



Eye health system assessment in Mozambique

November 2018



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 **Sightsavers**

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Contents

Authors	2
Acknowledgements	5
Key abbreviations and acronyms	6
Executive summary	8
Background	8
Methodology	8
Key findings	9
Introduction	15
Study objectives	16
Overall objective	16
Specific objectives	16
Methodology	17
Study design	17
Sampling	17
Data collection, management and analysis	17
Ethical approval	17
Mozambique health system overview	18
Country context	18
Health services structure	18
Health care financing	18
Human resources for health	19
Management of health services	19
Medical products and technologies	21
Health services delivery	22
Health management information system	23
Overview of the eye health system in Mozambique	24
Eye health status	24
Eye health governance	24
Eye health financing	27
Eye health service delivery	29
Human resources for eye health	31
Drugs, products and equipment for eye health	36

Eye health information systems	36
Conclusions	38
Eye health governance	38
Eye health financing	39
Eye care service delivery	40
Human resources for eye health	40
Eye health medicines and medical products	42
Eye health information system	42
References	44
Appendices	47
Appendix 1: Study respondents	47
Appendix 2: Relatório annual de oftalmologia – 2016	49

Acknowledgements

This publication is a result of efforts and contributions of various organisations and individuals. We would like to thank:

- the government of Mozambique and the Ministry of Health for their leadership on all aspects of the study.
- Sightsavers global teams, specifically Ms Bhavisha Virendrakumar, Ms Ziporah Mugwang'a, Mr Moses Chege and Dr Elena Schmidt for their overall technical assistance and methodological guidance.
- Sightsavers country office in Mozambique for their organisational and logistical support.
- Mr Helder Nhamaze and Ms Rita Sousa for the facilitation of the data analysis workshop and drafting the report.
- numerous study respondents for their time and willingness to take part in the assessment.

This study was funded by the UK Department for International Development (DFID) through a grant to Sightsavers. However, the views expressed in this report are those of the authors and do not necessarily reflect the UK government's official policies.

Key abbreviations and acronyms

ACAMO	Blind and Amblyopic Association of Mozambique
APE	Elementary polyvalent agent
AR	Regulatory authority
HSA	Health System Assessment
EHSA	Eye Health System Assessment
BHV	Brien Holden Vision Institute
WB	World Bank
CA	Supply Centre
CIBS-INS	Institutional Bioethics Committee for Health of INS
CMAM	Drugs and Medical Supplies Centre
CNSO	Eye health national coordinator
PEC	Primary eye care
DAF	Administration and Finance Directorate
DF	Pharmaceutical Department
DNAM	Medical Assistance/Care National Directorate
DNSP	Public Health National Directorate
DPC	Planning and Cooperation Department
DRH	Human Resources Directorate
EH	Eye health
EHS	Eye health system
PPE	Personal protective equipment
FAMOD	Forum of Mozambican Associations for Disabilities
FNM	National drug form
FSSO	Eye health system strengthening
GAAC	Support groups and community membership
GEMT	Traditional Medicine Studies Office
HS	Health system

HCM	Maputo Central Hospital
HIV	Human Immunodeficiency Virus
HMIS	Health management information system
ICEH	International Centre for Eye Health
IMT	Traditional Medicine Institute
INS	Health National Institute
LNCQM	National Laboratory for Drugs Quality Control
LOLE	Government municipality law
LSHTM	London School of Hygiene and Tropical Medicine
MINED	Ministry of Education and Human Development
MISAU	Ministry of Health
MONASO	Mozambican Network of AIDS Service Organisations
NABP	Norwegian Association of the Blind and Partially Sighted
NAIMA	Network of International NGOs working in Health and HIV in Mozambique
WHO	World Health Organization
NGOs	Non-government organisations
OPD	Organisation of people with disabilities
PCI	Infection Prevention and Control Program
PEPFAR	President's Emergency Plan to Fight AIDS
PEP	Post-exposure prophylaxis
PVT	Prevention of vertical transmission
SMI	Maternal and child health
SS	Sightsavers
HAART	Anti-retroviral treatment
TB	Tuberculosis
OT	Ophthalmic technicians
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

Executive summary

Background

There are 253 million people who are visually impaired globally, including 36 million who are blind and 217 million who have low vision [2]. The majority of people with visual impairments live in low- and middle-income countries (LMICs). However, the scope of eye health interventions in many of these settings is limited due to the weaknesses of the broader health systems. It is widely acknowledged that the effectiveness of eye care programmes can only be improved through a better understanding of how eye health systems work and how they are integrated in the overall health systems.

The purpose of this assessment was to examine different components of the eye health system in Mozambique and to assess its links with the broader health system, providing evidence for improved eye health programming and strengthening the system.

The study specific objectives were:

- describe the nature and functions of the broader health system in Mozambique.
- describe the nature, scope and functions of the eye health system and how it is integrated in the broader health system.
- document good practices and the key lessons learnt for consideration in future policy reviews and developments.
- determine relative strengths and weaknesses of the eye health system to guide country-specific actions for eye health system strengthening.

Methodology

The study used the Eye Health System Assessment (EHSA) methodology developed in 2012 by a consortium of eye care and health experts, coordinated by the International Centre for Eye Health (ICEH) at the London School of Hygiene and Tropical Medicine (LSHTM) with funding from Sightsavers. The methodology builds on the more general Health Systems Assessment approach (HSA) previously developed by the United States Agency for International Development (USAID).

The study used primarily qualitative data collection methods, a documentary review and in-depth interviews with key policy stakeholders. The fieldwork was conducted June–August 2017.

Of the 11 provinces that make up Mozambique, seven were included in this study: Manica, Gaza, Maputo City, Niassa, Nampula, Maputo and Zambézia. Respondents to the in-depth interviews were selected, taking into consideration their involvement in eye care and in the health sector more broadly. A total of 45 in-depth interviews were conducted using a semi-structured topic guide.

The study received ethical approval from the National Committee on Bioethics for Health of Mozambique. All participation was voluntary and informant written consent for an interview was obtained in all cases.

Key findings

Eye health governance

Strengths

- The national eye health programme (PNO) is established under the Ministry of Health (MISAU) and is part of the National Directorate of Medical Assistance.
- There is a national eye care coordinator, who provides leadership to the national programme and is responsible for the implementation of eye health policies throughout the country.
- The government, through MISAU, has established partnerships with several international non-government organisations (NGOs), who support the delivery of eye care services across the country.
- The eye health system in Mozambique complies with the same regulations as the broader health system. Standards, protocols, codes of conduct and certification procedures are the same as in the general health system.
- There is also the Mozambique Eye Care Coalition (MECC), an advisory body to the PNO on matters related to eye health. The committee is comprised largely of non-governmental organisations and technical experts from MISAU.

Weaknesses

- Eye health stakeholders, and particularly civil society organisations (CSOs) and disabled people's organisations (DPOs), are not adequately involved in setting priorities and budgets for eye health at all levels.
- The visibility of eye health in both decision-making and allocation of resources is limited, as other diseases with high morbidity and mortality – such as malaria, HIV/AIDS and tuberculosis – receive more attention from both the government and development donors.
- The capacity of the national eye health programme is limited, as it has to rely on voluntary contributions of technical staff who are engaged in multiple activities; at present, there are no senior technical experts who are exclusively involved in eye health policy-making.
- Although advocacy efforts with a focus on social inclusion began to bear fruit, and a number of public institutions started installing ramps to improve access for people with mobility problems, there are reservations about the effectiveness of such actions; the ramps often do not comply with technical specifications, and many other aspects of reasonable accommodation for people with disabilities are neglected.

Eye health financing

Strengths

- The government provides funding to support fixed costs such as salaries of eye care workers, infrastructure, utility bills and administration in eye care units.
- There are a number of INGOs and other development partners providing funding in eye care - largely operational costs of activities, outreach camps, equipment and supplies, health education campaigns, training and supervision.
- There is a fee waiver policy for vulnerable groups, including children under five, pregnant women, older people, former combatants and people with chronic illnesses, although the study did not find any information on how the exemptions work and how effective they are in practice.
- Health financing is based on the principles of decentralisation, which aims to give financial autonomy to the local areas and improve the planning and delivery of services close to the users.
- There is a scheme for public sector employees that provides access to health care, including eye care.
- There are private insurance schemes for private sector employees and self-employed people with moderate to high incomes.

Weaknesses

- Eye care services receive limited financial resources from the government due to scarce funding within the general health system and a high burden of other conditions considered to be priorities, such as maternal and child health, malaria, HIV/AIDS and tuberculosis.
- The resources available through the government are not sufficient to cover all eye care costs; as a result, the eye health programme is heavily dependent on financial support from INGOs and other development partners.
- There are challenges in the implementation of the decentralisation policies with unclear demarcation and duplication of functions and expenditures between provincial, district and community levels.
- Only a small minority of patients are able to cover costs of travel to large hospitals where cataract surgeries are provided on a continuous basis. This leads to a need to provide outreach surgeries closer to the community and increases the overall costs of surgeries, which the government cannot sustain without a subsidy from external funders.
- There is limited information on eye care expenditures, as the resources allocated by the government are not earmarked to eye health and many externally funded programmes in the provinces do not report their expenditure.
- There is no public or social insurance scheme that covers the costs of eye care.

Eye care service delivery

Strengths

- Eye health services are delivered predominantly in the public sector.
- Eye care is delivered at three levels: primary, secondary and tertiary.
- The number of cataract surgeries increased significantly in 2015, largely due to the increased number of outreach activities.
- There are quality standards in general health care which apply to eye health and are followed by eye care workers.
- There are school health programmes carried out through outreach in urban and rural areas. Vision screening is integrated into these campaigns, where possible.
- There is a well-resourced vertical programme for the elimination of blinding trachoma, which has developed systems for quality assurance and staff supervision.

Weaknesses

- The estimated cataract surgical rate (CSR) - number of surgeries per million population per year - is around 333 per million. This is much lower than the recommended level for Africa of 2000 per million and is reportedly the lowest in the SADC region.
- Eye health infrastructure remains very limited and the services are often only available from the secondary level upwards; a large proportion of the population do not take up services as they cannot travel to large centrally-located hospitals.
- Outreach campaigns and school health programmes are often dependent on funds available through INGOs and other development partners.
- Access to spectacles is limited by high prices which are prohibitive for the majority of the population.

Human resources for eye health

Strengths

- The country has different eye health cadres deployed within the national health system: ophthalmologists, optometrists, ophthalmic technicians, orthoptists, opticians and primary eye care nurses.
- There are five training institutions in the country which deliver programmes for ophthalmologists, ophthalmic technicians and optometrists. The ophthalmology department at the Hospital Central de Maputo is funded by the government and is the institution that trains ophthalmologists. Lúrio University is the institution for training in optometry, with 20 places per year; while ophthalmic technicians are trained in health institutes in Maputo, Beira and Nampula.
- The number of eye care practitioners, and particularly ophthalmic technicians, has increased in the past decade. At the time of the assessment, 236 eye care professionals were deployed in Mozambique. The majority (74.2%) are ophthalmic technicians.
- Eye care staff are trained following the same regulations as other healthcare staff. All training is approved by the Ministry of Health (MISAU) and the national curricula are standardised and

mandatory for all education institutions. The curriculum in ophthalmology is reviewed by MISAU every 10 years.

- There are accreditation bodies for different cadres: Colegio de Oftalmologia for ophthalmologists, Ministerio do Ensino Superior Ciencia e Tecnologia for optometrists, and Quadro do Ministerio da Saude for ophthalmic technicians.
- The Human Resources for Health policy covers human resources for eye health, and the current national Human Resources for Health Development Plan (PNDRHS 2016-2025) includes targets for training ophthalmologists and ophthalmic technicians. In addition to the current workforce, the plan aims to graduate 26 ophthalmologists and 197 ophthalmic technicians by 2025. The plan also aims at more equal distribution of the eye health workforce across the provinces.
- There is a national human resources information system (HRIS) which uses a local electronic platform (eSIP) and includes data on eye health personnel. The system is regularly updated.

Weaknesses

- The number of ophthalmologists and mid-level personnel is well below the recommended levels for Africa. At the time of the assessment there were only 20 ophthalmologists, which is less than 0.7 per million population - 5.5 times less than the recommended levels (four per million). The ratio of ophthalmic technicians to the population is around six per million, which is also less than the recommended level of 10 per million.
- There is an insufficient number of medical graduates and a limited number of those are interested in specialisation in ophthalmology, largely because the system has limited capacity to adequately deploy newly trained graduates. The number of facilities with adequate infrastructure is limited, and ophthalmic staff often have to take on other healthcare or administrative tasks as they don't have the equipment or supplies to provide eye care services. There are also limitations imposed by the Ministry of Health, which regulates medical sub-specialty training in favour of other diseases considered to be priorities.
- Ophthalmologists tend to stay in large urban areas where there are hospitals with surgical infrastructure and opportunities for private practice. As a result, there are significant inequalities in the geographical distribution of staff across Mozambique, and large parts of the country remain underserved. Over 40% of all in-service eye care personnel are based in the provinces of Sofala and Nampula. Together, these two provinces deploy 96 out of 236 (40.7%) eye care practitioners who serve only 27.4% of the country's population. The only two orthoptists available in the country are working in Maputo Central Hospital (HCM).
- There are gender imbalances in the eye care workforce, as ophthalmic specialisation is undertaken primarily by males because female nurses prefer to specialise in maternal health.
- Development partners' support for human resources for eye health (HReH) training is poorly coordinated with the Ministry of Health.
- The scope of optometry work in Mozambique remains unclear. At the time of this assessment, the four-year course offered for optometrists was not yet included in the health professional career framework and there were no targets for training optometrists in the national HRH plan.
- At the time of the assessment there was no eye health training for auxiliary personnel or technical assistants, and cataract surgeons do not exist within the national health system.

Eye health medicines and medical products

Strengths

- Essential eye health medicines are included in the national essential medicine list. The national drugs form (FNM) contains 36 eye health medicines.
- There is a national system of procurement with agencies designated to regulate, purchase and distribute medical equipment and supplies.

Weaknesses

- The availability of eye health medicines and supplies varies across facilities, and there are regular stock-outs of essential products.
- The supply of eye care equipment is very limited and only provincial and central hospitals are appropriately equipped, particularly when they receive support from INGOs.
- Maintenance of existing equipment is challenging, as hospital technicians are unable to repair broken parts and equipment is often left abandoned.
- Most drugs and consumables for surgeries are available through INGOs support only.

Eye health information system

Strengths

- There are electronic platforms for reporting health data in Mozambique.
- The national eye health programme has five indicators: number of patients operated for cataract, number of patients with glaucoma, number of patients with refractive errors, number of patients with trachoma, and number of patients operated for trichomatous trichiasis (TT).
- Facility data is reported monthly to the districts and then to the provincial level. There is a district statistics office (NED) in each district. Data to the national level is reported quarterly.
- All health sector staff who are registered to use HIS have access to the database. Eye health data, when available, is used for evaluative and planning purposes.
- NGOs and other development partners support the design and maintenance of databases and related training.

Weaknesses

- Eye health is not yet an integral part of the national health information system. The Ministry of Health Monitoring and Evaluation (M&E) Department does not collate eye health data, and there are no eye health indicators reported in the national health information system for monitoring and evaluation (SISMA).
- There are variations in how data is reported from the lower to the upper levels of the system. There is a shortage of human resources required to collate, process and analyse the data at different levels, resulting in late submission and incomplete data.
- There are different reporting templates at various levels of the health system and parallel systems for collating data.

- There are issues with the usefulness of the data collected, as people submitting data from the lower levels of the system do not always know which data is needed for planning and management purposes.
- The private sector does not report data on a regular basis.

Introduction

There are 253 million people who are visually impaired globally, including 36 million who are blind and 217 million who have low vision [3]. The majority of people with visual impairments live in low- and middle-income countries (LMICs) [7]. However, the scope of eye health interventions in many of these settings is limited due to the weaknesses of the broader health systems [3, 6].

Furthermore, in many LMICs eye health services are not fully integrated into the broader health systems, resulting in poor planning, lack of coordination and inadequate service delivery [1].

Sub-Saharan Africa bears a disproportionate burden of blindness and low vision largely due to the high prevalence of neglected tropical diseases, such as trachoma and onchocerciasis, and poor response to non-communicable blinding conditions such as cataract and glaucoma [22]. This dual burden is compounded by weak health systems characterised by poor leadership and governance, inadequate health workforce, and limited financial resources [4].

It is widely acknowledged that the effectiveness of eye care programmes can only be improved through a better understanding of how eye health systems work and how they are integrated into broader health systems [1]. Over the past decade, resources have been invested in exploring the relationship between the eye health systems and the general health systems across the countries [8, 10, 13-14, 28, 31]. In 2012, funded by Sightsavers, a consortium of eye care and health experts, coordinated by the International Centre for Eye Health (ICEH) at the London School of Hygiene and Tropical Medicine (LSHTM), developed the Eye Health System Assessment (EHSA) tool. This tool builds on the more general Health Systems Assessment approach (HSA) [9] previously developed and promoted by the United States Agency for International Development (USAID).

This assessment is driven by Sightsavers' commitment to strengthening health systems, which is one of the key principles of its work. EHSAs help to collect data that enables governments and other national and international stakeholders to assess the strengths and weaknesses of eye care provision, and to better plan future investments in the sector. The data is vital for health sector players to diagnose the weaknesses of the eye health system and prioritise areas for interventions and system strengthening.

This EHSA has been led by the Ministry of Health of Mozambique and entailed a collaborative and consultative approach that involved key actors in eye care programming: policy makers, service providers and development partner agencies.

Sightsavers has been working in partnership with the government of Mozambique for more than a decade, contributing to the delivery of eye care services and building in-country capacity and infrastructure for eye care programming. It is anticipated this assessment will provide evidence to support more effective advocacy, decision-making and planning at national and local levels.

Study objectives

Overall objective

The overall purpose of this assessment was to examine different components of the eye health system in Mozambique and assess its links with the broader health system, providing evidence for improved eye health programming and strengthening the system.

Specific objectives

- Describe the nature and functions of the broader health system in Mozambique.
- Describe the nature, scope and functions of the eye health system and how it is integrated in the broader health system.
- Document good practices and the key lessons learnt for consideration in future policy reviews and developments.
- Determine relative strengths and weaknesses of the eye health system to guide country-specific actions for eye health system strengthening.

Methodology

Study design

The study followed the Eye Health System Assessment (EHSA) approach outlined in the Eye Health Systems Assessment manual [2], and used primarily qualitative data collection methods, a documentary review and in-depth interviews with key policy stakeholders in eye health and the broader health system. The fieldwork was conducted over a period of two months in June-August 2017.

Sampling

Of the 11 provinces that make up Mozambique, seven were included in this study: Manica, Gaza, Maputo City, Niassa, Nampula, Maputo and Zambézia. The provinces were purposefully selected to have a regional representation of diversity, and to provide insights into the strengths and weaknesses of the eye health systems with more- and less-developed infrastructure.

Respondents for the in-depth interviews were selected, taking into consideration their roles in eye care and the broader health system. The respondents represented eye care providers, health service managers, and heads of various units in the national Ministry of Health and provincial and district health management teams (see appendix 1).

Data collection, management and analysis

A total of 45 in-depth interviews were conducted using a semi-structured topic guide. The documentary analysis had been undertaken before the interviews, but the documents were consulted regularly during the interview stage to validate and triangulate the interview data. In addition, at the end of the interview each respondent was asked for any relevant documents or reports. These sources were added to the documentary review and subsequently analysed.

All interviews were conducted in Portuguese and lasted 45 minutes to one hour. The interviews were audio recorded and transcribed verbatim. Handwritten notes were also taken to supplement and triangulate the recordings. The transcripts were coded and analysed thematically.

Ethical approval

The study received an ethical approval from the National Committee on Bioethics for Health (CNBS) of Mozambique. Due care was taken to ensure that all participation was voluntary. The study was explained to all interviewees and informed written consent was obtained in all cases. Separate consent was given for audio recordings. Anonymity and confidentiality were protected throughout the study. All identifiable information was removed at the stage of the analysis.

Mozambique health system overview

Country context

Mozambique is a country in southeast Africa bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and Swaziland and South Africa to the southwest. The country is predominantly rural and is divided into 11 provinces. The provinces are in turn subdivided into 154 districts, while the districts are further sub-divided into 405 administrative posts and then into localities, bairros and povoações at the community level.

Although the country's Gross Domestic Product (GDP) has been fast growing since 2001, Mozambique is still one of the poorest countries in the world, ranking low on GDP, Human Development Index (HDI) and life expectancy. The national GDP per capita was \$382 (US dollars) in 2016 [35].

The 2017 population and housing census estimated Mozambique's population at around 29 million people. The literacy rate is estimated at 56%, and the average life expectancy at birth is 56.7 years. Communicable diseases such as malaria, HIV/AIDS, diarrhoea, acute respiratory infections and tuberculosis are the leading causes of death, but non-communicable diseases such as cardiovascular diseases and cancers are on the rise [34].

Health services structure

The national health system (NHS) is organised in four levels:

- **Primary level** that includes basic community care services. At this level, health promotion and prevention activities are delivered to the families in bairros and povoações, often alongside disease control programmes.
- **Secondary level** that includes intermediate care and services at the district level.
- **Tertiary level** that includes care at the provincial level and Regional Central hospitals.
- **Quaternary level** that includes Maputo Central Hospital.

Health care financing

The total health expenditure (THE) per capita in Mozambique was estimated at \$42 (current dollars) and \$79 (international dollars) in 2014. This accounted for about 7% of the national GDP but is well below the average expenditure for Southern Africa Development Community (SADC) countries, estimated at \$146.

The funding sources for the health sector can be grouped into three main categories: 1) resources from tax revenues and donor contributions to the government budget; 2) funding for vertical programmes; and 3) other funding sources. The first category includes resources from the

government's revenues and external funds through direct budget support and PROSAUDE¹ funds. The second group includes funds targeted to specific diseases, which usually have different (vertical) delivery systems. The third group includes private contributions and out-of-pocket expenditures in private clinics, purchasing drugs in pharmacies and cost-sharing arrangements in government health facilities.

The government funds are used at three levels: 1) the central level where all publicly procured medicines and supplies are purchased and the planning and management of health programmes is carried out; 2) the provincial level that disburses resources through the provincial directorates of health and supports operational expenditures; and 3) the district level that manages the primary network of services, including rural hospitals and activities. The support of development partners covers all three levels.

The allocation of resources follows the logic of decentralisation. The Ministry of Health has no overriding role in allocating funds to different provinces. Territories have budgetary autonomy. However, according to some study respondents, this makes rural hospitals and health centres dependent on the territorial secretariats and results in delays in the disbursement of resources.

Human resources for health

Between 2006 and 2015 there was a significant increase in the number of health workers in the country from approximately 26,000 to 48,000 [19]. In particular, the number of medical, maternal and child health (MCH), pharmacy and preventive medicine technicians almost tripled in these years.

Training of health professionals is a shared responsibility between the Ministry of Education and Human Development (MINEDH) and the Ministry of Health (MISAU). MINEDH issues licences to teaching institutions, approves the curriculum and aligns local degrees to the qualifications obtained abroad. MISAU develops national policies and plans for human resources for health (HRH).

Higher level medical education is currently offered by four colleges: Eduardo Mondlane University, Catholic University in Beira, UniLúrio and UniZambeze and two more private universities that provide general medicine course. There is a national human resources for health plan developed with the support of the World Health Organization (WHO) Human Resources for Health Observatory.

Management of health services

The Ministry of Health (MISAU) is the government body designated to regulate the health sector. The Ministry defines standards and oversees activities. In addition to its supervisory role, MISAU is also a key provider of preventative and curative activities. Within the Ministry, the National Agency for Medical Assistance (DNAM) is the body in charge of provision of health services at the

¹ Common Support Fund to Health Sector with the contribution of several cooperation partners, in operationalisation of what is known as Sector Wide Approach (SWAp).

secondary up to quaternary levels, while the National Directorate of Public Health (DNSP) oversees vertical programmes (MCH, malaria, tuberculosis, nutrition and others) and provision of primary health care services.

The governance of the health sector in Mozambique is greatly influenced by the principles of decentralisation. The Government Local Bodies Law (LOLE) (law no 2/97 and decree no. 33/2006) defines the competencies of the government authorities and the powers of municipalities, although some evidence suggests that many powers assigned to the decentralised bodies within the legal framework are not being carried out in practice [17].

Decentralisation has been described by some sources as a complex dilemma. On the one hand, the normative instruments identify the competencies and the responsibilities of the municipal bodies in the health sector. On the other hand, the transfer of the key functions and competences to the municipalities requires an agreement between the government of the province and the municipality. This results in complications over the division of competences and investments between the three levels (provincial, district and local) as well as duplication in competences and expenditures. The decentralisation process is particularly challenging in multisectoral policies and budgeting.

There are two articles (89 and 116²) in the Constitution of Mozambique that formally declare the right to health for all citizens. The sector plans prioritise community involvement in the planning and delivery of healthcare services at the primary level. There are 134 health committees in 38 districts of six provinces, and six co-management committees in health facilities established to oversee the service delivery.

There are also two platforms (NAIMA and MONASO) to support the participation of civil society in decision-making at national level. The platforms focused initially on HIV/AIDS and sexually transmitted infections (STIs) but now have other public health remits. At the district level, health planning and budgeting is coordinated by the Local Advisory Councils (CCL). These bodies involve community members. However, some informants indicated that the involvement of both government officials and community members, many of whom have low levels of education, results in an ineffective public representation.

² Article 89: All citizens have the right to medical and health care, in accordance with the law, as well as the duty to promote and defend public health.

Article 116: 1. Medical and health care for citizens is organised through a national health system that benefits the entire Mozambican people

2. In order to achieve the objectives pursued by the national health system, the law establishes procedures for the exercise of medical and health care

3. The Government promotes the citizens participation and institutions in raising the level of community health

4. The Government promotes the extension of medical and health care and the equal access of all citizens to the enjoyment of this right

5. It is incumbent upon the Government to promote, discipline and control the production, marketing and use of chemical, biological, pharmaceutical and other means of treatment and diagnosis

6. The activity of medical and health care provided by public authorities and private entities shall be exercised in accordance with the law and subject to Government control.

Medical products and technologies

The system for public sector procurement of medicines and medical products is represented centrally by two institutions: the Drugs and Medical Items Centre (CMAM) and the Supply Centre (CA). Both structures are replicated at local level by the provincial drugs depots and commissaries, and their district equivalents. Larger health facilities usually have their own depots and commissaries. The Drugs and Medical Items Centre reports to the pharmaceutical department, and the Supply Centre reports to the National Directorate of Medical Assistant (DNAM). The former body is responsible for the procurement and distribution of medicines and medical supplies, the latter deals with hospital furniture, medical equipment, vehicles and related products.

The product requirements are defined by the National Directorate of Medical Assistance (DNAM) or specific programmes. The products are purchased by the Drugs and Medical Items Centre, the Procurement Management Unit (UGEA) of the Ministry of Health, the Directorate of Administration and Finance (DAF), or directly by the development partners.

Funding for medicines and medical supplies comes from three main sources: the government budget, the Ministry of Health (MISAU) and the development partners. Purchase requests are based on the epidemiological analysis and the consumption of health facility pharmacies. The requests go to the district authorities, then to the province and to the CMAM. In some pharmacies,

“...our difficulty lies in medicines. What we stipulate does not determine the types of drugs that should be used for certain diseases, but it may be that the patient goes to the pharmacy and cannot find them or even they are internally unavailable.” (interview data)

an electronic platform to generate automatic requests based on existing stock, number of consultations, past consumption and disease profile had been piloted.

Medicine needs are calculated using the national drug form (FNM), which includes approximately 800 items; 338

are considered vital. MISAU may authorise the purchase of medicines that are not listed in the FNM only in exceptional situations. Study respondents pointed out that in the period 1997-2004, medicines were purchased based on the VEN (vital, essential and necessary) principle. However, since the 2008 FNM had been approved there was a lack of clarity about the criteria to be used in the situation of scarce financial resources.

The procurement procedures use the current legislation on the contracting of goods and services by the government. The most commonly used procedure is the public tender system (based on the lowest price criterion) which is open to both domestic and foreign suppliers prequalified by the WHO (in case of antiretrovirals, AZT and anti-tuberculostatics) or the Pharmaceutical Department (DF) (for all others).

Although CMAM was given the responsibility for purchasing medicines in 2008, the body was not trained to perform this function, which resulted in a limited number of domestic suppliers and a 30% increase in procurement costs. There is also evidence to suggest that the system for monitoring the requests and preparing tenders by CMAM is poor, and some reports suggest the prices at which some products are purchased are higher than the prices of the products at the international market.

The distribution of pharmaceutical products is supported by two computerised systems: MACS (computerised warehouse management programme) and SIMAM (drugs management information system). The former serves the Maputo warehouse with the responsibility of assisting the south and north zones, while the latter is located in Beira and connects to all the provincial warehouses in the centre area. The surveys of stocks carried out by FHI 360 and the supply chain management system project reported several failures within the system, with supply meeting only about 10% of needs. The system was scored 25 out of 100 points.

The Pharmaceutical Department (DF) is responsible for regulations, inspection and assurance of quality of medicines. The department regulates and registers medicines; it also reviews and updates the FNM every 10 years. However, according to some study respondents, the current registration process is not working well and, as a result, a large number of products do not go through this process.

A data collection chain has been established to ensure the effectiveness, quality and safety of pharmaceutical products. At national level, there is the National Laboratory for Drug Quality Control (LNCQM), which reports to the National Directorate of Public Health (DNSP). At the provincial level, product inspection is led by pharmacy technicians and health facilities, who control the organoleptic properties of each drug. The international pre-inspection (at the place of departure) is carried out by ITS (Intertek Testing Services), a global firm recognised by the WHO.

Health services delivery

According to a *National Statistics* report [23], there were 1,596 health facilities in the public sector in Mozambique in 2017. One of the major challenges of the current service delivery system is quality of care, which is undermined by low staff motivation, difficult working conditions, low remuneration, poor infrastructure and poor supervision.

A number of initiatives have been implemented in Mozambique to improve the quality of care. The Infection Prevention and Control (ICP) programme awards annual premiums to the health facilities that meet 80% of performance standards across all services. This initiative was accompanied by the distribution of personal protective equipment (PPE) for health staff, although the coverage is not universal. There is also a programme of health worker training in post-exposure prophylaxis (PEP) and prevention of occupational accidents, notification of occupational exposure to HIV, supervision of PEP activities in health facilities, and monitoring of hospital risk management actions to ensure safety in hospitals.

The Model Ward and Courtesy Standards are two other initiatives aimed at addressing the problem of poor quality of services. The objective of the Model Ward was to provide quality care and to facilitate the acquisition of skills and competences by health technicians. By the end of 2010, 30 wards from 13 hospitals had adopted the model; each year more hospitals apply for this status and are assessed against the standards. Study respondents explained that the process is not easy, and it may take up to five years for a health facility to score 100% in all standards. In addition, the DNAM Nursing Department started a campaign for standards of courtesy in health facilities to ensure sensitive and patient-centred care.

The delivery of public health services is supplemented by the private sector. This sector emerged due to high levels of dissatisfaction with the quality of care in the public sector and is also a sign of the growing middle class and patients with higher incomes. Approximately 600 private health facilities were registered in Mozambique in 2011, including health centres and clinics, laboratories, institutes and pharmacies, mostly concentrated in Maputo city and the province. Although there is a private medicine section in the DNAM, no detailed information about this sector was available at the time of this assessment, and some informants said there was no clear legal framework to regulate the performance of the private sector.

Community health is the first link between the population and the national health service (SNS). This part of the system includes a range of approaches, such as GAAC (community support and adherence groups) to improve adherence to antiretroviral therapy (ART), and mother-to-mother support groups through which information on MCH care, nutrition and PMTCT (prevention of mother-to-child transmission of HIV) is disseminated. Community health structures also include elementary polyvalent agents (EPAs) that are present in districts throughout the country.

About 70% of the Mozambique population use traditional medicine such as natural products and spiritual practices. Some estimates suggest there is one traditional practitioner per 200 inhabitants. In 1990 the Office of Traditional Medicine Studies (GEMT) was established to study, register and document traditional medicine plants used in the country. Twenty years later (2010), the Institute of Traditional Medicine (IMT) was set up to research plants with therapeutic potential. However, the challenge of regulating traditional medicine practitioners remains.

Health management information system

The national health management information system (HMIS) has been in operation countrywide since 1990 and is used to collect all basic health and facility administrative data. There is a monitoring and evaluation (M&E) department within the Planning and Cooperation Department of MISAU which works in close collaboration with the Department for Health Information (DHI) and with other units of the ministry.

Overview of the eye health system in Mozambique

Eye health status

Similar to many sub-Saharan African countries, there has been no nationally-representative, population-based blindness prevalence survey in Mozambique. Available data on visual impairment is based primarily on the findings of three rapid assessments of avoidable blindness (RAAB) surveys conducted in Nampula in 2011 [11, 29], Sofala in 2012 [5] and Inhambane in 2016 [16]. Additionally, a rapid assessment of refractive error (RARE) conducted in Nampula in 2014 [20] provided data on the prevalence of refractive error and uptake of spectacles. This data is used for planning eye care services in the country.

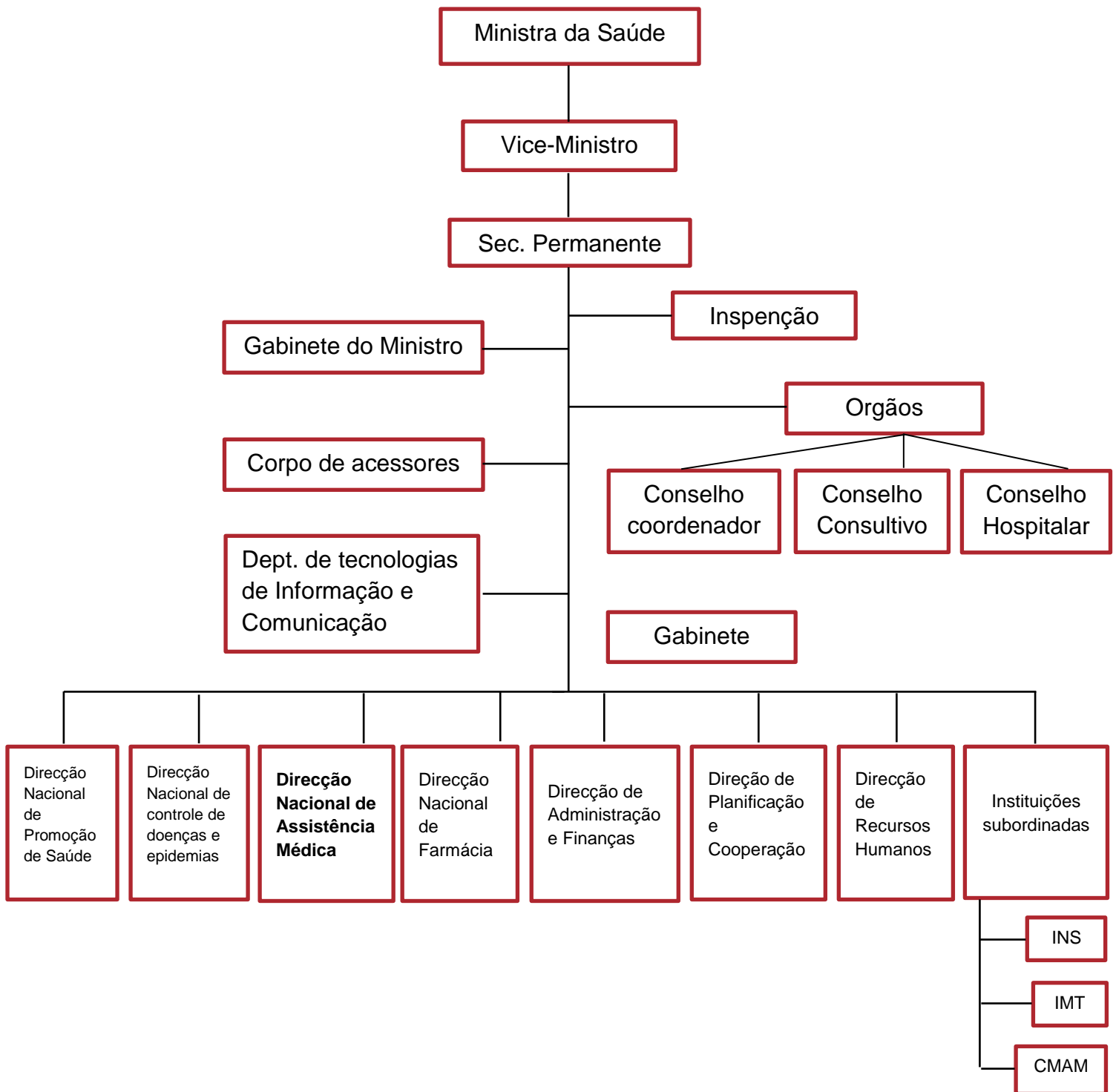
The 2011 RAAB in Nampula estimated prevalence of blindness among people aged 50+ years at 7.1% [11]; the respective figures in Sofala and Inhambane were 3.2% [5] and 6.4% [16]. The main cause of blindness in all three provinces was cataract (73% in Nampula, 54% in Sofala and 65% in Inhambane). The cataract surgical coverage (CSC) at V/A<3/60 was 12.9% in Nampula, 29% in Inhambane and 33.1% in Sofala. The age and sex adjusted prevalence of severe visual impairment (SVI) was found to be 3.0% in Inhambane, 2.6% in Nampula and 3.5% in Sofala. The main cause of SVI was cataract (68.9% in Nampula, 71.2% in Inhambane and 48.4% in Sofala). Refractive error and posterior segment disease are the other major causes of SVI in all three provinces.

The RARE survey conducted in Nampula among people aged 15-50 estimated prevalence of low vision (severe and moderate visual impairment) at 3.5%, with 65.8% of people with low vision being aged 35+ [20]. The prevalence of refractive error among people aged 15-50 was 2.6%; refractive error accounted for 64.5% of all low vision.

Eye health governance

The eye health services in Mozambique are provided almost entirely by the national health system (SNS) under the supervision of the Ministry of Health (MISAU). The national eye health programme (PNO) is established at the MISAU level and is part of the National Directorate of Medical Assistance (see figure 1). PNO, under the leadership of the national eye care coordinator, is responsible for the implementation of eye health policies through eye health programmes. There is also the Mozambique Eye Care Coalition (MECC), an advisory body to MISAU on matters related to eye health. The committee is comprised largely of non-governmental organisations working in eye health in the country and technical experts from MISAU. Some respondents however noted that eye health stakeholders are not adequately involved in setting health priorities and budgets at all levels. In addition, there is no active representation of disabled people's organisations (DPOs), such as the Association of the Blind and Partially Sighted People of Mozambique (ACAMO), in the eye health decision-making structures.

Figure 1: Organisational structure of the Ministry of Health



The aim of the national eye health programme is to reduce avoidable blindness by the year 2020 through the creation and promotion of good quality, sustainable and accessible eye health services for the entire population.

The programme specific objectives are:

- develop good quality and accessible eye health services within the national health service (NHS).
- strengthen actions to address blinding diseases at all levels.
- integrate eye health care into primary health care.
- support the training of human resources capable of meeting population needs at different levels.
- improve eye care infrastructure within health units and increase the number of health units able to provide eye health services.
- promote community participation in the development of eye health services.
- establish a system for regular assessments and mechanisms for monitoring the implementation of activities.
- support the current training programmes and research in eye health.
- raise awareness in the community and in government structures regarding the need for social inclusion of people with visual impairment [18].

The national eye health programme faces two governance challenges. First, the inclusion of eye health within the large health directorates alongside other disease control programmes with high morbidity and mortality – such as malaria, HIV/AIDS and tuberculosis – can undermine the visibility of eye health in both decision-making and allocation of resources. Secondly, the programme faces the challenge of having to rely on voluntary contributions of specialist staff who are engaged in multiple activities because, at present, there are no specialists who are exclusively involved in and dedicated to eye health.

There is a national level planning process which starts in the last month of each calendar year; during this process the activities to be implemented in the following year are identified. The planning takes into account the achievements of the eye health programme at local and national levels. However, some interviewees pointed out that the proposed activities are not always implemented due to the limited resources and higher priorities given to other diseases, such as malaria, HIV/AIDS and tuberculosis.

“We usually conduct some community meetings, community consultations, and some other activities we carry out at the community level. And the community leaders are also involved in such consultations, and we explain their role in the area of eye health.”
(interview data)

The planning process is carried out by the senior technical staff within the eye health system. The engagement of other players, for example civil society organisations (CSOs), is very limited and the private sector is still relatively small. Some districts also conduct a needs assessment, which includes the discussions of goals to be achieved and the resource allocation structure.

Health sector standards and regulations apply to eye health, particularly in such aspects as hygiene, medical material sterilisation, garbage classification, patient rights and professional ethics.

These standards are known to everyone in the sector, although printed copies were not always available at the time of the assessment. The aim of the standards is to achieve the same level of quality across services.

At the national level, the Association of the Blind and Partially Sighted of Mozambique (ACAMO) is the main organisation for people with visual impairment. The organisation focuses on advocacy, but its presence is more prominent at the national and provincial levels (with representation in each province); it has not yet managed to reach all districts. As a result, advocacy activities on behalf of people with visual impairments are still limited in both geographic and thematic scope.

“The involvement of Civil Society (...) are the campaigns we carry out. What we call ‘outreaches’, where we go to where the population is.” (interview data)

The monitoring of eye health activities is carried out by the co-management committees (CCG), which involve senior technical staff within the sector, community leaders, traditional healers and NGO partners. Although there are CCGs in most districts and health facilities, eye health issues are not always taken into account, particularly if there are no stakeholders such as DPOs or INGOs in the district to advocate for eye health.

The Government of Mozambique, through MISAU, has a Memoranda of Understanding (MoU) with various NGO partners including Light for the World, Eyes of the World, Sightsavers, the Research Training Institute (RTI), the Norwegian Association of the Blind and Partially Sighted People (NABP), and others. Some respondents argued that, although there is an active engagement of various partners in eye care, there is no prominent figure or an organisation that would strongly advocate for eye health and the principles and actions of the Vision 2020 agenda.

Some interviewees pointed out that advocacy efforts with a focus on social inclusion were beginning to bear fruit, as a number of public institutions installed ramps to improve access for people with mobility problems. Other interviewees, however, had reservations about the effectiveness of such actions – some argued that the ramps did not comply with technical specifications, such as height and/or tilt angle, and many other aspects of reasonable accommodation for people with disabilities were neglected.

Eye health financing

The eye health sector in Mozambique is affected by the scarcity of financial resources in the wider health system. In addition, eye health is not seen as a priority when compared to other areas of public health. The PNO is almost entirely dependent on support from international NGOs and other development partners. Therefore, there is a greater coverage and better quality of eye health services in the provinces that have direct support from INGOs. The main donor organisations supporting eye health in Mozambique include Sightsavers, Light for the World, Irish Aid, HelpAge International and Eyes of the World.

“Government employees are charged 1% on their basic salary as a contribution to health care and medical expenses. That includes medical care in the country and abroad as well as funeral expenses.” (interview data)

The Ministry of Health does not have specific budget allocations for eye health. Health funds are allocated as a lump sum without disaggregation by project or programme. The allocation of funds is usually based on historical expenditures, rather than the assessment of needs, and most of the government allocations are spent on fixed costs such as wages and facility running costs (water, electricity, maintenance, etc). The development partners cover the costs of activities, for

example outreach camps, campaigns, training, facility infrastructure (equipment and supplies) and supervision.

There is no accurate information on the resources available to eye health. Although the allocation of health funds by the government is based on the analysis of several strategic documents, such as the government's Five Year Plan (GFYP), the Health Sector Strategic Plan (HSSP), the Performance Assessment Framework (PAF) and the Mid-Term Fiscal Scenario (MTFS), there are projects supported in specific provinces and their expenditures are not accounted for in the Single Treasury Account (STA). This system makes it difficult to capture accurately all resources allocated to eye health.

“For trachoma, we have a partner, RTI [Research and Training Institute], that supports mass treatment campaigns. We also have other implementers like Sightsavers and Light for the World.” (interview data)

The allocation of funds for the health sector as a whole is decentralised, with a number of important management and planning tasks transferred from the provincial level to the district level. The intention was to give greater autonomy to the local level and to improve the delivery of services closer to the users. Under this system, the Ministry of Finance allocates a budget to the provincial health directorate and to the district health director, who manages the funds and reports directly to the administration court. These funds are expected to be used for salaries, infrastructure and goods and services for all public facilities. Some interviewees, however, pointed out that despite this decentralised arrangement, health staff salaries continued to be allocated to and managed by the provincial finance department; the funds for infrastructure continued to be managed by the provincial health directorate, while the districts were left to manage only the budgets for goods and services.

Study interviewees were asked about user fees information at the facility level. The majority said the display of such information in the facilities was rare; this information was usually communicated verbally, although the majority of patients had knowledge about the fees charged for various services. The fees quoted during the interviews were 1.00 Metical (USD \$0.016) for an ophthalmic consultation and 5.00 Meticals (USD \$0.082) for medicines. Surgeries were reported to be free at the point of use. It was explained that the majority of patients in need of cataract surgery accessed it. However, the full cost of a surgery included the costs of equipment, consumables and medicines and, if supplemented by the costs of transport to pick up patients and food, the resources allocated to the hospitals were not sufficient to deliver surgeries free at the point of use. As a result, patients

could only get free surgeries if external funds from partner agencies were available. If such funds were not available, only a minority of patients would be able to access surgeries – the majority would not be able to travel to hospitals and the government could not afford to finance outreaches across the country. It was further explained that patients pay the cost of spectacles but these prices varied.

Study respondents explained that the revenues collected by eye care units were recorded and returned to the health facilities, while the revenues collected from spectacles were considered to be theirs and could be used as needed.

Study respondents also pointed out there was no public health insurance scheme that covered eye care expenditures. There is a procedure commonly referred to as "medical and drug assistance" through which public sector employees could have free access to any health care services, including eye health. There are also private insurance schemes which cover employees of private companies and self-employed individuals with medium to high incomes.

Study informants also noted that access to eye care services for vulnerable populations was promoted through exemptions for certain social groups, including children under five, people with disabilities, holders of the poverty certificate, older people, former combatants, pregnant women, people with albinism and those with chronic illnesses. The exemptions are applicable in the public sector only. However, the study did not find information on how exactly the exceptions worked or how effective they were.

Eye health service delivery

Over 80% of all eye health services in Mozambique are delivered by the public sector (national health system). The eye health service delivery system consists of three levels: primary, secondary and tertiary.

Primary level

The components of primary eye health care include eye health education, identification of symptoms, measuring visual acuity and refraction, basic ocular examination, diagnosis and referral. These services are provided by nurses, traditional medicine practitioners in the community and community health workers. Ophthalmic technicians work in health centres and district and rural hospitals. They are the only staff at the primary level qualified to perform refraction.

Qualified health personnel working in health centres and district and rural hospitals include basic and general nurses, medical agents, medical technicians and general practitioners. Their knowledge of eye care is limited, but they are the only health professionals working in health centres without ophthalmic technicians. Community health workers are a category whose scope of work and training is defined by both the government and NGO partners. Community health workers focus on a wide spectrum of public health problems. They are trained to refer their patients with ophthalmic problems to the nearest health facility. However, at present there is no accurate information on the exact number of community health workers working in the system.

Secondary level

Patients with eye care problems that cannot be managed at the primary level are referred to the secondary level. This level includes district, general and provincial hospitals. Here, the services are provided by ophthalmic technicians and optometrists. Newly graduated optometrists are posted to work at this level, although their number is still very small.

Tertiary level

Tertiary level facilities manage conditions that require complex equipment and specialist staff; eye health specialist staff are also trained at this level. The services at this level are provided by ophthalmologists, optometrists and ophthalmic technicians working in general, provincial and central hospitals.

Eye health services continue to be limited and are often available only from the secondary level upwards. This means that many patients who live in remote rural areas do not have access to eye care, as they are unable to travel to secondary and tertiary level hospitals.

At the district level, there are no hospital beds for eye health patients, which means patients with ophthalmic problems use beds assigned to other sub-specialties. At the provincial level, there are beds which are shared between eye care and surgery patients; only central hospitals (four across the country) have beds specifically for ophthalmic patients.

Almost all cataract surgeries (with the exception of two clinics in Maputo) are carried out in the public sector. Study respondents estimated there are approximately 5,500 cataract surgeries carried out in Mozambique annually. Others however said that in 2015 the number of surgeries performed had significantly increased (estimated 8,580 surgeries) (see appendix 2), largely due to the increased number of outreach activities, with about 43% of the total number of surgeries performed in that year being from outreach. The estimated cataract surgical rate (CSR) was reported at around 333 per million. This is much lower than the recommended level for Africa of 2000 per million, and is reportedly the lowest in the SADC region. The low CSR is not surprising given that the surgeries take place mainly in large centrally-located hospitals or through outreach campaigns in the provinces supported by INGOs.

School health activities are carried out through outreaches in urban and rural areas. Ophthalmic technicians are usually informed about such activities conducted by other government departments and integrate vision check-ups and treatments into such campaigns. Some interviewees said that ophthalmic technicians often carry out activities in schools around their workplaces due to the lack of funds to cover their travel expenses to go to other places. Provinces, which have INGOs support, carry out more school health programmes than the ones funded exclusively by the government.

The private sector does not have hospital capacity for eye health. On the other hand, the public sector cannot dispense spectacles, which means they can only be purchased in the private sector. The prices of spectacles in the private sector were reported to be high and prohibitive for the

majority of the population. The number of optic shops remains limited and far from the population needs.

Study respondents further explained that, in eye health, there is one vertical programme – Elimination of Blinding Trachoma, funded by the United States Agency for International Development (USAID) and the Queen Elizabeth II Diamond Jubilee Trust (QEDJT).

“We have a programme called school health. Among the various technicians who participate in there (preventive medicine, otorhinolaryngology, maternal health) we also have ophthalmic technicians that are part of it... When doing outreaches to a school, I'm also talking about oral health, all of these are part of what school health is.” (interview data).

The quality of the implementation of this programme is assured through the WHO and MISAU protocols; these were available in all facilities included in this assessment. There are also local protocols available in some provinces. Trachoma activities are monitored through the system of integrated supervision; some respondents said the system sometimes has logistical challenges.

There are quality standards developed for general health care which also apply to eye health and are followed by eye care workers.

Human resources for eye health

Study respondents explained the structure and the processes of training and deployment of human resources for eye health (HReH) in Mozambique. The country has the following eye health cadres: ophthalmologists, optometrists, ophthalmic technicians, orthoptists, opticians and primary eye care (PEC) nurses.

At the national level there are training programmes for ophthalmologists, ophthalmic technicians and optometrists. Orthoptists can only be trained outside the country; in the last 10 years no new orthoptist had been trained, therefore this cadre will no longer exist once the current personnel (two at time of the assessment) retires.

In total there are 236 eye care professionals in Mozambique. The majority (74.2%) of them are ophthalmic technicians. Study informants pointed out that the situation with human resources for eye health is not different from the situation in the broader health system and, although the number of eye health staff has grown in the past few years, human resources are insufficient to meet the needs of the population.

The number of ophthalmologists in Mozambique is well below the recommended levels for Africa of four ophthalmologists/surgeons per million population. According to these standards, Mozambique needs 116 ophthalmologists/surgeons. At the time of the assessment there were only 20 ophthalmologists (8.5% of the total eye care workforce), which included both ophthalmologists trained in Mozambique and expatriate ophthalmologists.

Study respondents explained the limited number of ophthalmologists in the country was largely due to three reasons: i) insufficient capacity of the training institutions offering specialisation in ophthalmology; ii) insufficient number of medical graduates interested in ophthalmology; and iii)

insufficient capacity of the system to adequately deploy trained ophthalmologists. Almost all study informants noted that ophthalmologists tended to stay in large urban areas, where there are hospitals with surgical infrastructure and opportunities for private practice. As a result, large parts of the country remained underserved. It was also noted that some limitations were imposed by the Ministry of Health, which regulates medical sub-specialty training in favour of other diseases considered to be public health priorities.

Ophthalmic technicians (OT) have been trained in Mozambique since the mid-1980s due to the shortage of ophthalmologists. Their main task is to identify and treat patients with common eye problems such as conjunctivitis, dry eyes or minor trauma – particularly in rural areas, where these diseases are prevalent but the number of ophthalmologists is very small, if available at all. By 2010, there had been 34 OTs in the country, and another 26 graduated in that year; by 2016, Mozambique had 175 OTs. Despite this significant increase, the number of mid-level eye care personnel continues to be below the recommended level of 10 per million population. Based on this recommendation Mozambique needs 290 mid-level personnel (ophthalmic nurses or technicians).

It should be noted that while the OT workforce consists exclusively of national staff, only 40% of ophthalmologists are Mozambique nationals.

The scope of optometry work in Mozambique remains unclear. The current curriculum allows optometrists to perform functions up to category three of the World Council of Optometry (WCO) competence model, i.e. detect, diagnose and treat an eye disease. At the time of the assessment 24 optometrists were working in the national health system.

In addition to insufficient number of eye care personnel, there are also inequalities in their geographical distribution. Nearly half of all in-service eye care personnel are based in the provinces of Sofala and Nampula.

“Nampula and Sofala are the only two provinces that have a sufficient number of technicians to comply with the WHO recommendations.” (interview data)

Together, these two provinces deploy 96 (including five optometrists) out of 236 (40%) eye care practitioners, who serve 27.4% of the country’s population. The only two orthoptists available in the country are working in Maputo Central Hospital (HCM). The distribution of ophthalmologists and ophthalmic technicians practicing in public health facilities in different provinces of Mozambique in 2016 is shown in Table 1.

Table 1: Distribution of eye health professionals by province. Source: Eye Care Annual Report for 2017

Province	Population	Human resources	In service in 2016
Cabo Delgado	1,605,549	Ophthalmologists	1
		OT	9
Gaza	1,226,272	Ophthalmologists	0
		OT	7
Inhambane	1,252,479	Ophthalmologists	2
		OT	6
Manica	1,412,029	Ophthalmologists	1
		OT	16
Cidade de Maputo	1,094,315	Ophthalmologists	2
		OT	11
Província de Maputo	1,205,553	Ophthalmologists	1
		OT	6
Nampula	3,985,274	Ophthalmologists	3
		OT	47
Niassa	1,169,837	Ophthalmologists	1
		OT	10
Sofala	1,642,636	Ophthalmologists	3
		OT	38

Province	Population	Human resources	In service in 2016
Tete	1,783,967	Ophthalmologists	0
		OT	10
Hospital Central de Maputo	Referral hospital for the country	Ophthalmologists	4
		OT	3
Zambézia	3,848,274	Ophthalmologists	2
		OT	12

There are five institutions where eye health professionals can receive training in Mozambique. These are the Hospital Central de Nampula, Lúrio University and three health institutes located in Maputo, Beira and Nampula.

The Ophthalmology Department at the Hospital Central de Maputo is funded by the government and is the only institution where ophthalmologists can be trained. Lúrio University is the only institution for training in optometry, with 20 places per year [18]. OT courses are available in the three health institutes.

All training is approved by the Ministry of Health (MISAU), which specifies a range of eye care services the trained categories of professionals can provide, including diagnostic and treatment procedures. The national curricula are available for ophthalmologists, optometrists and OTs, and are mandatory for all education institutions. The curriculum for training in ophthalmology is reviewed by MISAU with contributions from the lower levels every 10 years.

There are accreditation bodies for different cadres: Colegio de Oftalmologia for ophthalmologists, Ministerio do Ensino Superior Ciencia e Tecnologia for optometrists, and Quadro do Ministerio da Saude for OTs.

Eye care staff are trained following the same regulations as other healthcare staff. The entry criteria for the mid-level programmes (ophthalmic technician) require a medical agent or basic nurse qualification and experience in the health sector. The duration of the programme is 18 months. Some respondents said a 24 month training course for ophthalmic technicians may be more appropriate, as it will encourage younger candidates to enter the specialisation. Also, some ophthalmic technicians currently working in the system had been trained in Cuba – they entered the training after the tenth grade of secondary school; the duration of the programme was three years.

Some interviewees said the increase in the number of ophthalmic technicians and optometrists in recent years had been at the expense of other specialisations and mid-level personnel more broadly. In some provinces nurses were "taken out" of the system to be trained in this sub-speciality when, in many cases, they were the only staff available to deliver health services.

Some interviewees also talked about gender imbalances in the eye care workforce, as ophthalmic specialisation is undertaken primarily by males because female nurses prefer to specialise in maternal health.

To specialise in ophthalmology, candidates need a general medical qualification as a doctor. The training involves four years of tertiary specialisation supervised by the College of Ophthalmologists and Medical Association. However, at present, the eligibility criteria for this training is not clear and the requirements for the teaching institutions in terms of their capacity, equipment and supplies are not yet fully developed. A large part of the post-graduate training in ophthalmology takes place in Mozambique. However, before graduation, the trainees visit international universities in Portugal or Spain where they also take examinations and are graduated. INGOs also fund training programmes in Kenya, Tanzania and Cuba, but this option is very expensive.

The four-year course offered for optometrists is not yet included in the health professional career framework but is likely to be included in the "Graduate Staff N1" category (holders of honours degree), comparable to pharmacists and dentists with a university degree. At the time of this assessment, information on optometry graduates was available for 2012, 2013 and 2014 with nine, six and 13 graduates per year respectively.

At present, there is no eye health training for auxiliary personnel or technical assistants.

The Human Resources for Health policy covers human resources for eye health, and the current national Human Resources for Health Development Plan (PNDRHS 2016-2025) includes targets for training ophthalmologists and ophthalmic technicians. In addition to the current workforce, the plan aims to graduate 26 ophthalmologists and 197 ophthalmic technicians by the year 2025. It also aims at more equal distribution of the eye health workforce across the provinces. The PNDRHS, however, considers only the professional categories recognised in the current carer framework, which leaves out optometrists who are being trained but not yet included in the framework. The plan includes deployment of optometrists, but training this cadre is the responsibility of the Ministry of Science and Technology, rather than the Ministry of Health. The plan also leaves out cataract surgeons, who are not recognised within the system.

The human resources information system (HRIS) in Mozambique uses a local electronic platform (eSIP) and includes eye health cadres. The system is regularly updated.

Some interviewees said that although the INGOs and other development partners supported training of eye care personnel, there was poor coordination of this training with the Ministry of Health.

Drugs, products and equipment for eye health

The national drugs form (FNM) contains 36 eye health medicines. The availability of these medicines however varies. For example, tetracycline is almost always available and is rarely out of stock. Chloramphenicol, on the other hand, is more problematic and can be difficult to access. Eye drops can be out of stock for up to three months. There are also inequalities in the geographical distribution of medicines. The interviewees from Zambézia province, for example, indicated that out of 36 eye care medicines included in the list, only 16 are available in their province and there is limited access to some of those. Some respondents said that the shortage of medicines at the provincial level is often due to the shortage at the central level.

Eye health equipment is procured by the system based on the applications and availability of funds. The supply is very limited and only provincial and central hospitals are well equipped, particularly when they receive support from INGOs. Maintenance of existing equipment is also challenging, as hospital technicians are often unable to repair broken parts and the equipment is left abandoned.

The majority of health facility personnel interviewed said there were no national guidelines for managing common eye health problems. They were also unsure about the need for such guidelines. The respondents said the standardised training curriculum ensured the consistency of case management and is used as the clinical guidelines; in cases where a new treatment strategy is developed, a new training course for health practitioners could be organised.

Eye health information systems

Eye health is not yet an integral part of the national health information system (HIS) in Mozambique.

The national eye health programme has five indicators: number of patients operated for cataract, number of patients with glaucoma, number of patients with refractive errors, number of patients with trachoma, and number of patients operated for trichomatous trichiasis (TT). This data is reported monthly to the districts and then to eye health programmes at the provincial level. In each district, there is a district statistics office (NED) which collates all relevant data by the tenth day of each month.

The data is submitted quarterly to national level through the national eye health programme and through DNAM, but the Ministry of Health M&E Department does not collate any eye health data apart from the reports submitted by all programmes to the Planning and Cooperation Department. This means there are no eye health indicators reported in the national health information system for monitoring and evaluation (SISMA). There are discussions at national level to integrate eye health data into the national HIS but the process is delayed due to continuous changes introduced within the national system.

Some interviews also said there are variations in how data is reported from the lower to upper levels. For example, facility level data is not always passed to the districts and the districts sometimes send information only when requested. There are also problems with human resources

required to collate, process and analyse data at different levels, resulting in late submissions and incomplete data.

All health sector staff who are registered to use HIS can have access to the database. Eye health data, when available, is used for evaluative and planning purposes. However, some interviewees noted issues with the usefulness of information available, as people submitting data from the lower

“SISMA has nothing to do with eye health, unfortunately no summary [statistics] is integrated. We have expressed an interest in seeing the indicators included within the platform... but there were limitations on the part of the program itself and we do not know why.” (interview data)

levels of the system do not always know which data is needed for planning and management purposes. The reports usually have only statistical data and provide no narrative explanations. The private sector does not report data on a regular basis and sends information only when requested. NGOs and other development partners support the design and maintenance of databases and related training focusing usually on specific data collection forms. However, there are often different reporting templates used at various levels as well as parallel systems for collating data.

Conclusions

This study aimed to examine different components of the eye health system in Mozambique and assess its links with the broader health system. The study describes the nature, scope and functions of the system and identified a number of weaknesses and strengths that need to be taken into account when planning future eye care policies and programmes. These are summarised below.

Eye health governance

Strengths

- The national eye health programme (PNO) is established under the Ministry of Health (MISAU) and is part of the National Directorate of Medical Assistance.
- There is a national eye care coordinator, who provides leadership to the national programme and is responsible for the implementation of eye health policies throughout the county.
- The government, through MISAU, has established partnerships with several international NGOs, who support the delivery of eye care services across the country.
- The eye health system in Mozambique complies with the same regulations as the broader health system. Standards, protocols, codes of conduct and certification procedures are the same as in the general health system.
- There is also the Mozambique Eye Care Coalition (MECC), an advisory body to MISAU on matters related to eye health. The committee is comprised largely of non-governmental organisations and technical experts from MISAU.

Weaknesses

- Eye health stakeholders and particularly civil society organisations (CSOs) and disabled people's organisations (DPOs) are not adequately involved in setting priorities and budgets for eye health at all levels.
- The visibility of eye health in both decision-making and allocation of resources is limited, as other diseases with high morbidity and mortality – such as malaria, HIV/AIDS and tuberculosis – receive more attention from both the government and development donors.
- The capacity of the national eye health programme is limited, as it has to rely on the voluntary contributions of technical staff who are engaged in multiple activities; at present, there are no senior technical experts exclusively involved in eye health policy-making.
- Although advocacy efforts with a focus on social inclusion began to bear fruit, and a number of public institutions started installing ramps to improve access for people with mobility problems, there are reservations about the effectiveness of such actions; the ramps often do not comply with technical specifications, and many other aspects of reasonable accommodation for people with disabilities are neglected.

Eye health financing

Strengths

- The government provides funding to support fixed costs, such as eye care workers' salaries, infrastructure, utility bills and administration in eye care units.
- There are a number of INGOs and other development partners providing funding in eye care – largely operational costs of activities, outreach camps, equipment and supplies, health education campaigns, training and supervision.
- There is a fee-waiver policy for vulnerable groups, including children under five, pregnant women, older people, former combatants and people with chronic illnesses, although the study did not find any information on how the exemptions work and how effective they are in practice.
- Health financing is based on the principles of decentralisation, which aims to give financial autonomy to local areas and improve planning and delivery of services close to users.
- There is a scheme for public sector employees that provides access to free health care, including eye care.
- There are private insurance schemes for private sector employees and self-employed people with moderate to high incomes.

Weaknesses

- Eye care services receive limited financial resources from the government due to scarce funding within the general health system and a high burden of other conditions considered to be priorities, such as maternal and child health, malaria, HIV/AIDS and tuberculosis.
- The resources available through the government are not sufficient to cover all eye care costs; as a result, the eye health programme is heavily dependent on financial support from INGOs and other development partners.
- There are challenges in the implementation of decentralisation policies with unclear demarcation and duplication of functions and expenditures between provincial, district and community levels.
- Only a small minority of patients are able to cover costs of travel to large hospitals where cataract surgeries are provided on a continuous basis. This leads to a need to provide outreach surgeries closer to the community and increases the overall costs of surgeries, which the government cannot sustain without a subsidy from external funders.
- There is limited information on eye care expenditures as the resources allocated by the government are not earmarked to eye health and many externally funded programmes in the provinces do not report their expenditure.
- There is no public or social insurance scheme that covers the costs of eye care.

Eye care service delivery

Strengths

- Eye health services are delivered predominantly in the public sector.
- Eye care is delivered at three levels: primary, secondary and tertiary.
- The number of cataract surgeries increased significantly in 2015, largely due to the increased number of outreach activities.
- There are quality standards in general health care which apply to eye health and are followed by eye care workers.
- There are school health programmes carried out through outreaches in urban and rural areas. Vision screening is integrated into these campaigns, where possible.
- There is a well-resourced vertical programme for elimination of blinding trachoma, which has developed systems for quality assurance and staff supervision.

Weaknesses

- The estimated cataract surgical rate (number of surgeries per million population per year) is around 333 per million, which is much lower than the recommended level for Africa of 2000 per million and is reportedly the lowest in the SADC region.
- Eye health infrastructure remains limited and the services are often only available from the secondary level upwards; a large proportion of the population do not take up services as they cannot travel to large centrally-located hospitals.
- Outreach campaigns and school health programmes are often dependent on funds available through INGOs and other development partners.
- Access to spectacles is limited by high prices which are prohibitive for the majority of the population.

Human resources for eye health

Strengths

- The country has different eye health cadres deployed within the national health system: ophthalmologists, optometrists, ophthalmic technicians, orthoptists and opticians.
- There are five training institutions in the country which deliver programmes for ophthalmologists, ophthalmic technicians and optometrists. The Ophthalmology Department at the Hospital Central de Maputo is funded by the government and is the institution that trains ophthalmologists. Lúrio University is the institution for training in optometry, with 20 places per year; while ophthalmic technicians are trained in health institutes in Maputo, Beira and Nampula.
- The number of eye care practitioners, and particularly ophthalmic technicians, has increased in the past decade. At the time of the assessment, 236 eye care professionals were deployed in Mozambique. The majority (74.2%) of them are ophthalmic technicians.
- Eye care staff are trained following the same regulations as other healthcare staff. All training is approved by the Ministry of Health (MISAU) and the national curricula are standardised and

mandatory for all education institutions. The curriculum in ophthalmology is reviewed by MISAU every 10 years.

- There are accreditation bodies for different cadres: Colegio de Oftalmologia for ophthalmologists, Ministerio do Ensino Superior Ciencia e Tecnologia for optometrists, and Quadro do Ministerio da Saude for ophthalmic technicians.
- The Human Resources for Health policy covers human resources for eye health, and the current national Human Resources for Health Development Plan (PNDRHS 2016-2025) includes targets for training ophthalmologists and ophthalmic technicians. In addition to the current workforce, the plan aims to graduate 26 ophthalmologists and 197 ophthalmic technicians by the year 2025. The plan also aims at more equal distribution of the eye health workforce across provinces.
- There is a national human resources information system (HRIS), which uses a local electronic platform (eSIP) and includes data on eye health personnel. The system is regularly updated.

Weaknesses

- The number of ophthalmologists and mid-level personnel is well below recommended levels for Africa. At the time of the assessment there were only 20 ophthalmologists, which is less than 0.7 per million population and 5.5 times less than the recommended levels (four per million). The ratio of ophthalmic technicians to the population is around six per million, which is also less than the recommended level of 10 per million.
- There is an insufficient number of medical graduates and a limited number of those interested in specialising in ophthalmology, largely because the system has limited capacity to adequately deploy newly-trained graduates. The number of facilities with adequate infrastructure is limited, and ophthalmic staff often have to take on other healthcare or administrative tasks as they don't have the equipment or supplies to provide eye care services. There are also limitations imposed by the Ministry of Health, which regulates medical sub-specialty training in favour of other diseases considered to be priorities.
- Ophthalmologists tend to stay in large urban areas where there are hospitals with surgical infrastructure and opportunities for private practice. As a result, there are significant inequalities in the geographical distribution of staff across Mozambique and large parts of the country remain underserved. Over 40% of all in-service eye care personnel are based in the provinces of Sofala and Nampula. Together, these two provinces deploy 96 out of 236 (40.7%) eye care practitioners, who serve only 27.4% of the country's population. The only two orthoptists available in the country are working in Maputo Central Hospital (HCM).
- There are gender imbalances in the eye care workforce, as ophthalmic specialisation is undertaken primarily by males because female nurses prefer to specialise in maternal health.
- Development partners' support for human resources for eye health (HReH) training is poorly coordinated with the Ministry of Health.
- The scope of optometry work in Mozambique remains unclear. At the time of this assessment, the four-year course offered for optometrists was not yet included in the health professional career framework and there were no targets for training optometrists in the national HRH plan.
- At the time of the assessment there was no eye health training for auxiliary personnel or technical assistants, and cataract surgeons were not recognised within the national health system.

Eye health medicines and medical products

Strengths

- Essential eye health medicines are included in the national essential medicine list. The national drugs form (FNM) contains 36 eye health medicines.
- There is a national system of procurement with agencies designated to regulate, purchase and distribute medical equipment and supplies.

Weaknesses

- The availability of eye health medicines and supplies varies across facilities and there are regular stock-outs of essential products.
- The supply of eye care equipment is limited, and only provincial and central hospitals are appropriately equipped – particularly when they receive support from INGOs.
- Maintenance of existing equipment is challenging, as hospital technicians are unable to repair broken parts and equipment is often left abandoned.
- Most drugs and consumables for surgeries are available through INGOs support only.

Eye health information system

Strengths

- There are electronic platforms for reporting health data in Mozambique.
- The national eye health programme has five indicators: number of patients operated for cataract, number of patients with glaucoma, number of patients with refractive errors, number of patients with trachoma, and number of patients operated for trichomatous trichiasis (TT).
- Facility data is reported monthly to the districts and then to the provincial level. There is a district statistics office (NED) in each district. Data to the national level is reported quarterly.
- All health sector staff who are registered to use HIS have access to the database. Eye health data, when available, is used for evaluative and planning purposes.
- NGOs and other development partners support the design and maintenance of databases and related training.

Weaknesses

- Eye health is not yet an integral part of the national health information system. The Ministry of Health M&E Department does not collate eye health data and there are no eye health indicators reported in the national health information system for monitoring and evaluation (SISMA).
- There are variations in how data is reported from the lower to the upper levels of the system. There is a shortage of human resources required to collate, process and analyse data at different levels, resulting in late submissions and incomplete data.
- There are different reporting templates at various levels of the health system, and parallel systems for collating data.

- There are issues with the usefulness of the data collected, as people submitting data from the lower levels of the system do not always know which data is needed for planning and management purposes.
- The private sector does not report data on a regular basis.

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Appendices

Appendix 1: Study respondents

Região	Provincia	Distrito	Nível	Nr de informantes	Status
ONGs e sector privado			LftW	4	Feito
			OMS		Recusou
			Sunshine		Feito
			H. do Olho		Feito
MISAU			Seis blocos de construção do sistema de saúde	10	Feito
					Recusou
					Feito
					Feito
					Feito
					Feito
					Feito
					Feito
					Feito
					Recusou
Sul	Gaza	Bilene Macia	Poor	3	Feito
					Feito
					Feito
	Maputo	Manhiça	Average	3	Feito
					Feito
					Feito

Região	Provincia	Distrito	Nível	Nr de informantes	Status
Centro	Manica	Gondola	Average	3	Feito
					Feito
					Feito
		Hosp P. Chimoio	Good	3	Feito
					Feito
					Feito
	Zambézia	Quelimane DPS	Good	5	Feito
					Feito
					Feito
					Feito
					Feito
		Mocuba	Poor	3	Feito
Feito					
Feito					
Norte	Nampula	Angoche	Poor	3	Feito
					Feito
					Feito
					Feito
		DPS		4	Feito
					Feito
					Feito
					Feito
	Niassa	H. P. Lichinga	Average	3	Feito
					Feito
					Feito
		Cuamba	Poor	4	Feito
Feito					
Feito					
Feito					

Appendix 2: Relatório anual do MECC – 2016

RESUMO DOS DADOS NACIONAIS DE OFTALMOLOGIA

2016

Este documento resume os dados produzidos ao nível do país na área de oftalmologia no período de Janeiro à Dezembro de 2016 incluindo as organizações que apoiam a saúde ocular.

Tabela 1: Membros do MECC no país

Membros e ONGs	Área geográfica	Áreas de apoio
Sightsavers	Nampula	<ol style="list-style-type: none">1. Controle de doença (cuidados clínicos, clínicas moveis, campanhas de cirurgias de catarata e outras doenças oculares, consultas de rotinas e prevenção).2. Desenvolvimento de Recursos Humanos (bolsas de estudos para oftalmologistas na Cuba e Quênia, apoio da formação de técnicos de oftalmologia no ICSN e formações contínuas).3. Infraestruturas e equipamentos (construção do blocos cirurgicos nos distritos, fornecimento de medicamentos, Consumiveis e Kits Cirurgicos, óculos, equipamentos e consumiveis na provincia).4. Meios Circulantes (Viaturas e Motorizadas)5. Advocacia
Light for the World	Sofala, Tete, Niassa e Cabo Delgado	<ol style="list-style-type: none">1. Controle de doença (cuidados clínicos, campanhas compreensivas de cirurgias de catarata, consultas de rotinas e prevenção)2. Desenvolvimento de Recursos Humanos (bolsas de estudos para oftalmologistas em Quênia e Tanzania, apoio da formação de técnicos de oftalmologia no ICSB e formações contínuas).3. Infraestruturas (construção do bloco de oftalmologia no HCB, fornecimento de medicamentos, equipamentos e consumiveis nas 4 provincias).

Membros e ONGs	Área geográfica	Áreas de apoio
Uls del Mudo	Inhamabane	Controle de doença (cuidados clínicos, campanhas compreensivas de cirurgias de catarata, consultas de rotinas e prevenção); banco de óculos
MISAU	Nacional	Recursos Humanos, infraestrutura, custos administrativos, Medicamentos, equipamentos...
Envision RTI	Nacional	NTDs

Tabela 2: Desenvolvimento Recursos Humanos

Esta tabela mostra o numero de recursos humanos por tipo existentes em cada província do país.

PROVINCIA/ Populacao	ONG/Apoio	Oftalmologistas	T. oftalmologia	Optometristas	Ortoptista	Aux/oculistas
Maputo Cidade	Só MISAU	6	16	5	2	2
Maputo Província	Só MISAU	1	6	3	0	1
Gaza	Só MISAU	0	7	1	0	0
Inhambane	Uls del Mundo	2	7	2	0	0
Manica	NABP	1	16	1	0	1
Sofala	LIGHT FOR THE WORLD INTERNATIONAL	3 (1 nacional, 1 Coreano e 1 Cubano)	42	2	0	2
Tete	LIGHT FOR THE WORLD INTERNATIONAL	0	11	2	0	0
Zambezia	Light for the world	2	12	3	0	2
Nampula	SIGHTSAVERS	3 (1 Nacional e 2 Cubanas)	47	0	0	2
Niassa	LIGHT FOR THE WORLD INTERNATIONAL	1 Coreano	10	2	0	1
Cabo Delgado	LIGHT FOR THE WORLD INTERNATIONAL	1 (Cubano)	9	2	0	2
Totals		20	183	23	2	13

Tabela 2: Controle das doenças:

PROVINCIA/ POPULACAO	ONG/Apoio	Pacientes observados	Cataratas diagnosticas	Cataratas operadas	Erros de refracção	Casos de TF	Cir. de TT	Cir. de glaucoma
Maputo Cidade	Só MISAU	43,468	1,970	707	16,233	-	86	86
Maputo Província	Só MISAU	22,426	830	1,010	3,788		3	2
Gaza	Só MISAU	19,018	1,362	283	3,366		3	6
Inhambane	ULS DEL MUDO	18,000	1,848	800	4,529	23	43	0
Manica	NAPB	35,113	2,382	786	2,209	237	54	776
Sofala	LIGHT FOR THE WORLD INTERNATIONAL	76,401	6,318	610	9,757	271	42	
Tete	LIGHT FOR THE WORLD INTERNATIONAL	30,107	1,267	258	2,880	464	18	0
Zambezia	L	22,549	4,189	994	3,725	115	17	8
Nampula	SIGHTSAVERS	95,205	4,340	2,747	20,797	670	775	10
Niassa	LIGHT FOR THE WORLD INTERNATIONAL	32,522	1,164	257	2,058	141	16	0
Cabo Delgado	LIGHT FOR THE WORLD INTERNATIONAL	20,772	2,554	301	3,719	60	580	0
Totals		415,581	28,224	8,753	73,061	1,981	1,637	889

Tabela 3: Infraestrutura

Os indicadores chave para as infraestruturas de saúde ocular a nível terciário/secundário são:

- Microscópio de cirurgia e Lâmpada de fenda
- Sala de cirurgia própria, sala de consulta própria, camas próprias.
- Abastecimento regular em consumíveis e capacidade de transporte para campanha de cirurgia.

Uma avaliação exaustiva das necessidades em infraestrutura deveria ser feita para o próximo Plano Nacional, para um melhor seguimento.

PROVINCIAS	MISAU/INGO	2016
Maputo Cidade	MISAU	
Maputo Província	MISAU	
Gaza	MISAU	
Inhambane	MISAU + UdM	
Manica	MISAU + NABP	
Sofala	MISAU + L-INT	OK
Tete	MISAU + L-INT	OK
Zambezia	MISAU + L-INT	
Nampula	MISAU + SSI	
Niassa	MISAU + L-INT	OK
Cabo Delgado	MISAU + L-INT	OK
Totals		

Tabela 4: Investimentos:

As ONGs apoiam o desenvolvimento dos serviços em parceria com o Governo.

Elas procuram recursos de varias maneiras, (doações privadas, financiamentos bilateral, doações de associações, etc.).

Esta tabela mostra unicamente os investimentos directos, não mostra investimentos indirectos como RH, Transporte, Pesquisas, Coordenação, Desenvolvimento de parceria e não inclui custos de Gestão (salários e custos de funcionamento do escritório,).

Províncias	ONG/Apoio	Investimento (Sector) £	Total investido em MZN	Observações
Ncional	RTI			
Maputo Cidade	Só MISAU			
Maputo Província	Só MISAU			
Gaza	Só MISAU			
Inhambane	UdM			
Manica	NAPB			
Sofala	Lftw	242.377,64	22.056.366,00	Inclui a construção do bloco de oftalmologia no HCB
Tete	LftW	24.645,38	2.242.730,00	
Zambezia	LftW			
Nampula Nampula	Sightsavers	341.918,9£	31.114.620,71	Incluí aquisição de viaturas do tipo ambulância.
Niassa	LftW	19.180,2	1.745.400,00	
Cabo Delgado	LftW	30.883,15	2.810,367,00	
Totals		659.005,27£	59.969.483,71MZN	

4. Desafios

Cada organização ou província deverá listar aqui os desafios enfrentados durante o ano de 2016:

5. Coordenação e Planificação

The Mozambique Eye Care Coalition (MECC) organiza encontros entre os seus membros duas vezes por ano afim de coordenar actividades. Depois de cada encontro elaboram-se minutas difundidas para cada membro.

7. The Mozambique Eye Care Coalition: Membros activos

	Membros	Origem	Contacto	Experiência em África	Experiência em Moçambique
MISAU	Programa Nacional de Oftalmologia	Moz	Mariamo Abdala/Margarida Chagunda
UdM	Ulls del Mon	Spain	E. Lavis	2001	2003
LftW	Light for the World	Austria	Z. Zicai	1988	2003
Sightsavers	Sight Savers International	UK	I. Hasane	1949	2007
BHVI	Brian Holden Vision Institute	Australia	Mauricio Pene	2004	2006
IAPB	International Agency for Prevention of Blindness	UK	A. Magave	1978	2005
ENVISION	Envision (RTI)	USA	Augusto Gerito	2011	2012 (working with NTDs)

We work with partners in low and middle income countries to eliminate avoidable blindness and promote equal opportunities for people with disabilities

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