REPUBLIC OF RWANDA

MINISTRY OF HEALTH
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National Strategic Plan for Eye Health 2018-2024

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ABBREVIATIONS AND ACRONYMS

ACD	Angle Closure Glaucoma
AMD	Age-related Macula Degeneration
BCC	Behavior Change Communication
BSVA	Blessing School of Visually Impaired
CBHI	Community Based Health Insurance
CBM	Christian Blind Mission
CHUB	Centre Hospitalier Universitaire/University Teaching Hospital of Butare (UTHB)
CHUK	Centre Hospitalier Universitaire/University Teaching Hospital of Kigali (UTHK)
CHWs	Community Health Workers
CPD	Continuous Professional Development
CSOs	Civil Society Organizations
DFID	Department for International Development
DH	District Hospital
DHMT	District Health Management Team
DHU	District Health Unit
DPs	Development Partners
DR	Diabetic Retinopathy
EAC	East African Community
EICV	Household Living Conditions Survey
EPI	Expanded Program of Immunization
FBOs	Faith Based Organizations
FHF	The Fred Hollows Foundation
HRH	Human Resource for Health
HReH	Human Resource for Eye Health
HRiS	Human Resource Information System
IOP	Intra Ocular Pressure
KAP	Knowledge, Attitudes and Practices
LMIS	Logistics Management Information System
MCH	Maternal and Child Health
MD	Medical Doctor
MDGs	Millennium Development Goals
MIFOTRA	Ministry of Labor and Public Service
MIGEPROF	Ministry of Gender and Family Promotion
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education
MoH	Ministry of Health
MPDD	Medical Products and Production Division
MTR	Mid-Term Review
NCC	National Children Council
NCDs	Non Communicable Diseases
NCPD	National Council of People with Disabilities
NGOs	Nongovernmental Organizations
NISR	National Institute of Statistics Rwanda
NNMC	National Nursing and Midwifery Council
NSPEH	National Strategic Plan for Eye Health

NST	National Strategy for Transformation
OAU	Organization of African Unity
OCO	Ophthalmic Clinical Officer
OPD	Outpatient Department
POAG	Primary Open Angle Glaucoma
PH	Provincial Hospital
PWD	People with Disabilities
RAAB	Rapid Assessment of Avoidable Blindness
RAHPC	Rwanda Allied Health Professional Council
RBC	Rwanda Biomedical Centre
RIIO	Rwanda International Institute of Ophthalmology
RMDC	Rwanda Medical and Dental Council
RMH	Rwanda Military Hospital
ROS	Rwanda Ophthalmology Society
SDGs	Sustainable Development Goals
SMM	Senior Management Meeting
SOPs	Standard Operating Procedures
SVI	Severe Vision Impairment
TB	Tuberculosis
TWG	Technical Working Group
U-5	Children aged under five years
UN	United Nations
UNICEF	United Nations Children's Fund
UR	University of Rwanda
USD	United States Dollar
UTH	University Teaching Hospital
VI	Visual Impairment
VFAN	Vision for a Nation
WHA	World Health Assembly
WHO	World Health Organization

FOREWORD

Since the signature of the Vision 2020, the Right to Sight in 2002, Rwanda have developed and implemented 3 plans of actions to eliminate avoidable blindness and visual impairment. The 4th National Strategic Plan for Eye Health (NSPEH: 2018-2024) has been developed in accordance with the current Health Sector Policy and of the 4th Health Sector Strategic Plan (HSSP IV 2018-2024). It will contribute to the overall goal of "continuously putting in place an effective healthcare system capable of providing increasingly specialized services, that focus on healthcare accessibility, affordability, quality, efficient delivery of healthcare, and the use of technology as enablers to achieving Universal Health Coverage".

To date, substantial progress has been achieved and Rwanda is happy to have introduced the primary eye care in all health centers. However, there is still a long way to go in terms of availing and providing preventive, curative and rehabilitative eye services at secondary and tertiary level.

Currently, eye conditions are among the most important causes of morbidity and are part of the top ten causes of consultations at primary and secondary levels of the healthcare system (HMIS 2016). A Rapid Assessment of Avoidable Blindness conducted in Rwanda in 2015 found that 1% of people aged 50 years and more are blind, often due to avoidable causes (84%). The prevalence of severe visual impairment (SVI) was estimated at 0.7% for both sexes; and the prevalence of mild visual impairment was 2.6% (males: 1.9%; females: 3.1%).

In a move to mitigate the impact of eye problems in Rwanda on individuals, families, communities and the country, the National Strategic Plan for Eye Health (NSPEH 2018-2024) will translate into action the mission of Rwanda's Health Sector as specified in the Health Sector Policy. It is expected to build on existing partnerships and resources to avail the highest quality of service provision in the field of eye healthcare in Rwanda.

On this note, I would to thank the Fred Hollows Foundation (FHF) for its financial support to develop this strategic plan. I would also like to acknowledge the contributions of institutions, organizations and individuals who participated in the development of this plan and I take this opportunity to thank all partners who have been contributing to the scale-up of eye healthcare services in Rwanda.

Dr. Diane GASHUMBA
Minister of Health

EXECUTIVE SUMMARY

The National Strategic Plan for Eye Health Plan (NSPEH 2018-2024) provides a six-year strategic approach to prevent, treat, control and then eradicate avoidable causes of blindness in Rwanda. It is the Rwanda's fourth national strategic plan for eye health that will guide and align the efforts of the Rwanda Health Sector and other stakeholders to significantly reduce avoidable blindness and address vision impairment in Rwanda.

The plan has been developed in line with the Rwanda Health Sector Policy and the Rwanda fourth Health Sector Strategic Plan 2018-2024 (HSSP IV). It has also been inspired by global initiatives for the elimination of avoidable blindness, mainly the "Vision2020, the Right to Sight Initiative" and the most recent WHO's plan: Towards Universal Eye Health: A Global Action Plan 2014-2019.

The NSPEH consists of two main sections: the contextual background information and strategic goals and objectives. The first section describes the context, process and methodology used to develop the plan. It provides a quick overview of the Rwanda's eye health throughout the Rwanda health system.

A comprehensive situational analysis of eye health in Rwanda is also presented, by describing the situation of eye health, leadership and governance, the integration of eye health service delivery into the Rwanda Healthcare System, human resources, medicines, equipment and technology, information and financing. It also details multi-sectoral collaboration and partnership in the field of eye health. The information provided in this section sets the basis and rationale for the development of the strategic components of Plan

As regards to the second section of this plan, it contains details relating to the goal, purpose and objectives, as well as the monitoring and evaluation framework, interventions, activities and the budget of the National Strategic Plan for Eye Health Plan (NSPEH) 2018-2024.

The strategic goal and objectives of the plan are presented together with series of practical resources for the management, monitoring and implementation of the plan. At the same time, this section provides a roadmap for delivering quality blindness prevention and care services for the entire population of Rwanda.

To ensure successful implementation of the NSPEH, an implementation arrangement has also been proposed, with a focus on a multi-sectoral collaboration and partnership with different stakeholders.

I. BACKGROUND AND CONTEXT

1.1. Rationale and justification

Since July 2018, Rwanda has started the implementation of its fourth Health Sector Strategic Plan 2018-2024, commonly referred to as HSSP IV. The HSSP IV is aligned to the Rwanda National Strategy for Transformation (NST) 2018-2024. It prioritizes accessible, affordable, quality, and efficient delivery of healthcare as key pillars to enable Rwanda to achieve the Universal Health Coverage.

While HSSP IV provides clear strategic actions for the transformation of the Rwanda's Healthcare System, it also gives a green light for the development of more focused sub-sector strategic plans, especially in areas where more efforts are needed to expedite the transformation Rwanda aspires to.

Eye health is one of those areas that have been recommended by HSSP IV for a potential sub-strategic plan. This consideration was motivated by the concept of universal health coverage, where none should be left behind. For HSSP IV, all aspects of healthcare must be considered, integrated, and a special attention has to be given to diseases and conditions that have not been considered as priorities in the last decades, and eye health is part of those health conditions not enough prioritized so far.

Under this broad vision and policy shift, it was therefore, recommended to strengthen the prevention and control of eye diseases through enhancement of community and health facility service delivery to prevent, treat and control avoidable causes of blindness and visual impairment, towards their elimination in Rwanda. It is against this background that the National Strategic Plan for Eye Health 2018-2024 has been developed.

1.2. Process and methodology for the development of the NSPEH

The development of the NSPEH consisted of the following six key phases:

- A "**Desk Review** "of existing national and international documents related to Eye Health was conducted to gather relevant information for the Rwanda NSPEH;
- A "**Situation Analysis**" of the Rwanda health system and stakeholders has been conducted to identify existing actions and problems in the eye health service provision;
- "**Field visits**" were carried out to collect opinions and inputs of stakeholders, as well as other data that could help to design evidence-based strategic actions for the NSPEH. Field visits were conducted in Kibagabaga District Hospital, Kibungo Referral Hospital, Rwamagana Provincial Hospital, Kigali University Teaching Hospital, Rwanda Charity Eye Hospital, Masaka Rehabilitation Centre for Blind, and HVP Rwamagana.
- **"Consultative Stakeholders Workshops"** were also organized to brainstorm and build consensus on proposed actions and strategies for the plan. Two initial workshops were organized and people working in the areas of eye healthcare were able to provide their contributions to the design of the plan. Participants in the first two workshops included officials from institutions and agencies that are involved in eye health activities. These consultative workshops allowed to validate findings from the situation analysis, and to agree on key strategic actions to be implemented under the NSPEH. After the situation analysis and the consultation workshops, a draft of NSPEH was prepared and shared with all participants in the first two workshops for inputs and a consensus was made on strategic objectives, strategic interventions, implementation, and monitoring mechanisms.

- Right after the third consultation workshop, all relevant inputs and comments were integrated. Then, a final draft of the National Strategic Plan for Eye Health was produced and submitted to Stakeholders for review and final inputs.
- The next step for the development of the plan was its costing. After the costing, the last step was to submit the final version to the Ministry of Health for internal approval and validation process of strategic documents.

1.3. Situational Analysis

1.3.1. Country context

According to the National Institute of Statistics of Rwanda, the population of Rwanda is currently estimated at 12,089,721 people (estimation of 2018), of which 48% are youth aged under 17 years. The majority of the population lives in rural areas (71%), and depends on agriculture, which contributes to 30% of GDP (2016). For the last 15 years, Rwanda has registered important achievements in terms of socioeconomic development. For instance, Rwanda has achieved all health-related MDG targets, and all health indicators have been improving steadily.

1.3.2. Rwanda's Healthcare System and Eye Health

1.3.2.1. Health Facilities

The national health system comprises four levels of healthcare service delivery, from the community level to the national level. It provides integrated and continuous care that starts with the community and goes through health posts and health centres, district hospitals, provincial hospitals, up to the national referral hospitals. There is a good geographical coverage with a functional referral system, and an adequate fleet of ambulances for the pre-hospital and emergency services. In 2017, Healthcare packages have been revised for each level. At each level of administrative structure there is a corresponding healthcare structure.

At the community level, Community Health Workers (CHWs), live in close contact with the population, and participate in the disease prevention, treatment and health promotion programs. Health Centres and health posts are responsible for the majority of infectious disease consultations and all common promotional and preventive interventions.

District hospitals provide preventive and curative healthcare (secondary healthcare). At the tertiary level, provincial and referral hospitals provide specialized healthcare services to cases referred from district hospitals. Provincial and Referral hospitals provide more advanced specialized healthcare services and conduct research. They also have teaching and training for medical staff in their package.

With regard to eye health, it is already aligned and integrated in the existing healthcare. Primary eye care (PEC) is provided in all the health centres where at least 4 Nurses have been trained for this purpose. Within the PEC package, low cost reading glasses are distributed and minor eye conditions are treated while more serious situations are referred to the secondary eye care in district hospitals.

The secondary eye care is provided in district hospitals by Ophthalmic Clinical Officers (OCOs) that are currently deployed in DHs, except in Muhima, Butaro and Kacyiru Hospitals. Package of services in DHs include the refraction and low vision services, while more complicated cases are referred to the tertiary level. Tertiary level is currently provided in the national referral hospitals, and at the Kabgayi eye unit.

There is also an important contribution of the private sector in the area of eye healthcare in Rwanda. Over two private polyclinics provide eye care services. There are also two Specialized Hospitals that provide tertiary eye care: the Dr Agarwal's Eye Hospital, and the Rwanda Charity Eye Hospital.

For equipment, health centers are provided with equipment and materials for PEC. Eye units have been created in District Hospitals, where Ophthalmic Clinical Officers are deployed. Equipment for refraction services have already been put in place in 15 District Hospitals and in the University Teaching Hospital of Butare, the University Teaching Hospital of Kigali. It is expected that all public hospitals will be fully equipped for Refraction and Optical services by 2020.

1.3.2.2. Leadership and Governance

To date, there is no specific policy, strategy, or plan that is exclusively dedicated to eye health in Rwanda. However, aspects of eye health are integrated in different policy and legal documents. For instance, the HSSP IV insists on the need to strengthen the prevention and control of eye diseases through enhancement of community and health facility service delivery towards prevention of blindness and visual impairment in Rwanda. In addition, eye health is integrated in the NCDs division in RBC.

1.3.2.3. Legal and policy context

Rwanda has ratified the United Nations Convention on the Rights of Persons with Disabilities which promotes, protects, and ensures the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities.

Rwanda is one of the countries which have ratified the international conventions and protocols related to the rights of persons with disabilities: the UN Convention on the Rights of Persons with Disabilities and its Optional Protocol (ratified on 15th December 2008), the UN Convention on the Rights of the Child (ratified in September 1990), the UN Guidelines for the Alternative Care of Children, the African Charter on the Rights and Welfare of the Child (OAU 1999), article 13. Rwanda has also enacted national legal and policy instruments for the protection of the rights of persons with disabilities, including those affected by blindness and visual impairment. The instruments in place include:

- Law no. 01/2007 relating to the protection of disabled persons,
- Ministerial Order n°05/09 of 30/03/2009 establishes modalities of State assistance to a needy disabled person.
- Disability Mainstreaming Guidelines (2014)
- Occupational health and safety policy (2014),
- National Policy on Inclusive and Special Needs Education 2015

All these legal and policy documents talk about the protection and rehabilitation of people with disabilities in general and highlight what should be done for those affected or at risk of being affected by blindness and visual impairment in Rwanda.

1.3.2.4. Overview of institutional framework and Stakeholders

There are many institutions whose mandate and mission contribute or influence eye healthcare in Rwanda. On the side of public institutions, the Social Cluster brings together Ministries and institutions whose mission and mandate play a role in the protection of disadvantaged persons, including those affected or at the risk of being affected by blindness and visual impairments.

There are also other non-government stakeholders who play an important role in the rehabilitation of people with blindness and visual impairments. The Rwanda Union of the Blind (RUB) advocates for the protection and promotion of people with blindness and visual impairments. The Rwanda Ophthalmology Society (ROS) and the Rwanda Ophthalmic Clinical Officers Society (ROCOS) bring together Ophthalmologists and Ophthalmic Clinical Officers respectively and they are committed to fostering effective and efficient eye healthcare services in the country.

The list of non-government stakeholders in eye healthcare includes non-government organizations supporting eye healthcare interventions in Rwanda. Non-governmental organizations that have been operating in Rwanda in the area of eye healthcare are:

- Rwanda International Institute of Ophthalmology (RIIO)
- Christoffel Blinden Mission (CBM)
- Operation Eyesight Universal (OEU)
- Fred Hollows Foundation (FHF)
- Right to Sight
- One Sight
- Vision for a Nation (VFAN)

To date, international NGOs that are still active are: CBM, FHF and One Sight. There are also academic institutions which participate in the training of the workforce needed for eye healthcare. Currently, the University of Rwanda and the Rwanda International Institute of Ophthalmology are the two leading institutions in the training Ophthalmic Clinical Officers and Ophthalmologists respectively.

As for the private sector, a center of excellence for eye health has been inaugurated in 2012, the Dr Agarwal's Eye Hospital, and 5 other eye clinics have opened in Kigali City. Another eye hospital, the Rwanda Charity Eye Hospital has already opened and is meant to become a referral eye centre, like the Kabgayi Eye Unit.

In Rwanda, there are very few rehabilitation centres for blind. Only 2 important centres are operational for education of blind children in Kibeho, Nyaruguru District and in Rwamagana. The Centre for people with disabilities in Huye hosts a secondary and a diploma school for physically disabled, blind and deaf children. Blessing School for Visually Impaired (BSVI) has opened in Musanze district in 2015 but it is in its early stages. The Masaka Resource Centre is the only institution that caters for the rehabilitation of adult blind. Despite its limited capacity, its objective is to empower people with visual impairment, so that they can survive without begging. Finally, inclusive education is provided in at least 92 schools and the process continues.

1.3.2.5. Health workforce

The number of health professionals in the area of eye healthcare is still limited in Rwanda. Currently, 16 ophthalmologists are deployed in public and private health facilities. Two others have recently graduated and are awaiting for appointment. Also, the Rwanda International Institute of Ophthalmology (RIIO) is providing residency training to 4 ophthalmologist candidates. Hence, the UR provides curriculum to OCOs and an average of 15 Ophthalmic Clinical officers (OCOs) continued to graduate from UR-CMHS.

To date, it is estimated that the number of OCOs trained so far can cater for the minimum needs of eye care services in District Hospitals. The only problem remaining is their recruitment and equitable distribution. However, there is still a need to upgrade the training of OCOs to the level of a Bachelor's degree to allow them to provide the full package of eye services at the secondary level. At the same time, a clear carrier path with no restrictions for OCOs will need to be designed.

At least 2800 nurses have been trained on primary eye care and they are already operational in all the 502 health centers. In addition, an eye health curriculum has already been integrated in the Nursing School Curriculum.

1.3.2.6. Medical Products and Health Technology

The Ministry of Health regularly publishes a list of minimum medicines and other commodities needed for a basic healthcare system. Those medicines are subsidized and distributed as a priority to the public sector. The latest list published in 2015 include some medicines for the treatment of eye problems, but needs to be revised and completed with the missing eye drugs, consumables and devices for correction of visual impairment and to allow reimbursement by health insurance. Also, there is a need to solve the chronic shortage of eye surgery consumables.

1.3.2.7. Health Financing

Eye healthcare services are included in the national health system, up to referral hospitals. Medical consultations related to eye problems are covered by health insurance. The issue with the health financing of eye healthcare is that only a limited number of medical products and devices are covered by health insurances. There is hope that this issue will be gradually addressed through the implementation of the new Public Health Facilities Service Packages that was developed in 2017.

1.3.2.8. Health Information and Research

In terms of health information and research, the Ministry of Health conducts population based surveys and studies, and tracks routine health facility data using the Health Management Information System (HMIS). Health facility data related to eye healthcare are currently collected at all levels, from health centers up to referral hospitals. Reports are made on quarterly and annual basis.

For research, the MoH has the National Health Research Agenda and the guidelines to ensure all the research conducted in the health sector is aligned with the national and sector priorities. Eye health needs to be integrated in the National Health Research Agenda. 2 Rapid Assessment of Avoidable Blindness have been conducted in 2006 and 2015. For the knowledge management related to eye health, some papers published include dissertation papers of students and some publications like that made to evaluate the impact of primary eye care.

1.3.3. Status of Eye Health in Rwanda

Like in other developing countries, Rwanda is facing an increasing burden of eye health problems. Data from the Rwanda Health Management Information System (RHMIS, 2016) showed that eye problems are among the top ten causes of morbidity in health facilities. For instance, in 2016, eye conditions were the fourth cause of morbidity among under-five years olds in all health facilities, the fifth cause of morbidity among people aged five years and above, with a total of 776,198 consultations, while they are the first cause of consultation for non-communicable diseases. A look at the top ten causes of morbidity in hospitals in Rwanda in 2016, shows that eye disease accounted for 11.8% and was ranked the second causes of morbidity in the Rwandan Hospitals. In health centers, eye diseases are the 4th cause of morbidity with a total of 638,080 consultations. In the UTHs, eye diseases constitute 8.6% of consultations in RMH, 5.7% in CHUK and 8.96% in CHUB.

In Rwanda, the major causes of blindness are untreated cataract, glaucoma, age related macular degeneration, and other posterior segment causes. Several surgical procedures are regularly performed countrywide to treat people with cataract, glaucoma, and other eye complication which require surgery. Data from RHMIS show that 3473 cataract cases were treated in 2015 and a total of 2973 cataract cases were treated in 2016. At the same period, a total of 629 and 594 of Glaucoma cases were respectively treated by surgery in 2015 and 2016.

It is worth to note that as reported in the 2015 RAAB, 45.4% of cataract surgery had been done at district hospitals (mobile teams) with 51.1% performed at the referral hospitals (Kabgayi, King Faisal, RMH and CHUK), while 1% was made in private hospitals. Poor post-surgery outcomes (12.6%) are mainly caused by refractive error, surgical complications and co-morbidity.

Other information to mention about the magnitude of eye diseases is that 1% (males: 1.3%, females: 0.8%) of people aged 50 years and more are blind (estimation: 11,384) often from avoidable causes (84%). The prevalence of severe visual impairment (SVI) was 0.7% for both sexes, and the prevalence of mild visual impairment was 2.6% (males: 1.9%; females: 3.1%). Also, Diabetic retinopathy is estimated to affect 10% of all diabetics, but regional data shows that 30% of diabetic have diabetic retinopathy. The medical condition is treatable but unfortunately, it is increasing because of trends in diabetes prevalence and low awareness in the population.

In a study to evaluate the need for primary eye care in Rwanda (published in 2018), it was found that over a third (34.0%) of the population with eye health problems could benefit from PEC offered in health centers. The most common cause of need for PEC was conjunctivitis. Allergic conjunctivitis is one of the leading causes of consultation at HCs and DHs (80% of total eye cases) and affects mainly children, while 30% of people aged 40 years and older had a need for reading glasses.

As regards to existing intervention to reduce the burden of visual impairment in Rwanda, there are important efforts in scaling up cataract surgery, ophthalmic services including the management of glaucoma and diabetic retinopathy, strengthen rehabilitation and low vision services, optical services and primary eye care.

1.3.4. Summary of Strengths, Weaknesses, Opportunities and Threats for Eye Healthcare in Rwanda

1.3.4.1. Disease prevention and Control

STRENGTHS	WEAKNESSES
• Operational Eye health program integrated in the health system, at all levels • Specialized Hospitals operational • Eye units in District and Referral hospitals • Mobile teams for outreach cataract surgery • Commitment of Partners to support interventions for disease prevention and control	• Inefficient implementation of the national eye health plan 2009-2018 • Inconsistency in the national coordination of stakeholders during the last 10 years • Absence of different guidelines to facilitate eye health service provision • Absence of eye commodities at MPPD
OPPORTUNITIES	**THREATS**
• More specialists will graduate in short term • Improvement of service delivery with the new structure of the health facilities in Rwanda • Equitable distribution of public health facilities • Inclusion of eye health indicators in HMIS	• Limited number and accessibility to rehabilitation centers for people with blindness

1.3.4.2. Trainings and Human Resources

STRENGTHS	WEAKNESSES
• Training of OCOs since 2004 • Training of 2700 nurses on PEC • Eye health curriculum integrated in the nursing schools • Existence of health facilities that provide tertiary eye care and potential places for training • Existence of residency training for ophthalmologists at RIIO.	• Shortage of skilled eye health care staff in general (Shortage of ophthalmologists, Shortage of refractionists, optical technicians, low vision specialists) • High staff turnover & shortage of skilled eye care workers
OPPORTUNITIES	**THREATS**
• Existence of RIIO that provides residency course to ophthalmologists • Revision of OCOs curricula to upgrade to Bachelor's degree • Commitment of Partners to support the training.	• High turnover of Nurses trained on PEC in health centers • Retention of skilled workforce

1.3.4.3. Infrastructure, drugs and equipment

STRENGTHS	WEAKNESSES
• Existence of a very good functional supply chain. • Most of medicines included in the Essential Medicines List • Eye services and eye medicines included in CBHI • Universal access to reading glasses	• Not all consumables and commodities for eye health are included in the Essential Medicines List, then not part of the supply chain system • Shortage of consumables, mainly for surgery (cataract) • Limited access to optical workshops, especially for remote areas • Absence of low vision devices • Medical acts and medicines for complex eye conditions not covered by CBHI • Limited number and accessibility to rehabilitation centers for people with blindness • Limited access to low vision devices • Limited access to optical workshops, especially for remote areas • Limited ophthalmological maintenance expertise
OPPORTUNITIES	**THREATS**
• More commitment of traditional partners to support in providing equipment to health facilities	No particular threat

1.3.4.4. Financing

STRENGTHS	WEAKNESSES
• Availability of external funding • Eye services and eye medicines included in CBHI • Universal access to glasses • Inclusion of main drugs for eye care in the National Essential Medicines List	• Medical acts and medicines for complex eye conditions not covered by CBHI • Eye health not yet included in health facilities' indicators for performance based-financing; • Limited budget for instruments/supplies for eye care, mainly in referral hospitals
OPPORTUNITIES	**THREATS**
• More commitment of traditional donors and partners to support eye care • Opportunities to mobilize more funds • Introduction of PBF scheme for eye health	No particular threat

1.3.4.5. Monitoring, evaluation and governance

STRENGTHS	WEAKNESSES
• Operational Eye health program integrated in the health system, at all levels • Availability of external funding	• Inefficient implementation of the national eye health plans 2009-2018 • Inconsistency in the national coordination of stakeholders during the last 10 years • Absence of different guidelines to facilitate eye health service provision • Unequal distribution of eye care resources to Health facilities • Persistence of barriers to utilization of eye services
OPPORTUNITIES	**THREATS**
• More commitment of traditional partners • Inclusion of eye health indicators in HMIS • Strong partnership and good working relationship among stakeholders • Commitment of the current MoH leadership to support Eye health	No particular threat

II. NATIONAL STRATEGIC PLAN FOR EYE HEALTH (NSPEH)

As mentioned in the previous sections, the NSPEH is fully aligned to the mission and vision of the Rwanda Health Sector Policy and the Rwanda Health Sector Strategic Plan 2018-2024 (HSSP IV), which are also respectively aligned to the Rwanda Vision 2050 and the Rwanda National Transformation Strategy 2018-2024. Looking at the national vision for eye health, strengths, weaknesses, opportunities, and threats as highlighted in the situation analysis, the following are Goal, and Objectives for the Rwanda National Strategic Plan for Eye Health.

1.4. NSPEH Goal, Purpose and Objectives

1.4.1. Goal

To reduce avoidable blindness and visual impairment as a public health problem in Rwanda and to secure access to rehabilitation for the visually impaired

1.4.2. Strategic objectives

a. Avail and equitably distribute quality equipment and appropriate infrastructure for eye care in Rwanda;
b. To train and retain qualified workforce for the provision of comprehensive eye care services across the entire healthcare system in Rwanda;
c. To provide comprehensive and quality preventive and curative eye care services at primary, secondary and tertiary levels;
d. To strengthen the coordination, governance, monitoring and evaluation of eye healthcare programs and interventions.

1.5. Strategies and interventions to be prioritized by the NSPEH

1.5.1. To ensure that quality eye care medicines, commodities, equipment, and appropriate infrastructure are available and equitably distributed

Gaps-Challenges	Proposed actions, interventions
• A big number of eye units in hospitals do not yet have rooms and equipment meeting standards of services they have to provide • Most of eye care equipment are purchased and distributed by NGOs. This resulted in an inequitable distribution of eye equipment. Some hospitals have got equipment bigger than their capacity or what they need; and some equipment are not therefore optimally used. • Limited maintenance service for ophthalmic equipment • Uncoordinated quantification, purchase and supply of eye care equipment, medicines, and commodities.	• Construct, renovate, upgrade and equip rooms for eye care units in health facilities, especially in hospitals; • Conduct an inventory of existing eye care equipment in all health facilities to identify gaps and needs, and equitably redistribute existing equipment; • Purchase new eye care equipment and set up a maintenance plan for eye care equipment; • Reorganize the way NGOs provide support to eye care services to ensure fair, rational, equity-based distribution of equipment and other eye care resources; • Ensure that eye care units in hospitals are equipped with standard equipment to perform surgeries with good visual outcomes. • Expand the national essential medicines list to adequately provide for key eye diseases and ensure such medicines are continuously available at all levels. • Advocate to manufacturing companies for essential eye medication and supply production within Rwanda.

1.5.2. Provision of comprehensive, equitable and quality eye care services at primary, secondary and tertiary levels

Gaps-Challenges	Strategies/Interventions
• Eye care services are not yet fully integrated across the Rwanda healthcare system. As a result, comprehensive eye care services are not adequately available and affordable in all parts of Rwanda, especially for people from remote areas. • The knowledge, Attitudes and Practices of the population towards eye health is still limited.	• Update the guidelines for eye treatment and disseminate it. • Define and implement packages of Eye health services at each level of the Rwanda healthcare system; • Carry out outreach programs in remote and underserved areas to sustain cataract surgeries across the country • To raise public awareness and advocacy on eye health issues, prevention measures, availability of clinical, rehabilitation and support services and sensitization for their utilization • Introduce eye care indicators in the performance based-financing to ensure the control of the Output; quality and outcome of eye care services across the board. • Design an affordable funding approach for rehabilitation services for people with visual impairment, especially those from poor households. • Introduce and sustain eye health into school health programs for annual screening • Improve the capacity of eye health units in hospitals to handle increasing referrals.

1.5.3. Strengthening the coordination, governance, monitoring and evaluation of eye healthcare programs and interventions

Gaps-Challenges	Strategies/Interventions

• For the last decades, eye heath was left to non-government organizations. This resulted in the following issues:
  ○ limited coordination of stakeholders, interventions, reporting on eye Health interventions
  ○ Health Facility data about Eye health are not routinely and properly collected by all health facilities
  ○ EHC indicators not clearly defined in the Rwanda Health Management Information system
  ○ No mechanisms to track data on children or other people in the rehabilitation centers;
	• Strengthen the coordination of eye care at the Central level
	• Strengthen the eye care technical working group
	• Develop and implement missing guidelines for implementation of Eye Health interventions
	• Update eye care indicators in the Rwanda HMIS
	• Establish and strengthen mechanisms to track data on Eye health services provided by specialized rehabilitation services and avail the detailed tool that can capture all information on eye problems
	• Promote targeted researches on Eye health interventions in Rwanda.
	• Conduct specific disease prevalence surveys
	• Include eye health in the routine reporting (quarterly, annual) of NCDs division
	• Define clearly the flow of information between primary care, secondary care and tertiary

○ Limited number of researches on Eye health in Rwanda. ○ Information flow not clearly defined between levels of service provision ○ Inadequate supportive supervision	• Integrate eye health supervision in the existing mechanism • Integrate eye health indicators in PBF

1.5.4. Training and retention of a sustainable workforce for the provision of comprehensive eye care services across the entire healthcare system in Rwanda

Gaps-Challenges	STRATEGIES/INTERVENTIONS
Insufficient eye care workforce in all categories: Ophthalmologists, Ophthalmic Clinical Officers; refractionists/optometrists, optical technicians, low vision specialists, ophthalmic maintenance technicians.	• Continue investing in the development of a comprehensive eye health workforce in Rwanda, with a special emphasis supervising and mentoring the human resources to provide primary eye care; • Gradually increase eye care workforce numbers to reach recommended WHO levels, adapting to the Rwanda context; • Support the Ophthalmology Residency program. • Upgrading the level of Ophthalmic Clinical Officers from A1 to A0. • Promote the skill-mixed training approach through continuous professional development/trainings

1.6. Results Matrix for the NSPEH

Output	Indicator	Baseline	Source of data	Targets		Actions	Key stakeholders
				2021	2024		
Outcome 1: Quality eye care medicines, commodities, equipment, and appropriate infrastructure are availed and equitably distributed							
Rooms for eye care units in health facilities, especially in hospitals, are constructed, renovated, upgraded and equipped for quality eye care services.	Number of District Hospitals with minimum number of 3 rooms including one dedicated for theater for eye care units	0	HMIS	38	38	• Provide DHs with enough space for eye health service provision, including one eye theatre	MoH RBC Districts DHs Partners
	Number of Provincial Hospital with minimum number of 4 outpatients rooms plus one eye theater	0	HMIS	4	4	• Provide PHs with enough space for eye health service provision, including one eye theatre	MoH RBC Districts PHs Partners
	Number of referral Hospitals with minimum number of 4 outpatients' rooms plus one eye theater.	0	HMIS	3	3	• Provide RHs with the required space needed for tertiary eye health service provision	MoH RBC Districts RHs Partners
Eye care equipment is purchased and well maintained	Number of health facilities with a minimum and functioning ophthalmic equipment as per their level.	546	HMIS	551	551	• Conduct an inventory of existing equipment and materials in all HCs, DHs, PHs, and RHs • Develop the norms and standards for eye health equipment and materials to be utilized at all levels of healthcare.	MoH RBC Districts HFs Partners

						• Equip all DHs, PHs and RHs with the required equipment	
	Number of health facilities with maintenance plan for eye care equipment.	1	HMIS	551	551	• Update or develop a maintenance plan that includes eye health equipment	
Eye care medicines, commodities, equipment supply chain is effective.	Number of health facilities with a standard stock for eye consumables and medicines	2	HMIS	551	551	• Update the list of eye health medicines, consumables and commodities, including low vision devices and include it in the Essential Medicines List • Establish an effective supply chain for medicines, consumables, commodities and equipment • Establish a standard stock for eye health medicines, commodities, consumables and low vision devices	MoH RBC (MPPD) HFs Districts Partners
Outcome 2: A sustainable workforce for the provision of comprehensive eye care services across the entire healthcare system in Rwanda is trained and retained.							
The number of human resources that provide primary eye care is increased.	Number of health centers and health posts with at least two trained primary eye care nurses	503		2298	2298	• Deploy nurses trained on PEC in all health posts and health centers • Organize refresher trainings to ensure that	MoH RBC Districts HFs Partners

						quality PEC is provided in all HCs and health posts	
	Number of private and public nursing schools with integrated primary eye care training curricula	5		8	8	• Ensure that the PEC curriculum is integrated in the nursing curricula of all nursing schools and provided to students	MoH RBC UR Partners
	Number of medicalized health centres with at least one Ophthalmic Clinical Officer (Rutare, Gatenga, Kanyinya, Remera, Bigogwe, Gikonko, Mageragere)	0		9	9	• Deploy the required eye health skilled staff in all medicalized health centers	MoH RBC Districts HFs
The number of qualified eye care providers at tertiary eye care is increased.	Number of tertiary hospitals (provincial, referral and teaching) with at least two Ophthalmologists	2		9	9	• Deploy the required Ophthalmologists in PHs, RHs and UTHs	MoH RBC Districts HFs
	Number of tertiary hospitals (provincial, referral and teaching) with at least six ophthalmic clinical officers	2		9	9	• Recruit and deploy the missing OCOs in tertiary hospitals	MoH RBC Districts HFs
	Number of Strategic District Hospitals with specialized eye care units with at least one ophthalmologists and three Ophthalmic Clinical Officers (Gisenyi,	0		4	4	• Recruit and deploy ophthalmologists and OCOs in the selected strategic district hospitals.	MoH RBC Districts HFs

	Gihundwe, Nyagatare and Kibagabaga)						
	Number of health facilities with biomedical engineers trained on ophthalmic equipment maintenance	0		49	49	• Train and organize refresher trainings for biomedical engineers on the preventive and curative maintenance in health facilities	MoH RBC HFs Partners IPRCs
The number of qualified eye care provider at secondary eye care is increased.	Number of District Hospitals with at least two ophthalmic clinical officers	11		37	37	• Recruit and deploy the missing OCOs to fill the gap	MoH RBC Districts HFs
	Number of ophthalmic clinical officers with a Bachelor's Degree.	0	UR and ROCOCs	60	100	• Organize the training of OCOs up to Bachelor's degree, using the revised curriculum	MoH RBC UR-CMHS HFs Partners
The skill-mixed training approach through continuous professional development/trainings is supported and promoted	Number of ophthalmologists trained and in training in country.	16	ROS RIIO	24	36	• Organize the residency training of ophthalmologists in country	MoH RIIO Partners
	Number of integrated polytechnic regional centers with integrated ophthalmic equipment training curricula	0	IPRC HMIS	8	8	• Negotiate with IPRCs to integrate a curriculum for the maintenance of ophthalmic equipment in IPRCs	MoH RBC IPRC HFs Partners
Outcome 3: Comprehensive and quality preventive and curative eye care services at primary, secondary and tertiary levels are provided							

• Burden of top five eye morbidity causes reduced	Cataract Surgical Rate (number of cataract surgeries per million	400	HMIS	700	1200	• Strengthen the capacity of eye units (equipment and consumables) in teaching hospitals • Scale-up cataract surgery through extension and strengthening of eye units in provincial and referral hospitals • Strengthen awareness campaigns in the community to address identified barriers to utilization of eye health services • Continue and strengthen outreach and Mobile teams for cataract surgeries • Include cataract surgery the PBF indicators	MoH RBC HFs ROS Partners
	Percentage of eye outpatients aged above 30 years screened for glaucoma in hospitals out of eye outpatients aged above 30 years.	0	HMIS	100	100	• Include Glaucoma in the awareness raising campaigns for early diagnosis and regular check-up and possible ways of preventing visual loss due to late diagnosis and untreated glaucoma. • Identify and refer all patients aged above 30	MoH RBC HFs Partners

						years with eye problems for glaucoma check-up • Develop and disseminate guidelines related to the diagnosis, treatment and follow-up of glaucoma patients • Ensure that eye-care units in DHs are adequately equipped for the diagnosis and cases properly referred for treatment. • Put in place measures to ensure availability of effective, low-cost eye drops for lowering intraocular pressure.	
	Number of hospital with optical shops	15	HMIS	48	48	• Create and operationalize vision centers and low vision services in the remaining hospitals, • Establish optical shops at secondary and tertiary level	MoH RBC HFs Partners
	Number of health centers providing reading and adjustable glasses.	503	HMIS	518	518	• Ensure effective availability reading glasses in Health centers • Create and/or strengthen quality	MoH RBC HFs Partners

						refractive services in district, provincial and referral hospitals with capacity to provide prescription glasses for all • Strengthen and conduct public awareness campaign to generate demand for eye services (community and primary eye care) • Develop national guidelines on low vision • Establish comprehensive low-vision care for children and adults	
	Percentage of diabetic patients checked for diabetic for retinopathy at least once a year.		HMIS	100	100	• Establish linkages with the diabetics' association and diabetic clinics • Raise awareness about diabetes and eye in community and health providers • Establish comprehensive screening mechanism to identify patients with diabetes and diabetic retinopathy	MoH RBC HFs Rwanda Diabetes Association Partners

						• Set up effective referral system from primary health care to the tertiary level for the disease management	
	Percentage of premature neonates checked for retinopathy out of all premature neonates received in referral hospitals.		HMIS	100	100	• Ensure that all babies at risk of ROP (premature neonates) have a fundus examination by a trained staff, 6–7 weeks after birth and treated accordingly in referral hospitals.	MoH RBC HFs Partners
• Rehabilitation centers for blind and persons with low vision are rehabilitated or created and strengthened	Number of national center of excellence for low vision and rehabilitation for blind people	0	HMIS	1	1	• Create and strengthen a national center for low vision and rehabilitation for blind people • Establish linkages for collaboration with existing centers for rehabilitation	MoH RBC NCPD RUB Partners
• Eye healthcare program is introduced and sustained in school health programs for annual screening.	Percentage of school children in P1 and S1 screened for eye as a percentage of total number of children	0	HMIS	100	100	• Conduct regular school screenings to identify children Eye health problems	MoH RBC MINEDUC Partners
Outcome 4: Governance, monitoring and evaluation of eye healthcare programs and interventions are strengthened and coordinated							
Annual eye symposia organized	Number of annual symposia organized	0	RBC annual report	3	5	• Conduct 1 eye symposium on annual basis	MoH RBC Partners

Eye care international conference organized	One eye care international conference organized over the next five years	0	RBC annual report	1	2	• Organize 1 eye care international conference	MoH RBC Partners
Eye screening guidelines in schools developed and disseminated	Approved Eye screening guidelines in schools.	0	RBC annual reports	1	1	• Finalize and disseminate the eye screening guidelines	MoH RBC Partners
Integrated clinical guidelines on the reduction of the burden of top five causes of eye morbidity developed and disseminated.	Approved integrated clinical guidelines on the reduction of the burden of top five eye morbidity causes.	0	RBC annual report	1	1	• Develop and disseminate clinical guidelines for the reduction of the top 5 causes of eye morbidity	MoH RBC Partners
Joint field supervision/visits of eye care services.	Number of joint field supervision/visits done	0	RBC annual reports Reports of joint field visits	2	2	• Organize 1 field visits every year	MoH RBC Partners
Eye care performance based financing introduced and sustained	Listed of eye care PBF indicators		MoH annual report	100%	100%	• Define and include eye health indicators in PBF	MoH RBC Partners
MTR and end-term evaluation conducted	Report on MTR and end-term evaluation		Reports	MTR	End-term evaluation	• Conduct the NSPEH MTR and end-term evaluation	MoH RBC Partners HFs
Eye health interventions, reporting and stakeholders coordination are well coordinated	Eye health coordination desk created and supported at the national level.	0	RBC Annual report	100%	100%	• Appoint a coordinator for Eye health	MoH RBC Partners

1.7. Coordination and implementation mechanisms

The coordination for the implementation of this six-year National Strategic Plan for Eye Health will primarily be coordinated by the Rwanda Health Sector and will be supported by other national and international stakeholders.

The mechanisms to coordinate the implementation of the National Strategic Plan for Eye Health (NSPEH) will be similar to those put in place to coordinate the implementation of HSSP4. To this end, the following structures have been put in place, in accordance with the Cabinet Manual on strategic planning:

- Health Sector Working Group (HSWG) composed of representatives from MOH and affiliated institutions, Development Partners (DPs), Private Sector and Civil Society. HSWG ensures the coordination of activities and harmonization of procedures of both GoR and DPs in order to increase effectiveness and efficiency of aid in the health sector and to ensure better alignment of DPs to HSSP, with an enshrined principle of mutual accountability, as provided in the Health Sector Policy (2015).

- NCD Disease Prevention and Control Technical Working Group: It is one of the 3 Technical Working Groups (TWG) composing HSWG, where technical and policy issues are discussed by MoH staff and representatives of Development Partners, NGOs, FBOs and CSOs working in the concerned area. TWG operate under the authority of the HSWG. Specifically, for Eye Health, an Eye Health Technical Working Group (EHTWG) has been created to coordinate all activities related to Eye health, activities that are mostly carried out by International NGOs.

From the signature of the Vision 2020, the Right to Sight in 2002, Eye health activities are funded and implemented by international NGOs. The current plan of action will also need external financial and technical assistance to achieve its objectives and this cooperation is based on mutual agreement between the government and partners involved in Eye health.

At the district level, the monitoring of activities related to health service provision is assigned to the District Health Unit (DHU) and the overall coordination is ensured by the District Health Management Unit (DHMT) in collaboration with the Joint Action Development Forum, JADF.

1.8. Monitoring and Evaluation Framework

A monitoring and evaluation (M&E) system to track and evaluate progress towards strategic objectives is needed to achieve the goal of quality eye health services for all and inform strategic decision-making. Within this plan of action, the M&E of implementation will be ensured by the NCDs Division in RBC, under the Unit of Injuries, Disabilities.

National surveys (RAAB) to generate evidence on prevalence of diseases, pattern of diseases, estimation of blindness and low vision burden in the country have been carried out in 2006 and 2015. Also, an impact evaluation of primary eye care has been conducted in 2017. M&E for routine monitoring and periodic evaluation of results and implementation processes, with appropriate methods of data collection, data quality audit, data management, data reporting and dissemination is explained in the HSSP IV (2018-2024).

The coordination of activities, the monitoring of performance will be regularly carried out quarterly and annually using indicators that have been formulated in the Vision 2020, the Right to Sight Initiative and integrated in the HMIS, and eye health will be effectively integrated in the existing supervision mechanisms. Finally, a mi-term review and an end-term evaluation will be conducted in 2021 and 2024 respectively, while national surveys to generate evidence on prevalence of diseases, pattern of diseases, estimation of blindness and low vision burden in the country will be conducted on a regular basis (10 years). Those initiatives have also aim at assessing the progress in achievement of strategic objectives, identify challenges, document best practices, and formulate recommendations that will help to meet the strategic goal.

1.9. Costing

Costing is an integral part of every planning process. For strategic health planning, the One Health Tool has been designed to support national strategic health planning and costing in low- and middle-income countries. It facilitates the assessment of resource needs and costs associated with key strategic activities with a focus on integrated planning and strengthening health systems.

For sub-sector plans like that of the NSPEH, the costing process uses "inputs based costing methodology." Ingredient costing method is based on the fact that every program or plan uses inputs with identifiable costs. Key ingredients and costs are identified, and a cost per unit of effectiveness is calculated. Interventions are detailed, and the resources needed to deliver corresponding outputs are indicated. The methodology is simple and recommended for the costing of health services in lower delivery levels of developing countries.

The costing exercise was carried out by the consultant in collaboration with Eye health specialists. The proposed cost was submitted to the Eye Health TWG and other stakeholders in a consultative workshop organized to collect all inputs to the draft of NSPEH. First, a review of all the outcome and output indicators previously developed by the consultant was conducted by the participants to workshop. Then, indicators were validated and activities developed based on the outcomes. Estimation of cost for each activity was done, guided by a standardized framework involving three sets of assumptions: quantity, frequency, and unit cost variables.

The costing exercise was conducted considering the application of five guidance frameworks for costing exercises: (1) Identify resources used to produce the services being costed. (2) Estimate the quantity of each input used. (3) Assign a monetary value to each unit of input and compute the total cost of the input. (4) Allocate the costs to the activities in which they are used. (5) Use measures of service output to calculate average costs.

As a subsector plan of action, no major Costing Assumptions were considered (origin of funds, resource allocation to health, investment and recurrent costs, GDP, etc.) as it is usually made for HSSP. The calculation was made in USD as inflation was not considered, and the majority of funds are expected to be external. The estimation of costs needed to deliver the packages of health interventions identified in the NSPEH for the period 2018 to 2024 included the following:

- The costs of the interventions related to service delivery that are prioritized in the NSPEH for each level of service delivery.
- Costs related to health system strengthening: Human Resources, Infrastructure, Governance, Information Systems.

- The program support (training) required to improve the quality of Eye health services, and activities proposed for monitoring, evaluation and research.
- The quantity of services required was estimated using the coverage planned within the NSPEH (baselines and targets) for each intervention prioritized.

1.10. Summary Table for NSPEH 2018-2024 Costing

NOTE: This budget is subject to revision after inventory of existing equipment and materials in health facilities. Amounts are expected to reduce substantially.

a. Summary of Expenditures by Healthcare level (USD)

Level of Eye Health service	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Total
• Community	100,000	256,400	256,400	256,400	256,400	256,400	1,382,000
• Health Centers	279,730	476,430	476,430	399,300	182,600	183,182	1,997,672
• District Hospitals	686,200	1,506,700	1,406,700	1,666,200	270,000	210,000	5,745,800
• Provincial Hospitals	40,000	270,000	230,000	420,000	0	0	960,000
• Referral Hospitals	30,000	522,200	522,200	522,200	0	0	1,596,600
• Central level	1,104,050	1,643,150	1,796,350	1,436,600	1,366,600	1,641,600	8,988,350
Grand Total	**2,239,980**	**4,674,880**	**4,688,080**	**4,700,700**	**2,075,600**	**2,291,182**	**20,670,422**

b. Summary of costs for HSS (USD)

Institutional capacity development	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Total
Infrastructure	590,000	2,326,900	2,186,900	2,650,100	105,000	105,000	7,963,900
Medicines and Commodities	410,000	420,000	300,000	210,000	200,000	200,000	1,740,000
Human Resources	326,730	464,730	462,730	443,600	383,600	433,600	2,514,990
Service Delivery	872,450	1,038,650	1,188,850	962,400	962,400	1,002,982	6,027,732
Governance, M&E, HIS, Research	40,800	424,600	549,600	434,600	424,600	549,600	2,423,800
Grand Total	**2,239,980**	**4,674,880**	**4,688,080**	**4,700,700**	**2,075,600**	**2,291,182**	**20,670,422**

c. Detailed budget by activities

Input category	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	Total
1. Institutional Capacity Development							
A. Infrastructure: creation and renovation of Eye health units (USD)							
Construction and extension of ophthalmology services (minimum 3 rooms including 1 eye theatre) in 30 DHs (30,000$ each)	30,000	300,000	300,000	300,000	0	0	930,000
Renovation of ophthalmology services (3 rooms including 1 eye theatre) in 6 DHs (Gahini, Gakoma, Nyanza, Rwinkwavu, Ruli, Remera-Rukoma) (20,000$ each)	0	60,000	60,000	60,000	0	0	180,000
construction/renovation/extension of ophthalmology services (4 rooms + 1 eye theatre) in 4 PHs (40,000$ each)	10,000	80,000	40,000	40,000	0	0	170,000
Construction/renovation/extension of ophthalmology services (4 rooms + 1 eye theatre) in 3 strategic hospitals (Nyagatare, Gihundwe, Kibagabaga, 40,000$ each)	0	40,000	40,000	40,000	0	0	120,000
Renovation of ophthalmology service in 1 strategic hospital (Gisenyi)	30,000	0	0	0	0	0	30,000
Construction/renovation/extension of ophthalmology services (4 rooms + 1 eye theatre) in 3 RHs (50,000 each)	10,000	50,000	50,000	50,000	0	0	160,000
Creation of eye units in 9 medicalized HCs (3 rooms) (20,000$ each)	0	60,000	60,000	60,000	0	0	180,000
Organization of inventory of ophthalmic equipment to identify and fill the gaps	15,000	0	0	0	0	0	15,000
Development of norms and standards of equipment and materials for eye health at all levels of service provision	10,000	0	0	10,000	0	0	20,000
Purchasing and distribution of the needed eye health equipment in all the 503 HCs (Renew: 100$ each HC)		16,800	16,800	16,800	0	0	50,400
Purchasing and distribute the needed eye health equipment in 9 medicalized HCs (43,300$ each)	0	129,900	129,900	129,900	0	0	389,700
Purchase and distribute the needed eye health equipment in 34 DHs (Renew equipment:43,300$ each)	30,000	433,000	433,000	606,200	0	0	1,502,200

Purchase and distribute the needed eye health equipment in 4 PHs (190,000$ each)	30,000	190,000	190,000	380,000	0	0	790,000
Purchase and distribute the needed eye health equipment in 3 RHs ((190,000$ each)	0	190,000	190,000	190,000	0	0	570,000
Purchase and distribute the needed eye health equipment in 4 strategic hospitals (Gisenyi, Gihundwe, Kibagabaga, Nygatare) (190,000$ each)	0	190,000	190,000	380,000	0	0	760,000
Purchase and distribute the needed eye health equipment in 3 UTHs (CHUB, CHUK, RMH)	20,000	282,200	282,200	282,200	0	0	866,400
Creation of a standard stock for eye health equipment at central and hospital level (consumables, spare bulbs, materials, etc.	400,000	300,000	200,000	100,000	100,000	100,000	1,200,000
Development of the maintenance plans for eye equipment and instruments and its integration in the existing maintenance plan of the Hospital	5,000	5,000	5,000	5,000	5,000	5,000	30,000
SUBTOTAL	**590,000**	**2,326,900**	**2,186,900**	**2,650,100**	**105,000**	**105,000**	**7,963,900**
B. Medicines, consumables, commodities, low vision devices							
Revision of list of eye health medicines, consumables, commodities, and low vision devices integrated in the Essential Medicines List	10,000	0	0	10,000	0	0	20,000
Creation of effective supply chain for eye medicines, consumables, commodities and equipment		20,000	0	0	0	0	20,000
Creation of a standard stock for eye health medicines, commodities, consumables and low vision devices at central and hospital level	300,000	300,000	200,000	100,000	100,000	100,000	1,100,000
Creation of a standard stock for low vision devices at central and hospital level	100,000	100,000	100,000	100,000	100,000	100,000	600,000
SUBTOTAL	**410,000**	**420,000**	**300,000**	**210,000**	**200,000**	**200,000**	**1,740,000**
C. Human Resources							
Organization of an inventory of Nurses skilled in PEC to identify the gap	10,000	0	0	10,000	0	0	20,000
Organization of regular refresher courses for Nurses to ensure quality PEC in HCs and HPs	50,000	50,000	50,000	50,000	50,000	50,000	300,000

Deployment of at least 2 Nurses trained on PEC in all HCs	118,730	118,730	118,730	39,600	39,600	39,600	474,990
Deployment of at least 1 Nurse trained on PEC in all Health posts	0	0	0	0	0	0	0
Integration of PEC curriculum in 4 private Nursing schools	0	0	0	0	0	0	0
Recruitment and deployment of at least 1 OCO in 9 medicalized Health Centers	0	0	0	0	0	0	0
Recruitment and deployment of at least 2 Ophthalmologists in PHs, RHs, UTHs (7 hospitals)	0	0	0	0	0	0	0
Recruitment and deployment of the missing OCOs to complete the norm of 6 OCOs in PHs, RHs, UTHs (7 hospitals)	0	0	0	0	0	0	0
Recruitment and deployment of at least 1 Ophthalmologist in 4 strategic hospitals	0	0	0	0	0	0	0
Recruitment and deployment of the missing OCOs in 4 strategic hospitals to fill the norm of 3 OCOs	0	0	0	0	0	0	0
Recruitment and deployment of the missing OCOs in 4 strategic hospitals to fill the norm of 2 OCOs in 37 DHs	0	0	0	0	0	0	0
Training and organization of refresher training for 49 Biomedical engineers for the maintenance of eye health equipment in hospitals	0	50,000	0	50,000	0	50,000	150,000
Upgrading of at least 100 OCOs to Bachelor's degree	100,000	100,000	100,000	100,000	100,000	100,000	600,000
Training of 20 additional ophthalmologists to attain a total of 36 (12,000$/student/year)	48,000	96,000	144,000	144,000	144,000	144,000	720,000
Integration of a curriculum for the maintenance of ophthalmic equipment in 8 IPRCs	0	50,000	50,000	50,000	50,000	50,000	250,000
SUBTOTAL	**326,730**	**464,730**	**462,730**	**443,600**	**383,600**	**433,600**	**2,514,990**
2. Service Delivery							
1. Disease control							
Development and dissemination of guidelines related to the diagnosis, treatment and referral of priority eye diseases and other eye conditions	10,000	0	0	10,000	0	0	20,000
Procurement and equitable distribution of cataract consumables through revolving fund (25$ each)	137,500	130,000	30,000	30,000	30,000	30,000	387,500

Include eye consumables and supplies in the existing quantification system	10,000	0	0	10,000	0	0	20,000
Continuous subsidization of cataract surgeries to ensure affordability of cataract services (Budget/number of cataracts	245,000	260,000	220,000	300,000	350,000	420,000	1,795,000
	3,500 cataracts	5,200 cataracts	4.4 cataracts	6,000 cataracts	7,000 cataracts	8,400 cataracts	39,100 cataracts
Support PHs, RHs and UTHs to acquire capacity for cataract surgery	0	0	0	0	0	0	0
Organization of outreach and mobile cataract surgery services from tertiary to secondary level: 2000 cat/y 50 outreaches x 2,500,000 RWF, so as to reach standard outreach surgery mechanisms.	147,500	100,000	100,000	100,000	100,000	100,000	647,500
	2,000 cataracts	2,000 cataracts	4,000 cataracts	4,000 cataracts	5,000 cataracts	6,000 cataracts	21,000 cataracts
Include cataract in the nationwide campaign to increase and achieve the targets of cataract surgery rate	0	0	0	0	0	0	0
Organization of mentoring and supportive supervisions between levels of service provision	50,000	50,000	50,000	50,000	50,000	50,000	300,000
Equipment of DHs with capacity to screen and check-up of glaucoma for people aged 30 years and above	0	0	0	0	0	0	0
Equipment of all PHs and RHs with capacity to treat glaucoma	0	0	0	0	0	0	0
Creation and operationalization of vision centers in 33 hospitals							???
Creation of low vision services for adults and children in 33DHs (1,700$ each)	18,700	18,700	18,700	5,000	5,000	5,000	71,100
Creation of low vision services for adults and children in 4 PHs, 3 RHs, 4 strategic hospitals, 3 UTHs (11,330$ each)	52,750	52,750	52,750	8,000	8,000	8,000	182,250
Provision of low vision services (65$ each for device)	11,000	11,000	11,000	3,000	3,000	3,000	42,000
Creation of optical shops in 48 hospitals: 5,000$ each (see One Sight)	0	60,000	60,000	60,000	60,000	0	240,000
Provision of low cost reading glasses in health centers to all people in need	60,000 glasses	60,000 glasses	60,000 glasses	60,000 glasses	60,000 glasses	60,388 glasses	300,388 glasses
	90,000	90,000	90,000	90,000	90,000	90,582	540,582
Provision of prescribed spectacles in DHs, RHs and UTHs (see One Sight)	0	0	0	0	0	0	0
Development of guidelines for low vision services	0	0	0	0	0	0	0

Development of guidelines for effective referral system from primary to tertiary level for the management of Diabetic retinopathy (DR)	0	0	0	0	0	0	0
Provision of capacity for the screening and treatment of DR in PHs, RHs and UTHs	0	0	0	0	0	0	0
Development of guidelines for effective referral system from secondary to tertiary level for the management of retinopathy in premature neonates	0	0	0	0	0	0	0
Provision of capacity for the screening and treatment of retinopathy in premature neonates in RHs and UTHs	0	0	0	0	0	0	0
Creation of 1 center of excellence for the rehabilitation of Blind	0	10,000	300,000	40,000	40,000	40,000	430,000
Provision of support to existing centers for rehabilitation of blind							
Development and dissemination of guidelines on school screening	0	0	0	0	0	0	0
Organization of annual school screenings to identify children with blindness and vision impairment (2,877 in P1 and 1,375 in S1: 4 sessions by sector,, 100$ each	0	166,400	166,400	166,400	166,400	166,400	832,000
2. Public awareness and advocacy							
Development of key messages on eye health and include eye health in the regular IEC/BCC sessions in HCs	10,000	0	0	0	0	0	10,000
Production of guidelines on eye health education to the public	0	0	0	0	0	0	0
Organization of public awareness campaigns to generate demand for eye services in community, workplaces and other specific groups	30,000	30,000	30,000	30,000	30,000	30,000	180,000
Designation and dissemination of standard IEC/BCC materials on eye health	30,000	30,000	30,000	30,000	30,000	30,000	180,000
Organization of the World Sight Day as advocacy event	10,000	10,000	10,000	10,000	10,000	10,000	60,000
Organization of public information through local radio and television spots, and print media	10,000	10,000	10,000	10,000	10,000	10,000	60,000
Utilization of new technologies for the public information (mobile phones)	10,000	10,000	10,000	10,000	10,000	10,000	60,000
SUBTOTAL	**872,450**	**1,038,650**	**1,188,850**	**962,400**	**962,400**	**1,002,982**	**6,027,932**

3. Governance, M&E, Research, Knowledge management							
Appoint 1 national coordinator of eye health services (1,800$/month)	10,800	21,600	21,600	21,600	21,600	21,600	118,800
Organization of 1 annual symposium on eye health	0	30,000	30,000	30,000	30,000	30,000	150,000
Organization of 2 international conferences on eye care			100,000			100,000	200,000
Development and dissemination of integrated clinical guidelines to reduce the burden of the top five causes of eye morbidity	10,000	0	0	10,000	0	0	20,000
Organization of 1 annual joint field visit for eye health care services	20,000	20,000	20,000	20,000	20,000	20,000	120,000
Organization of 1 mid-term review	0	0	25,000	0	0	0	25,000
Organization of end-term evaluation	0	0	0	0	0	25,000	25,000
Definition and integration of eye health indicators in PBF							
Integration of Eye health services in the accreditation program and definition of specific indicators to monitor the quality of eye care.	0	353,000	353,000	353,000	353,000	353,000	1,765,000
SUBTOTAL	**40,800**	**424,600**	**549,600**	**434,600**	**424,600**	**549,600**	**2,423,800**
F. Logistics							
SUBTOTAL							
GRAND TOTAL	**2,239,980**	**4,674,880**	**4,688,080**	**4,700,700**	**2,075,600**	**2,291,182**	**20,670,422**

III. DOCUMENTS CONSULTED

1. UNICEF-Rwanda: Situation Analysis of Children in Rwanda, 2017
2. MINEDUC/UNICEF, 2016. A Study on Children with Disabilities and Their Right to Education. Government of Rwanda: Kigali.
3. Susan L: The Need for Management Capacity to Achieve VISION 2020 in Sub-Saharan Africa, Plos, https://doi.org/10.1371/journal.pmed.1000184)
4. Palmer et al, 2014: Mapping human resources for eye health in 21 countries of sub-Saharan Africa: current progress towards VISION 2020, Human Resources for Health 2014**12**:44, https://doi.org/10.1186/1478-4491-12-44
5. American Public Health Association, 2011: Vision 2020: Global campaign to eliminate avoidable blindness
6. Vision for a Nation, 2015: Primary Eye Care Service in Rwanda: Benefits and Costs, Croock Associates
7. Jesse V et al. Diabetic Retinopathy. University of Iowa Health care, 2010
8. Ministry of Health Ethiopia: National Strategic Action Plan for Eye Health, 2016-2020
9. Ministry of Health Kenya: National Strategic Plan for Eye Health and Blindness Prevention 2012-2018
10. Fiammetta Bozzani et al: Situation analysis of eye health care in Zambia. London School of Public Health, 2011
11. International Agency for the Prevention of Blindness: IAPB standard list of Equipment, Drugs and Consumables for VISION 2020 Eye Care Service Units, 2010/2011
12. Ministère de la Santé 2002 : Plan National de Lutte Contre la Cécité 2002-2007
13. Ministry of Health: National Plan for Eliminating Needless Blindness in Rwanda, 2009-2013, unpublished
14. Ministry of Health: National Plan for Eliminating Needless Blindness in Rwanda, 2014-2019, unpublished
15. Wanjiku Mathenge et al. Rapid Assessment of Avoidable Blindness in Western Rwanda: Blindness in a Post conflict Setting, PLoS Medicine | www.plosmedicine.org, 2007
16. CHUB: Annual report 2016-17, 2017-2018
17. MoH-Rwanda, The Fred Hollows Foundation, RIIO: Rapid Assessment of Avoidable Blindness in Rwanda 2015
18. CHUK: Annual report 2016-2017
19. Paul Courtright et al: Child cataract in Africa. KCCO, Moshi, Tanzania, 2007
20. Hery Harimanitra Andriamanjato: Task shifting in primary eye care: How sensitive and specific are common signs and symptoms to predict conditions requiring referral to specialist eye personnel? Human Resources for Health 2014, 12 (Suppl 1):S3
21. http://www.human-resources-health.com/content/12/S1/S3
22. Jolley et al. Integration of eye health into primary care services in Tanzania: a qualitative investigation of experiences in two districts, 2017. BMC Health Services Research (2017) 17:823
23. DOI 10.1186/s12913-017-2787-x
24. Agnes Binagwaho et al: Improving eye care in Rwanda, 2015. Bull World Health Organ2015; 93:429–434 doi: http://dx.doi.org/10.2471/BLT.14.143149

25. Paul Glewwe et al. The Impact of the Provision of Near Vision Glasses by the Vision for a Nation Foundation on Handicraft Weavers' Productivity in Rwanda, 2014
26. Seth R Flaxman et al. Global causes of blindness and distance vision impairment 1990–2020: a systematic review and meta-analysis,.***Lancet Glob Health* 2017; 5: e1221–34** October 11, 2017 http://dx.doi.org/10.1016/ S2214-109X(17)30393-5
27. CBM, 2015: Disability inclusive practices for strengthening comprehensive eye care
28. Philippa Thomas. Mainstreaming Disability in Development: Country-level research. Rwanda Country Report, 2005
29. Kirsten L Armstrong: The global cost of eliminating avoidable blindness. Indian Journal of Ophthalmology, 2018
30. Paul Courtright et al. Reaching rural Africans with eye care services: findings from primary eye care approaches in Rubavu District, Rwanda, 2010. https://doi.org/10.1111/j.1365-3156.2010.02530.x
31. MoH, Health services packages in public health facilities 2017
32. IAPB Africa: Human Resources for Eye Health Strategic Plan 2014-2023.
33. 21. Furai Chinanayi: Trends and implications for achieving VISION 2020 human resources for eye health targets in 16 countries of sub-Saharan Africa by the year 2020. Human Resources for Health · August 2014
34. MoH, 2015: Rwanda Non-Communicable Diseases Risk Factors Report
35. MoH, 2015: Rwanda on-communicable Diseases National Strategic Plan 2014-2019
36. MINEDUC, 2014: National School Health Policy. School Health Minimum Packages
37. MoH: Rwanda Non Communicable Diseases Policy
38. Gilbert, C; Foster, A (2001) Childhood blindness in the context of VISION 2020 - The Right to Sight. Bulletin of the World Health Organization, 79 (3). pp. 227-32. http://researchonline.lshtm.ac.uk/17361/
39. Kah Hie Wong et al. Corneal blindness and current major treatment concern: graft scarcity. China. youngla@ha.org.hk
40. Rohit C Khanna et al. Importance of integrating eye health into school health initiatives. Community Eye Health Journal 2018
41. Matthew J Burton. Corneal blindness. Community Eye Health Journal, 2006
42. WHO, 2016: Diabetes country profile, Rwanda
43. NISR: Rwanda 4th Population and Housing Census, 2012
44. 38. NISR: Statistical Yearbook 2017
45. MoH, 4th Health Sector Strategic Plan (HSSP4), 2018-2024
46. MoH: Health Sector Strategic Plan (HSSP III), 2012-2018
47. MoH, National Health Sector Policy 2015
48. MoH, National Essential Medicines List for Adults, 6th edition 2015
49. WHO, WHO model list of essential medicines, 20th list 2017
50. MINALOC, 2014: Social Protection Policy and Strategy
51. Ruberangeyo et al: Rwanda: Social Protection, an ongoing process
52. SIDA, 2014: Disability rights in Rwanda.
53. UNICEF/NCPD: Report on national assessment of centres caring for children with disabilities in Rwanda may 2016
54. A. M. Abdellatif, "Good Governance and Its Relationship to Democracy & Economic Development," no. May, pp. 1–27, 2003

55. Rwanda Governance Board, “Governance for Production and Rwanda Governance Advisory Council (RGAC),” Kigali, 2010.
56. D. W. Brinkerhoff, Good Governance and Health : Assessing Progress in Rwanda Decentralization and Health Program, no. April. 2009.
57. MINEDUC, 2007: Special Needs Education Policy.
58. https://www.usaid.gov/sites/.../Clehman_ingredients_costing.pdf
59. National Union of Disabilities Organizations: NUDOR strategic Plan 2015-2020.
60. WHO, 2017: Prevention of deafness and hearing loss
61. MIGEPROF, 2016: Early Childhood Development Policy and Strategy
62. National Council of Persons with Disabilities, National Council of Children, 2016: Report on national assessment of centers caring for children with disabilities in Rwanda
63. MoH, 2014. National guide for the Health Sector policy and strategic plan development
64. IAAB: IAPB standard list of Equipment, Drugs and Consumables for VISION 2020 Eye Care Service Units
65. International Centre for Eye Health: Standard List of Medicines, Equipment, Instruments, Optical supplies and Educational Resources for Primary and Secondary Level of Eye Health Services, 2005
66. Standard List of Low Vision Equipment: Community Eye Health. Vol 17, no 49, 2004