HIV ● Confirmation of health insurance coverage (Community Based Health Insurance (CBHI)) ● Proper dietary guidance and nutritional support ● Checking the use of mosquito nets and hygiene management in the infant care environment
Binomes
● Prevention of malnutrition through regular growth monitoring in infants under five years of age ● Proper dietary guidance and nutritional support ● Treatment of malaria, pneumonia, and diarrhea ● Provision of contraceptive devices (condoms, emergency contraceptives, cycle beads, etc.) ● Directly observed therapy (DOTS) for tuberculosis drugs
Abakumizi
● Nutritional guidance for the prevention of malnutrition ● Advice and health education for the prevention of infectious and non-infectious diseases ● Interventions for hygiene education in village communities

c) Status of nutrition interventions and maternal and child health services for prevention of stunting in Rwanda

As previously mentioned, under the leadership of the MoH, MINALOC, and MINAGRI, Rwanda is implementing a Food and Nutrition Policy that focuses on reducing stunting among infants under two years of age and solving food security issues for the most vulnerable households. The policy has the following seven strategic goals.

1. Make food and nutrition improvement a priority, as in the government policy, among sectors and DPs at all levels as well
2. Prevent stunting of children under two years of age
3. Strengthen, expand, and promote services and practices that lead to household food security throughout the year
4. Prevent and manage all forms of malnutrition
5. Strengthen nutrition education in schools and higher education institutions through curriculum and extracurricular activities
6. Strengthen emergency preparedness and response in the sectors of family and personal nutrition and food security
7. Improve governance systems and accountability (planning, budget allocation, implementation, monitoring, and evaluation) for nutrition and food security

Figure shows the overall picture of interventions to prevent stunting in Rwanda. Interventions during fertilization and the "first 1,000 days of life," from birth to age two, are important to prevent stunting. Furthermore, although stunting begins in the fetal period, it reflects a woman's nutritional status prior to pregnancy, making it crucial to intervene before pregnancy to improve their nutrition.

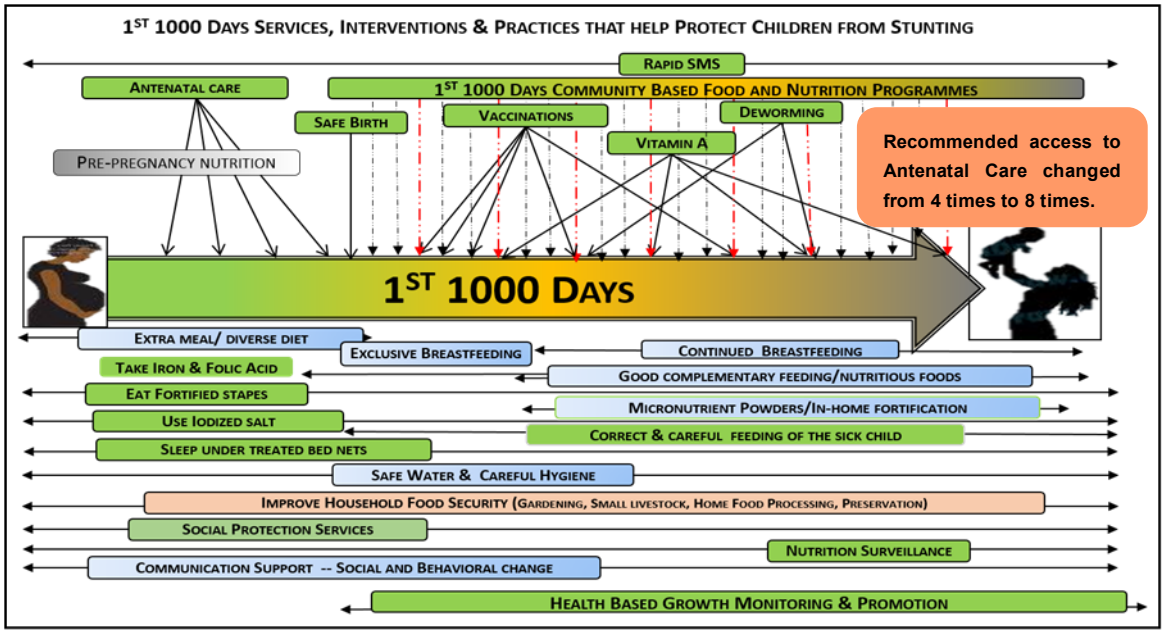


Figure 4-16 First 1,000 days services, interventions, and practices that help children from stunting

(Source: NFNP 2013-2018)

In addition to intake of adequate nutrition from food, food security interventions, maternal and child health services, proper care of infants at home, including during illness, access to safe water, and hygiene management are important to improve malnutrition. Table covers these interventions that are necessary to improve malnutrition.

Nutritional and health care interventions for the prevention of stunting in Rwanda are described below.

[1] Nutritional interventions for the prevention of stunting

In Rwanda, the following nutrition interventions have been implemented to improve the nutritional status of infants.

Table 4-32 Nutrition Interventions in Rwanda

Nutrients and Nutritional intervention methods		Infant		Pregnant women	ECD Center and Preschool	Intervention contents
		6－23 month	24—59 months			
Nutrients	Vitamin A	✓	✓			From 6 month to 59 months
	Ongera *1 powder	✓				From 6 month to 23 months
	Shisha *2 Kibond	✓		✓		Only provide for Ubdehe Category 1 and 2
	Folic acid			✓		Recommended to take 270 tablets throughout the pregnancy
	Iron			✓		
	Iodized salt	All citizens				Food rich iodine
Nutrients and Nutritional intervention methods	Anthelmintic	✓ (12months years old and over)	✓	✓		Every 6 months child is given
	Meal				・Porridge ・One cup of milk	
	Nutrition education and Counseling	・Recommend breastfeeding from 0 to 23 months ・Balance diet ・Advice to take food rich in proteins, energy and iron, etc.				Nutrition education is the content in 1000 days campaign package

(Prepared by the survey team based on RWANDA NUTRITION POLICY 2020)

*1 Refers to micronutrient powder (MNP). A blend of 15 vitamins and minerals in a 1 gram sachet, to be sprinkled on food prepared at home. MNP was introduced in 2015 with the support of UNICEF for infants aged six to 23 months with the aim of addressing micronutrient deficiencies and preventing stunting, and was rolled out nationwide in 2017.
UNICEF and others have reported that it has been effective in treating anemia in infants.

*2 A nutritional supplement provided free of charge by the health center for only the lower tiers 1 and 2 of the six Ubdehe categories, which are socially stratified according to household income. It is a cereal made from corn and soybeans. It is rich in vitamins and minerals and is eaten as porridge. There are two types: one for pregnant and lactating women, and one for infants. In addition, from 2021, the Ubdehe category was changed to a new hierarchy of five, from A to E.

[2] Interventions for the prevention of infectious diseases

Rwanda has established a basic immunization schedule based on the World Health Organization (WHO) guidelines. According to RDHS 2019-20, the coverage of infants who received basic immunizations was 76% in 2000, 90% in 2010, and 96% in 2019-20. For the prevention of infectious diseases, including immunization, the following interventions have been made from gestation through infancy.

Table 4-33 Interventions for the prevention of infectious diseases

	Vaccine name	Preventable infectious diseases	Vaccination period	Anthelminthic	Use of mosquito nets	Teaching WASH
Infants	BCG vaccine	Tuberculosis	At birth	✓ (6 months to 5 years)	✓	
	Oral poliovirus vaccine	Polio	At birth and 6, 10, and 14 weeks after birth			
	DTP-HepB-Hib vaccine	Diphtheria, tetanus, pertussis, hepatitis B, Haemophilus influenzae	6, 10, and 14 weeks after birth			
	Pneumococcal vaccine	Pneumococcal infection	6, 10, and 14 weeks after birth			
	Rotavirus vaccine	Infectious gastroenteritis	6, 10, and 14 weeks after birth			
	MR vaccine	Measles, rubella	9 and 15 months after birth			
Pregnant and nursing mothers	Tetanus vaccine	Tetanus	During pregnancy*1	✓*2	✓	✓
	<Inspection items for infectious diseases in ANC> Human immunodeficiency virus (HIV), syphilis, hepatitis B virus (HBV), malaria, asymptomatic bacteriuria (ASB)					

(Prepared by the survey team based on RBC's NATIONAL IMMUNIZATION SCHEDULE , NATIONAL ANTENATAL CARE GUIDELINE)

*1 Vaccinations are given if vaccinations against tetanus and diphtheria have not been given in the past.

*2 One dose of mebendazole (500 mg) after 20 weeks of gestation if no anthelmintic has been given for at least six months in the past.

[3] Antenatal care (ANC)

By undergoing ANC, it is possible not only to check the health of the mother and child, but also to detect abnormalities early and take appropriate action. ANC is also important in reducing maternal and child morbidity and mortality because it is an opportunity for pregnant women to receive advice on diet, lifestyle, mental health, pregnancy, childbirth, and childcare through professional counseling (RDHS 2019-20).

WHO recommends that women receive ANC at least eight times during pregnancy, but in Rwanda it is four times. RDHS 2019-20 reported that among women who gave birth in the past five years, 98% had received ANC at least once, while 47% had received it four or more times. The proportion of pregnant women who have received ANC four times is higher among the rich than among the poor (38.3% vs. 56.3%) and among educated women than among uneducated women (41.7% vs. 72.7%) (RDHS 2019-20). In addition, according to the CHWs, unmarried women receive ANC less frequently because they are notified of their pregnancies later. The NATIONAL ANTENATAL CARE GUIDELINE was developed in 2020 and it is recommended that pregnant women receive ANC at least eight times. In order to reduce maternal and child morbidity and mortality as well as malnutrition, the issue is to ensure that pregnant women receive ANC the recommended number of times at regular intervals.

d) Current status of nutrition interventions and health services for the prevention of stunting provided by CHWs

In order to understand the current status of nutrition interventions and health services by CHWs and to clarify issues in improving the nutritional status of infants, interviews were conducted with CHWs based on the survey questionnaire and with the cooperation of local public employees, and tabulated their responses. The results are shown below.

[Target population]

The director of the health center was commissioned to select the target population and recruited participants for the survey. The total number of survey subjects was 17, consisting of five ASM and 12 Binomes. The average age was 47.1 and the average number of years of work experience as CHWs was 9.5 years. An outline of the target population is shown in Table.

Table 4-34 Outline of target population (CHWs)

Item	Number of children	Item	Number of children
Region		Type of work	
Northern Province	2	ASM	5
Southern Province	2	Binomes	12
Western Province	8		
Eastern Province	2	Years of experience	
Kigali	3	1 to 5 years	2
		6 to 10 years	4
		11 to 15 years	11
Gender		Average years of experience	9.5 years
Male	6		
Female	11		
Age		Occupation	
20s	1	Yes	7
30s	2	No	0
40s	5	No answer	10
50s	8		
60s	1	Educational background	
Average age	47.1 years old	Completed primary education	11
		Not completed secondary education	5
		Completed secondary education	1

(n=17)

[Survey sites]

The survey sites were selected from all four provinces in Rwanda plus the city of Kigali, which are the sectors where the ECD centers to be surveyed are located, as described below.

[Aggregate results]

[1] What to focus on in nutrition guidance

In Rwanda, health care providers provide guidance on maternal and child nutrition based on the counseling card “Maternal, Infant and Young Child Nutrition” in Figure issued by NECDP. This counseling card was developed to fit the Rwandan context in 2012 with the support of UNICEF, and was last updated in 2019. In this card, the recommended foods to consume are listed according to the function

of the nutrient: “Go foods,” which are sources of energy, “Glow foods,” which are sources of vitamins and minerals to maintain good health, and “Grow foods,” which are sources of proteins that are the building blocks of muscles, bones, and teeth. The CHWs provided nutritional guidance based on these counseling cards.

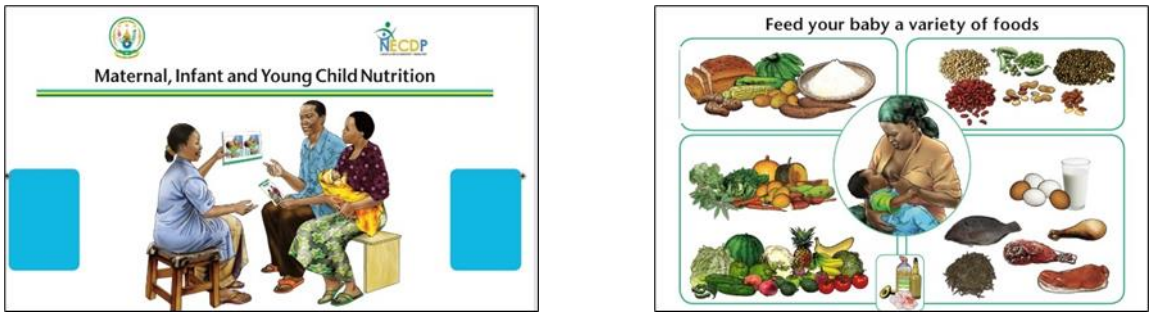


Figure 4-17 Counseling card “Maternal, Infant and Young Child Nutrition”

(Source: NECDP)

16 respondents, with the exception of one Binomes, responded to the question as to what they would focus on when providing nutrition guidance for pregnant and nursing mothers and infants. The most common response was “balanced diet,” which was focused on by all respondents, to consume the necessary nutrients such as carbohydrates, proteins, vitamins and minerals, and oils and fats, etc. This balanced diet also includes cooking methods.

As for other things to focus on, three responded that they would “encourage participation in cooking classes” conducted every month by CHWs. “Others” included, in addition to growth monitoring, matters concerning important interventions in the prevention of stunting such as hygiene and infection control, including “guide to receive monthly growth checks for children, including weight and height,” “guide to receive vaccinations according to the age,” “keep clean wherever possible,” and “use of mosquito nets.”

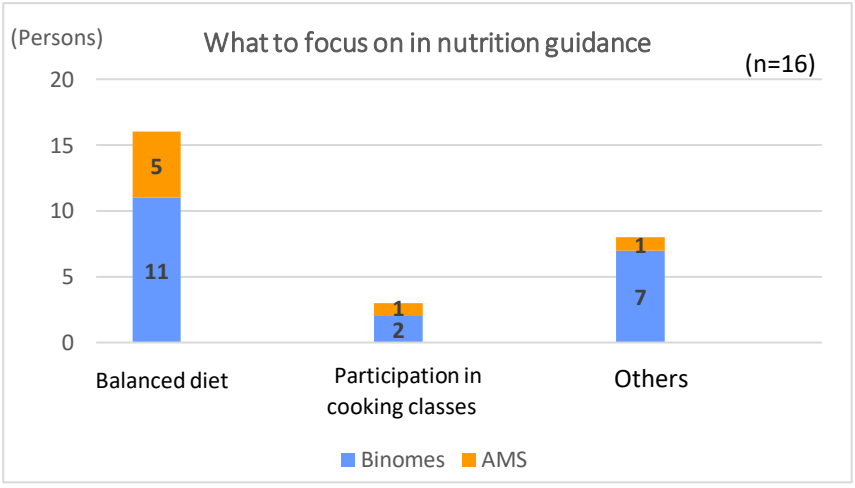


Figure 4-18 What CHWs focus on in nutrition guidance

[2] Breast-feeding

WHO and UNICEF recommend continued breast-feeding until at least two years of age, and the same is true in Rwanda (NECDP). As for the duration of breast-feeding, all five AMS recommended breast-feeding until at least two years of age for pregnant and nursing mothers.

[3]Complementary food

Regarding when to start complementary food (weaning food), the WHO guidelines state that it should start at four to six months of age, and in Rwanda, it is recommended to start it when the infant reaches six months of age (NECDP). All five AMS responded that complementary food should start "from six months of age."

All five AMS mentioned "balanced diet" as a priority in guiding complementary food. Specific instructions included "explain according to the comprehension of the person concerned," "explain the frequency of complementary food," and "explain foods rich in nutrients."

"Animal milk (cow milk)" was the most common food recommended as part of a complementary food for infants of age six months and over when the mother does not produce enough breast milk.

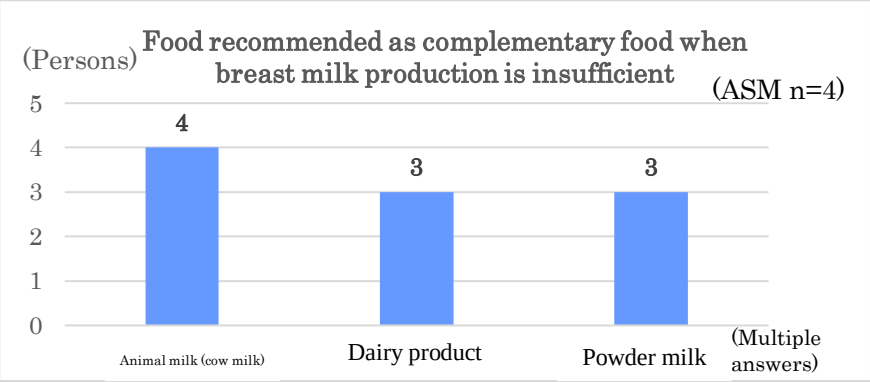


Figure 4-19 Food recommended as complementary food when breast milk production is insufficient

[4] Items used in operations

It was confirmed whether there were any shortages of necessary items for the smooth execution of operations. Flashlights were the most common item missing, and electronic thermometers and timers were not available due to shortage of batteries. With regard to flashlights in particular, one responded that "It is inconvenient when accompanying a person on foot who needs to see a doctor at night." For cloths, there were opinions that they were "old due to long-term use," and for other items used, they were "old because they had not been replaced with new ones."

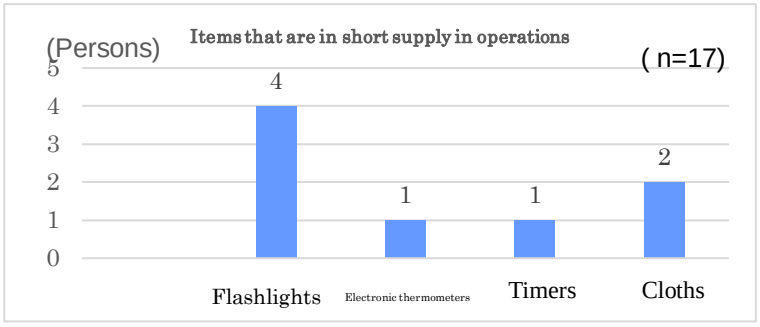


Figure 4-20 Items that are in short supply in operations

As for replenishment of insufficient supplies, it can be done in a few days if the order is placed quickly, but sometimes it takes several months. Therefore, some respondents answered that they try to avoid running out of stock or insufficient supplies by "including small amounts for stock" or "sometimes borrowing from neighboring villages" when placing orders.

[5] Operational needs

Nine respondents gave free responses about their operational needs. The most common needs were "fulfillment of necessary items", including, in addition to the items listed in [4], equipment to transport patients and devices that can take pictures to communicate with mothers and provide information in medical treatment. Regarding training, initial training is provided when CHWs start engaging in their work, but regular training, including skill development and follow-up, is not provided. In addition, the curriculum of the training was not available either in official documents or through the field survey.

The motivations for taking on CHW duties included: "Being able to increase knowledge and help residents," "Want to help people value their lives," "Want to serve the local community even if the remuneration is small," and "Want to learn more about ASM operations in addition to those of Binomes." This indicates that the participants have good intentions to help residents and the community and are highly motivated to work. It is expected that the health services for the beneficiaries will be enhanced by holding regular training on skill development and follow-up.

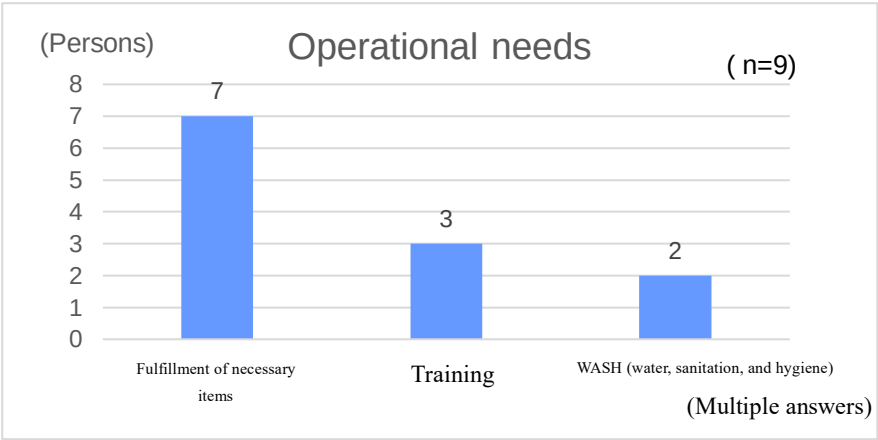


Figure 4-21 Operational needs

3) Current dietary habits status of infants, children, and students

a) Nutritional status of infants

In order to understand the actual situation of nutrition methods and dietary conditions of infants at home, including the school lunch service at the ECD center, and to clarify the issues to be addressed in improving the nutritional status of infants, an interview survey was conducted with mothers with children attending the ECD center with the cooperation of local public employees based on the survey questionnaire, and the responses were tabulated. The results are shown below.

[Target population]

The survey subjects were mothers with children aged three to five years attending ECD centers, of which six were model ECD centers, eight were community-based ECD centers, 14 were home-based ECD centers, and two were other types of ECD centers. The total number of the target population was 30. Their average age was 36.2 years. An outline of the target population is shown in Table.

Table 4-35 Outline of target population (mothers)

Item	Number of people (persons)	Item	Number of people (persons)
Region		Number of children	
Northern Province	3	1 child	1
Southern Province	5	2 children	8
Western Province	8	3 children	5
Eastern Province	10	4 children	4
Kigali	4	5 children	1
		6 children	3
		7 children	2
		8 children	1
Age		Average number of children	3.1
20s	6	Educational background	
30s	16	Completed primary education	19
40s	5	Not completed secondary education	2
50s	1	Completed secondary education	7
60s	2	No answer	2
Average age	36.2 years old		
Marital status		Type of ECD center the child attends	
Unmarried	3	Model ECD Center	6
Married	27	Community-based ECD Center	8
		Home-based ECD Center	14
		Other	2
Occupation			
Yes	19		
No	8		
No answer	3		

(n=30)

[Survey sites]

The study sites were selected from all four provinces in Rwanda, plus the city of Kigali. Model ECD centers and community-based ECD centers are defined as facilities that provide services and support from UNICEF, Imbuto Foundation, and other international organizations and NGOs in nurturing, health, and nutrition services, and whose good practices are described in the report. For the home-based ECD centers, the facilities were assumed to be in the same sector as the center-based ECD centers. The total number of facilities was 17, including four model ECD centers, five Community-based ECD centers, seven home-

based ECD centers, and one other facility.

[Aggregate results]

[1] Food purchasing status

a) Price of food in the market

A survey on food prices was conducted at Karama market in Kigali City to understand the prices at which ordinary household members purchase food. The prices of the foods surveyed were categorized and shown according to the function of the nutrients (Go foods , Glow foods, Grow foods, and Fats) as listed in the counseling card “Maternal, Infant and Young Child Nutrition”.

Food prices were high for animal protein sources such as meat, fish, and eggs, compared to grains and potatoes, which are sources of energy, vegetables and fruits, which are sources of micronutrients, and legumes, which are sources of vegetable protein. For example, the price of 1 kg of beef (3,000 RWF) is 12 times the price of 1 kg of potatoes (250 RWF), and the price of 1 egg (130 RWF) is equivalent to the price of 500 g of potatoes (125 RWF). Considering the average monthly income and food costs of the survey subjects, which will be discussed later, it can be seen that it is not easy for them to purchase food from animal protein sources as their daily food.

Table 4-36 Food prices in Rwandan markets*

GO foods

Ingredient name	Weight	Price (RWF)
Tanzanian rice	1kg	1,200
Rwandan rice	1kg	900
Ibigoli** (soybean flour)	1kg	900
Ibigoli (corn flour)	1kg	700
Sweet potato	1kg	300
Cassava	1kg	300
Potato	1kg	250
Green banana	1kg	150

GLO and Go foods

Ingredient name	Weight	Price
Nipplefruit	500g	100
Eggplant	1	100
Tomato	500g	100
Cabbage	1	200
Onion	500g	100
Cucumber	1	300
Piri-piri (chili pepper)	1	100
Bell pepper	100g	200
Ginger	100g	100
Garlic	100g	500
Banana (yellow)	500g	1,000
Watermelon	1	1,800
Pineapple	1	700

GLO foods

Ingredient name	Weight	Price
Yellow sweet potato	1	300
Carrot	500g	100
Pumpkin (oval)	1	1,000
Pumpkin (large round)	1	1,200
Dodo (alamanthus leaf)	500g	100
Kidney beans	1kg	600
Isombe (cassava leaf)	1kg	400
Papaya	1	500
Mango	1	250
Passion fruit	1kg	1,200
Fruit tomato	1	1,000

GROW and GO foods

Ingredient name	Weight	Price (RWF)
Ibisimbo (red kidney beans)	1kg	500
Peanuts	1kg	1,500

GROW foods

Ingredient name	Weight	Price (RWF)
Beef	1 kg	3,000
Sambasa (small fish)	Approx. 20 g (5 to 6)	200
Piratia	1	600
Egg	1	130
Milk***	1 L	1,000
	1/2L	500
Raw cow milk****	1 L	300～500

Fats

Ingredient name	Weight	Price (RWF)
Avocado	1	100
Oil	500cc	1,100

Condiments

Ingredient name	Weight	Price (RWF)
Salt	1kg	400
Sugar	1kg	1,000

* The prices in Karama market in Kigali City, as of June 11, 2021.

** Ibigoli is corn or soybean flour. Ibigoli, made of corn flour, is an ingredient in kaunga, a staple food served in school lunch.

*** Milk was not sold in the Karama market. The prices in the table are retail prices for milk that has been pasteurized and packaged in paper containers.

**** Here, it refers to raw, unpasteurized milk from cows. The prices in the table are the prices that consumers purchase directly from producers, and the selling prices vary by region.

b) Monthly income and food costs

According to the WB, Rwanda's GNI per capita in 2020 was US$780 (monthly average is US$65), making it a low-income country[224]. The average monthly income of the 26 survey subjects, excluding the four respondents who answered "unknown," was 19,462 RWF (approximately US$20), which is about one-third of the average GNI. The largest number of respondents (six) reported that their monthly income was "10,000 RWF or less" even with the income of the survey subjects and that of their spouses combined. The lowest monthly income among them was 2,000 RWF and was of a single mother. On the other hand, the highest monthly income was 200,000 RWF.

As for food costs, the largest number of respondents (10) reported "10,000 to 20,000 RWF or less," and the average food costs for the 24 respondents, excluding the six who reported "Unknown," were 18,012 RWF.

The average of income and food costs for the 20 respondents was 19,700 RWF for the former and 19,750 RWF for the latter, with food costs exceeding income.

The average of the 20 respondents who answered both income and food expenses was 19,700 RWF for income and 19,750 RWF for food expenses, and food expenses exceeded income.

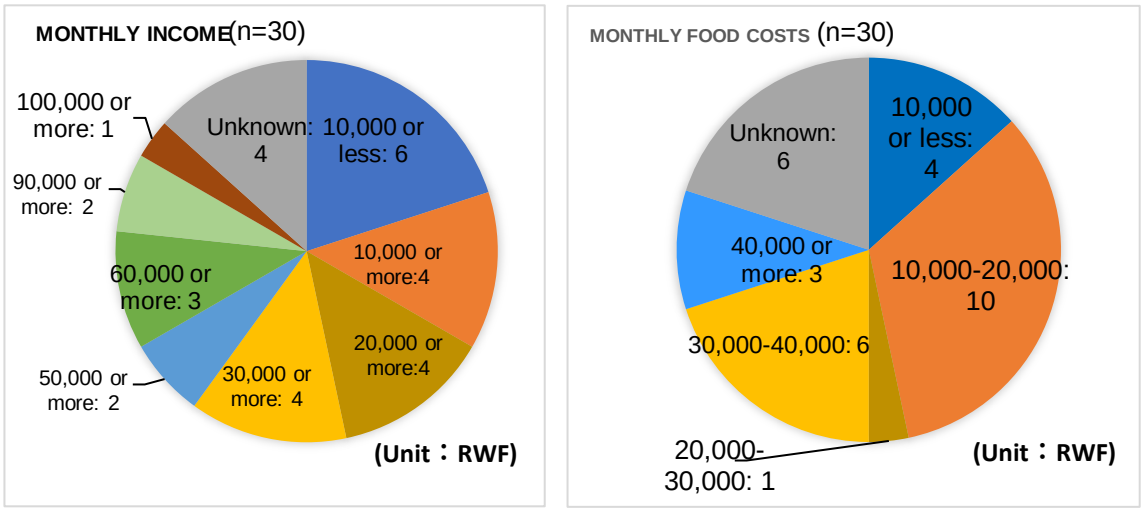


Figure 4-22 Monthly income and food costs

c) Shopping status

The majority of respondents answered that they shop "Every day." The lack of food storage equipment was considered to be the reason for the high number of shopping trips to buy the food needed on a daily basis.

The most common foods purchased were "Vegetables" as a source of micronutrients such as vitamins and minerals, "legumes" as a source of vegetable protein, and "Grains/potatoes" as a source of energy. Food that is a source of animal protein, such as meat, fish, eggs, etc., is expensive, and therefore could not be purchased as food for daily consumption. In a free response given, a single mother with an average monthly income of 2,000 RWF (approximately $2) said that she "could not afford to buy food as well as

[224] The World Bank 's criteria for grouping countries' incomes in 2020 are as follows.
- Low-income countries: ..... 1,036 (US$) or less
- Lower middle-income countries: ... 1,036 to 4,045 (US$)
- Upper middle-income countries: ... 4,046 to 12,535 (US$)
- High-income countries: ..... 12,535 (US$) or more

(Source: World Bank. New World Bank country classifications by income level: 2020-2021, https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2020-2021)
* US$1 = 981.6 RWF (August 2021, National Bank of Rwanda)

sugar for seasoning due to financial reasons." Those living at or below the poverty line of $1.9[225] were unable to purchase food as well as seasoning.

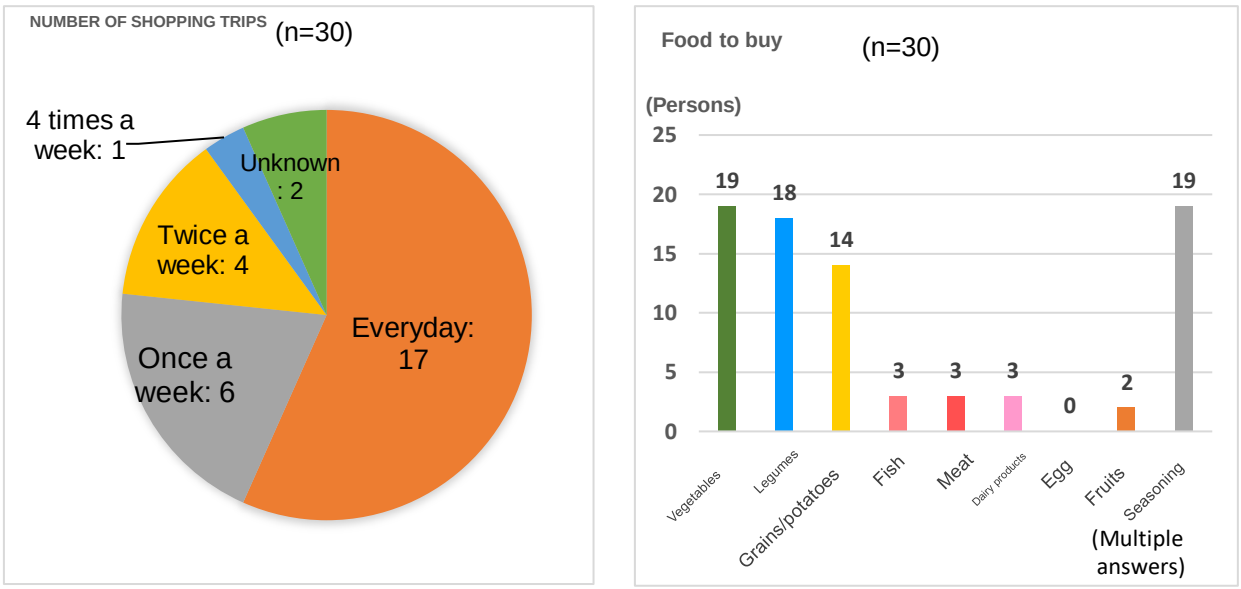


Figure 4-23 Shopping status

[2] Dietary habits status when not pregnant

a) Number of meals

Those who responded that they ate "Once" a day when they were not pregnant were the most frequent (12 respondents, accounting for 43.0%). Of these, 10 were survey subjects in rural areas and two were in Kigali. The next most common answer was "Twice" a day, with 11 respondents accounting for 36.6%. The number of respondents who answered "Three times" a day was the smallest at six, accounting for 20.0% of the total, and the number of those who missed meals was approximately 80%.

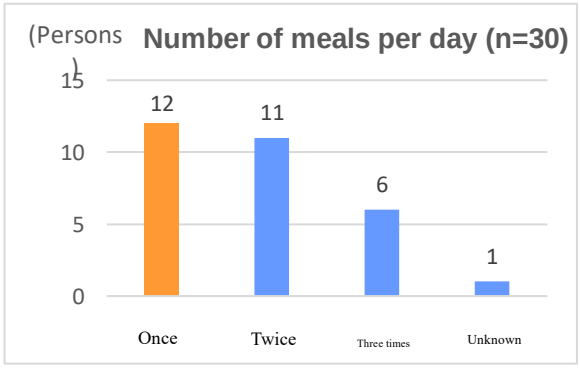


Figure 4-24 Number of meals of the survey subjects

Among those with missing meals, the 11 respondents whose number of meals was "twice a day" most commonly ate "Lunch and dinner" with eight respondents accounting for 72.2%. Among those whose meal frequency was "Once," none of them ate breakfast. The percentage of those who did not eat breakfast

[225] The World Bank revised the international poverty line from $ 125 to$1.90 per day in October 2015. https://www.worldbank.org/ja/country/japan/brief/poverty-line

tended to be high.

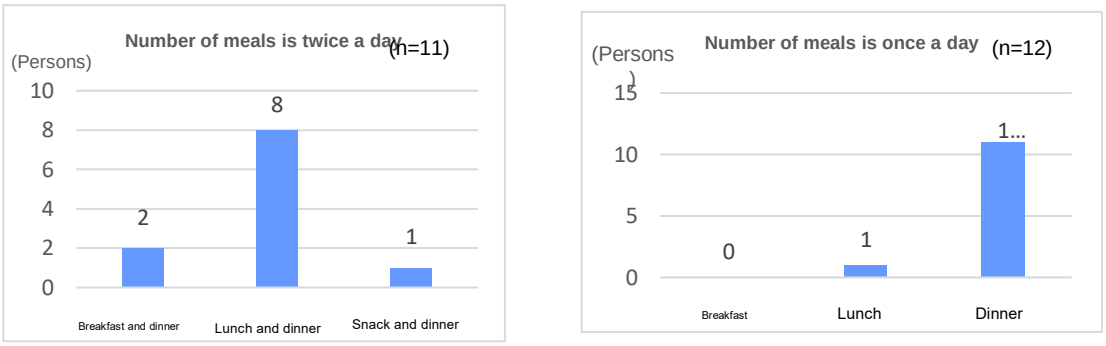


Figure 4-25 Daily food intake of those with missing meals

b) Major food intake status

As for staple foods such as cereals and potatoes, all the survey subjects answered that they ate them "Every day," except for one who answered "Unknown." Regarding the frequency of intake of five types of food other than staple foods, a large percentage of the survey subjects answered that they had "Not yet consumed" meat, fish, eggs, and dairy products, indicating a tendency toward insufficient intake of animal protein sources.

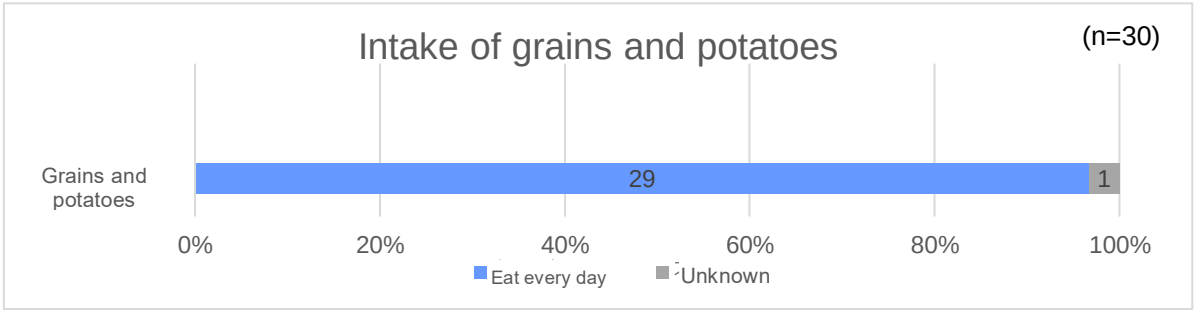


Figure 4-26 Intake of staple foods

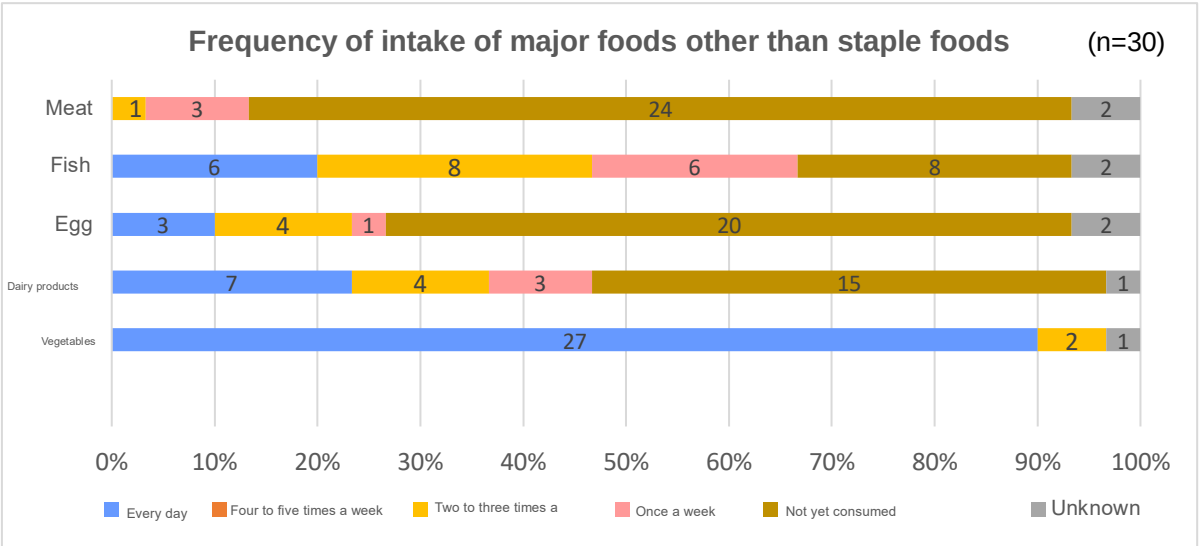


Figure 4-27 Intake of foods other than staple foods

c) What to pay attention to in diet

The percentage of those who answered that they "Paid attention" to the number of meals and nutritional balance was highest after childbirth, and all survey subjects answered that they "paid attention." Most of the survey subjects paid attention to the number of meals and nutritional balance throughout their non-pregnancy, pregnancy, postpartum, and breast-feeding periods.

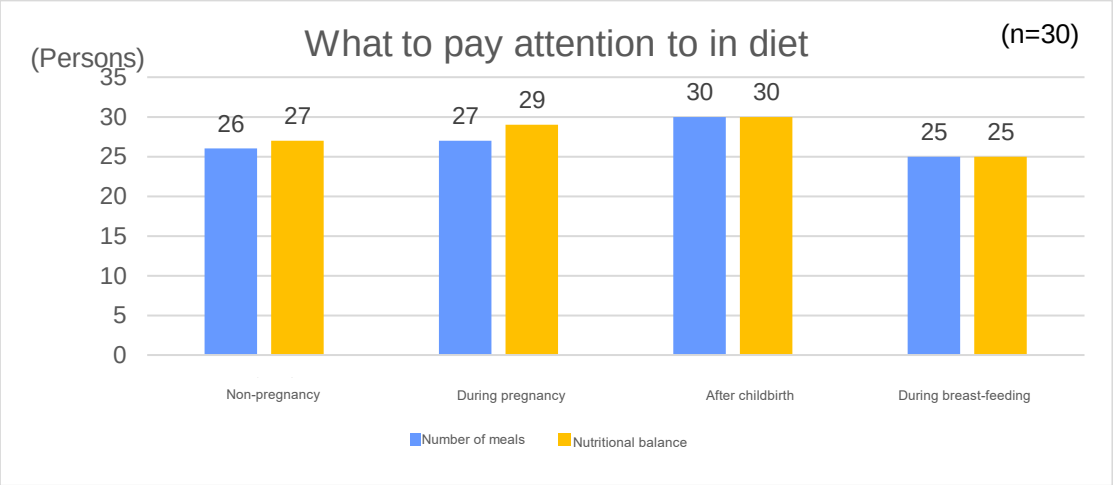


Figure 4-28 What to pay attention to in diet

[3] Breast-feeding status

Regarding the duration of breast-feeding for infants attending the ECD center, the largest number of respondents (16) answered that their children were breastfed "Until two years old." For those who answered that the duration of breast-feeding was "Until 4 years old," in addition to insufficient breast milk production, their children were malnourished, and they received support to continue breast-feeding and children's food intake at home while receiving treatment to improve nutritional status at HCs.

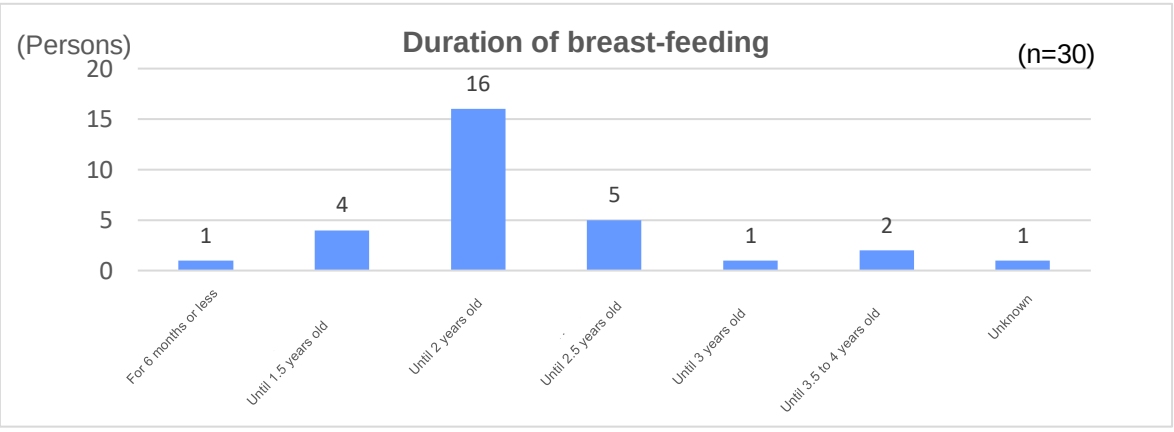


Figure 4-29 Duration of breast-feeding

[4] Complementary food status

The most common answer for the start of complementary food was "From the 6th month." Nine respondents answered to the question about the content of the complementary food. The foods given as

complementary food tended to be less common for animal protein sources such as eggs, fish, and meat.

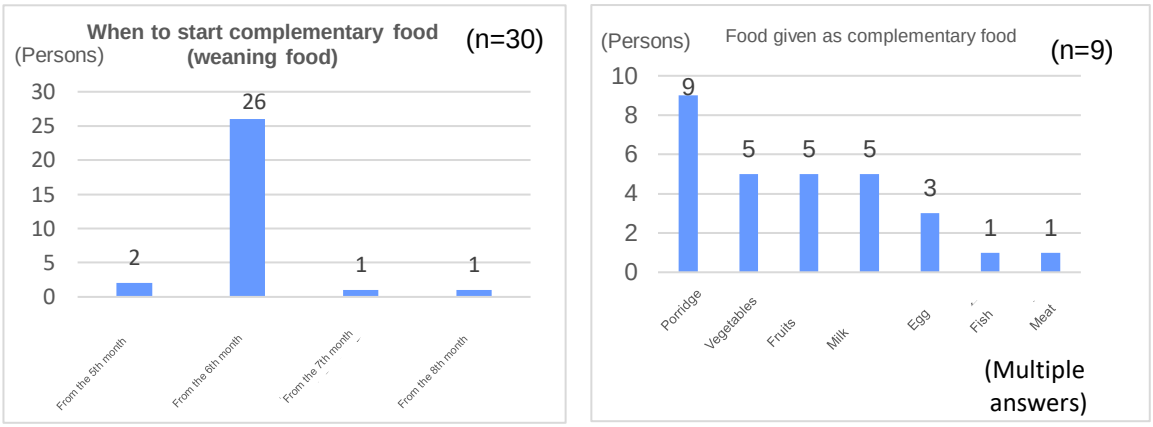


Figure 4-30 Complementary food status

[5] Dietary habits status of infants

The number of those who answered that their infants ate “Twice” a day was the largest at 13, accounting for 43.3%. Five respondents answered “Once” a day, accounting for 16.7%.

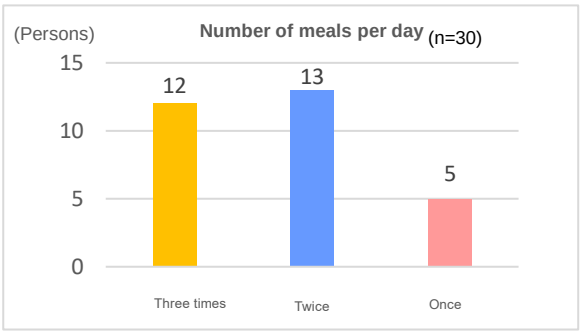


Figure 4-31 Number of meals per day for infants

Of the 13 respondents who answered that their infants ate “Twice” a day, 10 answered that their infants ate “Lunch and dinner,” accounting for 71.4%. There were no respondents with infants who ate breakfast among those who answered that their infants ate “Once” a day. In terms of missing meals, the percentage of infants who did not eat breakfast tended to be high. For the five respondents whose infants ate “Once” a day, the number of times their mothers ate was also the same.

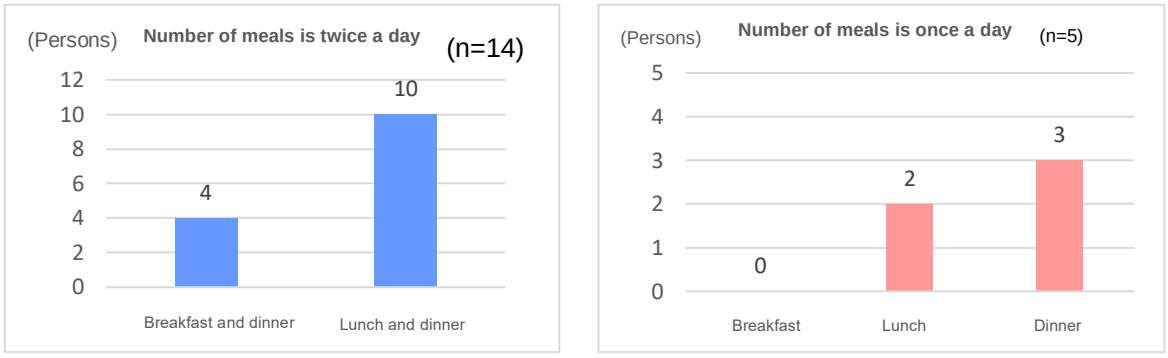


Figure 4-32 Missing meals of infants

[6] Food services at ECD centers

In addition to the education and medical services necessary for the healthy development of children, the ECD center provides food services to infants to help resolve stunting. As previously mentioned, food service foods are mainly porridge and milk, which are served to infants during the time between breakfast and lunch meals. Lunch was also provided by some facilities, although not very often. Some facilities provided porridge daily, while others provided either porridge or milk. The food services at the ECD centers visited are described below.

a) Porridge

Porridge is made by dissolving sorghum flour, which is similar to corn flour or buckwheat seeds, in hot water. Porridge is frequently eaten as breakfast in Rwanda. Porridge flour with soybean flour, which is a protein source, or micronutrients such as vitamins and minerals added is available in the market In the rural areas of Southern Province, there were also home-based ECD centers that dried and powdered sorghum seeds at the facility itself to make porridge and provide it to infants.

The nutrients in porridge flour are mainly carbohydrates, which are classified as “Go foods” that provide energy. In ECD center, a cup of porridge was served to infants, with sugar or, rarely, milk added, depending on the facility.

(Sorghum: Photo by the survey team)

(Dried sorghum seeds: Photo by the survey team)

b) Milk

Milk was delivered to each ECD center by the NCD through the cell office and was provided to the infants approximately twice a week, which provided an opportunity to consume animal protein sources. The Model ECD center in Western Province raised dairy cows for income generation and provided milk daily to infants attending the ECD center.

c)Lunch

For lunch, rice and potatoes from "Go foods," which are sources of energy, legumes from "Grow and Go foods," which are sources of both protein and energy, and vegetables like dodo (amaranth leaves) and carrots from "Glow foods," which are sources of micronutrients like vitamins and minerals, were provided. Foods such as meat, fish, or egg, which are sources of animal protein, were rarely provided. The photos show the lunch served at the Community-based ECD center in Kirehe. Lunch was mostly rice and bananas from "Go foods," which are sources of energy, and lacked "Grow food," which are sources of protein, vitamins, and minerals.

School lunch being cooked

Menu: rice, banana, and meat stew

(Photo by the survey team)

The model ECD center in Western Province received 500 hens with support from the Imbuto Foundation to start poultry farming, which not only provided eggs to infants attending the facility once a week, but also generated income to fund the operation of the ECD center by selling the eggs.

d) Dietary habits status of children and students

In Rwanda, there are approximately 3.75 million children/students between the ages of three and 18 who attend educational facilities, representing 30% of the total population (MINEDUC, 2019). "Food" is the most fundamental element in the healthy development of children, and when children are able to consume a nutritious diet and are healthy, it leads to the creation of human capital, which is important for the future development of the society and country to which they belong.

MINEDUC is implementing the nationwide rollout of the school lunch programs for all students from primary to secondary education. The status of DP's support for school feeding in Rwanda and the status of meals at home, including school lunch services, for children/students enrolled in the primary and secondary schools and teacher training schools visited in this study are described below.

[1] Policy on school feeding

Article 51 of Rwanda's Basic Education Law stipulates that school lunches be provided to children and

students enrolled in public and private schools during the day[226]. The GoR enacted the National Comprehensive School Feeding Policy (November 2019) in 2019, with the vision that "all school children in Rwanda will achieve their full development potential through sustainable school feeding programs that provide appropriate and nutritious meals in schools." The reason behind the enactment of this policy is that Rwanda is facing the issue of malnutrition in early childhood, which not only causes irreversible delays in physical, cognitive, and intellectual development in children, but also increases the risk of reduced learning ability and contracting non-communicable diseases (NCDs).

The target population of the school feeding policy is children before entering school and children/students in primary and secondary schools, and the aim of the policy is not only to address child malnutrition, but also to expand access to educational opportunities, create human capital in Rwanda, and reduce poverty through increased household income and local economic development through the use of locally grown food for school lunches. The GoR has identified the following six policy actions.

1. Expanding the scope of the school feeding programs
2. Ensuring a healthy and nutritious the school feeding programs
3. Promoting school vegetable garden and farming
4. Securing sustainable funding for the school feeding programs
5. Developing appropriate policies and frameworks to link market access of agricultural products by local farmers with the school feeding programs
6. Partnerships, multisectoral coordination, cooperation, and shared responsibility in the management of the school feeding programs

These policy actions are in line with the achievement of sectoral policies and international strategies such as NST1, Vision 2020, ESSP 2018/19-2023/24, National School Health Policy (SHP), Multi Sector Strategy to Eliminate Malnutrition, SDGs (Goals 2 and 4).

In 2021,the GoR is preparing the Rwanda School Feeding Operational Guidelines, 2021. The Guidelines cover the procurement and management of foods for school lunch, preparation and serving of school lunch, and monitoring and reporting at the school, district, and central levels to effectively implement high-quality, safe school feeding programs while purchasing locally produced food from farmers and cooperatives and improving the local economy.

[2] School feeding programs

According to the school feeding policy document, there are currently three school feeding programs being implemented in Rwanda.

- **One Cup of Milk per Child program**

  NCD provides funds to provide a cup of milk twice a week to children before entering school and children in the first grade of primary schools in the specified 19 districts.

[226] Official Gazette n° Special of 18/02/2021, Law determining the organisation of education, N° 010/2021 of 16/02/2021

- **School feeding programs**

  Provide at least one nutritious meal per day to secondary school students in public secondary schools, government-aided schools, and boarding schools supported by MINEDUC. In order to supplement the parents' contribution, the GoR grants the contribution described below.

- **Home Grown School Feeding (HGSF) program**

  Provide school lunches for children in primary schools supported by WFP, as described below. The Program includes efforts to not only provide nutritious school lunches to children, but also to enrich the community through cooperation with the local government, farmers, and schools in the communities where the schools are located.

[3] Budget for school feeding

Official documents on the budget for school feeding issued by the GoR could not be found, but according to the national newspaper[227], the Global Child Nutrition Forum (GCNF), and materials of the meeting between the WFP and the survey team, the budget for school feeding is as shown in Table.

Table 4-37 Budget for school feeding

Fiscal year	Budget amount
2018/2019	Approximately 5.5 billion RWF
2019/2020	Raised to at least 7 billion RWF
2021	At least 27 billion RWF

In FY2021,the GoR has allocated at least 27 billion RWF in its budget to expand the school feeding program to support feeding of all children and students in pre-primary, primary, and secondary schools.

[4] Cost of school feeding

According to the Rwanda School Feeding Operational Guidelines, 2021, food prices vary between rural and urban areas, with the cost of a single meal in 2019 ranging from 124 RWF in northern rural areas to 195 RWF in Kigali, with an average cost of 150 RWF. The GoR provides a subsidy of 56 RWF per meal and the remaining 94 RWF is borne by the parents.

Table 4-38 Cost of school feeding

		Daily	Monthly Cost (21 feeding days)	Quarterly Cost (63 feeding days)	Annual Cost (190 feeding days)
Average daily meal cost for a nutritious meal	RWF/student/ meal	150	3,150	9,450	28,500.00
Government Subsidy	RWF/student/ meal	56	1,176	3,528	10,640.00
Parent Contribution	RWF/student/ meal	94	1,974	5,922	17,860.00

(Source: Rwanda School Feeding Operational Guidelines Summary, 2021)

If parents are unable to pay for school lunches, they may, with the approval of the school feeding

[227] The New Times (dated 2021.7.26). Available at: https://allafrica.com/stories/202107260090.htm

committee, substitute the payments with in-kind contributions such as fuel, food, labor for school lunches and fertilizers and materials for school gardens. Examples of in-kind contributions and their estimated prices are as shown in Table.

Table 4-39 Examples of in-kind contributions and estimated prices

	In-kind items	Unit	Unit Cost (RWF)
Non-Food Items			
	Firewood	Bundle	1000
	Labour	Day	1000
Food Items			
	Beans	Kg	700
	Peas	Kg	800
	Vegetables	kg	200
	Irish Potatoes	kg	350
	Banana	kg	350
	Cassava	kg	350

(Source: Rwanda School Feeding Operational Guidelines Summary, 2021)

According to the National Comprehensive School Feeding Policy (2019), MINEDUC makes the following recommendations regarding the cost of school feeding in expanding the school feeding programs.

- Due to the need for pasteurization, the cost of a cup of milk in the One Cup of Milk per Child program is 409 RWF. In order to reduce the school feeding budget and for sustainability reasons, raw milk should be purchased directly from farmers and served after boiling.
- Subsidies for school children and students in full-time public pre-primary, primary, and secondary schools should be increased from 56 RWF to 100 RWF. For boarding school students, the increase should be from 56 RWF to 150 RWF (Boarding school estimate that 770 RWF per student per day is needed to provide two base meals with milk and eggs added (Rwanda School Feeding Operational Guidelines, 2021)).
- For students from poor families, MINEDUC should collaborate with MINALOC to consider providing support to exempt the parents' contribution.

Based on a government subsidy of 56 RWF for one school meal per child, Prime Minister Ngirente has announced that an annual budget infusion of approximately 38 billion RWF is needed[228]. Since the government's financial resources are being squeezed by the need to invest heavily in the development of school infrastructure, including responses to COVID-19, (Rwanda School Feeding Operational

[228] The New Times (dated 2020.12.1). Available at: https://www.newtimes.co.rw/news/govt-spend-rwf38-billion-school-feeding-programme

Guidelines 2021), it can be inferred that securing a budget for school meals is not easy.

[5] Status of support from partner organizations

a. WFP

The main partner organization involved in school feeding is WFP, which has been implementing the Home Grown School Feeding (HGSF) program since 2016 (WFP, 2019). It has also co-chaired the HGSF National Steering Committee with MINEDUC since 2017, helping the GoR expand its school feeding programs across the country. The HGSF program includes not only support for school feeding, but also implementation of literacy projects, construction of school vegetable gardens, support for teacher training, and promotion of access to safe water, making it a comprehensive approach to improving the quality of education and children's access to schools.

WFP implemented the HGSF program in 108 primary schools in four districts with the highest poverty rates and severe food insecurity and stunting rates, Karongi and Rutsiro in Western Province and Nyaruguru and Nyamagabe in Southern Province, with financial and technical support from U.S. Department of Agriculture's McGovern-Dole Program as McGovern-Dole Phase I from 2015 to 2020. For this five-year program, McGovern-Dole Program reportedly invested US$ 25 million in grants and MasterCard reportedly invested approximately US$ 12.1 million[229]. The partner organizations in McGovern-Dole Phase I were as follows.

Key partners

Government of Rwanda:
-- MINEDUC; MINAGRI; MINALOC; Ministry of Health (MINISANTE); Rwanda Biomedical Centre (RBC) (deworming)
United Nations:
--UNICEF coordination: educational standards and national guidelines
--UNDAP coordination: increasing access to quality education, health, nutrition, WASH
NGOs:
--World Vision: sub-recipient on literacy, health, WASH
--Adventist Development and Relief Association (ADRA): building kitchens, storerooms and fuel-efficient stoves in the supported schools (ADRA was only a partner during Phase I of kitchen construction in schools in the Western Province)
Gardens for Health International (GHI): school gardens
--WFP-supported smallholder farmer cooperatives trained to increase their marketable surplus and link to McGovern-Dole Program

Figure 4-33 Partner organizations in McGovern-Dole Phase I of WFP

(Source: WFP Rwanda, Decentralized Evaluation 2019)

The partner organizations in the expansion of the three school feeding programs mentioned above, including the McGovern-Dole Phase II of WFP's HGSF program to be described in the next section, are as follows.

[229] MIDTERM AND ENDLINE EVALUATIONS of WFP Rwanda's Home Grown School Feeding Programme 2016-2020 (USDA McGovern Dole Grant FFE-696-2015/007-00) in 2018 and 2020 for WFP Rwanda

Figure 4-34 Partner organizations in school feeding expansion

(Source: Rwanda School Feeding Operational Guidelines Summary, 2019)

According to the materials of the meeting between WFP and the study team, WFP plans to expand the school feeding support to 136 schools in seven districts from 2021 to 2025 as McGovern-Dole Phase II, in addition to the four districts mentioned above, by adding Burera in Northern Province, Kayonza in Eastern Province, and Gasabo in Kigali, which has a high stunting rate and was requested by the government, and establish school feeding model schools in four districts and Kigali City at the request of MINEDUC.

Table 4-40 Outline of the McGovern-Dole Phase II Project

Target districts
Continuation: 4 districts , 108 schools Karongi(35%),Rutsiro(54%), Nyamagabe(43%)Nyaruguru(48%) New: 3 districts , 28 schools Burera(49%), Kayonza(42%), Gasabo(14%)

School feeding support schedule	
2021	108 schools in 4 continuing districts (89,000 children in pre-primary and primary education)
2022-2023	136 schools in 7 districts including 3 new districts (118,000 children in pre-primary and primary education)
2023–2025	Due to the graduation of children in 108 schools, school feeding will continue in 28 school sin 3 new districts (29,000 children).

* The numbers in parentheses indicate the stunting rate for each district in FY2020.

(Source: Prepared by the survey team based on WFP meeting materials, 2021)

b. U.S. NGO “One Egg”

“One Egg,” a U.S. NGO, is developing a project to provide eggs to children in eight developing countries, including Rwanda, in order to reduce malnutrition. In Rwanda, eggs have been provided to children in pre-primary education for 10 years through a poultry farm operated by Ikiraro Investments, a local company in Musanze in Northern Province.

[6] Nutrient requirements for school feeding

The Rwanda School Feeding Operational Guidelines (2021) states that at least 30% of the daily requirements of the three major nutrients (carbohydrates, proteins, and lipids) and at least 50% of the micronutrients (vitamins and minerals) should be provided in school meals (the recommendation is 70%). The percentage of total nutrients that should be provided in school lunches is shown in Table. The said Guidelines recommend that at least five of the following six food groups be included in school lunches to meet nutrient requirements: [1] grains and potatoes, [2] legumes and nuts, [3] oils and fats, [4] vegetables, [5] fruits, and [6] animal protein sources.

Table 4-41 Percentage of total nutrients that should be provided in school lunches

Curriculum	Percentage of total nutrients that should be provided in school lunches
Half-day school system	30–45 %
Full-day school system	60–75 %
Boarding school	100 %

(Source: RWANDA SCHOOL FEEDING OPERATIONAL GUIDELINES 2021)

Photo 1 shows the base meal for the school lunch recommended by WFP in Rwanda, which includes food from five food groups, excluding fruits. Photos 2 and 3 show school lunches served at schools not covered by the HGSF program visited by this survey team. The school lunch consisted of only kaunga (corn flour kneaded with hot water), which belongs to the group of grains and potatoes, and beans in Photo 1, and two types of corn (yellow and white), beans, and dodo seasoned with salt and added oil in Photo 3.

Photo 1 (Source: WFP)
WFP base meal

Photo 2 (taken by the survey team)
Public school lunch 1

Photo 3 (taken by the survey team)
Public school lunch 2

In addition, as shown in Table, no animal products or fruits were provided in any of the educational facilities. In addition, the ingredients used were limited and the menu was monotonous. It was observed that the school lunches were not nutrient dense and did not meet the total nutrient ratios recommended in the Rwanda School Feeding Operational Guidelines. Teachers commented that school lunches "lack fruits and are not nutritionally balanced," "kaunga, vegetables, and beans in school lunches are very tasty but not nutritionally balanced," "it is not easy to provide nutrient dense lunches that meet the nutrient targets recommended by the Rwanda School Feeding Operational Guidelines," and "it is not easy to purchase expensive animal foods, fruits, and fuel wood because the budget is not sufficient and many parents cannot afford to pay for school lunches." The MINEDUC school feeding program personnel also mentioned that the Rwanda School Feeding Operational Guidelines are not yet fully operational, and therefore the issue is to increase interest.

School lunches provide a reliable opportunity for children to have a source of nutrition, as they are served only one meal a day but always on days when school is in session. Therefore, it is important to promote the Rwanda School Feeding Operational Guidelines and establish school vegetable gardens, as well as to encourage the expansion of school lunches to schools across the country as quickly as possible.

Table 4-42 Weekly menu of school lunches

Weekly meal plan in Primary / Secondary

	Monday	Tuesday	Wednesday	Thursday	Friday
Meal	Corn (maize)	Sweet potato/ Cassava	Maize paste	Corn (maize)	Maize paste
	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)
	Pre-primary schools				
	Rice	Bananas/Potatoes depending on which is available.	Sweet potato/ Cassava	Maize paste	Rice
	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)	Beans, vegetables (dodo leaves/ cabbages)

[7] Status of meals for children and students

For the purpose of ascertaining the status of daily meals, including school lunches, interviews were conducted with children and students enrolled in primary and secondary schools and teacher training schools visited by the survey team.

[Survey location and target population]

Survey location and target population are shown in Table. The survey subjects were 19 primary school children, 16 secondary school students, and 11 teacher training school students, a total of 46 students.

Table 4-43 Survey location and target population (persons)

	Northern Province	Southern Province	Eastern Province	Western Province	Kigali	Total
Primary school children	0	4	5	9	1	19
Secondary school students	2	4	4	6	0	16
Teacher training school students	0	4	3	4	0	11
Total	2	12	12	19	1	46

[Survey method]

The children and students who agreed to cooperate in the survey were interviewed by local public employees based on the survey questionnaire, and the results of their responses were tabulated.

[Survey results]

a)Dietary status

i Number of meals per day

The percentage of respondents who answered said they ate “Three times” a day was the highest at 100% among students of teacher training schools where three meals are provided at school. Among students who answered that they ate “Twice” a day, secondary school students missed breakfast and primary school children missed lunch. The latter went home at lunchtime because there was no school lunch, but some students did not eat their meals at home. Additionally, some students did not return home and missed lunch because their homes were too far away.

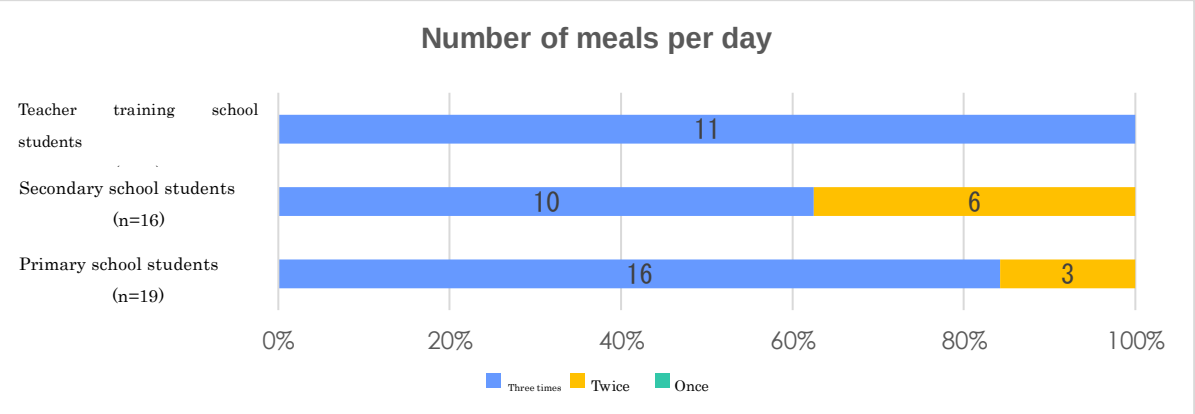


Figure 4-35 Number of meals per day

b)Major food intake status

i. Food groups consumed in the diet

The frequency of consuming cereals and potatoes, protein sources, and vegetable foods was high among students in all schools, with “Porridge” being the most common type of food consumed. All of the teacher training school students reported eating only “Porridge” for breakfast and did not consume any protein sources or vegetables. The food most frequently consumed as a source of protein was “Legumes” for students in all schools.

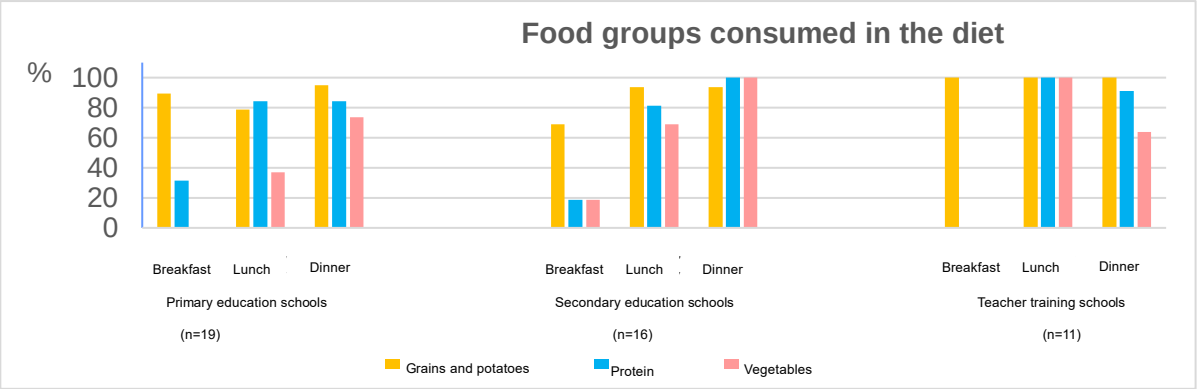


Figure 4-36 Food groups consumed in the diet

ii. Frequency of dairy product consumption

The frequency of dairy product consumption was lowest among teacher training school students, which may be due to the low availability of dairy products in schools.

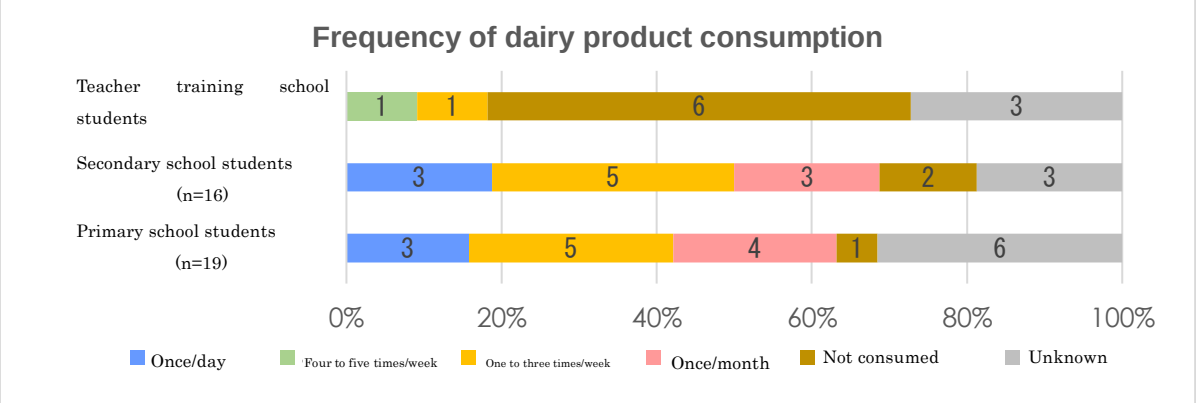


Figure 4-37 Frequency of dairy product consumption

iii. Frequency of fish consumption

The most common type of fish eaten by Rwandans is the small fish, sambasa. Primary school children had the largest number of respondents who answered “Not consumed” regarding the frequency of fish consumption.

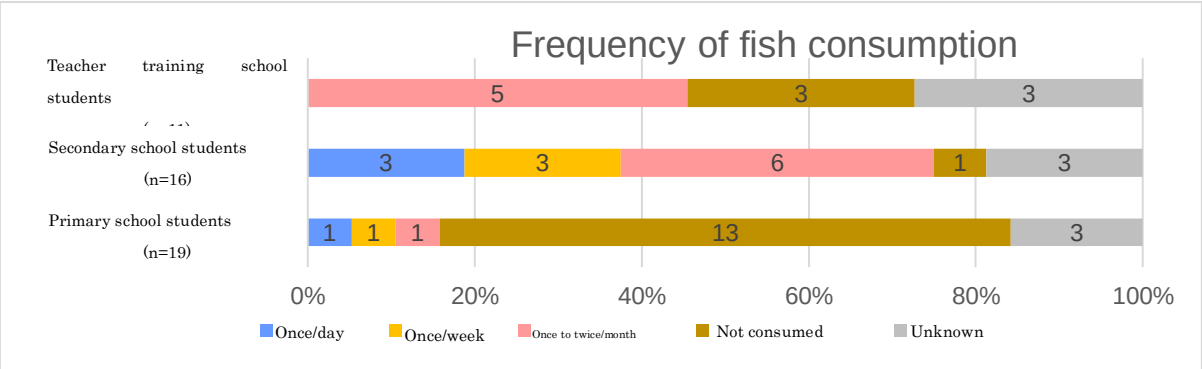


Figure 4-38 Frequency of fish consumption

iv. Frequency of meat consumption

When the responses to the question regarding the frequency of meat consumption of "Once to twice/month," "Once to twice/three months," and "Not consumed" were combined, the percentage was more than half for children/students at all schools.

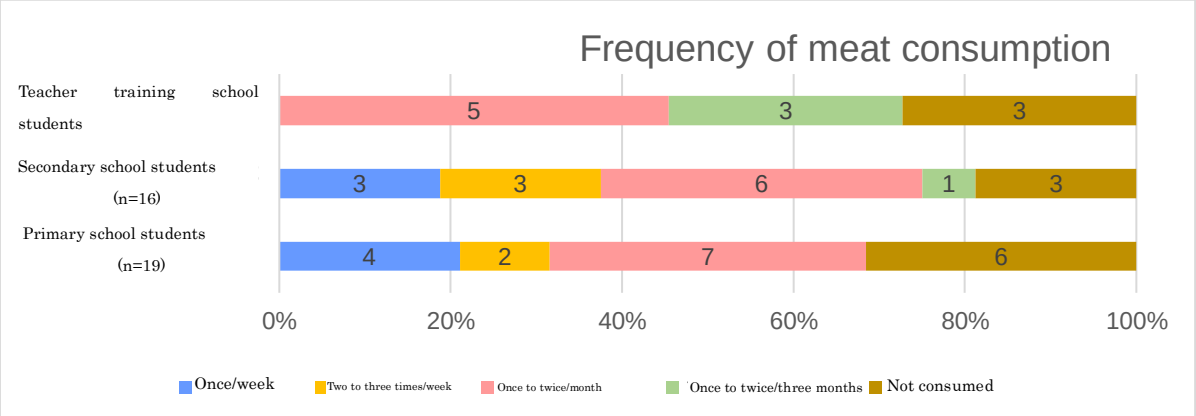


Figure 4-39 Frequency of meat consumption

v. Frequency of egg consumption

Respondents who answered that they do "Not consume" eggs were the most common among children and students in all schools. The price of one egg is 120 RWF, which is equivalent to the price of 500 grams of potatoes. In addition to the fact that eggs are expensive, a reason may be that Rwanda exports eggs, which means that there are few opportunities for eggs to appear on the daily table.

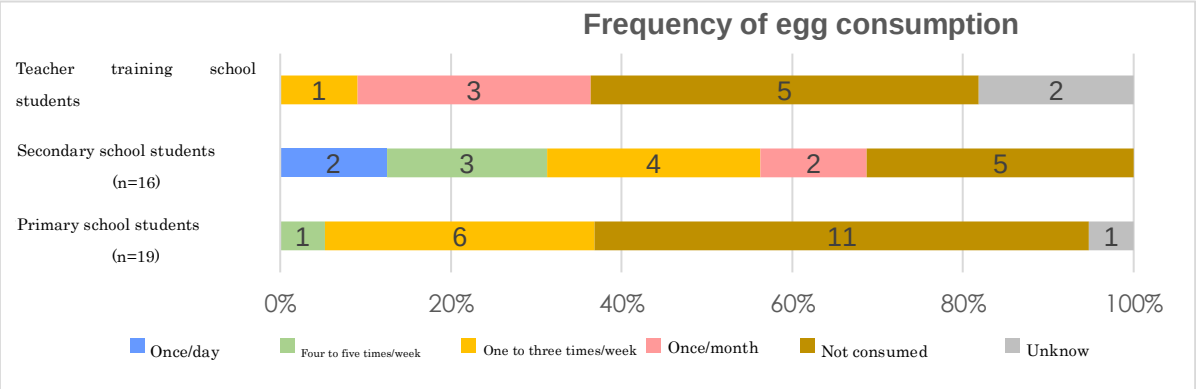


Figure 4-40 Frequency of egg consumption

vi. Frequency of vegetable consumption

The largest number of children/students from all schools answered that they ate vegetables "Once/day." Among primary school children and secondary school students, some respondents answered "Once/month." The vegetables consumed included dodo, cabbage, isombe (cassava leaves), tomatoes, carrots, eggplants, and mushrooms.

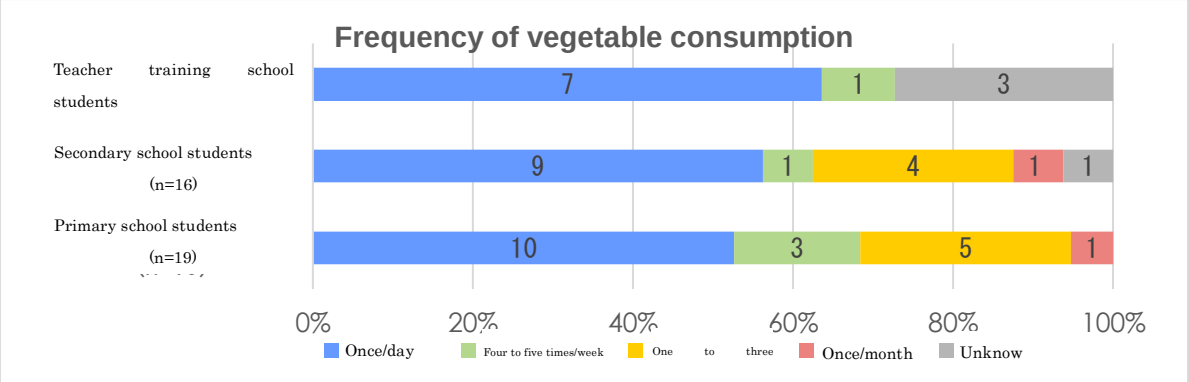


Figure 4-41 Frequency of vegetable consumption

vii. Snacking status

More than half of the children/students in all schools answered "Yes" to the question of whether they snack between meals. Snacks included cookies and mandazi (fried doughnuts), which are high in carbohydrates.

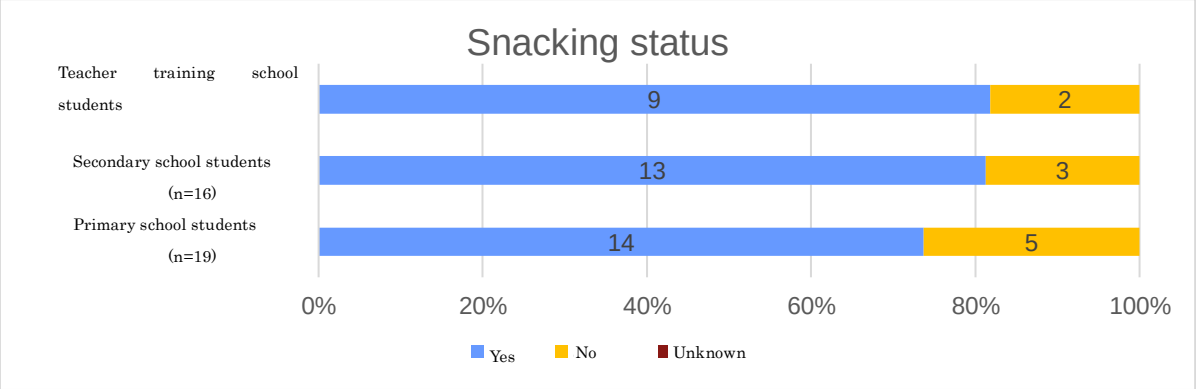


Figure 4-42 Snacking status

c) Health condition status

No children or students answered that their health condition was "somewhat poor" or "poor."

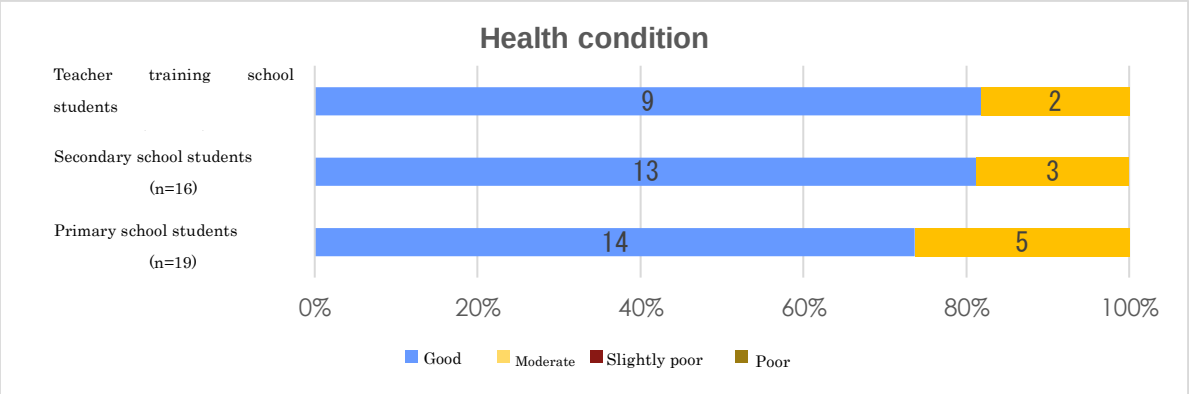


Figure 4-43 Health condition status

d) Effects of hunger on learning

The number of respondents who answered that hunger makes it “Difficult to concentrate” on learning was the largest among primary school children, accounting for 20% of the total.

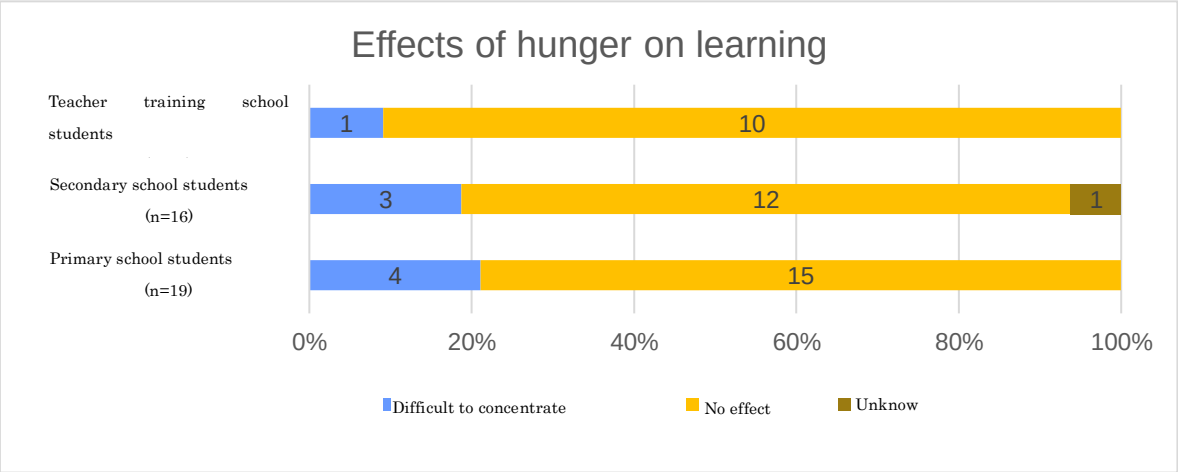


Figure 4-44 Effect of hunger on learning

4) Summary of issues

Based on the content of the previous sections, the issues of nutrition and maternal and child health services for infants, children, and students are shown in Table.

Table 4-44 Current situation, issues, and causes of the nutrition and maternal and child health sectors

Nutrition for infants, children, and students			
Item	Current situation	Issues	Factors
Monthly income and food costs	➢ The average monthly income of the survey subjects was 19,462 RWF (approximately US$ 20), which is about one-third of the average GNI in Rwanda (US$65). ➢ Of the five levels of the new Ubudehe230, 60% of the survey subjects had a monthly income of less than 45,000 RWF and belonged to category D, the second from bottom, and 66.6% of the subjects lived on $1.90 per day, which was the international poverty line of the WB (monthly income of approximately 60.000 RWF or less), and fell under the poor category. ➢ For those who answered both questions regarding monthly income and food expenses, the average for food expenses (19,750 RWF) was higher than the average for monthly income (19,700).	➢ Food sources of animal protein, such as meat, eggs, and fish, are relatively expensive, making it difficult to purchase them as food for daily consumption.	➢ Low income and lack of financial resources limit their ability to purchase the food they need.
Shopping status	➢ They routinely purchased “grains and potatoes” for energy, “vegetables” for micronutrients such as vitamins and minerals, and “legumes” for vegetable protein, but rarely purchased animal protein sources.		
Number of meals	➢ During the non-pregnancy period, 43.0% of the respondents consumed food “Once/day” and 36.6% “Twice/day,” a total of 79.6% of those who did not consume food three times a day. ➢ During the pregnancy, postpartum, and breast-feeding periods, 80% or more of the respondents were concerned about increasing the “number of meals.” ➢ For infants, 43.3% ate “Twice/day” and 16.7% ate “Once/day,” a total of 60% of those who did not consume food three times a day. ➢ For primary and secondary school students, 15.7% of the former ate “Twice/day” and missed lunch and 37.5% of the latter ate “Twice/day” and missed breakfast.	➢ Nutritional standards for each period could not be met due to missed meals.	
Food intake status	➢ During the non-pregnancy period, a large percentage of the respondents answered that they “Have not eaten yet” animal products, especially meat (80%) and eggs (approximately 70%). ➢ 80% of the respondents continued breast-feeding until the child was two years old or older. ➢ The use of animal products in complementary food was rare. ➢ A larger proportion of primary school students had “Not consumed” animal products (meat, fish, and eggs) than did secondary school and teacher training school students. ➢ Snacks were consumed by at least 70% of the students in primary, secondary, and teacher training schools, but their content was high in carbohydrates.	➢ During the non-pregnancy, pregnancy, infancy, and school age periods, protein and iron deficiencies occur due to inadequate intake of animal foods with high protein scores and high levels of digestible heme iron. ➢	
Effects of hunger on learning	➢ The majority of primary school students (20%) answered that hunger makes it “Difficult to concentrate” on learning.	➢ Hunger makes it difficult to concentrate on learning.	➢ Missing a meal
School lunch	➢ The main meals served at the ECD center were porridge and milk a few times a week. ➢ School lunches in schools not covered by WFP's HGSF program did not provide animal products or fruits. In addition, the ingredients used were limited, and the menu was monotonous.	➢ Does not meet the percentage of total nutrients that should be provided in school lunches as recommended by the GoR (at least 30% for the three major nutrients of carbohydrates, proteins, and lipids, and at least 50% for micronutrients such as vitamins and minerals (the recommendation is 70%)).	➢ Lack of funds ➢ Stable access to food
Issues in maternal and child health services			
Maternal and child health data management	➢ In the data management of indicators for maternal and child health, mobile-based data management is used up to the cell level, but data aggregation to the upper levels (sectors, states, and Ministry of Health) is paper-based. ➢ Health data tabulation is done manually without using calculation software such as Excel, and the data manually calculated is entered into a predetermined format.	➢ The management of maternal and child health data requires a great deal of time and effort.	The data management system has not yet been developed.

230 The classification of the Ubudehe categories for household income is as follows.
- Category A: Households with a monthly income of 600,000 RWF or more. Households that own 10 hectares or more of land in rural areas or 1 hectare or more of land in urban areas, or households engaged in animal husbandry activities to generate the above income (these households are considered wealthy).
- Category B: Households with a monthly income of 65,000 to 600,000 RWF. Households that own 1 to 10 hectares of land in rural areas or 300 square meters to 1 hectare of land in urban areas.
- Category C: Households with a monthly income of 45,000 to 65,000 RWF. Households that own 0.5 to 1 hectare of land in rural areas or 100 to 300 square meters of land in urban areas.
- Category D: Households with a monthly income of less than 45,000 RWF. Households that own less than 0.5 hectares of land in rural areas or less than 100 square meters of land in urban areas.
- Category E: Households of people who are 65 years of age or older or are out of the labor force as a result of disability or incurable disease, and who do not own any assets or means of livelihood.

(Source: The New Times, dated October 14, 2020, https://www.newtimes.co.rw/news/where-do-you-fall-new-ubudehe-categories)

In summary, the issues discussed in this section can be summarized as follows: [1] low income and lack of funds for school lunches limit the purchase of necessary food, resulting in insufficient intake of nutritious food (especially protein and iron) and missing meals during the pregnancy, infancy, and primary and secondary education periods, and [2] ICT is not utilized and a great deal of time and effort is required for the management of maternal and child health data. Solving the issue of [1] will help reduce stunting, and solving the issue of [2] will contribute to the improvement of the quality of health services provided by health providers and the prioritization of policy recommendations and strategies to improve nutrition and reduce maternal and infant mortality.

(5) Caregiver

The following is a list of the attributes and characteristics of the caregivers interviewed in this study. Since there was a difference in responses between caregivers in model ECD centers and home-based ECD centers, the results were separately tabulated by center.

a) Respondents' gender, age, and educational background

Table 4-45 Gender of respondents

	Female	Male
Model (n=18)	14	4
Home-based (n=14)	11	3
Community (n=6)	4	2
Total (n=38)	29	9

Table 4-46 Age of respondents

	20s	30s	40s	50s or older
Model (n=18)	10	8		
Home-based (n=14)	3	4	4	3
Community (n=6)	4	2		
Total (n=38)	17	14	4	3

Of the 38 caregivers responded, 29, or 76%, were females[231]. In terms of age, all of the caregivers in model ECD centers and community-based ECD centers were in their 20s and 30s, while half of the caregivers in home-based ECD centers were in their 40s or older. It reflects the fact that parents and community volunteers are the main players.

Table 4-47 Educational background of respondents

	Completed primary education	Dropped out of secondary education	Completed secondary education	Completion of higher education	Other
Model (n=18)	1	2	14	1	
Home-based (n=14)	3	6	4		1
Community (n=6)		1	3	1	1
Total (n=38)	4	9	21	2	2

[231] According to FY2019 statistics, 85% of nursery school teachers were female.

In terms of education, the majority of caregivers in model ECD centers and community-based ECD centers have completed secondary or higher education, while the majority of caregivers in home-based ECD centers have dropped out of secondary or lower education.

Table 4-48 Employment history in ECD

	Less than 1 year	1 to 2 years	3 to 4 years	5 to 6 years	7 years or more	No answer
Model (n=18)	1	6	4	6	1	
Home-based (n=14)	3	5	4	1		1
Community (n=6)		4		1	1	
Total (n=38)	4	15	8	8	2	1

The experience as a caregiver in the ECD center seems to be related to the time of the center's opening. There are many caregivers with less than two years of experience in home-based ECD centers and community-based ECD centers.

b) Motivations for working as a caregiver

There appears to be a clear difference in the motivation for working as a caregiver between caregivers in professional model ECD and community-based ECD centers and caregivers in volunteer home-based ECD centers.

Table 4-49 Motivations for working as a caregiver (n=38 with multiple answers)

Motivation	Model (n=18)	Home-based (n=14)	Community (n=6)
1. Interested in careers and love to teach	7		2
2. Love children	8	3	1
3. Professionally trained	5	1	1
4. Want to take care of children/parents	1		
5. Want to promote the country's education and development	2	1	1
6. Sense of mission (it is the right thing to do)		3	
7. For the good of the country		1	
8. For children (development, future)		4	
9. Want to help other children as my own child attended ECD and it was effective		1	
10. Want my child to attend ECD		1	

Caregivers in model ECD and community-based ECD centers were motivated to seek employment by their love of children, their interest in careers as caregivers and teaching, and their professional training. In contrast, caregivers in home-based ECD centers, who are essentially volunteers, were motivated by a strong sense of mission that it was right to do so for the sake of the child and the country. They also differed from caregivers in the other two centers in that their experience and position as parents with children were strong motivators.

c) Caregiver training and education

Table 4-50 Attendance at caregiver training

	Yes	No	No answer
Model (n=18)	14	4	
Home-based (n=14)	8	5	1
Community (n=6)	4	2	
Total (n=38)	26	11	1

It is a requirement that caregivers in ECD centers receive training, but approximately 30% of the respondents (11) answered that they had not received any training. It is possible that the effects of COVID-19, etc., at the time of employment may be related.

Those who answered that they had attended the training (26) were asked about the content of the training. The content of the training is related to ECD services in general and is likely to take two to three days. NCD has developed a training package (in Kinyarwanda) and provides training through national trainers (60) and district and level ToT[232] (120). For the model ECD center supported by the Imbuto Foundation, the Foundation has developed its own training materials and monitoring sheets for use[233].

Table 4-51 Content of training (multiple answers allowed)

	ECD in general	Curriculum for ages 3 to 5	Cognitive function	Teaching methods	Children's rights	No answer
Model (n=14)	10	1	1			3
Home Based (n=8)	3		2	1	1	1
Community (n=4)	2		1	1		1
Total (n=26)	15	1	4	2	1	5

When asked what they found most useful, eight respondents answered “Teaching methods”. The items they wanted to learn more about in the training were “Teaching methods” (8) and “How to teach handicapped children” (7).

d) Daily childcare and nurturing practices

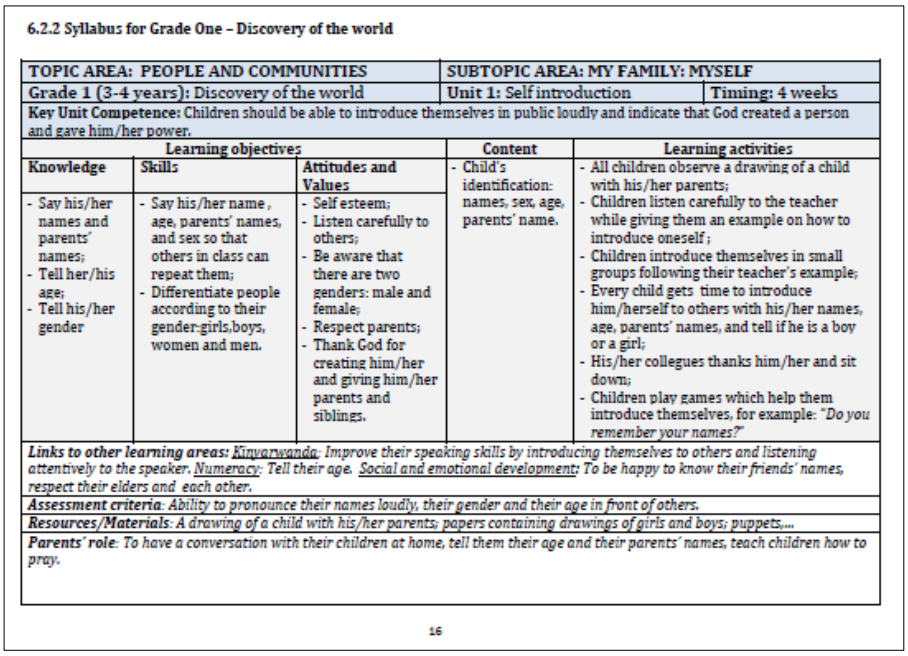
ECD centers are required to plan their learning activities based on the curriculum prepared by the REB, called the CBC. When caregivers were asked if they had the curriculum, half of the caregivers in the home-based ECD centers did not.

[232] Training of Trainers. The development of caregivers in leadership positions.
[233] Response to the question by the survey team dated June 7,2021.

Table 4-52 Presence of CBC

	Yes	No
Model (n=18)	18	0
Home-based (n=14)	7	7
Community (n=6)	5	1
Total (n=38)	30	8

The CBC for three- to six-year-old children before entering school consists of seven learning domains, and the syllabus for each domain is presented for each grade level. Figure 4-20 shows the first unit of "Discovery of the world" (a learning area similar to "life environment studies" in lower grades of primary school in Japan) for three- to four-year-old children. The task of how to structure this content and position it in a four-week period is difficult for volunteer caregivers who have not received professional training unless they have the support of the model ECD center or an NGO. The materials needed to teach the unit are also listed, but many of which are difficult for home-based ECD centers to obtain. This is also evident in the answers to the question regarding issues in planning daily activities (Figure 4-21). The pre-primary curriculum was written with childcare in mind in educational facilities dedicated to providing pre-primary education, and does not envision an environment with poor conditions such as a home-based ECD center.



6.2.2 Syllabus for Grade One – Discovery of the world

TOPIC AREA: PEOPLE AND COMMUNITIES			SUBTOPIC AREA: MY FAMILY: MYSELF	
Grade 1 (3-4 years): Discovery of the world			Unit 1: Self introduction	Timing: 4 weeks
Key Unit Competence: Children should be able to introduce themselves in public loudly and indicate that God created a person and gave him/her power.				
Learning objectives			Content	Learning activities
Knowledge	Skills	Attitudes and Values		
- Say his/her names and parents' names; - Tell her/his age; - Tell his/her gender	- Say his/her name , age, parents' names, and sex so that others in class can repeat them; - Differentiate people according to their gender-girls,boys, women and men.	- Self esteem; - Listen carefully to others; - Be aware that there are two genders: male and female; - Respect parents; - Thank God for creating him/her and giving him/her parents and siblings.	- Child's identification: names, sex, age, parents' name.	- All children observe a drawing of a child with his/her parents; - Children listen carefully to the teacher while giving them an example on how to introduce oneself ; - Children introduce themselves in small groups following their teacher's example; - Every child gets time to introduce him/herself to others with his/her names, age, parents' names, and tell if he is a boy or a girl; - His/her collegues thanks him/her and sit down; - Children play games which help them introduce themselves, for example: *"Do you remember your names?"*
Links to other learning areas: *Kinyarwanda: Improve their speaking skills by introducing themselves to others and listening attentively to the speaker. Numeracy: Tell their age. Social and emotional development: To be happy to know their friends' names, respect their elders and each other.*				
Assessment criteria*: Ability to pronounce their names loudly, their gender and their age in front of others.*				
Resources/Materials*: A drawing of a child with his/her parents; papers containing drawings of girls and boys; puppets,...*				
Parents' role*: To have a conversation with their children at home, tell them their age and their parents' names, teach children how to pray.*				

16

Figure 4-45 CBC/syllabus

Caregivers were asked about the issues they face in planning their own daily learning activities in ECD centers. Regardless of the center, the most common answer was "Insufficient number and variety of teaching materials and tools" (19). The lack of teaching materials and tools was evident in the home-based ECD centers visited.

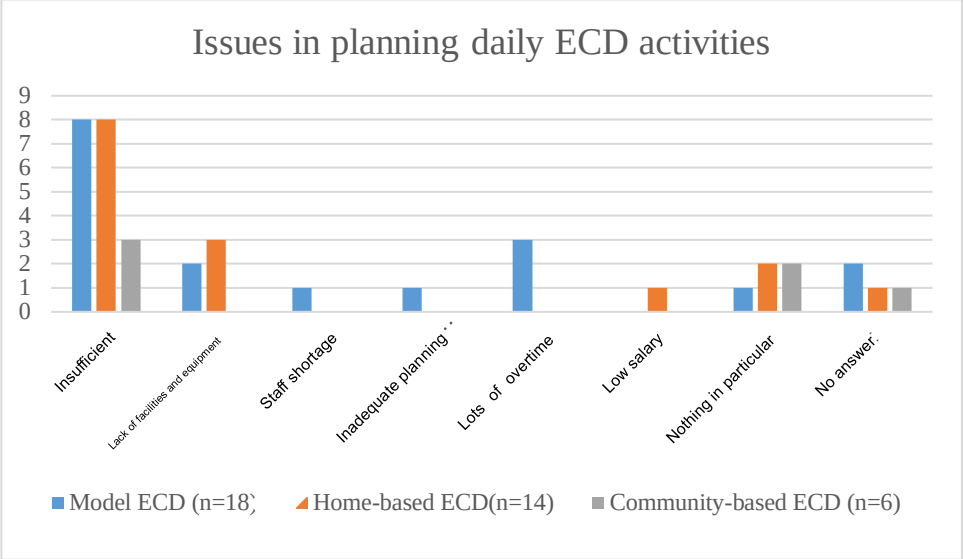


Figure 4-46 Issues in planning ECD activities

When asked separately what they would like to see in an ECD center, they expressed a wide range of desires, from technology to facilities and treatment. Different ECD centers have different tendencies.

Caregivers in the model ECD center were most likely to express a desire for improved treatment, especially an increase in salary (12). This was followed by treatment of regular employee (5), improvement of teaching materials and tools (5), and desire for training (5).

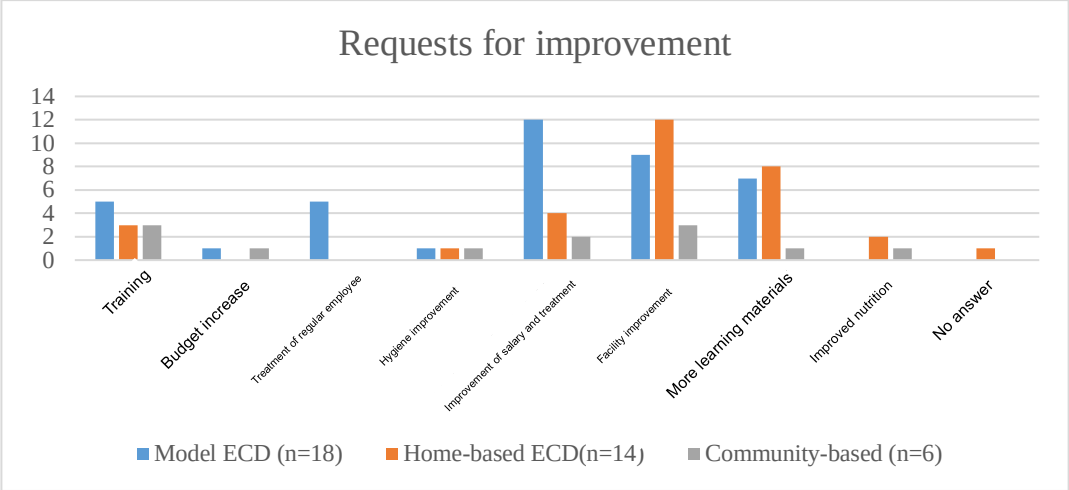


Figure 4-47 Requests for improvement from caregivers

On the other hand, caregivers in the home-based ECD center had many requests for more teaching materials and tools (8) and facilities and equipment. Included in the facility and equipment are study and kitchen space (6) and kitchen utensils (4), mats (2), and toys (2). Others wanted training (3) and to be paid (3).

All of the caregivers in the model ECD center and the community-based ECD center, with the exception of the center director, were contracted employees who renewed their contracts on an annual basis. In most cases, salaries are paid by the district, but according to NCD, in some cases they are paid by NGOs or DP. Since the conditions for contract employees are not good, such as no bank loans available, qualified

employees tend to move to primary school teachers or other jobs with better conditions. As a result, the model ECD center in Rutsiro also had vacancies for caregivers, and was only able to provide services to two classes, one for the older children and one for the younger children.

The high turnover rate of caregivers was also mentioned as an issue by the district mayor and the ECD center director. The instability of their positions and low salaries hinder the retention of caregivers. Caregivers in the model ECD center are paid between 27,000 RWF [234]and 50,000 RWF per month, with 40,000 RWF being the most common. The average for caregivers in community-based ECD centers was 30,000 RWF.

e) Reasons why children are not attending ECD centers

Caregivers believe that ECD centers are useful for children's cognitive and social development, health promotion, and school readiness, and they use home visits and community meetings to educate local residents about the importance of ECD centers.

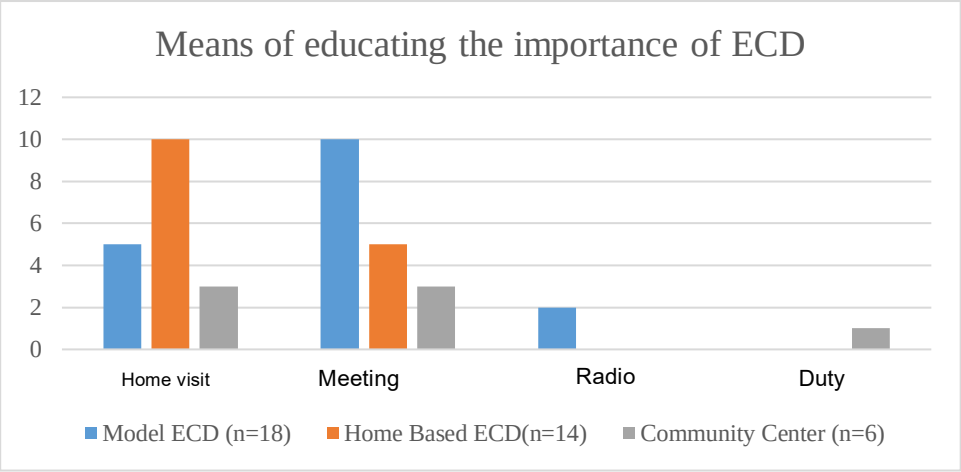


Figure 4-48 Means of educating the importance of ECD

A question was asked why some children do not attend the ECD center in spite of this. The most common reason was “Awareness of parents” (16), but ECD centers are “Far away” (9) and “Lack of information” were also mentioned.

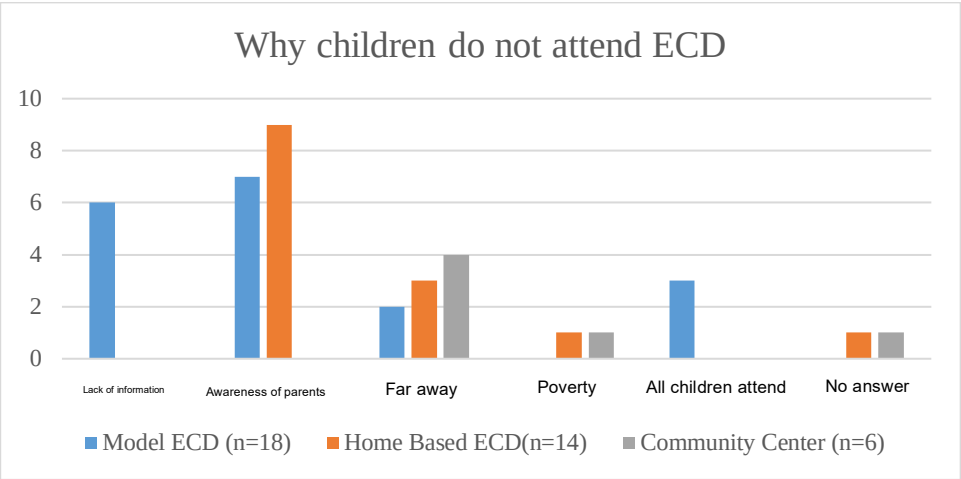


Figure 4-49 Reasons why children do not attend ECD

[234] A colleague in the same workplace answered 38,000.

While it is not possible to get specific information about what "Awareness of parents" really means from this survey, the results of the UNICEF (2019) survey are instructive[235]. According to the said results, parents in particular do not want to send their children to home-based ECD centers because they "do not want children to be cared for by strangers who are not relatives or by staff who do not have adequate skills," and they "do not want to send their children to a place without toys or comfort."

(6) Activity reports and monitoring by sectors

ECD centers are supposed to submit activity reports every month, but there were a variety of answers from model ECD centers about where to submit reports,including Imbuto Foundation, cell, and district. Since this is considered to be the duty of the ECD center director, it may not be properly understood at the level of the caregivers.

Caregivers in home-based ECD centers answered that reports were submitted to the director of the ECD center from those that are under the control of the model ECD center as well as to cell and district. At the time of the survey, all activity reports were submitted in paper form, and some caregivers requested that they be sent as email attachments.

As for administrative monitoring, except for one case, regular monitoring is done by sector or cell personnel on a monthly basis. The content of monitoring includes child nutrition, health status, attendance, facility management, and ECE.

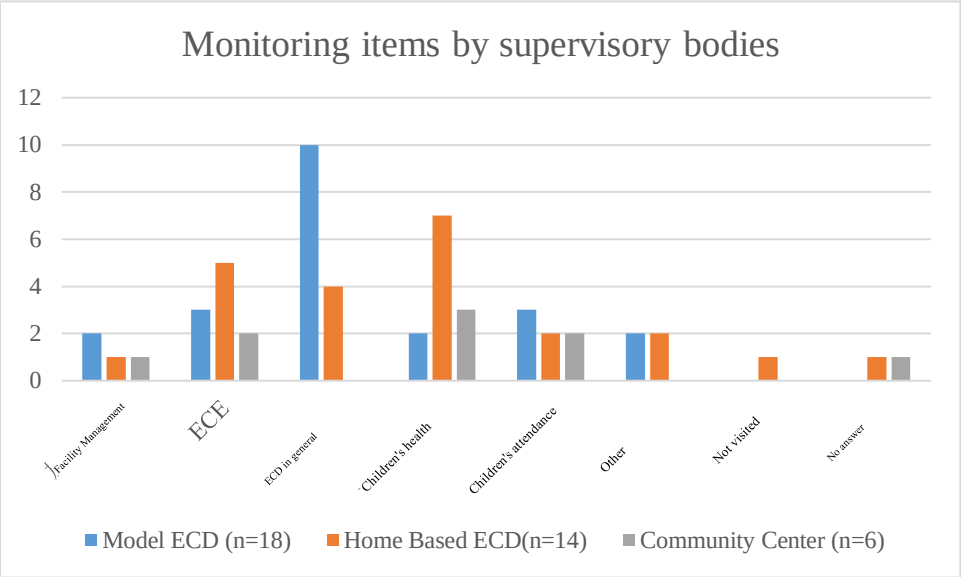


Figure 4-50 Monitoring items by supervisory bodies

During the course of this survey, we came across a case where there was a home-based ECD center that provided services only twice a week, but the sector personnel was completely unaware of it. It is possible that the use of the collected data and the purpose of monitoring are not fully understood at the sector or cell level. The Ministerial Order (2020) will set the operational framework and unified monitoring will be in operation. Policy evaluation and new target setting at the district, sector, and cell levels based on monitoring results, i.e., implementation of evidence-based Imihigo, is an issue.

[235] UNICEF & Partner in Health. (2019). *Capacity gap analysis report of the developing human capital in Rwanda programme.*

(7) Facilities

1) Current situation and issues of facilities

In organizing the current situation and issues of each ECD center, hearing sheets to investigate the outline of the facilities and interview sheets to confirm the details were prepared, and surveys were conducted on the following facilities. The survey result sheets for each of the target schools and centers were prepared as a "school chart" and organized in the appendix at the end of this report.

Table 4-53 Current situation and issues of pre-primary education facilities (for which a school chart is prepared)

Number of survey sites	Current situation	Issues
8 (model) ECD centers	➢ All of the schools visited were established in 2010 or later, and are beautiful brick buildings.	➢ In the cooking area, raw wood is burned for cooking, and ventilation facilities need to be improved. There are some gas cookers and other appliances, but there are issues of breakdowns and gas supply.
3 home-based and community-based ECD centers	➢ These facilities account for approximately 80% of the ECD center facilities. ➢ The scale of these facilities is that of a day care center in a private home with 20 to 30 infants attending.	➢ In terms of the statistical number of registered children, there are approximately 300,000 registered children as opposed to approximately 900,000 children of the appropriate age, resulting in the issue of approximately 600,000 children not being enrolled in school. ➢ In the first place, there is a lack of facilities to take care of children of the ECD-eligible age. Therefore, it is necessary to enhance the number of ECD facilities where appropriate services can be provided. There is also a lack of capacity and number of caregivers.
28 nursery schools	➢ There are three cases: stand-alone nursery school, facility attached to primary school, or facility attached to primary and secondary school.	➢ In the case of stand-alone nursery schools, approximately 80% of the facilities have only classrooms and toilets, and therefore ancillary facilities need to be expanded.

Model ECD center facilities are required to meet the following minimum standards, and eight schools nearly met the standards.

- Three rooms and a qualified caregiver
- Clean and well-ventilated cooking room
- Rest room with mattresses
- Toilets accessible to children with disabilities and special needs
- School ground with sufficient space and playground equipment
- Fence

Model ECD centers of the ECD and F types are very similar in the layout of the buildings on the site. Three classrooms for the younger, middle, and older students, an office, a kitchen, and restrooms are arranged around a courtyard. There is enough space and playground equipment to play outside during recess, but the equipment has not been well cared for in the years since the center was established, and therefore some of the chains on the swings were tangled and some of the seats were broken.

The cooking room has two stoves, and cooking with wood is common. Everywhere the walls and ceilings were black with soot. Chimneys were damaged and smoke exhaust was not functioning in some areas. In the case of the cooking room where smoke exhaust was not functioning, the PM2.5 concentration was remarkably high, especially at the time of ignition (alerted value: 70 μg/m3 on average), and

depending on the wind direction, the smoke flowed in the direction of the classroom, and sometimes the concentration was high even near the classroom.

There is no such thing as a teachers' room in Japan, but there is an office managed by the center director and equipped with desktop computers[236].

The following shows the situation of classrooms of volunteer-run home-based ECD facilities among the approximately 20,000 ECD facilities nationwide. Since part of a private house is used as a childcare facility, the basic structure consists of only classrooms and toilets.

Therefore, the high density of young children (approximately 20 to 30 children/approximately 25m^2) and the small number of ancillary facilities are issues. When compared to model ECD centers, the number of infants is twice as dense.

		
Inside the classroom	Learning scene	Exterior of the classroom

[236] Excluding the IDP model ECD center surveyed.

2) Summarization of standards for facilities

In this section, the standards for ECD facilities are summarized.

Table 4-54 Standards for school and ECD Facilities

Classification	Name	Outline
ECD facility	Ministerial Order N° 001/MIGEPROF/2020 of 03/06/2020 Ministerial Order establishing regulations on the implementation of the ECD programme	➢ Ministerial Order describing the requirements for ECD ➢ Five categories of ECD facilities have been defined: Model ECD, ECD center, community-based, home-based, and home visitation.
	Minimum Standards And Norms For ECD Services In Rwanda(2016)MIGEPROF	➢ Standards for quality, staff, and facilities for ECD services are specified. ➢ For example, 40 students per classroom and a playground of at least $2m^2$ are specified.
	Integrated ECD model guidelines(2019)MIGEPROF	➢ Guidelines on ECD are compiled under the support of UNICEF. The content of facilities are specified according to the service level. ➢ For example, for the model ECD center, at least three rooms, educated caregivers, a kitchen, a large play area, and outdoor facilities, etc., are specified.

(8) ICT utilization

1) Model ECD center:

The model ECD centers have electricity, and the offices of the ECD coordinators, who are the centers' directors, are all equipped with desktop computers. However, there are no internet facilities and no internet connection. There were some cases where software such as Excel was used to manage attendance, development monitoring data, and registration of income generating group activities by parents, but this seemed to depend on the ICT skills of the center director.

Information is exchanged among the directors of the ECD & Family Centers supported by the Imbuto Foundation through a WhatsApp app chat group. At the model ECD centers, 11 out of 17 caregivers owned a smartphone. The use of smartphones was solely for communicating with parents, and none of the respondents said that they used their smartphones for learning activities. It is likely that caregivers are tethered to their personal smartphones if they need Internet access.

2) Home-based ECD center:

Even in the home-based ECD centers located in rural poverty areas, all the caregivers owned cell phones. Of the 14 caregivers interviewed, nine were smartphone owners. All those who responded with the name of their provider (15) used MTN. Even for feature phones[237], the number of users is large because they can listen to radio programs.

[237] Refers to cell phone devices of an earlier generation than smartphones.

3) Status of ICT utilization in health data management

In Rwanda, where ICT is well developed, the technology is also being used in the health sector, and the Rapid SMS system has been introduced. Rapid SMS, a mobile-based report, was rolled out nationally from 2019 after a trial in Musanze, Northern Province in 2009 with support from UNICEF as part of a strategy to reduce maternal and infant mortality.

The system allows HCs and MoH to receive and track reports on maternal and child health indicators for pregnant women and children aged zero to five years, sent in code format from their cell phones by CHWs who provide primary health care services to residents in the village on behalf of health care providers, in real time through an SMS-based platform. Maternal and child health indicators reported by CHWs include data on antenatal care (ANC) and postnatal care (PNC) visits, immunization status, body measurements, detection and treatment of childhood diseases such as malnutrition, malaria, pneumonia, and diarrhea, and maternal and infant mortality. It also has an appointment and reminder function for ANC and PNC visits, which contributes to increasing the consultation rate and the number of deliveries at medical facilities with qualified professionals. In addition, Rapid SMS has an emergency response system. The ability to share information in real time between CHWs and HC staff has led to prompt hospital action in the event of sudden changes in pregnant and nursing mothers and infants, and to rapid emergency response from the time patients arrive at the HC[238,239].

The HC has a person in charge of ICT who manages the Rapid SMS reporting from the CHWs. Internet connection speed in HCs is very slow.

Table 4-55 Rapid SMS Code Table (1/2)

RapidSMS RWANDA — Meaning of the used codes — Republic of Rwanda. Ministry of Health

RapidSMS Codes	
CCM	Community Case Management
CMR	Solution to treating children at home
CBN	Child growth and nutrition in the village
DEP	Displaced child
CHI	The health of the child
DTH	The deceased

Child Health Codes	
DI	Diarrhea
MA	Malaria
PC	Pneumonia
OI	Other illness
NP	No Problem
NV	Not vaccinated

Address Codes	
HC	At Heath center
HO	At Home
HP	At Hospital
OR	On the Road

Codes of who Died	
CD	Child death

First Aids Codes before death	
PT	Was treated
PR	He/she was immediately sent to the clinic or HC
RF	Was sent to the hospital/clinic/HC after treatment
AA	Advised by a CHW

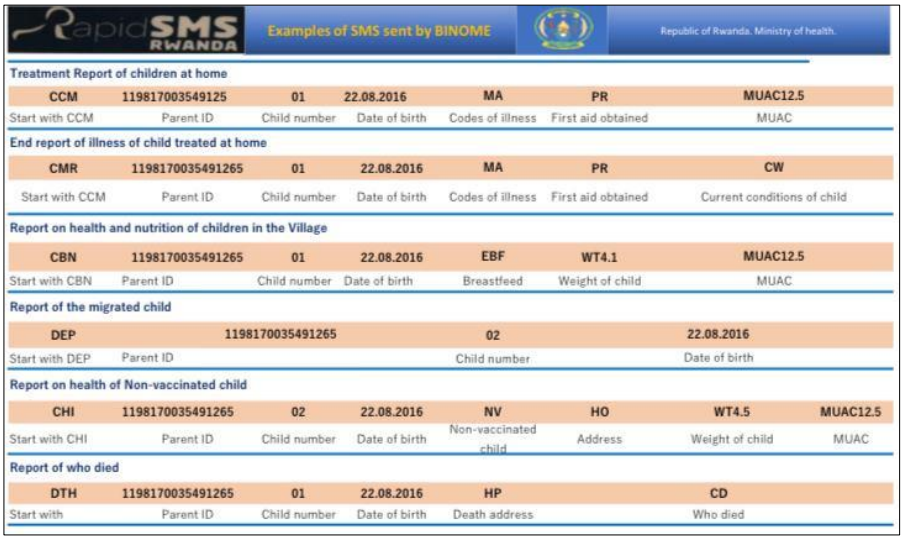
Child Conditions Codes	
CW	A child has good health
CS	Child is sick

Child Nutrition and Health Codes	
EBF	Only breastfeed
CF	Breastfeeding
NB	Not breastfeed
WT	Weight
MUAC	MUAC TEST

(Source: English translation of the Kinyarwanda code table by the survey team)

Table 4-56 Rapid SMS Code Table (2/2)

238 UNICEF: RAPID SMS RWANDA, https://www.odess.io/initiative-detail/rapidsms-rwanda.html
239 mHEALTH COMPENDIUM SPECIAL EDITION 2016, RapidSMS Rwand.



Examples of SMS sent by BINOME

Republic of Rwanda, Ministry of health.

Treatment Report of children at home						
CCM	119817003549125	01	22.08.2016	MA	PR	MUAC12.5
Start with CCM	Parent ID	Child number	Date of birth	Codes of illness	First aid obtained	MUAC
End report of illness of child treated at home						
CMR	1198170035491265	01	22.08.2016	MA	PR	CW
Start with CCM	Parent ID	Child number	Date of birth	Codes of illness	First aid obtained	Current conditions of child
Report on health and nutrition of children in the Village						
CBN	1198170035491265	01	22.08.2016	EBF	WT4.1	MUAC12.5
Start with CBN	Parent ID	Child number	Date of birth	Breastfeed	Weight of child	MUAC
Report of the migrated child						
DEP	1198170035491265			02	22.08.2016	
Start with DEP	Parent ID			Child number	Date of birth	
Report on health of Non-vaccinated child						
CHI	1198170035491265	02	22.08.2016	NV	HO	WT4.5 MUAC12.5
Start with CHI	Parent ID	Child number	Date of birth	Non-vaccinated child	Address	Weight of child MUAC
Report of who died						
DTH	1198170035491265	01	22.08.2016	HP	CD	
Start with	Parent ID	Child number	Date of birth	Death address	Who died	

(Source: English translation of the Kinyarwanda code table by the survey team)

The health information data of the residents collected and stored on Rapid SMS by CHWs will be integrated to the upper levels in the order ofvillage, cell, sector (HC), district, and MoH. Figure shows the aggregation flow of health-related data from the village to the MoH. The data will be aggregated as follows.

[1] Data on health information of residents registered at the village community level will be aggregated by CHWs on a monthly basis for each village and the monthly report will be submitted within three days of the last day of the month.

[2] The cell coordinator of the CHW will consolidate the data from the reports of each village in the cell and submit the monthly report to the HC of the sector within eight days of the last day of the month.

[3] The coordinator of the HC CHWs will consolidate the data from each cell's report and submit the monthly report to the district level hospital within 15 days of the last day of the month.

[4] Data from each sector's HC (sector level) reports will be aggregated at the district level hospital and entered into the Performance-based Financing (PBF) database before being reported to the MoH.

[5] The MoH will publish the data for all districts aggregated in [4] every four months.

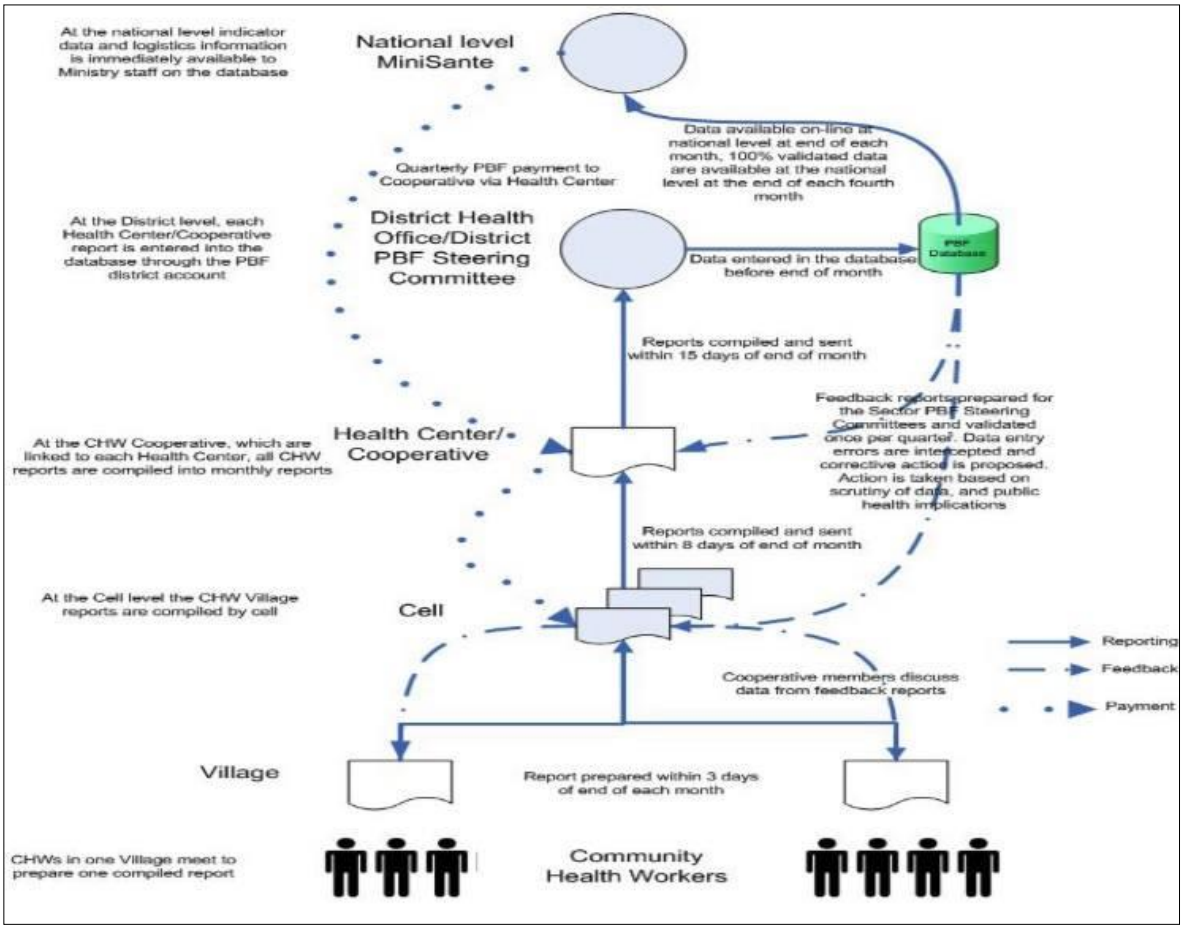


Figure 4-51 Data aggregation flow

(Source: NATIONAL COMMUNITY HEALTH STRATEGIC PLAN July 2013 - June 2018)

The data is entered online in a predefined format, but the reports are prepared in a paper-based manner and manually compiled. Other child anthropometric measurements such as height, weight, and MUAC (Mid-Upper Arm Circumference)[240] are also recorded by CHWs in the register in a unit of village community. Thus, a great deal of time and effort is required for paper-based operations in data management. Fully utilizing the convenience of ICT and developing a system for operating and managing health-related data can not only reduce the workload of health service providers and secure and improve the time and quality of health service delivery, but also provide an opportunity to provide policy makers with faster and more accurate health-related data, which will contribute to solving maternal and infant health issues. In addition, the future introduction of an ICT-based system for ordering goods and checking the inventory status of villages and sectors (HCs) in the district is believed to help address shortages and delays in replenishment of goods in CHW operations.

4) Status of ICT utilization by mothers with children attending ECD centers

As for information and communication equipment, the largest number of respondents (19 or 63.3%)

[240] One of the nutritional status indicators. The circumference of the midpoint of the upper arm on the side opposite the dominant hand is measured with a measuring tape.

owned a feature phone. The functions used in this device were radio and SMS, and the necessary information was obtained through the radio. Seven respondents, or 23.3%, owned a smartphone. That ownership rate is low when compared to the 76.5% smartphone penetration rate in Rwanda in 2019. Among those who own smartphones, the health-related information they collect through this device is on "own health," "child's health," and "child's nutrition." As a free response, regarding "child's nutrition," one respondent commented that "I researched how to make food for my child (infant), but since the recipes were from a foreign country, I wanted information that reflected the Rwandan diet."

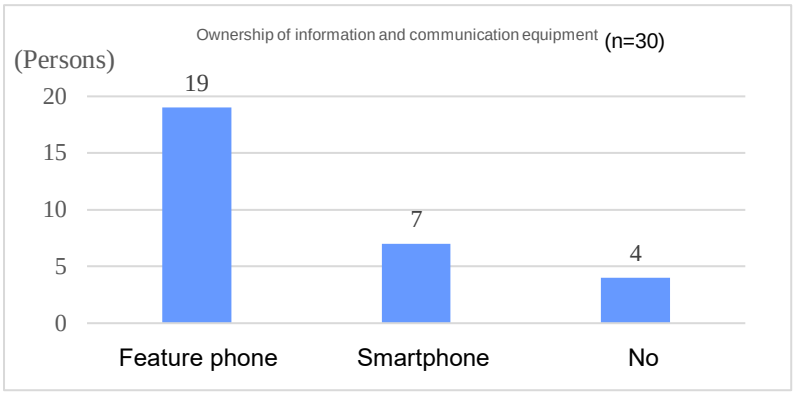


Figure 4-52 Ownership of information and communication equipment

5) Digital maternal and child health handbook

In 2009, a USAID advisor dispatched to the MoH combined the maternal and child record cards and created a draft maternal and child health (MCH) handbook in French, which was the first MCH handbook in Rwanda. Later, the MoH was invited to the "Workshop on Improving Maternal and Child Health and Introducing the MCH Handbook in Africa" organized by JICA and other organizations in Nairobi in March 2010, and planned to complete the draft by adding health education information to the draft MCH handbook. Since then, a number of JICA personnel have intermittently attempted to conduct activities and surveys regarding the full introduction and spread of the MCH handbook in Rwanda[241]. In this survey, the progress was checked with RBC's maternal and child health personnel, and they said that the draft of the MCH handbook is almost complete and waiting for approval with support from WHO, UNICEF, and WB, and that they expect to start using it in 2022. They said that the shift to digitalization will eventually be achieved, but for now they plan to provide it in paper form, and WB will support the printing costs.

[241] It is recorded that Akemi Bando, Secretary General of the International Committee on MCH handbook, and Brainworks visited the MoH in April 2019 to introduce the MCH Handbook.

Chapter 5 Current situation of ICT utilization

5.1 Policies and Laws in the ICT Industry

5.1.1 Policies related to ICT

The current strategy for the ICT sector in Rwanda is the ICT Sector Strategic Plan 2018-2024 (2017) formulated by the Ministry of ICT (MICT). It was formulated under the SMART Rwanda Master Plan (2015), the earlier ICT plan.

The ICT sector takes a key position in the transformation to a knowledge-based society as presented in Vision 2020. The objective is to promote Rwanda's economic growth, strengthening of global competitiveness, economic transformation, and social change with the aim of making Rwanda a major ICT hub in Africa. Therefore, the goals are to promote the spread of broadband, digital transformation (DX) of the government, and acquisition of digital literacy among the people.

In addition, as an ICT policy in the education sector, the ICT in Education Policy has been formulated by MINEDUC, but it only covers the period up to 2020. The next policy is said to be under formulation as of November 2021.

5.1.2 Laws and regulations related to ICT

Laws and regulations related to ICT business have been established in Rwanda as follows.

Table 5-1 Laws and regulations on ICT

Laws and regulations	
Law No. 24/2016 of 18/06/2016 governing Information and Communication Technologies	Laws and regulations on the management of ICT ICT policy and regulatory frameworks
Law No. 31/2009 of 26/10/2009 on the Protection of Intellectual Property	Laws and regulations on the protection of intellectual property
Law No. 60/2018 of 22/8/2018 on Prevention and Punishment of Cyber crimes	Laws and regulations on prevention and punishment cyber crimes
Media Law	Law on media
Law Establishing Rwanda Utilities Regulatory Authority (RURA) and Determining its Mission, Powers, Organisation and Functioning	Laws and regulations on the establishment and authority of the Rwanda Utilities Regulatory Authority (RURA)
Rwanda Child Online Protection Policy	Policy for child online protection
Orders	
Prime Minister's Order No. 105/03 of 30/09/2020 Related to the Community-Based Health Insurance Scheme Contributions	Ministerial Order on contributions to community-based health insurance schemes
Additional and Specific Types of Agreements, Decisions, Practices and Codes of Conduct Considered to Be Anti-competitive or an Abuse of a Dominant Position	Additional examples, agreements, decisions, practices, and codes of conduct on anti-competitive behavior and abuse of dominant position
Ministerial Order on Annual Fees Payable by Public Utilities	Ministerial Order on annual membership fees to be paid by public utilities
Ministerial Order on Conditions to Be Incorporated Into Telecommunications and Radio Communications Licenses	Ministerial Order on terms and conditions for telecommunications and radio communications licenses

Ministerial Order Specifying the Content of the Regulatory Board's Register of Telecommunications Activities	Ministerial Order clarifying the content of the Regulatory Board on registration of telecommunications activities
Requests for Installation of Telecommunications Facilities and Terminal Equipment on Public and Private Property	Requests for the installation of telecommunications facilities and terminal equipment on private property and in public areas
Ministerial Order on the General Conditions and Pricing Principles to Be Respected in Interconnection Agreements	Ministerial Order on the general conditions and pricing principles to be observed in interconnection agreements
Ministerial Order on Telecommunications Networks and Services Not Requiring a Telecommunications License	Ministerial Order on telecommunications networks and services that do not require a telecommunication license
Ministerial Order on Instructions for the Publication in the Official Gazette of Modifications Made to Telecommunications Licenses	Ministerial Order on instructions for the publication in the official gazette of matters concerning amendments to telecommunications business licenses
Presidential Order on Determining the Functioning of the Universal Access Fund and Public Operations Contributions	Presidential order determining the functioning of the universal access fund and public operations contributions
Presidential Order Determining Specific Duties of the Regulatory Board in Telecommunications Matters	Presidential Order determining the specific duties of the Regulatory Board on telecommunications
Regulations and guidelines	
Regulation No. 014/R/SM-ICT/RURA/2021 of 04/05/2021 Governing the Use of the Unlicensed and Light Licensed Frequency Bands	Regulations governing the use of frequency bands without license and with simplified licenses
Regulation No. 013/R/EC-ICT/RURA/2021 of 25/02/2021 Governing Licensing in Electronic Communication	Regulations on electronic communications license management
Regulation No. 011/R/STD-ICT/RURA/020 of 29/05/2020 Governing Importation, Supply and Type Approval for Electronic Communications Equipment	Regulations governing import, supply, and type approval of electronic communications equipment
Regulation No. 010/R/CR-CSI/RURA/020 of 29/05/2020 Governing Cybersecurity	Management regulations on cyber security
Regulation N° 012/R/MR-CER/RURA/020 OF 29/05/2020 Governing Licensing of Multimedia Services Provision in Rwanda	Regulations governing the provision of multimedia services
Guidelines No 009/GL/STD-QOS/ICT/RURA/020 OF 29/05/2020 on Requirements for Indoor Building Solution - Distributed Antennas System Installation	Guidelines on distributed antenna system installation and the requirements for indoor building solutions
Regulation No 007/R/SM-ICT/RURA/2019 of 15/11/2019 on the Radio Frequency Management	Regulations on radio frequency management
Guidelines 008/G/R/SM-ICT/RURA/2019 of 15/11/2019 on the Use of Short Range Devices (RDs)	Guidelines for the use of short-range devices
Regulation N0 006/R/STD-QoS/ICT/RURA/2019 OF 30/01/2019 Governing the Quality of Service of Cellular Mobile Networks Services	Regulations governing the quality of service of cell phone mobile network services
Regulation N° 005/R/MR-MCA/RURA/2019 of 27th/06/2019 Governing Digital Terrestrial Television Services in Rwanda	Regulations governing digital terrestrial television services
Guideline No 01/GL/UAS-ISC/RURA/018 of 07/06/2018 On Minimum Bandwidth for Broadband Internet Connectivity In Rwanda	Guidelines on minimum bandwidth for broadband Internet access
Regulation No005 R/ICT/RURA/2018 OF 09/06/2018 Governing the Management, Assignment and Use of Telecom	Regulations governing the management, assignment, and use

Numbering Resources in Rwanda	of telecommunications numbers
Regulation N°001/R/STDCMR/RURA/018 of 06/07/2018 Governing Unsolicited Commercial Communications in Rwanda	Regulations governing commercial communications
Regulations No 02/R/MP-CMR/RURA/015 OF 24/12/2015 Governing Must Carry Channels	Regulations governing mandatory channels
Regulation N°001/COM&MR/M&PR/RURA OF 4/4/2015 Governing Postal and Courier Services in Rwanda	Regulations governing postal and courier services
Regulation N0 002 OF 26/4/2018 Governing E-Waste Management in Rwanda	Regulations governing e-waste
Regulation N ° 004/R/ICT/RURA/2018 Governing the SIM Cards Registration in Rwanda	Regulations governing SIM card registration
Regulation Number 003/R/ICT/RURA/ Governing Satellite Networks Filing in Rwanda	Regulations governing satellite networks
Regulation No 004/R/MR-MCA/RURA/2017 of 30/06/2017 Governing Broadcasting Services in Rwanda	Regulations governing broadcasting services
Official Gazette No. 10 of 22/03/2021 for Regulation No. 001/R/CA-MCA/RURA/016 OF 26/07/2016 on Promotion by Telecommunication Operators	Regulations governing promotion by telecommunications operators
Regulations No 001/R/TD-ICS/RURA/016 OF 06/05/2016 Governing Telecom Network Security in Rwanda	Regulations governing telecommunications network security
Guidelines for Sharing of Dark Fiber and Duct Infrastructure	Guidelines for sharing fiber and duct infrastructure not used by business operators
Guidelines for Interconnection	Guidelines for Interconnection
Guidelines on the operations of Internet Cafes in Rwanda	Guidelines for the operation of Internet cafes
Guidelines for Rwanda Internet Exchange point (RINEX) management	Guidelines for managing Internet exchange points (RINEX)
Guidelines for Internet resources management and allocation in general and .RW domain in particular	Guidelines for Internet resource management and allocation in general, and .RW domain in particular
Guidelines for limiting human exposure to Electromagnetic Fields	Guidelines for limiting human exposure to electromagnetic fields
Guidelines for Siting and sharing of Telecommunication Base Station Infrastructure	Guidelines for the installation and sharing of telecommunication base station infrastructure
Amending guidelines for siting and sharing of Telecommunication base station infrastructure, 2011	Revision of the Guidelines for Siting and Sharing of Telecommunication Base Station Infrastructure
Regulations for Quality of Service of cellular mobile and fixed networks services	Regulation of quality of service for cell phone mobile and fixed network services
Regulations N°004/ICT/RURA/2012 OF 7/05/2012 for International Gateway Traffic Verification System	Regulations on international gateway optimal verification system
REGULATIONS GOVERNING SUBSCRIPTION SATELLITE TELEVISION SERVICES	Regulations on paid satellite broadcasting services
Regulations No. 004 on the Use of Unlicensed Frequency	Regulations on the use of unlicensed frequencies
Guidelines for Fiber Optic Cables Underground Installation	Guidelines for underground installation of optical fiber cables
Regulation No. 003/ICT.SCRE- RURA/2014 of 12th February, 2014 on Short Code Allocation	Regulations on short code allocation

(Prepared by the survey team based on the website of the Rwanda Utilities Regulatory Authority[242])

[242] https://rura.rw/index.php?id=23 (September 13, 2021)

5.1.3 ICT infrastructure

Rwanda as a whole is still in the process of developing its telecommunications and ICT infrastructure, and major statistics on the state of telecommunications and ICT infrastructure development are as shown below.

Table 5-2 Overall communication situation in Rwanda

	2017	2018	2019
Cell phone penetration rate	73.6%	78.9%	76.5%
Fixed broadband line penetration rate	0.2%	0.1%	0.1%

(Source: Ministry of Internal Affairs and Communications, World Communication Situation[243])

Table 5-3 ICT infrastructure ownership among Rwandan households (ownership rate)

	2005/6 EICV2	2010/11 EICV3	2013/14 EICV4	2016/17 EICV5	2019/20 RHHS[244]
Electricity	4.3%	11.1%	21.5%	34.4%	54.3%
Grid electrification	-	10.8%	19.8%	27.1%	38.9%
Solar	-	0.3%	1.7%	7.3%	15.4%
Radio	46.7%	60.2%	59.8%	73.8%	77.8%
Television	2.4%	6.4%	9.9%	10.4%	12.4%
Computer	0.3%	1.7%	2.5%	3.3%	3.9%
Internet	-	3.7%	9.3%	17.2%	23.8%
Cell phone	6.2%	45.2%	63.6%	66.9%	70.6%
Computer literacy among 15-24- year-old persons	-	6.5%	10.9%	10.5%	15.2%

(Source: Rwanda Statistical Year Book 2020, NISR)

5.1.4 Procurement standards for ICT equipment used in schools

As for the projects in which the GoR is procuring and distributing ICT equipment to promote the use of ICT in schools, there are standards as shown in the table below, and DP is required to follow these standards when providing PCs, etc., to schools.

Table 5-4 Procurement standards for SMART classroom equipment

Expected users and equipment	Minimum specifications
Pre-primary Tablets for children	CPU: Qualcomm MSM8917 OS: Android Working memory: 3GB Storage memory: 32GB Screen: 8.8 inch, 2560 x 1600 pixels, others

[243] https://www.soumu.go.jp/g-ict/country/rwanda/detail.html

[244] Rwanda Household Survey 2019/2020, NISR

Lower primary Tablets for children	CPU: Qualcomm MSM8917 OS: Android Internal memory: 32GB Screen: 10.5 inch, 2560 x 1600 pixels, others
Upper primary Laptop PCs for children	CPU: Intel Celeron G4920 OS: Not mentioned (Windows is assumed) Working memory: 4GB Storage memory: 128GB Screen: 11 inch, others
Secondary Laptops PCs for students and teachers, except for STEM classes	CPU: Intel Celeron N4000 OS: Not mentioned (Windows is assumed) Working memory: 4GB Storage memory: 500GB (HDD is assumed) Screen: 15.6 inch, 1366 x 768 pixels, others
Secondary Laptops PCs for students and teachers in STEM classes	CPU: Intel Core i3-813OU OS: Not mentioned (Windows is assumed) Working memory: 4GB Storage memory: 500GB (HDD is assumed) Screen: 15.6 inch,others
Projector	Type: DLP or LCD Contrast ratio: 15000:1 Resolution & aspect ratio: SVGA (800 x 600) resolution, 4:3 Brightness: 2050 to 3300 lm, others
CAP	OS: Linux Working memory: DDR3L Speed up to 1600 MHz Storage memory: 1TB Battery life: 8 hours with eMMC under, others

(Prepared by the survey team based on ICT DEVICES MINIMUM SPECIFICATIONS FOR BASIC EDUCATION SCHOOLS)

5.2 Situation of ICT-Related Private Companies Regarding the Education Sector

For information on ICT-related local companies in the education sector, the following documents mainly provide the latest information.

Information source	Outline
PRIVATE SECTOR SCOPING STUDY	A report on private companies compiled by Vanguard commissioned by JICA Rwanda Office
250 STARTUPS Website	Information on the group of companies supported by the JICA Technical Cooperation Project "ICT Innovation Ecosystem Enhancement Project"[245]
Ecosystem Map	Information compiled by Briter Bridges[246]
EdTech in Rwanda: A Rapid Scan	EdTech information researched by WB and UKaid[247]

5.2.1 Status of ICT private companies in ECD

There were few cases of ICT utilization in education at the ECD centers surveyed, and only the following one case was confirmed.

At the Nkomangwa ECD center in Rwamagana, 10 tablets for young children were distributed, and a digital teaching material for self-study (Android app) called Kitkit School by ENUMA of Korea were used. The content helps learning basic language (English or Swahili) and arithmetic (basic computation

[245] https://www.250.rw/portfolio
[246] https://briterbridges.com/ecosystem-maps
[247] https://docs.edtechhub.org/lib/TYBTWI8K

skills, Numeracy), and is designed to allow young children to enjoy and study themselves with game elements[248]. Kitkit school runs on Android devices and does not require a constant connection to the Internet. With the support of KOICA, the program is available free of charge for children not only in Rwanda, but also around the world, and has been expanded to 40 countries as of the end of 2020. A license to use this application can be obtained by contacting the Kitkit Secretariat and applying for the number of tablets you want to install and the location where the tablets are to be deployed. As of July 2021, the Secretariat is offering free licenses valid until the end of 2021 to those who wish to use them[249].

5.2.2 Status of private ICT companies in education

The following table summarizes the private ICT companies participating in the education sector, categorized into three categories: providers, contents, and hardware.

As for the major ICT infrastructure providers, BSC, Liquid, MTN, and Airtel are the main providers of Internet services to schools. In most cases, 4G routers are installed in schools, but in some TTCs, optical fiber service is provided by BSC.

According to UNICEF's GIGA initiative, the recommended connection speed for video viewing, etc., in schools is "5 Mbps or higher," but only a small percentage of classrooms meet this speed, approximately 22% of the total.

The original provider of 4G services in Rwanda is Kt Rwanda Networks [250](KTRN, jointly owned by a Korean company and GoR), and other providers, including BSC, purchase lines from KTRN and retail them.

BSC has a near monopoly as a provider of Internet to government facilities, including schools. In the interview with the Chief Commercial Officer of the company[251], it was mentioned that they are offering 4G connection services to many schools with a speed limit of 5 Mbps, unlimited usage, approximately $100/month, and $500 for the initial installation.

Optical fiber lines are fast and stable, but expensive, and therefore there are few cases of contracts for schools. It costs approximately $6,000 to lay a kilometer of cable, and Internet use in schools is characterized by a large difference between normal time and peak time when many people access the Internet at the same time. Therefore, the billing system is an unlimited use system (unlimited bundle consumption) with a set maximum line speed.

On the other hand, at MTN, the largest cell phone company, the General Manager of Enterprise Business Unit[252] gave an interview and responded to an inquiry about the amount of money for a hypothetical case of "bulk purchase through GoR to provide 1 million people with a monthly 1GB internet connection (3G or 4G) for one year" with the rough estimate of "$2.5/month" x 1 million people x 12 months = approximately $300,000/year. It was mentioned that since the 4G tower could cover a radius of approximately 20 km, if the locations of the beneficiaries (people, schools, and organizations) could be specified in detail, a more precise estimate could be made.

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[248] However, if teachers do not provide appropriate guidance and monitoring, children may only learn the "tricks" to clear the game, resulting in inadequate learning.

[249] https://view.flodesk.com/emails/5fcaab44132c2dad1f7efc15

[250] https://www.ktrn.rw/

[251] It was explained that "because it is a landlocked country, the unit sales price of Internet services will be higher (than Kenya and Tanzania). However, according to the survey below, the price of a 1G Internet bundle in Rwanda is 60% higher than in Tanzania, but approximately half the price in Kenya. https://www.cable.co.uk/mobiles/worldwide-data-pricing/

[252] Mr. Didas Ndoli, General manager, Enterprise Business Unit, MTN

Table 5-5 Internet providers

Company name	Description of business, etc.	Issues
Rwanda BSC	• Interviewed with the CTO, detailed explanation, strength in Internet installation for government agencies • Used by many schools (4G, fiber optic line) • REB will pay for the use of 4G Internet connection (5 Mbps) for 637 secondary schools (including TTCs) for five months from July to November this year (RWF 100,000 per month).	■ REB is aware that the 4G line speed (5 Mbps) is not sufficient for the Internet line provision contract for schools mentioned on the left, and is requesting BSC to increase the line speed (15 Mbps) without changing the fee.
Liquid	• Mainly fiber optic lines	■ Had a meeting with the CEO, but little interest from them
Rwanda MTN	• Largest mobile telecommunications company with full population coverage • In partnership with MICT, launched a free smartphone distribution project called the #ConnectRwanda initiative in December 2019. The purpose is to spread and promote the use of the Internet to the socially and economically vulnerable. 16,250 or more smartphones (Mara Phone, MTN Rio Phone, Samsung, Huawei, Tecno, etc.) will be distributed free of charge throughout the country from November to December 2021[253].	■ Less interest in price negotiation
Rwanda Airtel	• Second largest mobile telecom company, low Internet service prices due to competition with MTN	■ No response to the request for an interview
Rwanda Kt Rwanda Network	• The provider of all 4G LTE lines in Rwanda. Monopolistic ISP company jointly owned by Korea Telcom and GoR, 98% population coverage. BSC, MANGO, MTN, Airtel, etc., are positioned as retail partners of KTRN.	■ Information is only collected online
Japan SoftBank	• SoftBank and SMART Africa have agreed to collaborate on the provision of low-cost broadband services in Africa (Details are unclear, but they are willing to provide non-terrestrial networks such as OneWeb, Skylo, HAPS Mobile, etc., and establish a low-cost Internet access environment that can be used at inexpensive prices; Rwanda is one of the target countries). • The technology is advantageous in providing services to remote areas that are difficult to be covered by private companies due to the lack of economic rationality in laying new optical fiber lines and 4G towers. • In partnership with Egates, a local company, the standard amount of Internet bundles and the funding, etc., required by schools and classrooms in Rwanda is being studied.	■ In general, non-terrestrial (satellite-based) Internet facilities tend to be more difficult and expensive to maintain and manage, and therefore economic sustainability is an issue.
Rwanda AOS[254]	• A major ISP established by Korea Telecom and the Rwandan government in 2014. A dominant player in the data server operation industry, including the contract for the Rwandan government's National Data Center. Requiring personal information of citizens of Rwanda to be stored and operated on servers in Rwanda is an obligatory trend[255].	

[253] https://www.minict.gov.rw/news-detail/connectrwanda-smartphone-distribution-continues-targeting-one-smartphone-to-one-household-in-every-village

[254] https://www.aos.rw/

[255] https://cyber.gov.rw/updates/article/rwanda-passes-new-law-protecting-personal-data/?fbclid=IwAR32JRN3zPlliTQ30LRb26dzePY0g6xH61uHwwcTzrFZ9AGoPDXSMkmanSo

Table 5-6 Companies providing online learning and digital teaching materials

Company name	Description of business, etc.	Issues
Rwanda O'Panda	• Constructed a science and math course simulation learning website for secondary school students (e.g., experiment videos)[256] • In response to the Coronavirus pandemic, it has reached a tripartite agreement with REB and the Mastercard Foundation (MCF) to provide free access to secondary school students in Rwanda until the end of 2021 (the conditions after 2022 are unknown, but MCF is considering them). • The running cost of the online learning service was estimated to be 3.15 million francs per term per school. When converted to an annual amount in Japanese yen, this is approximately 1 million yen/school.	■ It was evaluated that its use (increase in the number of users, learning impact) in home learning during the Coronavirus pandemic was limited.
Japan Sakura-Sha	• Adapted Japanese math education know-how to local curricula and developed digital teaching materials that can run comfortably on XOs distributed by the OLPC project (JICA dissemination and demonstration project in progress) • Also looking into the technical feasibility of running them on CAPs.	■ Comfortable online operation on XOs has not yet been achieved.
India Senses[257]	The use of electronic blackboards in the classroom is currently being demonstrated in P5 classrooms at GS Kigali. A multifunctional product with offline access to electronic dictionaries and illustrated books, online access to Wikipedia and YouTube, board writing and clarification support, and voice command recognition, etc.	
South Africa Siyavula	Like O'Panda, it operates a learning portal to support secondary level science and math learning (S1 to S4 math, physics, and chemistry) in Rwanda. MCF is providing financial support to deal with the Coronavirus pandemic. Lots of exercises and explanations of exam questions.	■ Information is only collected online
Rwanda Smart Class	Operates an online learning site for secondary students[258], currently used by 7,000 students from across the country [259]. The monthly fee is 3,500 francs. Awarded at 2020 YouthConnekt. With the Coronavirus pandemic as a tailwind, in cooperation with REB and MTN, the use of MTN data is made free.	■ Information is only collected online

[256] https://www.youtube.com/watch?v=Qzlix009O9s

[257] https://senseselec.com/

[258] https://smartclass.rw/

[259] https://www.newtimes.co.rw/news/how-young-tech-enthusiast-created-elearning-platform

Table 5-7 ICT hardware providers[260]

Company name	Description of business, etc.	Issues
Rwanda Positivo BGH	• Assembly plant in SEZ in response to President Kagame's invitation, PCs made in Rwanda • Large-scale contract with MINEDUC to assemble and deliver laptop PCs and CAPs to schools • Support and repair centers at five IPRCs nationwide, with regular local trips (free repair)[261] • Comprehensive services that package mass PC procurement with teacher training and after-sales service (inquiry and repair) can be provided (unit price is expected to be US$519 for VAIO-FE15 and US$452 for Positivo SF40CM) • Acquired license from VAIO to manufacture full range of VAIO products for South America at its plant in Brazil. In the near future, its plant in Rwanda also plans to achieve "VAIO Made in Rwanda" to produce VAIO products from motherboards and sell them in the entire African continent. The plan is to shift to full manufacturing. Export sales to African countries (Congo, Ghana, etc.) have been started.	■ The contract with MINEDUC was not renewed in 2021, and a comment was heard there were many problems with their PCs. ■ As of November 2021, in response to the request from the Rwandan government (MICT, RISA, MINEDUC, RDB, RTB), the company is currently in discussions with them regarding a contract to manufacture and sell various devices. A five-year procurement plan through 2024 based on NST1. ■ According to MINEDUC, 11,000 new hires will be added to the current 89,000 teachers, bringing the total to 100,000. Of these, only 15,000 OLPTs were procured and distributed by REB to teachers (85,000 remaining). ■ A minimum of five months is required to procure and transport parts from Taiwan and China, and the minimum lot size is 3,000 units (equivalent to one container) when considering the above mass procurement.
Rwanda Mara Phones	• The motherboard of the company's smartphones is manufactured at a plant in Rwanda (in the SEZ site in Kigali). • Tablets will also be available soon.	
Rwanda ARED	• SMART Kiosks with solar panels (WIFI, Internet, 10 Tb memory) contribute to the revitalization of local businesses. • The cost, including taxes, is reduced by manufacturing the products at a partner plant in Hong Kong and importing them as solar cell products. The unit price is expected to be around US$1,800 to 2,000.	■ Sales in Rwanda were weak, and the company shifted to sales in Ethiopia, Nigeria, and Uganda.
Rwanda SolveIT	• A growing startup company that develops software, trains programmers (local distributor of Japan's Dive Into Code), and introduces internships. • Developing an advanced version of CAP (based on TP-Link Wireless Router MR3040), which is	■ There is room for improvement in the comfort, reliability, and reproducibility of the CAP operation.

[260] Other Japanese private companies that have conducted research and demonstration projects in the education sector using JICA's private sector collaboration projects, including NHK Educational, Castalia, KJS Company, Keirinkan, SuRaLa Net, Dive into Code, Tokyo Shoseki, Narika, and the Japanese Standard, are possible candidates to provide digital learning materials for developing countries.

[261] https://ur.ac.rw/IMG/pdf/communique_positivo_bgh_laptop_maintenanace_and_repair_services_in_iprcs_final_version_signed_24-10-2019.pdf

	distributed to schools by REB/Positivo. Additional digital teaching materials can be added. Depending on the volume and content, the unit price is expected to be around US$200 to 300.	
Japan SEIKO EPSON	We have developed an "All-in-One Projector"[262] with built-in digital learning materials, classroom support tools and Android-TV, which is currently being tested in Japan with the aim of realising the digitalisation of school education worldwide. The projector is small and light enough to be easily carried into the classroom, easy to set up and use, and is available at a very low cost (100,000-200,000 yen). The system is supported by a network of branches in other African countries. The system will be equipped with a dedicated LMS that will make it easy for children to study at home using their smartphones, and for teachers to check their attendance and understanding.	

[262] https://www.youtube.com/watch?v=3j5U2_R48Bs This product will be used as a base for the installation of digital teaching materials and an LMS for school education in each country.

Chapter 6 Results of Analysis in the Survey

6.1 Priority Issues of the Education Sector

The priority issue in the education sector is to improve the quantity and quality in primary school readiness.

It is believed that school readiness, i.e., quantitative expansion and quality improvement of pre-primary education and ECD services, is the priority issue. While for improving internal efficiency in primary education in particular, improvement of early primary education is important. [1] Appropriate age and learning skills of children when they enter school, and [2] sufficient care for children in early primary education are considered to significantly reduce the risk of subsequent grade repetition and dropout.

Furthermore, improvement in the internal efficiency of primary education is expected to lead to improvement in the internal efficiency of secondary education, as it is expected to optimize the age at which primary education is completed and lead to improved learning skills.

Since the condition of children in early primary education can be improved by optimizing the age and learning skills at the time of entry to primary education, the first issue that needs to be addressed is considered to be the optimization of the age and learning skills at the time of entry. That is to say, the improvement of pre-primary education is a priority issue.

Furthermore, with regard to [1] and [2] above, [3] factors outside of school are also involved, and it is considered necessary to make efforts to address families and communities.

(1) Appropriate age and learning skills of children when entering school

For pre-primary education under the jurisdiction of MINEDUC, the school enrollment rate is low at less than 30% and the number of nursery schools is also insufficient. Although there are differences due to assumptions, it is calculated that about 10,000 classrooms are insufficient to achieve the planned value for 2024, the final year of ESSP3. Accordingly, the number of teachers needs to be increased in the future. In other words, on the quantitative side, there is a need for more nursery schools (or Nursery classes).

Furthermore, it has been confirmed that the largest number of infants currently attend ECD centers (home-based ECD centers), but since nursery schools are under the jurisdiction of MINEDUC and ECD centers are under the jurisdiction of MIGEPROF, Rwanda's future plans need to be carefully verified.

Thus far the issue of internal efficiency in primary education has been discussed as a sector directly related to HCI, ESSP3, and Educational Statistics. As for internal efficiency, the main factors and issues are inappropriate school age (extremely high GER), high grade repetition and dropout rates, and low learning skills. These issues are more pronounced in early primary education.

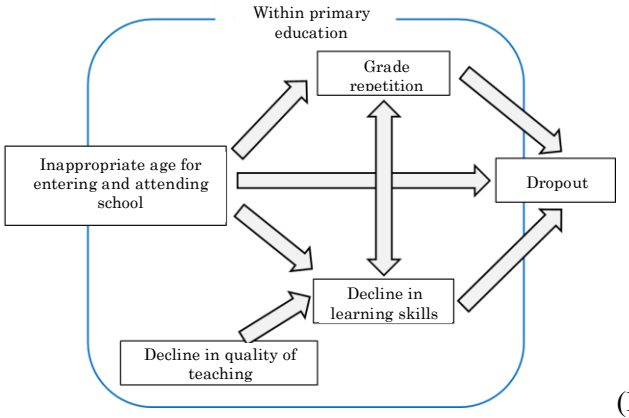
Among these issues, over-age at the time of enrollment is one of the causes that affect all these factors. First, it is necessary to correct the over-age at the time of enrollment. To this end, promoting enrollment in pre-primary education (or ECD centers) is expected to be an effective means that lead to improved learning skills after entering primary education. Furthermore, since the promotion of enrollment in pre-primary education can reduce the burden of babysitting by children at home, it is expected to promote children's enrollment at the appropriate age and improve attendance rates.

However, as described earlier, the largest number of infants before entering school attend ECD centers, and the quality of ECE in ECD centers has been confirmed to be low. Since ECE is supposed to be practiced based on CBC, strengthening ECE in ECD services is the highest priority issue in terms of

quality.

However, both the pre-primary education under the jurisdiction of MINEDUC and the ECD services under the jurisdiction of MIGEPROF target children of the same age, and as mentioned above, the number of nursery school teachers and in-service teachers to be increased in the future needs to be strengthened as well. It is necessary to ensure the quality of ECE at both nursery schools and ECD centers so that there will be no significant difference in learning skills between those who have completed nursery schools and those who have completed ECD centers when they enter primary education.

To address these issues, support for the development of ECD centers, development of nursery schools, capacity building of caregivers and pre-primary teachers, and capacity building of ECLPE instructors and students in TTCs will be effective.



(Prepared by the survey team)

Figure 6-1 Examples of relationships that lead to dropout

(2) Adequate care for children in early primary education

The number of students repeating the same grade or dropping out of school is largest at the time of moving up from P1 to P2. The main reason for this is [1], as mentioned above, but there are also many issues after entering primary education.

First of all, over-age enrollment increases the risk of grade repetition and dropout, and the larger the number of children who enter school late, the larger the class size, the greater the variation in age, and the greater the difference in basic learning skills among the children. For teachers in early primary education in which providing guidance is already difficult, it makes the provision of guidance even more complicated and difficult. In addition, early primary education is basically a double shift, and with the full-scale shift to English in early primary education starting in 2021, the burden on children and teachers is even greater. These conditions make it difficult for teachers to conduct quality classes and provide adequate care to individual children.

In particular, the lower class quality is directly linked to lower learning skills of children, and lower learning skills increases the risk of grade repetition and dropout. The quality of the teachers significantly affects the classes, but the learning skills of each child at the time of enrollment is also a factor. The trend in Rwanda is that the lower the grade, the lower the quality of the teachers. In fact, it can be said that the quality of teachers is relatively low and the quality of classes is low, although the lower quality is partly due to the fact that teaching becomes more difficult in the lower grades and partly due to the situation described above. Therefore, it is necessary to increase the capacity of teachers in early primary education.

To address these issues, support for capacity building of in-service early primary teachers, development

of teaching materials, and improvement of school operation, as well as capacity building of ECLPE instructors and students in TTCs as in [1] above, is considered effective. However, as mentioned earlier, many DPs are already providing various kinds of support for early primary education, and therefore coordination with a large number of DPs will be necessary.

(3) Issues outside of school

First of all, from the above situation, it can be said that children in early primary education are currently in a situation where it is difficult for them to acquire sufficient learning skills only through classes. Even if they try to make up for this outside of school, they face the issue of not having an environment for self-study due to poverty, such as children not being able to take time for self-study due to household chores, lack of places for self-study, and lack of workbooks and other teaching materials for self-study. In addition, the children themselves have not yet acquired the skills (mainly reading comprehension) to be able to study on their own.

As for the family situation, the biggest factor impeding parents' awareness is poverty. Children around the age of entry into primary education in poverty are already expected to be part of the domestic labor force. Especially in families with many children, the elders often take care of the younger ones while the parents are at work, making it impossible for them to go to school. When the younger ones reach a certain age, the elders no longer need to take care of them and start going to school, but at this point they are above the appropriate age for enrollment. As the age difference increases, the children begin to feel the emotional stress of attending school. As they get older, families begin to expect more from them as a workforce rather than sending them to school if their grades are not so good. Doing badly in the early primary grades further increases the risk of dropping out of school.

Therefore, as described above, promoting enrollment in pre-primary education will help, but it is also necessary to create an environment where children can work on improving their learning skills outside of school. It is also necessary for children to fully cultivate the competence to learn on their own during the period of pre-primary education and early primary education. This will provide children with the "zest for living" that will lead them into the future and support their subsequent learning.

6.2 Priority Issues of the ECD Sector

(1) Issues of integrated ECD services

Among the integrated ECD services, this survey focused on health, nutrition, and education (ECE), but each of these sectors is closely related to the other. For health, health is an important component of children's future human capital (working capacity). As for nutrition, “food” is the most fundamental element in the healthy development of children, and malnutrition in infants not only poses a constant risk to their health, growth, and cognitive development, but also affects their learning skills in basic education. In addition, ECE is a major issue, especially when considering the connection to basic education.

Comparing the three sectors of health, nutrition, and ECE, children’s development has been regularly checked by CHWs in the health sector. The interviews with parents indicated that the low attendance fee and the provision of porridge were motivating factors for poor rural households to let children attend the ECD enter. The provision of porridge and milk in the ECD center seems to be helping to improve nutrition, but it is necessary to consider how to compensate for the lack of animal protein, iron, and other micronutrients. In terms of HDI, the issue is to improve the quality of ECE services as well as to further

improve nutrition in home-based ECD centers in poor rural areas.

(2) Quality of ECD services in home-based ECD centers and issues of caregivers

The majority of ECD centers are home-based ECD centers, and the government plans to increase the number of such centers in the future. On the other hand, some parents are concerned about the quality of caregivers and the poor learning environment in home-based ECD centers (UNICEF, 2019). This is also a sign of the high level of interest parents have in their children's education. The aspects of early stimulation and childcare through play are not adequately addressed in home-based ECD centers, and the biggest issue is to develop the capacity of caregivers to implement these activities.

However, considering that the educational background of the caregivers showed that many of them were secondary school dropouts or lower and some of them took a considerable amount of time to read the questionnaire used in this survey, it is not realistic to expect the same level of service from those in the model ECD center. It should also be taken into consideration that the largest number of caregivers in home-based ECD centers consider the lack of teaching materials to be an issue, and there is a strong demand for the enhancement of teaching materials and facility equipment.

(3) Budget for ECD and issues of the competent departments

The absence of a local administrative department to oversee and provide guidance and advice for the entire ECD service is an issue for the administrative organization in charge of ECD. Another issue is the effective and efficient implementation of the PDCA cycle, in which the results and issues are identified from the monthly reports submitted by each ECD center, and then the causes are identified and improvement measures are proposed for the next fiscal year's plan. Given the limited number of human resources in the cells and sectors, efficient collection of report data using mobile devices may be considered.

6.3 Issues and Points to Note in Analysis of Each Sector

6.3.1 Competent ministries in pre-primary education

Infants of pre-primary education age are essentially covered by ECD services, which themselves are under the jurisdiction of MIGEPROF (and NCD). ECD services are generally provided to infants attending ECD centers. On the other hand, pre-primary education in nursery schools is under the jurisdiction of MINEDUC, and it appears that the competent ministry differs depending on where the infant belongs.

However, in recent years, MINEDUC has organized ECD centers under MINEDUC jurisdiction in some cases, and there seems to be no clear policy, definition of terms, and demarcation established between MINEDUC and MIGEPROF.

Furthermore, the ECD services themselves are under the jurisdiction of different ministries and agencies such as NCD, MINEDUC, MoH, MINAGRI, etc., depending on the nature of the services, and there seems to be a lack of sufficient coordination.

MINEDUC responded that it was in discussion with MIGEPROF on this matter and that coordination was still being carried out within MIGEPROF. MINEDUC is in the process of discussing various options, such as sending children to nursery school for the last year of their pre-primary education (N3) and leaving them at the ECD center until then, or having NCDs care for children under three years of age at the home-based ECD center and then sending them to nursery school or model ECD center, etc.

As a result, it must be said that MINEDUC's Education Statistics and basic NCD information in this sector are rather unclear. In the future, considerable attention will be required in statistics and data analysis.

In addition, support for infants of pre-primary education age should be comprehensive, including parents, as in the case of ECD services. Since it is unlikely that MINEDUC will be responsible for these aspects of pre-primary education, including the part other than ECE, it is necessary to pay attention to the results of future coordination between the two ministries.

6.3.2 Trends in development partners

The impact of the Coronavirus pandemic is likely to lead to successive changes in the components and duration of projects that DP is implementing or planning to implement. Especially for WB-related projects with high potential for collaboration, it is necessary to thoroughly check the movement.

Furthermore, as mentioned earlier, the status of DP support in Rwanda's education sector as of 2021 is quite congested. The issue is that MINEDUC and REB do not have an accurate grasp of the situation, and since accurate information cannot be obtained directly from REB, it is necessary to proceed by hearing directly from DP, etc., about the support status.

This situation is likely to exceed the limits of the coordination capacity of MINEDUC and REB, and the actual design of support measures will require ingenuity to avoid the burden on the other party as much as possible.

Chapter 7 Consideration of Support Measures

7.1 Measures for Solving Issues

As described in Vision 2050, NST1, and ESSP3, from the point of view of human capital, primary education plays an important role in Rwanda's economic development. In the results of this survey, the above-mentioned points were listed as priority issues for improving the quality of primary education in the education sector. These results can be represented by the following 'problem tree' diagram.

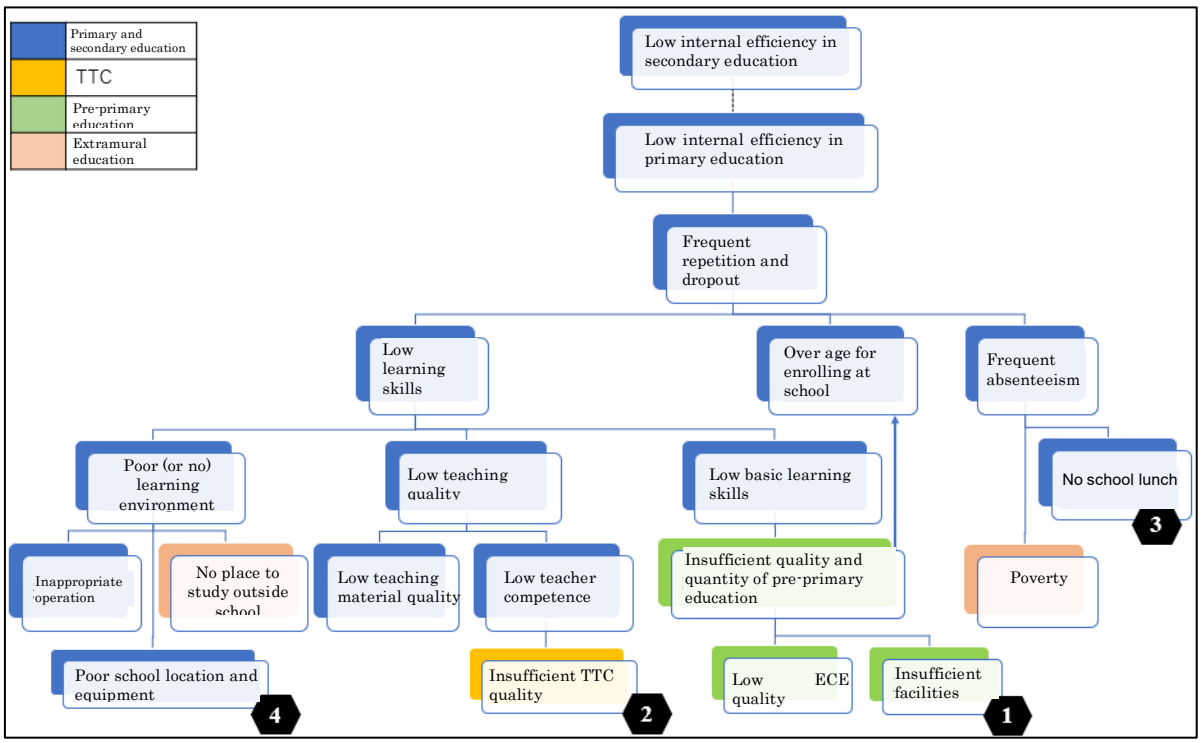


Figure 7-1 Problem tree

Based on this, three major measures to improve primary education quality are as follows.

7.1.1 Development of pre-primary education

Although pre-primary education is regarded as an important area in ESSP3, etc., a significant deficiency in the number of facilities (schools) has been an issue. As shown with [1] in the above figure, it is necessary to first secure the number of facilities while working to fulfill the quality and quantity of pre-primary teachers at the same time.

For pre-primary education facilities under MINEDUC, a proposal has been made from MINEDUC to add (establishment as an annex) at least one pre-primary education classroom to all existing schools[263]. According to the ESSP3 target, the percentage of primary schools with pre-primary classrooms will be 63.4% in 2024. In any case, there is a considerable deficiency in the number of classrooms as described below, and extensive efforts are required in this area.

[263] The 2021/22 Forward-Looking Joint Review of the Education Sector (MINEDUC, 2021)

Through this, internal efficiency in primary education will be improved by making up for a deficiency in school readiness identified in the previous chapter and setting the appropriate age for entering primary education. At the same time, with sufficient school readiness, children can acquire basic skills required for learning after entering primary education, leading to the improvement of learning outcomes in primary education.

The major causes of dropout are over age and learning skills. This measure is expected to contribute positively to a reduction in these causes, eventually leading to the improvement of internal efficiency in secondary education.

7.1.2 Improving the TTC quality

Although significant improvement of TTCs has been promoted through RQBE, many issues still remain in terms of hardware as well, and effective solutions by GoR have not been confirmed yet. As described above, the number of MSs, which are main practical training schools for TTCs, is still insufficient and facility development to upgrade DSs to MSs as done through RQBE is further required.

However, regarding the quality improvement of TTCs, a JICA Technical Cooperation Project, the "Project for Improvement of Science and Mathematics Education in Primary Schools through ICT Utilization", was started in October 2021. By promoting the development of hardware to optimize the effectiveness of this Technical Cooperation Project, the quality of TTCs can be improved in a synergistic manner. That is to say, developing MSs where students of TTCs receive practical training can be an effective means for improving the quality of [2] in the above figure.

In addition, regarding the method to develop MSs, upgrading the facility development from DSs to MSs by following RQBE may be considered. However, as requested from MINEDUC[264], there is an opinion that establishing new MSs is preferable. Furthermore, MINEDUC has come up with the idea of developing MSs not only as practical training schools, but also as Centers of Excellence in each district. According to this idea, two Centers of Excellence are to be established in each district, thus requiring a total of 60 MSs nationwide. Since 17 schools have already been addressed in RQBE, 43 schools remain unaddressed.

Improving the quality of TTCs is expected to improve the quality of teaches and teaching in primary education. This is expected to contribute to the improvement of learning quality for the children in primary education.

In addition, since a pre-primary education teacher training course called ECLPE is available in TTCs, developing TTCs is considered to contribute to the quality improvement (improvement of ECE) of not only primary education, but also pre-primary education.

7.1.3 Development of facilities in general

As described above, quantitative development of facilities such as pre-primary education facilities and MSs is a priority issue, but quality improvement of facilities is also required.

First, as a matter related to [3] in the above figure, provision of school lunch started nationwide in

[264] From the speech of the DG of the Planning Department, MINEDUC.

Rwanda. While provision of school lunch in all grades has been promoted, the availability of equipment such as kitchens and other infrastructure is not keeping up with the demand at all.

Even in schools that are already providing school feedings, many classic kitchens and inadequate cooking facilities that lack environmental friendliness have been confirmed. Especially in kitchens that are not equipped with smoke exhaust equipment, health hazards to cooks are also an issue.

Furthermore, as a matter related to [4] in the above figure, for the construction of schools and classrooms addressed by RQBE and MINEDUC in recent years, there have been identified issues regarding the location and quality of the buildings.

In promoting the construction of the above-mentioned pre-primary education facilities and MSs, the location and quality of buildings as well as the development of kitchens need to be included in the important points to be considered.

For both children and teachers, development of appropriate learning environment leads to the improvement of learning outcomes. This is expected to improve the learning skills and contribute to solving the deficiency in learning skills, a cause of dropout.

7.2 Effective Support Measures

7.2.1 Support measures

(1) Education sector

For the content of proposed support measures other than the above compiled from the survey results, refer to the presentation materials (Appendix) used in the consultation with MINEDUC PS held in this survey in November 2021. The outline of each measure is as follows.

Table 7-1 Other support measures (education sector)

Target issue	Support measure	Content
Primary education sector		
Decline in learning skills of children	Cultivation of basic learning skills of children · Technical Cooperation Project · Grassroots technical cooperation · JICA Overseas Cooperation Volunteers	· Promotion of learning outside school · Development and utilization of workbooks · Dissemination of teaching methods using textbooks · Improvement of blackboard demonstration plans · Cultivation of reading comprehension skills of children ⇒ **To be integrated into establishment of multi-purpose classrooms in the above-mentioned yen loan scheme**
Delay in implementation of the school feeding policy	Support for the school feeding program · Yen loan · Grant aid	· Establishment (construction) and reconstruction of environment- and health-friendly kitchens according to the number of children/students · Development of peripheral infrastructure required for cooking · Development of food for school lunch could also be an idea · Dissemination of dietary education activities ⇒ **To be integrated into development of**

		kitchens in the above-mentioned yen loan scheme
Nutritional deficiency in children in school lunch		
Shortage of laboratories	Development of science laboratories that can also utilize ICT · Yen loan · Technical Cooperation Project	· Development of ICT equipment as laboratories that can also utilize ICT while developing laboratories/experimental equipment by following QBE ⇒ **To be integrated into [2] development of MSs in the above-mentioned yen loan scheme**
Secondary education sector		
Loss of opportunities for training in TTCs, decline in quality of practical training, delay in ICT utilization	Networking between TTCs nationwide and UR-CE · Yen loan	· Support for ability enhancement by connecting all teacher training institutions online and increasing the opportunities for joint training and research on teaching · Support for ICT development in TTCs: Establishment of a third SMART classroom as a training site in each TTC · Development of ICT infrastructure, strengthening of the Internet in particular
Decline in quality of practical training, shortage of practical training schools	Development of the second Model School · Yen loan	· Reconstruction of neighboring public schools to which TTCs send trainees by following QBE Model Schools to develop them for practical training ⇒ **To be integrated into [2] development of MSs in the above-mentioned yen loan scheme**
Breakdown of ICT equipment, poor ICT utilization due to insufficient maintenance	Training of ICT assistants · Technical Cooperation Project · Dispatch of experts · Dispatch of senior cooperation volunteers	· Training of human resources/engineers who can maintain and repair ICT hardware equipment in schools and staffing them in schools (one person per three to five schools)
Shortage of SMART classrooms	Enhancement of functions of ICT rooms · Yen loan	· Development of SMART classrooms in schools where two or more SMART classrooms are not secured ⇒ **To be integrated into [2] development of MSs in the above-mentioned yen loan scheme**
Deficiency in the number of teachers trained	Additional establishment of TTCs themselves · Yen loan	· Establishment of a new TTC in Kigali to begin with · New establishment of TTCs in districts with no TTC

(2) ECD sector

In the ECD sector, establishment of a Japanese-style model ECD center by utilizing grant aids and grassroots grants, establishment of a caregiver training system and ability enhancement through Technical Cooperation Projects, and improvement of maternal and child nutrition through cooperation with the private sector, were considered based on the survey results.

Model ECD centers established through support by NGOs are superior in terms of the provision of comprehensive ECD services compared to nursery schools. It is not clear at present what roles the ECD

sector plays in pre-primary education in the future, but at least from the points of view of improvement of comprehensive ECD services in low-income rural areas and community development, it is expected for model ECD centers to play a central role. That is to say, in low-income rural areas, the centers are expected to improve maternal and child health and nutrition in cooperation with HCs and CHWs, provide continuing technical support to Home-based ECD Centers' caregivers, and function as a place of learning for local residents to generate new income. Provision of a place for local children to study themselves outside school can also be considered. While learning from the efforts of Japanese community centers, a Rwandan model for community learning centers will be pursued, where innovative efforts for education development and rural development are experimented on a trial basis.

Table 7-2 Other support measures (ECD sector)

Target issue	Support measure	Content
Quality improvement and functional enhancement of ECD services	Establishment of the Japanese-style model ECD center adjacent to HCs and schools, equipped with functions/facilities as local learning centers (community centers) · Grant aid · Grassroots grant · JICA Overseas Cooperation Volunteers · Senior cooperation volunteers	· Selection of a district to establish the model ECD center adjacent to HCs and schools in the sector · The model ECD center shall accompany a local learning center and SMART classroom · Training room · Library · Teaching material center · Study room · Cooking practice room · Poultry farm · ECE (unrecognized) making use of the characteristics of Japanese infant education · Functional enhancement of HCs (improvement of nutrition, CHW training) · Provision of learning opportunities for employment creation and income generation
Low ability of fosterer to provide ECD services	· Technical Cooperation Project · Senior cooperation volunteers	· Cultivation of mentors from model ECD center staff and nursery school staff · Preparation of model scripted lessons · Creation of model lesson videos · Educational radio program · Telephone consultation · Mentoring

(3) Nutrition improvement

The issue in nutrition improvement is that there are restrictions in the acquisition of necessary food due to low income and a lack of funds for school lunch, causing deficiency in or lack of intake of nutritious food (proteins and iron in particular) before and during pregnancy, infancy, and primary and secondary/advanced education. For this issue, proposed support measures are shown in the following Table 7-3 Proposed support measures for nutrition improvement and explanations are given for each item.

Table 7-3 Proposed support measures for nutrition improvement

Target issue	Support measure	Content
Improvement of nutrition intake		
Shortage of animal proteins intake	· Poultry farming	· Intake of animal protein sources via eggs and poultry meat
	· Use of egg powder	· Long-term storage and stockpiling at home and in

		schools · Stable intake of animal protein sources by using them for preparing staple food, main dishes, side dishes and snacks, etc.
	· Technical support for food processing such as freeze-drying and air-drying	· Stable food access through long-term storage of food items at room temperature · Reduction of burden for shopping and cooking · Maintenance of nutritional value of meals at home and for the school lunch
	· Insect food	· Stable intake of nutrients including protein · Income generation by insect cultivation
Deficiency in intake of iron and micronutrients	· Use of iron cookware	· Improvement of daily iron intake by using iron pans and iron ingots (example: Lucky Iron Fish) in cooking
	· Micronutrient powder (MNP)	· Improvement of micronutrients intake by eating MMP mixed with Sambaza (small fish) powder and egg powder as seasoning
School lunch with low nutrient density	· Cooperation with WFP and other related organizations	· Promotion of school lunch expansion by disseminating the operation of the school lunch operation guidelines and the establishment of school vegetable gardens
	· Utilization of the JICA volunteer system	· Support for the implementation of the school lunch by utilizing knowledge, practical examples, and know-how from Japanese school lunch · Expansion of school lunch menus by using various foods, including dietary education
Utilization of multi-purpose facilities of Japanese-style model ECD centers		
Enhancement of nutrition/health services for improving malnutrition	· Establishment of multi-purpose facilities in Japanese-style model ECD centers as an annex	· Implementation of nutrition/health services and guidance including ICT utilization, and cooking class by CHWs to improve nutrition · Provision of a place to learn business to increase household income and to exchange information among local residents
Development of fortified foods and preserved foods		
Improvement of malnutrition	· Cooperation with the private sector	· Development of fortified foods and preserved foods · Reliable distribution of Fortified Blended Food (FBF/Shisha Kibondo) to the target people and registration and monitoring of the target people through ICT utilization

1) Improvement of animal protein intake

a) Intake of eggs and poultry meat through poultry farming

For the production of livestock which will be animal protein sources in Rwanda, poultry farming is considered appropriate. The reasons include: (1) agricultural land is limited and (2) as described in 4.3.3, there have been success cases of model ECD centers not only providing eggs to children through poultry farming, but also selling them to generate income that would be the operating funds of ECD centers, and (3) a US NGO organization “One Egg” has been implementing a project to provide eggs to children through poultry farms operated by local companies. Through poultry farming, intake of eggs that can be regarded as complete food with the highest protein score of 100 and including all the nutrients except for Vitamin C and dietary fiber as well as poultry meat with the protein sore of 85 would be possible. In addition, generation of income can also be expected for households with no land. Since there are not many business-oriented people, support that includes establishment of business is necessary.

b) Use of egg powder

The Food and Agriculture Organization of the United Nations (FAO) has invested approximately 400 thousand US$ and has been implementing a project to process raw eggs into egg powder in Rwanda on a trial basis since November 2021.

Since eggs are expensive food items in Rwanda, it is not easy for ordinary people to purchase them on a daily basis. With the progress of the FAO project, the production volume of eggs is expected to increase, thereby stabilizing the price of egg powder. Also, in addition to enabling long-term storage and stockpiling at home and in schools, its availability for various menus makes it promising for stable intake of animal protein sources.

c) Use of freeze-dried and air-dried foods

Processing food by freeze-drying or air-drying enables long-term storage at room temperature. It would be particularly convenient for households in rural areas without equipment to store food such as cold storage, because long-term storage of food at room temperature can be expected to enable access to food on a daily basis and reduce cooking time and burden of shopping, etc. For the school lunch, it is considered that these processed foods can be effectively utilized by stockpiling them using the rolling stock method[265]. Using processed food in school lunch can make up for a deficiency in raw food supplied in small volume only, and be expected to maintain nutritional value of school lunch. In the future, technical cooperation in food processing technologies of Japan will also be considered to be an effective support.

d) Intake of protein sources with insect food

“Insect food” has been attracting attention as a trump card for solving the food issues. Bread and protein bars, etc. containing insect powder are commonly sold and eaten even in Europe and the United States where there is not customary to eat insects. In Madagascar where since 2019, the Technical Cooperation Project “Food and Nutrition Improvement Project” has been implemented by JICA, insect food dissemination activities are promoted in the “insect rearing farm development program” implemented through public-private-academic collaboration.

Winged white ants and grasshoppers are also eaten in some regions in Rwanda. Insect food is highly nutritious, containing not only proteins, but also vitamins and minerals, and can be eaten whole with few wasted parts. In addition, it requires less water and feed than livestock and emits 100 times fewer greenhouse gas than livestock. Furthermore, insects can be reared relatively easily, and therefore it is easier for residents with no land to be involved in collecting, farming, and selling them. With insect food becoming more popular, stable intake of nutrient sources, including proteins, and generation of income for the low-income demographic through commercializing insect farming can be expected.

[265] The method of buying and keeping extra emergency food on a routine basis and additional buying of the amount used in preparation for emergency situations, thereby stockpiling a certain amount of food at home at all times.

2) Improvement of intake of iron and micronutrients

In order to improve malnutrition, iron is a micronutrient that should be taken with priority, along with proteins, to avoid deficiency. In order to prevent iron deficiency, intake of food products with a high iron content in daily meals is important. Since animal food products are expensive, it is rather difficult for the residents to consume iron on a daily basis. As a method to consume iron from something other than food, getting creative with cookware may be considered. For example, it was reported that the rate of iron intake and health conditions were improved by using iron pans for cooking in Ethiopia (Adish, et al., 1999) and iron ingots for cooking in Cambodia (Christopher, et al., 2015). Although detailed verification is required, using these cookware for cooking at home and in schools may improve iron intake. In addition, in Rwanda, small fish called Sambaza is eaten by frying or drying. Processing this small fish into powder and mixing it with other food products in order to be eaten as seasoning can also be expected to lead to intake of micronutrients.

3) Provision of school lunches with sufficient nutritional value

From the results of this survey, it was observed that for school lunches in public schools, the cooking ingredients used are limited and menus are monotonous with low nutrient density, not meeting the total nutrient rate recommended in the school lunch guidelines.

In order to improve the nutritional value of school lunch, use of milk directly purchased from farms at lower price than market price, egg powder, and soybeans, etc. are considered effective strategies. In addition, disseminating the operation of the school lunch operating guidelines and promoting the establishment of school vegetable gardens to quickly expand school lunch in schools nationwide in cooperation with WFP and relevant organizations are also considered an effective support.

Japanese school lunch has been drawing attention from overseas countries because of its high quality. Its characteristics include consideration for optimal nutrition, low price, being cooked onsite, and establishment of a place for dietary education (New Sphere), etc. Support for implementing a school lunch that makes use of Japan’ s knowledge, practical examples, and know-how on school lunch by utilizing the JICA volunteer system is also considered effective.

4) Utilization of multi-purpose facilities of Japanese-style model ECD centers

The proposal to establish the above-mentioned Japanese-style model ECD centers includes proposed establishment of multi-purpose facilities as an annex. Using those facilities as a place to implement nutrition/health services and guidance, including ICT utilization, and cooking class by CHWs to improve nutrition may be considered. In addition, in order to improve nutrition, it is necessary to increase disposable income of households to improve purchasing power. Therefore, using multi-purpose facilities as a place to learn business to increase household income, and to exchange information among local residents, may also be considered.

5) Cooperation with the private sector

As a measure to improve malnutrition, development of fortified foods and preserved foods has been proposed. Currently in Rwanda, with the government bearing all the expenses, NCD distributes Fortified

Blended Food (FBF; product name: Shisha Kibondo) to infants aged 6 to 23 months who fall under the Ubudehe category 1 and 2, pregnant women, and lactating women. FBF is expensive (115 USD/infant aged 6 to 23 months/year: 58 USD/pregnant woman/year), and for GoR to continue the distribution is financially difficult. In addition, there is an issue of inadequate monitoring, including omission in distribution to the target persons and mistakes in registration, etc. Contributing to sustainable development in this area with technical cooperation between Japanese companies and local companies through utilization of the scheme of cooperation with the private sector and commercialization support in ensuring distribution of FBF to the target persons and registration and monitoring of target persons through ICT utilization and developing fortified foods may be considered. The information on business partner candidate local companies confirmed through this survey is as follows.

Company name	Situation
Africa Improved Foods(AFI)	A merged company established by a Dutch multinational company Royal DSM which is the largest vitamins manufacturing company in the world, International Finance Corp. (IFC) affiliated with WB, a Dutch development bank FMO, FCDO (former DFID), and GoR (capital contribution ratio of 7%). It has been producing standardized products (three types of Shisha Kibondo and FBF of WFP) to deal with malnutrition and seven types of FBF for general consumers since 2016. FBF for general consumers is most popular in markets in Rwanda. Raw materials are purchased from 160 or more contracted farms, and domestic products are mostly used. Their factories are Swiss designed. Their products are manufactured through automation and are under good control inside the factories. Since AFI is making a proposal to GoR about the possibility of providing nutrition intervention to the school lunch program, technical cooperation in the development of fortified foods for school lunch and/or cooperation in commercialization support may be considered.
Jibu	Established in 2012 in Rwanda. Its owner is an American. A franchise model business has been implemented in seven countries in East Africa (Rwanda, Uganda, Kenya, Tanzania, Burundi, DRC, and Zambia). They do not have large factories. Their products are bought up from multiple small-scale manufacturing factories and packaged under the brand name Jibu, and then sold in retail stores through local entrepreneurs. Their product line-up has expanded from drinking water to porridge and gas for cooking, in that order. While providing entrepreneurs with interest-free loans, store opening support and training, etc., business ideas are sometimes received from them. There are 53 franchise member stores in Rwanda. Since the markets exist throughout the country, fortified foods can also be delivered to the residents living in geographically remote regions using franchise member stores.

7.2.2 Suggestion of effective support measure

Among the above list of support measures, the improvement of school readiness and improvement of teachers' capacity (improvement of quality of TTC training) can be mentioned as effective support measures to the priority issues identified in Chapter 6.

As mentioned above, it is important to improve the quality of primary education in order to improve the internal efficiency of primary education, and for that purpose, it is necessary to optimize the school age and develop basic learning skills at the time of admission to primary education. By starting primary education at an appropriate age and learning skills, the risk of dropout and repetition can be reduced.

In addition, it is necessary to improve the quality of teachers in order to continue quality learning so that it will not lead to repetition or dropout even after entering primary education.This is also the case in pre-primary education including ECD, the improvement of the quality of teachers contributes quality learning at pre-primary school so that children can continue learning after entering primary education.

On the other hand, pre-primary education facilities including ECD and TTC training schools (MS) are significantly lacking in infrastructure, and the foundation for improving quality is not in place. It is effective to improve the quality while promoting infrastructure development.

Therefore, Facility development is the main component, and based on deficiency in the number of pre-primary facilities and the number of MSs to be developed (described later), utilizing the yen loan scheme is considered to be best.

MSs to be supported include education courses from pre-primary education to late phase secondary education, and 43 schools will be developed in accordance with the school development policy of Rwanda. On the other hand, development of pre-primary education facilities will also be promoted through its establishment as an annex to existing primary and secondary schools and new development, in addition to pre-primary education facility development in MSs.

This will enable support for primary education at the stages before and after entering schools. The content of yen loan proposed is as follows.

Scheme	Yen loan (loan assistance)
Purpose of the project	Improvement of access to pre-primary education and teacher training in TTCs, in order to improve internal efficiency in basic education.
Amount to be provided	※ Estimated for donations of 3 billion yen
Interest rate[266]	0.01%
Repayment period	40 years (of which the deferment period is 10 years)
Financing conditions	Untied
Target country/region	Republic of Rwanda
Project implementation System	Borrower: MINECOFIN Project implementing agency: MINEDUC
Content of the project	JICA supports improving the access to pre-primary education through the construction of pre-primary schools or classrooms. School readiness is improved through the optimization of age and learning skills at the time of entry to primary school so that children start primary education with the appropriate status In addition, JICA supports the improvement of the quality of lessons by improving the quality of teachers. The quality of teachers is improved by refurbishing or constructing MS(s) in a way that allows teachers to be trained and to do internships in a suitable setting. Through these measures, primary education will be supported both before and after the enrollment of children, and the internal efficiency of primary education will be improved. With these measures, children will be supported both before and after enrollment in primary education, thus its internal efficiency will be enhanced.
Components	**Component [1]: Enhancement of pre-primary education facilities** · Additional establishment (establishment as an annex) of pre-primary classrooms to existing schools · Similarly, development of kitchen equipment, infrastructure, and SMART classrooms · New establishment of nursery schools, taking into consideration the locations to which infants can commute · Similarly, development of kitchen equipment and infrastructure · Establishment of multi-purpose rooms open to the community · Select 20 model schools 500 million RWF ≒ 10 billion RWF **Component [2]: Construction of MSs** · Construction of 43 MSs (or reconstruction of existing schools) · Similarly, development of SMART classrooms, laboratories, TRCs, kitchen equipment, and infrastructure · Technical support such as various safety facilities and proper drainage structure placement is considered to be Japanese-style support. · Select 10 model schools × 2 billion RWF ≒ 20 billion RWF **Components [1] + [2]** · Total of 30 billion RWF ≒ Approx. 3 billion yen
Collaboration with other projects	Project for Improvement of Science and Mathematics Education in Primary Schools through ICT Utilization

It can be predicted that the importance of the ECD sector, including pre-primary education, will rise with the progress of Yen loans.

[266] FY2021 Classification of Countries Subject to Yen Loan by Income Class (revised in April 2021) https://www.jica.go.jp/activities/schemes/finance_co/about/standard/index.html

Based on the results of the Survey, the importance of supporting the ECD sector is high.

However, the current ECD sector is separated from pre-primary education under MINEDUC, and the ECD sector system is not fully organized because NCD has just been established.

It is necessary to pay close attention to how the ECD sector and the Education sector will cooperate in the future, yet the enhancement of ECD services will be an important issue in the Education sector as well.

From a long-term perspective, it is therefore necessary to establish a foundation for policy formulation, institutional design, and ICT introduction to ensure the quality of integrated ECD services such as ECE, health, and nutrition in the ECD sector and Education sector.

Furthermore, the interventions suggested above for the ECD sector are difficult to implement without policies and systems in place.

In parallel with the Yen loan, policy formulation, institutional design, and ICT utilization for pre-primary education, including ECD services, will be supported in the education sector. It can be utilized to support the ECD sector, and it can be expected to lead to the improvement of the quality of the integrated ECD service. As of the date of the Survey, it has not been confirmed that any DPs other than UNICEF provide integrated support for ECD services. The ECD sector has less support from DPs than the Education sector. One of the reasons is that the system for accepting support is not fully developed as mentioned above. Japan will be expected to increase its presence in this field if it takes the initiative to support the ECD sector, which will be the focus in the future, such as policy formulation and institutional design.

(1) Improvement of access to pre-primary education

1） Status of deficiency in pre-primary education facilities

As described above, facility development is essential prior to the improvement of access to pre-primary education. As for the latest plan of Rwanda, however, the latest Education Policy is in the process of approval as of November 2021. Therefore, more detailed information could not be obtained.

For this reason, by referring to the planned values of Vision 2050, NST1, and ESSP3, the deficiency in the number of pre-primary education facilities estimated based on various statistics[267] is as follows. Based on the advice from the person in charge of school construction for MINEDUC SPIU, it was calculated here by assuming one classroom for each grade of N1, N2, and N3, for each pre-primary education facility.

[267] RPHC4（The Fourth Rwanda Population and Housing Census、2014）、Education Statistics 2019

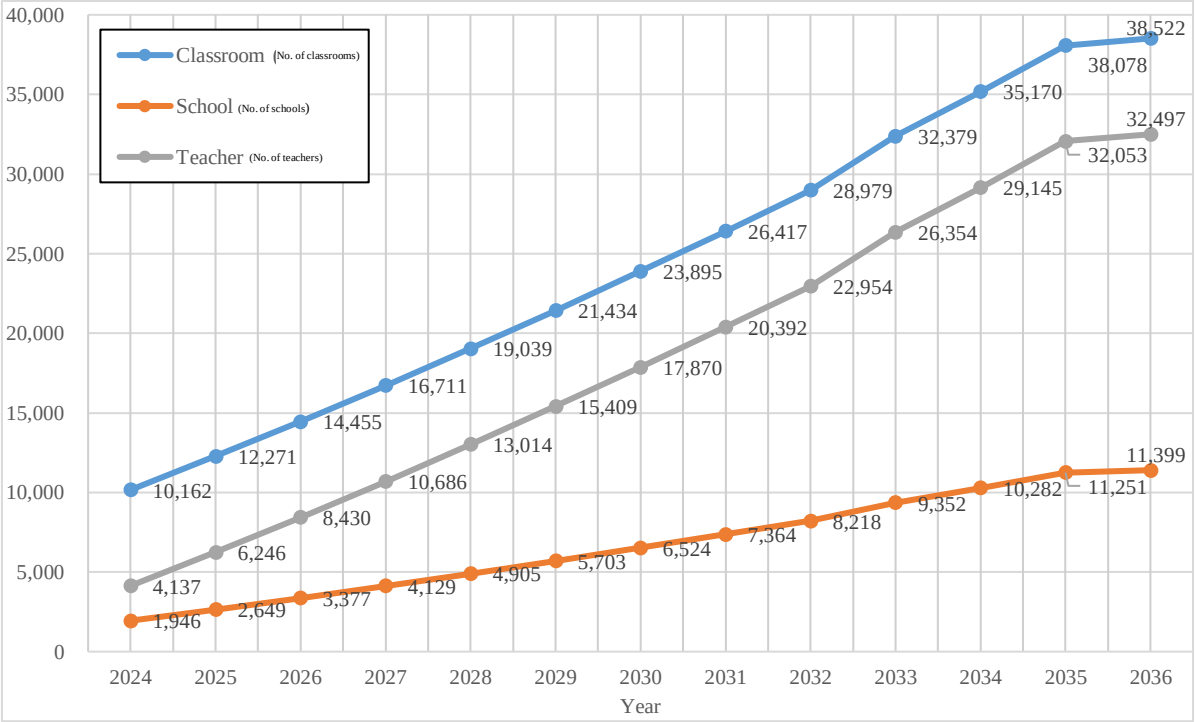


Figure 7-2 Estimated deficiencies in the numbers of pre-primary classrooms, schools, and teachers

Although NER of 45%, which is the same as the planned value of NST1, is set for 2024, the final year of ESSP3, it is calculated that there is a shortage of approximately 2,000 schools (approximately 10,000 classrooms) even when considering the number of existing schools in 2019.

Furthermore, it is provided in Vision 2050 to achieve NER of 99% in 2035 and thereafter universal pre-primary education. Based on this, the deficiency in the number of schools as of 2035 is calculated to be approximately 11,300 schools (approximately 38,000 classrooms). The number of classrooms for pre-primary education constructed by RQBE in recent years[268] is not considered here, but RQBE mainly concerns the development of classrooms for primary and secondary education, and the number of classrooms developed for pre-primary education is assumed to be fairly small. Therefore, the estimation is carried out using the above numbers.

Based on the above figure, when examining only the number of classrooms, it is shown that, by the year 2035, the construction at a pace of around 2,500 classrooms is required on a yearly basis. When examining the number of facilities (buildings with three classrooms), construction at a pace of around 850 schools is required on a yearly basis.

That is to say, from the medium term perspective, construction of approximately 12,500 classrooms and approximately 4,250 schools is required for the five year period, and for the long term, construction of approximately 25,000 classrooms and approximately 8,500 schools is estimated to be required for the 10 year period.

2） Buildings of pre-primary education facilities

According to MINEDUC, for standard pre-primary education facilities in Rwanda, three classrooms for infants (one classroom for each grade with a class size of 30 infants), a staff room, a kitchen, and

[268] 21,505 classrooms were additionally established in pre-primary, primary, and secondary schools by RQBE and MINEDUC. The numbers are said to be 1,500 for pre-primary, 17,414 for primary, and 3,591 for secondary schools (press report by All Africa; October 19, 2021), but no accurate information is obtained from MINEDUC.

lavatories are required both in the case of additional establishment in primary or secondary schools and the case of independent establishment[269]. Furthermore, from the results of this survey, it is recommended to add one multi-purpose room that is open to the community.

Multi-purpose rooms are assumed to be utilized by adults of the community during daytime in order to conduct business start up training and other training, and to be used as a place for children/students in the afternoon and later in the day in order to study by themselves after classes at school.

In addition, it is necessary to provide basic infrastructure such as electricity and water supply (water tanks) and develop school routes in the neighborhood.

With regard to ICT, when additionally establishing them in primary and secondary schools, if the schools do not have SMART classrooms, SMART classrooms will be established at the same time to promote ICT utilization in schools. Even when independently establishing them, development of ICT is essential as ICT utilization is required in various reports and CPD as well.

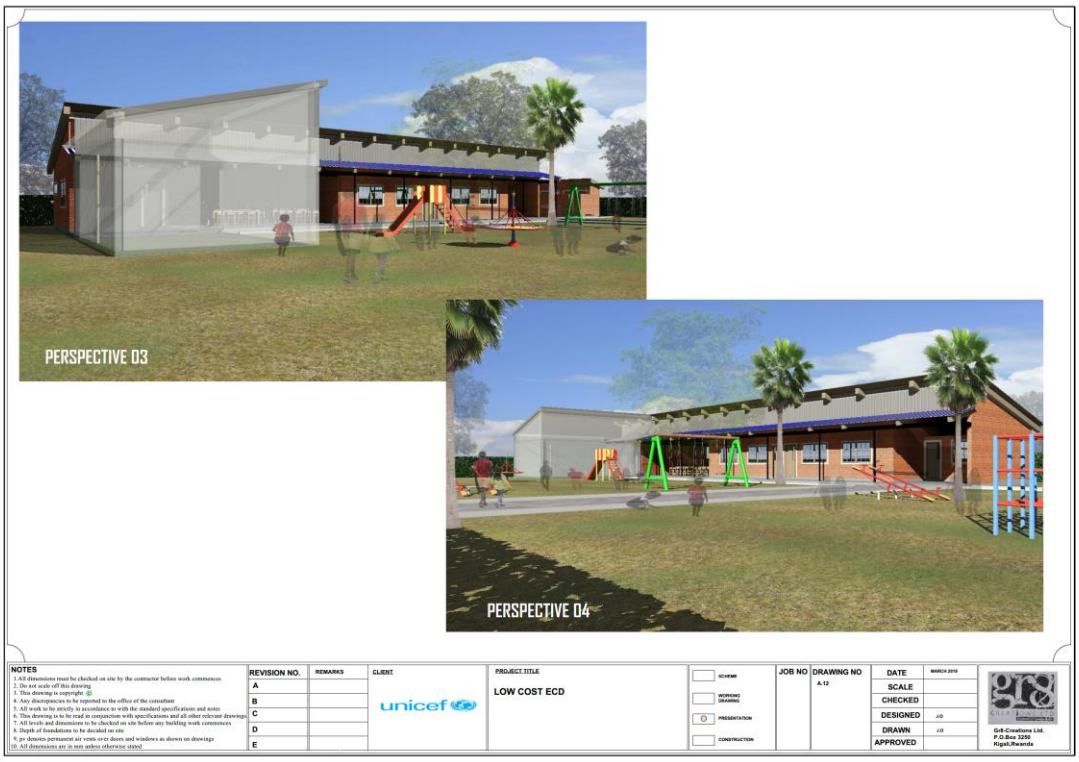


Figure 7-3 Image diagram of a building (pre-primary education facility)[270]

3） Target regions

While providing yen loans in a phased manner is also considered, priority target regions are not just those with a shortage of schools according to the data, but MINEDUC and the Japanese Embassy commented that it would be desirable to give priority to the regions with low-income population. While taking this into consideration, it is necessary to narrow down target regions after conducting detailed survey on population distribution. As of the issuance of this report, they are not yet determined.

In addition, taking into account that commuters are infants, a certain number of independently established pre-primary education facilities are required, taking the commuting distance for infants into consideration.

[269] National Pre-Primary Education Minimum Standards and Guidelines for Rwanda（MINEDUC、2018）、Child Friendly Schools Infrastructure Standards and Guidelines（2009）

[270] Reference map of ECDs Kayonza supported by UNICEF, obtained from Kayonza regional office.

4） Estimation of construction cost

When estimating the construction cost, the scale of pre-primary education facilities is assumed to be 1/4 based on case examples that are BOQs of RQBE model schools (2.2 billion RWF; * On the basis of information collection on school facilities in Chapter 3), the cost is set to approximately 500 million RWF.

(2) Development of MSs

1） Positioning of MSs

In January 2019, GoR made a Cabinet decision to improve quality of teacher training in TTCs. This decision also includes enhancement of infrastructure of TTCs and practical training schools (DSs)[271]. In order to improve the quality of new teachers, it was stated to be necessary to develop model demonstration schools, and at the time, support for 30 MSs was planned in the draft of RQBE project.

In addition, in the consultation with MINEDUC PS held in this survey in November 2021, development of public model schools was also mentioned. Although there is no concept note, MINEDUC commented that it would be desirable to develop two public model schools in each district.

The concept of public model schools is to address the concern that most Centers of Excellence in Rwanda are currently private schools and concentrated in city center, and to ensure that children in rural areas can receive high quality education by establishing public Centers of Excellence in rural areas.

At present their political position is unclear, and the Education Policy and next generation ESSP will need to be checked in the above-mentioned approval process in the future.

[271] PRESS RELEASE ON EDUCATION SECTOR STRATEGIES TO PROMOTE QUALITY EDUCATION, Kigali 05 February 2019 （https://www.mineduc.gov.rw/news-detail/press-release-on-education-sector-strategies-to-promote-quality- education-1）

2） MS buildings

As of December 2021, a concept note on public model schools has been prepared by the Project for Improvement of Science and Mathematics Education in Primary Schools through ICT Utilization, and therefore the details will need to be provided by checking the said concept note in the future.

However, through consultations with Technical Cooperation Project teams, etc., an opinion that there is no significant difference between MSs to be constructed in RQBE and 43 above-mentioned public model schools was obtained. For this reason, in this report, the costs for public model schools were derived from the cost amount for developing and newly establishing MSs through RQBE.

According to the specifications of MSs to be newly established in UR-CE, the basic specifications of MSs were three pre-primary level classrooms, six primary level classrooms, nine secondary level classrooms, three laboratories (chemistry, biology, and physics), administration building, dining hall and kitchen, five pre-primary level toilets, eight primary level toilets, twelve secondary level toilets, two SMART classrooms, library, TRC, meeting room, and girls room.

In addition, it is assumed that the quality of 43 schools subject to yen loan will be improved by utilizing Japanese technologies, and a proposal may include extension of building service life, blackboard quality, sand pool, introduction of teachers' room (desks for teachers), installment of wall clocks, introduction of assigned seats for children/students, and use of indoor shoes.

At present the basic configuration of MSs is assumed using RQBE as a reference as follows.

- Classroom, SMART classroom, laboratory
- Kitchen and dining room, lavatory, meeting room
- Gate, exterior structure, schoolyard (physical exercise facility), janitor's room

Figure 7-4 Image diagram of a building (General school building)[272]

[272] "Integrated Development Programme (IDP) MODEL VILLAGE" (MININFRA)

3） Target regions

Since development of two schools in each district is assumed, the target regions are as follows.

Table 7-4 Target regions for developing MSs

Province	District (30 districts)	RQBE support	**Number of target regions**	**Number of target regions (for each Province)**
Kigali	Gasabo		**2**	**6**
	Kicukiro		**2**	
	Nyarugenge		**2**	
Northern	Burera	1	**1**	**8**
	Gakenke		**2**	
	Gicumbi	1	**1**	
	Musanze		**2**	
	Rulindo		**2**	
Southern	Gisagara	1	**1**	**12**
	Huye		**2**	
	Kamonyi		**2**	
	Muhanga	1	**1**	
	Nyamagabe	1	**1**	
	Nyanza		**2**	
	Nyaruguru	1	**1**	
	Ruhango		**2**	
Eastern	Bugesera	1	**1**	**8**
	Gatsibo	1	**1**	
	Kayonza	1	**1**	
	Kirehe		**2**	
	Ngoma	1	**1**	
	Nyagatare	1	**1**	
	Rwamagana	1	**1**	
Western	Karongi	1	**1**	**9**
	Ngororero	1	**1**	
	Nyabihu		**2**	
	Nyamasheke	1	**1**	
	Rubavu	1	**1**	
	Rusizi	1	**1**	
	Rutsiro		**2**	
	Total	17	**43**	**60**

4） Estimation of construction cost

When estimating the construction cost, the average of two case examples that are BOQs of RQBE project model schools (1.6 billion RWF and 2.2 billion RWF; * From information collection on school facilities in Chapter 3) is calculated, and the cost is set to approximately 2 billion RWF.

7.3 Future Issues

The matters to be passed on in making detailed plans for future support measures are arranged as follows.

Table 7-5 Matters to be passed on to the future

Items	Matters to be passed on
➢ Need for teacher policy	➢ Since the formulation of the teacher policy in 2007, the policy has not been revised, but individual ministerial ordinances and frameworks have been issued. It is necessary to revise the policy and formulate a comprehensive teacher policy from the medium- to long-term perspective.
➢ Borrowing capacity of MINEDUC	➢ When assuming yen loans, it can be judged from the fiscal scale and the personnel situation of MINEDUC that its borrowing capacity is quite severe. Therefore, the use of yen loans must be carried out after considering it with sufficient attention paid to the need for dispatching experts in implementing the project and monitoring, etc.
➢ Support for the ECD sector	➢ The ECD sector is undeveloped, and therefore decline in the quality has been an issue. Since there are more pre-primary children in the ECD sector than in the education sector, the need to consider the possibility of support for the ECD sector according to the progress in developments in Rwanda in the future is extremely high.

7.3.1 Need for teacher policy

The teacher policy is deeply concerning for the achievement of the national educational goals and education plans. The ESSP3 reflecting the national development goals sets the contribution of Rwandan citizens to socioeconomic reforms, and the acquisition of knowledge and skills necessary to gain competitiveness on global markets as upper level goals. There is no doubt that teachers play an important role in achieving these goals. While the qualities and capacities required for teachers are becoming more diverse and advanced, a consistent and comprehensive national policy on what the human resources accepted in the teacher training course are, and how to train excellent teachers, is essential. The policy must be comprehensive and include, in addition to development/improvement of the qualities/capacities of teachers (teacher training, continuous vocational ability development), treatment (position, salary, welfare), personnel management (appointment, placement, management), and monitoring (evaluation and treatment) to ensure that excellent teachers remain within the public education system and contribute to the achievement of equity in education. After the formulation of the teacher policy in 2007, ministerial ordinances and frameworks have been formulated individually. Under such circumstances, it is necessary to revise the policy from the medium- to long-term perspectives while observing the domestic and overseas trends.

In order to maximize the results of the yen loan proposed as an effective support measure and PRISM, the technical cooperation project currently being implemented, support for the formulation of a teacher policy and the dispatch of a policy advisor are considered to be effective in ensuring the quality of teacher training from a policy perspective. The need for such support should be actively considered, including the use of development policy loans.

7.3.2 Assessment of borrowing capacity of MINEDUC

(1) Overall outlook on financial situation of Rwanda

1) Outlook on fiscal deficit

According to the outlook by the International Monetary Fund (IMF, 2021) shown in the following table, for the recent COVID-19 measures, large-scale public spending is expected for the period between FY2021 and FY2023. The scale for the period between FY2021 and FY2023, as a percentage of GDP, is estimated to be 3.1%, 2.1%, and 1.1%, respectively. Due to such public spending and slump in business activities, fiscal deficit as a percentage of GDP for the same period is expected to remain at a high level at -9.2%, -8.6%, and -7.6%, respectively.

Due to the impact of COVID-19, the future economic outlook is highly uncertain. According to IMF (2021), under the assumption that COVID-19 will settle down in 2023 and business activities will be revitalized, the economy will return to the path of relatively high GDP growth rate and with the promotion of measures to reduce fiscal spending, by around 2025 to 2026, fiscal deficit as a percentage of GDP is expected to be reduced to about -4.0% and -3.0%, respectively.

Table 7-6 Outlook of economy and financial situation (central government) in Rwanda

	2020	2021	2022	2023	2024	2025	2026
Real GDP growth rate (%)	-3.4	5.1	7.0	8.1	7.5	7.5	6.1
Nominal GDP (unit: billion RWF)	9,746						
Fiscal revenue (% of GDP)	23.3	25.0	24.2	24.4	24.6	24.8	25.1
Fiscal spending (% of GDP)	32.4	34.2	32.8	32.0	29.7	28.8	28.1
Fiscal deficit (% of GDP)	-9.1	-9.2	-8.6	-7.6	-5.1	-4.0	-3.0
Government debt (% of GDP)		79.1	81.3	81.1	79.5	76.5	74.0
(Note) Prepared by the survey team, based on IMF (2021). The real GDP growth rate is based on the calendar year (from January to December). Other variables are based on the fiscal year (from July to June of the following year).							

2) Analysis of sustainability of government debt

In the above table, an outlook of the government debt as a percentage of GDP is also shown. Due to public spending associated with the impact of COVID-19 and slump in business activities, the government debt will reach a high level in 2022 (81.3%) and 2023 (81.1%). From that point onwards, assuming that the impact of COVID-19 will settle down, the government debt as a percentage of GDP is expected to be gradually reduced. It is not shown in the above table, but by 2030, the government debt as a percentage of GDP is expected to be reduced to around 64.4%. Therefore, it is considered that, among African countries, a relatively sound government debt management strategy has been implemented in Rwanda. After taking into account the results of various stress tests, IMF evaluated the risk of government debt in Rwanda to be a “moderate risk”. It was remarked that in order to reduce this risk, the government needs to adopt a reliable fiscal reform route and accelerate the efforts to strengthen financial risk management as soon as the COVID-19 crisis is alleviated.

(2) Overview of the scale of education-related fiscal spending in Rwanda

Next, the overview of the scale of education-related fiscal spending is observed here. In the following table, the scale of the education-related fiscal spending in recent years was calculated based on a number of aspects. Because the latest education-related fiscal spending data available was that of 2018, the figures for the period between 2016 and 2018 are shown in the table.

According to the row (B), education-related fiscal spending as a percentage of GDP remained at a level of approximately little over 3% in recent year. In addition, according to the row (C), the percentage of education-related spending in the total fiscal spending was slightly reduced from 12.3% in 2016 to 10.8% in 2018.

The percentages of fiscal spending for primary education and that for secondary education in education-related fiscal spending are then shown in the rows (D) and (E), respectively. Based on the more recent 2018 data, the percentage of fiscal spending for primary education in education-related fiscal spending was 28.6% and that for secondary/advanced education was 38.3%. That is, in total, fiscal spending for primary education and secondary/advanced education accounted for approximately 66.8% of education-related fiscal spending, a scale of two-thirds of the total education-related fiscal spending.

Table 7-7 Scale of education-related fiscal spending

	2016	2017	2018	2019	2020
(A) Fiscal spending (% of GDP)	25.0	25.1	26.4	28.8	32.4
(B) Education-related fiscal spending (% of GDP)	3.4	3.1	3.1		
(C) Education-related fiscal spending (% of fiscal spending)	12.3	11.1	10.8		
(D) Fiscal spending for primary education (% of education-related fiscal spending)	34.6	..	28.6		
(E) Fiscal spending for secondary/advanced education (% of education-related fiscal spending)	52.8	..	38.3		
(Note) Prepared by the survey team, based on IMF (2021) and World Development Indicators.					

(3) Identification of the scale of yen loans of 5 billion to 10 billion yen

Next, what is the scale of the currently considered yen loans for the ECD/education sector in Rwanda of 5 billion to 10 billion yen, when compared to education-related fiscal spending described above. This scale is observed by making some assumptions. In the following table, simulation was made respectively for the case of yen loans of 5 billion yen and respectively of 10 billion yen.

Firstly, the yen loan of the scale of 5 billion yen is equivalent to 45.3 billion RWF using the exchange rate as of October 10, 2021 (1 JPY = 9.06 RWF) (a-1). This is 0.43% of the 2020 nominal GDP of approximately 9,746 billion RWF (b-1). In addition, based on the assumption from (A) of the above table that the fiscal spending for the single year is approximately 28% of GDP, 45.3 billion RWF is 1.66% of the total fiscal spending (c-1). Lastly, based on the assumption using (C) of the above table as a reference that education-related fiscal budget is approximately 11% of fiscal spending, the scale of the yen loan of 5 billion yen is approximately 15.1% of the education-related fiscal spending (d-1). The percentage of fiscal spending for primary and secondary/advanced education in education-related fiscal spending in 2018 was 28.6% ((D) of the above table) and 38.3% ((E) of the above table), respectively, and the scale of 15.1% can be interpreted as quite large.

Next, regarding the scale of the yen loan of 10 billion yen, it is simply calculated by doubling the value

obtained by simulation for the scale of the 5 billion yen loan. As a percentage of GDP, the yen loan is assumed to be of a large scale of almost 1% (b-2). A notable point is the percentage in education-related fiscal spending of that scale. As shown in the row (d-2), the yen loan of the scale of 10 billion yen is at a high level of 30% or more of the education-related fiscal spending for the single fiscal year. This value in particular exceeds the percentage of fiscal spending for primary education in the education-related fiscal spending.

Unfortunately, data on fiscal spending for ECD/education in Rwanda could not be found. However, it can be inferred that the scale is far smaller than the scale of the yen loan assumed.

Needless to say, the yen loan of the scale of 10 billion yen is unlikely to be provided on a single-year basis, but significant attention needs to be given to the fact that the yen loan to Rwanda being considered is exceedingly enormous, considering the financial basis of Japan, especially in the light of the percentage in education-related fiscal spending. In particular, the yen loan of the scale of 10 billion yen, although it is for a single fiscal year, exceeds the percentage of fiscal spending for primary education in education-related fiscal spending. The problems and points to note associated with these are described later.

As for the scale in the total fiscal spending in Rwanda, the yen loan of the scale of 10 billion yen as a percentage of GDP is slightly less than 1%, and after all it is considered to be of a large scale. On the other hand, considering the analysis of sustainability of government debt by IMF (2021), the possibility that the yen loan of this scale has serious negative effects on the debt repayment ability of Rwanda, is not necessarily high.

Table 7-8 Scale of yen loan of the amount of 5 billion and 10 billion yen

(a-1) Scale of the yen loan of 5 billion yen (unit: billion RWF)	45.3
(b-1) Scale of the yen loan of 5 billion yen (% of 2020 nominal GDP)	0.46
(c-1) Scale of the yen loan of 5 billion yen (% of fiscal spending: assuming that the fiscal spending is 28% of GDP)	1.66
(d-1) Scale of the yen loan of 5 billion yen (% of education-related fiscal spending: assuming that the education-related fiscal spending is 11% of fiscal spending)	15.09
(a-2) Scale of the yen loan of 10 billion yen (unit: billion RWF)	90.6
(b-2) Scale of the yen loan of 10 billion yen (% of 2020 nominal GDP)	0.93
(c-2) Scale of the yen loan of 10 billion yen (% of fiscal spending: assuming that the fiscal spending is 28% of GDP)	3.32
(d-2) Scale of the yen loan of 10 billion yen (% of education-related fiscal spending: assuming that the education-related fiscal spending is 11% of fiscal spending)	30.18
(Note) For the yen loans of 5 to 10 billion yen by JICA, the exchange rate as of October 10, 2021, 1 JPY = 9.06 RWF, is used.	

(4) Human resources of MINEDUC

The staff structure of MINEDUC, the implementing organization, is as described above, and when considering wide-ranging processes, including budget implementation and monitoring, we would have to say that the organization is extremely lacking in the number of personnel. If a Yen loan is assumed, it will probably be managed by SPIU in MINEDUC in the same way other WB projects are. The SPIU personnel, however, are project-based and are employed on a temporary basis while a project is underway. Especially, it is unlikely that there are many personnel in MINEDUC who have full knowledge of budget implementation process, and therefore the yen loan concerned may pose a substantial risk for a situation

where it is dropped as an “aid bomb” for MINEDUC.

In addition, since a wide variety of DPs are involved in the education sector, support of a scale that exceeds the response capacity of MINEDUC personnel may have been implemented. Because this is a problem concerning the trends of other DPs and the capacity of the supported country, the remedial measures that Japan can take are extremely limited.

(5) Problems/points to note

As described above, the yen loan for ECD/education being considered that is assumed to be of the scale of 5 billion to 10 billion yen, can be said to be enormous when compared to the scale of economy or education-related fiscal spending. On the other hand, it is considered not to necessarily have a significant negative effect on the debt repayment ability of GoR.

However, on the practical side, there are a number of important issues, including shortage of personnel resources of MINEDUC and the trends of other DPs. Under such circumstances, it is quite questionable whether a yen loan of that scale can be effectively implemented in Rwanda.

Finally, there is one more point of discussion. If a large-scale yen loan is to be implemented in the ECD/education sector, GoR may reduce fiscal spending from the national budget for the ECD/education sector in anticipation thereof and allocate the surplus to other sectors. This situation is referred to as fungibility of aid. If this situation happens, the aid for the ECD/education sector may not be able to achieve the original goals. From the viewpoint of Rwanda as a whole, the problem of the fungibility of aid may not necessarily be entirely negative, but attention is required when focusing the policy goals only on the ECD/education sector.

7.3.3 Support for the ECD sector

Although consultation has been held several times with NCD, which governs the ECD sector, basic information is severely insufficient and the structure of NCD is still in the stage of being established. In addition, as described in this report, there are many problems concerning the quality of ECD services and this sector is in need of immediate support. Particularly in home-based ECD Centers where many infants commute, the qualities with respect to the structure, service provision, ability of service providers, and equipment, etc. are extremely low compared to the nursery schools under the jurisdiction of MINEDUC. This sector therefore requires immediate improvement. However, home-based ECD Centers themselves are privately operated and therefore provision of direct support is difficult. In addition, the responsibilities and structures of model ECD centers (both privately and publicly operated) that are in the position of providing guidance by visiting to home-based ECD Centers are not clear. It is therefore difficult to narrow down the focus of support. Furthermore, for ECD services, competent ministries and agencies and relevant organizations are wide ranging, thus making the provision of comprehensive support difficult.

NCD is recognized to be in the position to sort out these situations, but there is no denying that it is wanting in ability. It is therefore advisable to consider the possibility of support while keeping an eye on future structural establishment.

For the reason of the above-mentioned situations, there is no DP that comprehensively supports the ECD sector. In this survey, consultations were held with a number of NGOs, including NCDs, but the situation was really serious, and the fact that JICA was interested in supporting the ECD sector was well received. Not to mention the urgency of support for the said sector, if JICA can quickly launch support for the ECD sector, it would be able to significantly increase the presence of Japan.

7.4 Recommendations

The recommendations in making detailed plans for future support measures are as follows.

Table 7-9 Content of recommendations

Items	Content of recommendations
Official approval for conducting survey	➢ When conducting surveys in Rwanda, it is required to obtain an official approval. In order to observe laws of the partner country, it is necessary to follow official procedures.
Points to note in carrying out construction	➢ In the current school construction plan, it seems that a detailed preliminary survey regarding population distribution and categories of the target people has not been conducted. In carrying out construction, it is important to conduct a detailed survey to ensure fairness.
Possibility of support for the ECD sector	➢ The cost effectiveness of support for pre-primary education is considered high, and it is also expected to be effective in terms of internal efficiency and fairness. It is therefore desirable for Japan to continue to pursue the possibility of support.

7.4.1 Official approval for conducting survey

In Rwanda, surveys involving statistical information collection and those that include interviews require official approval of NISR (National Institute of Statistics Rwanda)[273] and RNEC (Rwanda National Ethics Committee)[274]. In addition, after conducting the survey, a report must be submitted. There are respective formats and RNEC requires a presentation in the course of examination. Therefore, it is necessary to collect information in advance and be prepared.

7.4.2 Points to note in carrying out construction

The school guidelines and construction policy established by MINEDUC include descriptions that place importance on the reduction of long-distance commuting. However, materials on the details of the population distribution, etc. could not be found in this survey, and it seems that the actual construction is not necessarily carried out as planned in the construction policy. In addition, MINEDUC and the Japanese Embassy in Rwanda commented that it would be important to give priority to the regions with low-income population.

In consideration of the above points, the processes for conducting detailed survey on population and category distribution in advance, considering the locations of schools to select the sites of construction are required.

7.4.3 Possibility of support for the ECD sector

The cost effectiveness of investments to pre-primary education is said to be high if appropriate learning support is provided for the subsequent education. Improvement of pre-primary education is expected to be also effective in terms of internal efficiency and fairness. It is therefore desirable for Japan to continue to pursue the possibility of support.

In the case of local rural areas, malnutrition remains to be a serious problem, and realization of integrated ECD services recommended by NCD is an issue. It is necessary to continue to pay attention to

[273] http://statistics.gov.rw/home

[274] http://www.rnecrwanda.org/index.php/requirements

how the roles are divided between MIGEPROF and MINEDUC in the future, but when considering pre-primary education in Rwanda, case examples of nursery schools can provide more useful information than those of kindergartens. The Childcare Guidelines for Nursery Schools state that care and education should be provided in an integrated manner, and the importance of comprehensive guidance through play, and dietary education is emphasized. In addition, support for parents is cited as an important role of childcare centers. These are some of the issues that were pointed out in this study as challenges for Rwanda.

Sharing experiences regarding knowledge on nursery school policies/practice in Japan and background of establishment and practice of certified centers for early childhood education, which aims to integrate education and childcare, with policymakers, childcare worker trainers, and childcare professionals in Rwanda, may be considered.