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Acknowledgement

This report is the result of the Ministry of Health’s ongoing efforts to periodically review the health status of population, in this case changes in eye health status since launching of Vision 2020: The Right to Sight in 1999. It was supported by a generous grant from Fred Hollows Foundation, Australia. Major INGOs in eye health sector such as Eye care Foundation and SEVA Foundation. WHO supported the workshop to review the preliminary findings of MTR survey and made available the services of Dr Sara Varughese, Programme Manager for Disability at its Regional office to assist in the review process. National NGOs-Nepal Netra Jyoti Sangh, B.P. Eye Foundation, Tilganga Institute of Ophthalmology and Institute of Medicine, Tribhuvan University actively participated and contributed enormously to the review process. We would also like to acknowledge their contribution.

Members of the Advisory Committee led by Dr. Sudha Sharma and Dr. Praveen Mishra, Secretary in the Ministry of Health and other members listed elsewhere constantly guided the review process. Dr B.K.Suvedi, Joint Secretary and Chief of Policy, Planning and International Cooperation Division, Ministry of Health and Mr Kabiraj Khanal, undersecretary in the Ministry of Health coordinated with various agencies. Their contribution is greatly appreciated.

Numerous health officials at the regional, zonal, district, PHCC, HP, SHP levels willingly shared their time and information, as did the staff of the eye hospitals and eye centers. Their assistance is warmly acknowledged.

The Review committee would also like to thank the researchers who took part in collection of data from various sources. Finally, the insights shared by hundreds of patients at hospitals, primary eye care centers and other health facilities provided us a great opportunity to learn about eye care services from their perspectives, a unique and new experience for most of the team members.

Ms. Anuja Upadhyay, formerly of the UN Women South Asia Regional Office helped with editing of this report. Dr Subodh Gnyawali, Mr. Dipesh Bhattarai and Mr. Sunil Budathoki of B.P. Eye Foundation helped through various stages in the evolution of this study. Their assistance is greatly valued by MTR committee.

Vision 2020 MTR Team
October 2011
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<th>Description</th>
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<tbody>
<tr>
<td>ARMD</td>
<td>Age Related Macular Degeneration</td>
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<tr>
<td>BCVA</td>
<td>Best Corrected Visual Acuity</td>
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<td>BEH</td>
<td>Biratnagar Eye Hospital</td>
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<td>BES</td>
<td>Bhaktapur Eye Survey</td>
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<td>BPEF</td>
<td>B. P. Eye Foundation</td>
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<td>BPKIHS</td>
<td>B.P. Koirala Institute of Health Sciences</td>
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<td>BPKLCOS</td>
<td>B.P. Koirala Lions Centre for Ophthalmic Studies</td>
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<td>CEC</td>
<td>Community Eye Centre</td>
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<tr>
<td>CSC</td>
<td>Cataract Surgical Coverage (Measure of proportion of operable cataract cases)</td>
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<tr>
<td>CSR</td>
<td>Cataract Surgical Rate (Number of cataract surgery/million population /per year)</td>
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<tr>
<td>CTEVT</td>
<td>Council for Technical Education and Vocational Training</td>
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<tr>
<td>DALY</td>
<td>Disability Adjusted Life Years</td>
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<tr>
<td>DCMFH</td>
<td>Department of Community Medicine and Family Health, IoM, Tribhuvan University</td>
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<td>DDC</td>
<td>District Development Committee</td>
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<td>DH</td>
<td>District Hospital</td>
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<td>District Health Officer</td>
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<td>District Public Health Officer</td>
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<td>DR</td>
<td>Diabetic Retinopathy</td>
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<td>FB</td>
<td>Foreign Body</td>
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<td>FCHV</td>
<td>Female Community Health Volunteer</td>
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<td>Gaur Eye Hospital</td>
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<td>Geta Eye Hospital</td>
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<td>Himalaya Eye Hospital</td>
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<td>HF</td>
<td>Health Facility</td>
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<td>Health Management Information System</td>
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<td>Human Resources for Health</td>
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<td>HRD</td>
<td>Human Resource Development</td>
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<td>IAPB</td>
<td>International Agency for Prevention of Blindness</td>
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<td>IC</td>
<td>Incision and Curettage</td>
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<td>ICD</td>
<td>International Classification of Diseases</td>
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<td>INGO</td>
<td>International Non Government Organizations</td>
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<td>IOM</td>
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<td>IOP</td>
<td>Intraocular Pressure</td>
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<td>LLEH</td>
<td>Lions Lacoul Eye Hospital, Palpa</td>
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<td>Acronym</td>
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<tr>
<td>LV</td>
<td>Low Vision</td>
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<td>M:F</td>
<td>Male: Female</td>
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<td>Millennium Development Goals</td>
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<td>Nepal Trachoma Program</td>
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<td>Primary Eye Care Centre</td>
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<td>PHCC</td>
<td>Primary Health Care Centre</td>
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<tr>
<td>PVA</td>
<td>Presenting Visual Acuity</td>
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<td>RAAB</td>
<td>Rapid Assessment of Avoidable Blindness</td>
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<td>Rapti Eye Hospital</td>
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<td>South Asian Association for Regional Cooperation</td>
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<td>Skilled Birth Attendants</td>
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<td>Second Long Term Health Plan</td>
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<td>Social Welfare Council</td>
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<td>TF</td>
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<td>Til Ganga Institute of Ophthalmology</td>
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<td>TT</td>
<td>Trachoma trichiasis</td>
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<td>Tribhuwan University</td>
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<td>United Nations Convention on the Rights of Children</td>
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<td>UNCRPD</td>
<td>United Nations Convention on the Rights of Persons with Disability</td>
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<td>Visual Acuity</td>
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<td>Vision2020: The Right to Sight</td>
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Message

Nepal is one of the first countries in South-Asia to launch VISION 2020: The Right to Sight, a global campaign initiated by World Health Organization. A decade has passed since Nepal launched this initiative in 1999. It is therefore a well-timed initiative of the Ministry of Health and Population, to conduct a midterm review of Vision 2020 in Nepal. I am pleased to learn that a review has been carried out successfully with involvement of relevant stakeholders and experts in this field. It makes me happy to note that Nepal has made significant progress in development of eye care services in the country. However, I am concerned that good eye care services are available in urban areas; the services still need to cover rural areas in an integrated way with general health services.

I would like to take this opportunity to express my sincere gratitude to Apex Body for Eye Health under MoHP, Advisory committee and Review Committee members for their contribution and hard work for the review. I am confident that this report will be very helpful for future planning of eye care programme in the country and will guide us toward achieving the goal for VISION 2020: The Right to Sight in Nepal and ensure eye health to all our people.

On this occasion of World Sight Day 2011, I hope that the recommendations and suggestions made in the report will be implemented because eye health care and elimination of avoidable blindness from the country is one of the priorities of the Government of Nepal.

Hon. Rajendra Mahato
Minister
Ministry of Health and Population, Nepal
Message

I am pleased to learn about the publication of the report of the Mid Term Review of Vision 2020: the Right to Sight. This report has provided the Ministry of Health and Population a robust evidence base of eye health services in the country. It has also given us a baseline for planning and monitoring of future activities. It is a matter of great satisfaction to note that infrastructure for eye care has expanded rapidly; human resource development has been encouraging, overall utilization of services and surgical coverage has increased with consequent reduction in prevalence of blindness by half.

However, I also note with great concern that very little eye care services are available beyond the district headquarters mainly because the extensive network of government facilities have not been utilized for providing eye care as reported in this publication. Nepal’s general health care system has made remarkable progress in terms of reducing infant and child mortality, maternal mortality and in fact has received accolades from the international community, among others, for its rapid progress to achieving Millennium Development Goals. Eye care sector should also benefit from this network of health facilities. Therefore, integration of eye health into primary health system is required. In this regard, the Ministry has already constituted a Task Force to carry forward the implementation of integration of eye health.

It is to be noted that, ongoing eye care services have been very good in terms of adopting recent advancement in technology in eye care but have not been very satisfactorily in terms of the four core values of Vision 2020: the Right to Sight (I SEE), as evidenced by lack of integration, preistent gender inequity and social exclusion. All these have been brought out very well in this report. Although some institutions have achieved financial sustainability, human resource and program sustainability need are still matters of major concern.

I am confident that the information provided in this report will be of immense help of planners, researchers, managers, service providers and relevant professionals working in the field of eye care and health development.

At this juncture, I would like to extend my deepest appreciation to the eye care service providers: Nepal Netra Jyoti Sangh, Tilganga Institute of Ophthalmology, B.P. Eye Foundation, Nepal Eye Hospital, BPKLCOS, Nepal Red Cross, Lions and those involved in providing eye care services in the country.

I deeply appreciate contributions of Prof. Dr. Madan Prasad Upadhyay for taking initiatives, continued guidance and leadership in the process of MTR of Vision 2020. Similarly I also would like to thank all the team members of MTR committee for their hard work to complete the work in stipulated time.

Lastly, I take this opportunity to extend my thanks to all international and national nongovernmental organizations for their technical and financial support to bring the eye care programme and blindness status at present stage in the country.

Dr. Sudha Sharma
Secretary
Message

It is my pleasure to note that the Mid Term Review report of Vision 2020: the Right to Sight is being published. This Report has not only evaluated the past performance but also has provided the ample ground for evidence based planning in the field of eye health. The information provided in this report will be of immense help to planners, researchers, managers, service providers and professionals working in the field of eye care.

Eye care services in Nepal are a glaring example of public private partnership (PPP). Support of various NGOs and INGOs have been instrumental in the Government's objective to eliminate blindness and to provide eye care services throughout the country. Nepal Government has included eye care as essential health care service in NHSP IP II. Preventative and curative services are being implemented with the partnership of non-government sector. The report will definitely guide the stakeholders in meeting the stipulated objectives.

Nepal has launched the Vision 2020: The Right to Sight program in the year 1999, with the global initiative of elimination of avoidable blindness by the year 2020. The report has shown that the prevalence of blindness has decreased significantly. The surgical coverage and output capability of current eye care service has increased over the years. Tremendous developments can be observed in human resource and in infrastructure in the field of eye care. In fact, eye care services in Nepal have proved exemplary in South Asia. However, in terms of equity and providing eye care services to all the needy people in the country, the progress needs to be scaled-up. Existing primary health care delivery system still does not have primary eye care facility. The Government is committed to incorporate the suggestions made in the MTR such as equity and integration of primary eye care into the existing primary health care delivery system in the coming years so that the unreach people can be reached and avoidable blindness can be eliminated as per the target set by Vision 2020.

I have found the MTR report comprehensive. It has indicated a mixture of progress in some areas and some slackness in other areas during the last ten years. Additional efforts are needed to overcome the obstacles that hamper the progress of those programmed activities. By addressing the prevailing issues with the endeavor of all, I hope we will be able to uplift the eye health status of the people of Nepal.

At this point, I would like to extend my deepest appreciation to the eye care service providers i.e. Nepal Netra Jyoti Sangh, Tilganga Institute of Ophthalmology, Nepal Eye Hospital, BPKLCOS, Lions, Nepal Red cross and those involved in providing eye care services in the country. I also extend my sincere thanks to I/NGOs for their technical and financial support to bring the eye care program and blindness status at present level.

I deeply appreciate the MTR team members under the leadership of Prof. Dr. Madan Prasad Upadhya for their hard work in coming out with the MTR report in time.

Dr. Praveen Mishra
Secretary
Preface

Nepal launched its Vision 2020 program in November 1999 at a high profile ceremony with the then Health Minister and the current President of Republic of Nepal, Dr Ram Baran Yadav signing the declaration of support on behalf of the country in presence of the Late Prime Minister Hon’ble Krishna Prasad Bhattarai at a conference of ophthalmologists and allied health professionals of SAARC countries.

Apex Body for eye care- the highest policy making body for eye care constituted a committee to review the implementation of Vision 2020: The Right to Sight and submit a report to the Government on the progress made in eye health status and eye care services in the country since the launching. This report is prepared by the Review Committee under the overall guidance of the Advisory Committee constituted for this purpose. It also recommends a strategic direction for the remaining 10 years of V2020 after a thorough and critical analysis of the available data.

The review revealed some good news and some bad news. Good news is that infrastructure and human resources have increased greatly with significant decline in prevalence of blindness from 0.84 in 1980 to 0.39 in 2010 using less than 3/60 as criteria. Blinding xerophthalmia, so common 30 years ago is no longer a serious problem. Nepal is likely to be declared free of Trachoma by 2020 if not by 2014 as proposed by National Trachoma Program. The bad news is that the number of blind people (120,000 in 2010) is about the same as in 1980-81 (117, 623), worse still, about 275,000 people have severe visual impairment (inability to count fingers at 6 meters) indicating that severe visual impairment remains a serious public health problem. Women continue to carry two-thirds of blindness. People living beyond district headquarters, Dalits and low income people everywhere have no, or have very limited access to eye care services. This has resulted in 6.5 million of the 8.0 million needy people being unable to access services. Close to one million children have either disabling visual impairment or are unable to use their visual potential optimally because of lack of a simple pair of glasses.

Despite this mixed finding of accomplishments and weaknesses, MTR team concludes that the environment for eye care development in Nepal has perhaps never been as favorable as it is today. The basis for this optimism is also discussed in appropriate section. MTR team has also provided a road map with a set of activities which could ensure greater heights to Nepal eye care program in fulfilling its mission to reach Nepalese living not only at the top and middle of population pyramid but also at its bottom. If it does that, team’s efforts would have been amply rewarded.

Kathmandu
Date: 10 September 2011

Prof. Dr. Madan P. Upadhyay
Team Leader
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Executive Summary of MTR of Vision 2020: The Right to Sight

Government of Nepal, Ministry of Health and population constituted a committee to review the implementation of Vision 2020: The Right to Sight and submit a report to the Government. The Review committee was led by Prof Dr. Madan Upadhyay with team members drawn from among key stakeholders for eye care in Nepal. The review committee functioned under the overall guidance of an Advisory Committee chaired by The Secretary, Ministry of Health. This report reviews the progress made in eye health status and eye care services in Nepal since the launching of Vision 2020: The Right to Sight. The latter is a global initiative launched jointly by the Member States, the World Health Organization and an umbrella organization of INGOs called International Agency for Prevention of Blindness (IAPB). Nepal launched this initiative in November 1999. This report also contains a set of recommendations to each partner for strategic direction for the remaining 10 years of Vision 2020 after a thorough and critical analysis of the available data.

The data sources constitute an extensive review of literature on eye care and services in Nepal, findings of a recently concluded Rapid Assessment of Avoidable Blindness (RAAB) survey a comprehensive survey of the current status undertaken by the MTR team and the recommendations of a national workshop. The MTR team designed a study to gather information from a whole range of health infrastructure from the village level up to tertiary centers and centers of excellence using a variety of tools and techniques which involve both quantitative and qualitative methods. The tools included self-administered questionnaires, direct observation by researchers, key informant interviews, focus group discussions with professionals, marginalized communities and policy makers and not the least, service users employing specially developed and pretested tools.

The review process included analysis of four key strategies of vision 2020 viz. disease burden, infrastructure and technology, human resources and, advocacy and policy. The review also examined the progress against the four core values of Vision 2020: The Right to Sight viz. integration with health system, sustainability, equity and excellence, well captured in the acronym I SEE.

Some indicators of progress used were: number of eye hospitals (tertiary centers), district eye centers (secondary centers) and availability of primary eye care in the general health facilities for infrastructure and services analysis; human resources available at different levels; blindness prevalence rates, cataract surgical coverage, visual outcome of cataract surgery, common blinding conditions and causes of ocular morbidity and finally, service utilization, outputs and outcomes as well as perceptions of the service users and analysis of health policy including the review of minutes of the meetings of the Apex Body for eye health.

Results

The review showed that prevalence of blindness has declined from 0.84% in 1980-81 to 0.39% in 2010 using less than 3/60 as a criterion for blindness. Because of the increase in population in the intervening
period, (Nepal’s population almost doubled between 1980 and 2010), the number of blind persons remained about the same at 120,000 (NBS 117, 623) as if time had stood still for those living at the bottom of the pyramid.

Of even greater concern is the fact that with, less than 6/60 as criterion (economic blindness), the prevalence of blindness was found to be 0.84% and at this level of vision, 275,000 people were estimated to be blind in Nepal in 2010. Blindness therefore continues to remain a major public health problem in the country reinforcing call for sustained efforts at its control. The decline in prevalence was noticeable in all zones except Narayani zone where it has remained the same (0.98%) as in 1981 (0.99%) using less than 3/60 as a criterion for blindness.

In the decade between 2000 and 2010, there has been a significant increase in infrastructure and human resources. For instance the number of eye hospitals has increased from 17 to 20, district eye centers from 40 to 63, ophthalmologists from 76 to 147, ophthalmic assistants from 161 to 275 and optometrists from 5 to 56. The country acquired self sufficiency in its capacity to train its own HRH for eye care with expansion of training centers for ophthalmologists from one to six. Service output increased from 884,635 to 1.5 million; cataract surgical output increased from 40,385 in 2009 to 90,000 in 2010.

Coverage of twice-yearly VAC distribution has increased from 65% to over 90% with significant decline in blinding xerophthalmia. While more serious forms of VAD are seen much less than before, blinding xerophthalmia cases continue to surface periodically particularly in food deficit areas of the mid and far west regions. Milder forms of VAD, more so in older children have been reported from all over the country. Xerophthalmia still remains the 10th common cause of ocular morbidity in primary care settings and 13th common cause of ocular morbidity even in tertiary care centers.

VAD control program regrettably has not evolved, neither has it shown any inclinations to move, in the direction of vitamin A nutrition programme and continues to rely heavily on pharmacological solution with imported drugs even after nearly two decades of its initiation. This is disturbing because Vitamin A in different forms is available abundantly in all terrains and all strata of population. A policy shift to increase intake of vitamin A containing food through different means is urgently needed. The review committee would like to recommend to the Ministry of health to review its Vitamin A policy and program with a view to reduce drug dependency to improve vitamin A nutrition and make it an integral part of nutrition and food security policy.

Since launching of national trachoma control program in 2002, 10.6 million doses of Zithromax have been administered and blindness averted in 15,161 persons through trichiasis surgery, a remarkable achievement on all accounts over a short period of time. Active trachoma prevalence has been reduced from 8.6% to 5% in some endemic areas but not in all. Encouraged by this success NTP is poised to declare elimination of Trachoma as a public health problem by 2014. However, presence of 35,000 un-operated and, possibly more trichiasis cases and prevalence of active trachoma in over 5% of population in 19 districts, coupled with unavailability of data from 8 districts regarding current prevalence of active trachoma appear to be major impediments to achieve the elimination goal by 2014. Given that only 900 trichiasis cases were operated last year, and if dramatic increase in trichiasis surgery is not achieved, it will take 35 years to eliminate all trichiasis cases. If the optimism in some quarters that after all there may not be such a huge backlog of trichiasis cases is true, it may come as a blessing. Therefore, efforts are needed to ascertain the exact size of trichiasis burden, to identify and operate on all trichiasis cases that may still be around possibly through campaign mode. Efforts should also be made to implement the program in remaining districts with higher than 5% prevalence of active trachoma. National efforts must
be galvanized to declare the country trachoma free by the proposed date lest the date may have to be deferred.

Cataract surgery output has more than doubled from 40,385 in 2000 to over 90,000 in 2010 with improvement in outcome of good visual acuity from 30-50% to 50-80% with intraocular lens implantation in hundred percent of cases. Cataract is still responsible for 67% of all blindness despite all efforts in a program which has often been labeled as an eye care program excessively focused on cataract. While increasing and ageing population may be a partial explanation, obviously failure to reach to the needy population, who are confronted with a host of barriers to access services, remains the main cause. This issue would require a different approach to solving the problem than has been practiced in the past. Some of these measures would include targeting women, ethnic minorities, and people living in geographically remote areas and of course, poorer sections of the community. This can happen only if the eye care programme of Nepal is freed, at least partially, from the burden of generating resources for their institutions by doing cataract surgery on patients from across the border. This is also true for central level hospitals. In absence of government grants, the hospitals have to focus on revenue generation for their survival and upkeep of their institutions, which not unexpectedly happens at the expense of efforts to reduce blindness in the country. A policy shift is required to provide subsidy to all NGO hospitals to relieve, at least partially, so that the ophthalmic workforce is relieved of revenue generation tasks to enable them to direct their efforts to reducing blindness. This can be done through more generous grants from the government and international eye care partners both for peripheral and central eye care facilities.

Refractive error has emerged as the commonest cause of ocular morbidity as well as a significant cause of visual impairment, followed by cataract, corneal opacity, glaucoma, trauma and posterior segment diseases. Around 1 million children under 16 years of age; 1,164,053 persons between 16-35 years of age have uncorrected refractive error for distance; 3,716,970 people over 35 years need presbyopic glasses. The need for refractive corrections remains largely unmet. Burden of blindness due to other eye diseases is described in detail in the respective sections.

Examination of core values of vision 2020 (I SEE) revealed mixed findings as shown below.

**Integration** of eye health with general health was found to be lacking. In fact, eye care runs as a parallel system of its own independent of general health system, a source of major concern.

Lack of integration is, in fact, a major disadvantage to the population of Nepal and the eye health sector itself, because eye health system has not been able to take advantage of Nepal’s extensive network of health institutions which has a deep penetration up to the ward level (smallest administrative unit). Consequently, very little or no eye care is available through this extensive network of health facilities. Sadly therefore, majority of people living beyond the district headquarters are deprived of basic eye care services.

**Sustainability:**

Some eye hospitals were reported to have achieved financial sustainability, largely through flow of Indian patients in the planes. However, in absence of State support, this sustainability must be considered fragile indeed. Human resource and program sustainability have not received sufficient attention and even some of the financially sustainable centers are in dire straits in so far as human resources are concerned.
Gender Equity and Social Inclusion

Persistent gender inequity has marginalized women from accessing eye care services for long since it was first discovered 30 years ago. Although women carry two thirds of all blindness in the country, service utilization by men and women is about the same indicating a disproportionately low utilization of services by women in relation to the burden of disease in them.

Children also continue to remain marginalized with them constituting less than 15% of service users while they constitute 40% of the Nepal’s population. Lack of a system of recording data on ethnicity and socio-economic status do not allow evidence based conclusion to be drawn on this aspect of exclusion. However, the focus group discussion with women of the marginalized communities and exit interviews with service users at eye hospitals and district eye centers in various parts of Nepal confirms poor participation of the ethnically disadvantaged population (only 8% of service users were reported to be Dalit). Likewise, 76% of the current service users were from middle and upper middle income group (family income sufficient for one year with some surplus) indicating poor or no access by lower middle class and those living below poverty line.

With few exceptions (Lumbini Eye care Program), eye care system in Nepal seemed to have paid insufficient attention to address the issues of gender equity and social inclusion as evidenced by above findings and persistent lack of disaggregated data on ethnicity and economic status throughout the system. This is tragic because social inclusion has been a prime agenda in successive national development plans including health development and collection of ethnicity based data has been a standard practice in HMIS. Though tragic, it is not entirely surprising for a system driven by specialists addressing a development issue with a gender –neutral medical technological approach.

In terms of quality of care (Excellence), no standard means to assess quality on an ongoing basis have been employed or employed unevenly, barring periodic outcome surveys The surveys, however, indicate progressive improvement in visual out come after cataract surgery although close to 30% of those operated for cataract still continue to have poor acuity. Standard treatment protocols and medical audit systems would urgently need to be put in place for ongoing monitoring of quality of care, currently missing.

Reflections, characterization and future directions

Significant progress has been made in eye care and improving the eye health status of people of Nepal, thanks largely to the efforts of NGOs and INGOs and in initial years, the efforts of the government of Nepal and WHO. Nepal’s eye care system has often been cited as a model for this part of the world.

While there has been a rapid progress in expansion of tertiary and secondary care facilities in Nepal, again largely due to untiring work of NGOs and INGOs, the eye care at primary level is virtually non-existent because of the absence of government involvement and limited resources and capacity of the NGO to reach out beyond district headquarters compounded by the problems of difficult terrains of the country. More than three quarters of Nepal’s population lives beyond the district headquarters and has no access to eye care. Service coverage therefore remains poor and is a major challenge confronting Nepal’s eye care. An estimated 8 million of the 30 million people in Nepal need eye care services every year, only 1.5 million accessed services in 2010. This has led a former Director General of Health services to remark “Nepal has good eye hospitals attracting many patients from India, but has been unable to reach out to its own needy population as yet.” It has been pointed by both the experts and policy makers that the key to addressing Nepal’s eye care program lies in devising systems that can reach out
to this underserved population living at the bottom of the pyramid. This requires a rethinking in, and restructuring of eye care in Nepal. Integration of primary eye care within the revitalized primary health care is recommended.

**Characterization of eye care in Nepal**

Eye care in Nepal was observed to be *disease-oriented* rather than health system based on primary health care; even among the diseases, it was highly *cataract-focused* with neglect of other blinding and non blinding conditions. It is *NGO-led* with declining role of State in service provision, so much so that government does not employ more than a handful of workers for eye health and has virtually no role in service provision. This has resulted in not more than a couple of the government health facilities being involved in providing eye care services. This has not only deprived the general people of the benefits of extensive government health network but also inconvenienced doctors working in government general hospitals at Zonal and Regional hospitals because of lack of opportunities for in house ophthalmic consultation. Likewise ophthalmologists in eye centers feel handicapped unable to consult colleagues in other specialties. **MTR committee strongly recommends to the government and eye care stakeholders to address this disconnect between general health system and eye care system.** Additionally, the eye care system is *specialist-driven*, whether ophthalmologists, optometrists or ophthalmic assistants, with no moorings in national health system. *This has resulted in an eye care system which is world class in Kathmandu, and reasonably good (but not comprehensive) at most tertiary level institutions, weak at secondary level and virtually non-existent at the primary care level.*

No country can afford to provide eye care services to its population through specialists alone when they are in such short supply, be they ophthalmologists or mid-level eye care personnel and, the resources so limited. Also, the patterns of common eye problems lend themselves admirably to primary health care approach, conspicuously missing from Nepal's eye care system. Worldwide experiences clearly show that a vast majority of people could be well served through primary health care approach with some support from the services of specialists.

**Future Directions**

There needs to be a paradigm shift in eye care from disease focused, specialist centered, technology driven solution to include health system approach with revitalized PHC as a vehicle. While Global health is moving out from its narrow health precinct to social determinants of health to address the upstream determinants of ill-health, eye care is becoming increasingly inward looking searching for solutions within eye care sector, oblivious of the fact that solutions to eye health problems, in a vast majority, will have to be found beyond the familiar landscape of dealing with eye diseases, a territory most specialists are familiar and, comfortable working with.

This specialist driven model of services practiced in Nepal has been aptly summarized as “a **model that has been successful in picking low hanging fruits**”. Specialists by nature are, by and large, far removed from the general population. The continuation of this model will not be able to reach those living at the bottom of the pyramid who, have been left behind in Nepal’s journey of 30 years of organized eye care. This is where, most blind people and most people needing eye care services live. Highest dividends in future eye health are likely to come from targeting the excluded communities such as women, children, the poor and ethnically backward and disenfranchised Nepalese living at the bottom of the pyramid across
geographical regions and ecological terrains, in towns and in villages.

The robustness of Nepal’s general health system which is often not well-appreciated, has been well established as evidenced by Nepal being on track to achieving health related MDG (reduction in infant and maternal mortality (Nepal Health and demographic survey); increase in the awareness about healthy living as evidenced by increase in the number of toilet users from 21.6 percent 15 years ago to 56% (Nepal Living Standard survey -111). Eye care sector can only benefit at no loss to itself, from integration with the general health system.

The changed environment for eye care development in Nepal has perhaps never been as favorable as it is today. There are at least six positive developments which augur well for health care as well as eye care.

**Reasons for hope why Nepal’s eye care can scale newer heights**

With political liberalization, there are an increasing number of national civil society organizations, at least six on the last count, actively engaged in eye care, not to mention individual initiatives of large and small philanthropists. Vision 2020 global and national advocacy has made our international partners ever keen to work together.

Economic liberalization has brought in a hitherto reluctant partner in to health development –the private sector with massive resource inflow in recent years which is bound to have an effect on eye care both through training of health workers and expansion of services.

Constitution of Nepal has granted health as a human right to its citizens which has mandated successive governments to make universal access to health a reality. To promote this, government of Nepal has introduced free health service up to primary health care centers to be gradually upgraded to district hospitals and higher level health facilities.

Nepal is moving towards approach of social protection in health sector with right based approach in basic health care as exemplified by Maternity Incentive Scheme, Free essential health care, Targeted subsidized scheme in hospitals, Demand and Supply side financing in disease control, Safety Net in catastrophic illness treatment, Free treatment of prolapsed uterus, Mandatory service for medical graduates on scholarship, Incentive for retention of health personnel in remote districts, upgrading of health facilities etc. State has also increased budgetary allocation to health in the last few years to 7% of national budget.

The fourth facilitating factor is the greatly increased level of awareness (although still not enough) about health among general population, both in terms of citizens’ rights and their duties in keeping themselves healthy. There is also greater sensitization of health service providers to the need for equity and quality in health care and greater appreciation of the need and value of preventive care.

The fifth factor is the existence of a general health system with its reach to even remote villages. Nepal’s health system has demonstrated its ability to improve the health status of people despite a decade long war. It has potentials to do even better during peace time.

Finally, Nepal has developed an eye care infrastructure with a well-spread out network of tertiary and secondary centers capable of providing support to revitalized primary health care.

What is needed is an effective stewardship and coordinating mechanism to harmonize the work of diverse stakeholders within a people centered policy framework to make eye care inclusive and, inclusive eye care sustainable.
Although this report is meant to be a review of only 10 years of Vision 2020, there is a lot of comfort that we can draw from looking back at the last three decades of eye care development in Nepal. With integration of eye health in to general health now on anvil, and diversification of services within the eye care sector to make it more comprehensive, Nepal can achieve even greater heights and meet its population’s eye care needs in next 10-15 years, bringing in to mainstream those people who have been left behind by the last thirty years of an eventful journey.

**Recommendations**

**Eye care sector**

- Eye care sector (largely NGOs/INGOs) should recognize and internalize blindness prevention and eye health in the context of overall development and not continue to view it as a pure technical problem. A technological solution to a development issue may sometimes help, albeit temporarily, but cannot provide comprehensive sustainable solutions. Blindness must be recognized as a development issue because it is intimately linked with poverty, gender equity, social inclusion, education, child mortality – all key components of Millennium Development Goals. The change must begin with change within eye care sector.

- Move away from working in isolation and begin to work in partnership with all those who can make a difference within and beyond its own domain.

- Create a Vision 2020 platform which is broad enough to accommodate all stake holders for vision 2020 to promote coordination between different stakeholders on one hand the government focal person(s) on the other.

**Government of Nepal**

- Establish a department/unit in the Ministry/Department of health with a dedicated staff to develop policy, long term, intermediate term and annual plans, programs and monitoring of eye health and implementation of vision 2020 including their costing.

- Initiate process of integration of eye health into general health at least from PHC level downwards to strengthen the weak primary health care base of eye health in a phased manner, beginning with 15 districts in 2068-69 (2011-2012) and 30 districts each in 2069-70 (2012-2013) and 2070-71 (2013-2014). (A proposed model of integration is provided in chapter 7).

- Coordinate with CTEVT for increasing the enrollment of Ophthalmic Assistants and, with Tribhuvan University, NAMS and BPKIHS and private medical colleges to increase enrollment of Ophthalmologists and Optometrists.

- Review HRH policy to deploy a team of eye care personnel at Zonal and Regional Hospitals to overcome the problems faced by patients and doctors at general hospitals and to make public services more inclusive.

- Dovetail eye HRH development plan with Ministry of Health’s HRH development master plan.

- Critically review status of trachoma elimination with regard to magnitude of active trachoma and trichiasis to galvanize national and international efforts for elimination of Trachoma to avoid postponing the elimination date.

- Review policy of Vitamin A capsule distribution to include nutrition education as a key strategy to
gradually replace capsule distribution while continuing and reinforcing capsule distribution in food deficient areas.

- Allocate adequate funds in its annual budget for eye care.
- Explore the possibility of including rubella vaccination as a part of EPI to prevent/reduce congenital eye, ear and heart diseases and disabilities on one hand and abortions and infant mortality on the other.
- Reformulate eye care policy and direct stakeholders to make eye care more inclusive and responsive paying special attention to the needs of women as well as socially, economically and geographically marginalized communities.

**WHO**

- Revive GoN/WHO prevention of Blindness project to assist government of Nepal for promoting implementation of various WHO resolutions (WHA 56.26 (2003); WHA 59.25 (2006); WHA62.1 (2009)
- Augment advocacy with government of Nepal and other external development partners to help GoN implement Vision 2020 (Action Plan Recommendations 47,48)
- Accelerate implementation of WHO action plan for prevention of blindness and visual impairment 2009-2013 (Action Plan Recommendations 59-64;73-75;83-84 and 92-96)
- Highlight and recommend resource allocation in successive country cooperation strategy (CCS)

**Academia and Professional societies**

- Academia to design and implement curricula to turn out comprehensive graduates competent to deal with priority eye health problems in sufficient quantity.
- Professional societies to develop standard of practice (Preferred Practice Patterns); assist in their implementation and monitoring.
- Professional societies and medical and health professionals councils to develop a system of accreditation for education as well as services.

**International partners**

- Support Nepal in establishing forums including NGOs, professional associations, academia, research institutions and the private sector enterprises.
- Generate resources and support implementation of national plans for prevention of blindness.
- Support Nepal for epidemiological and health system research for program implementation and evaluation.
- Provide support in monitoring and evaluation of the progress for prevention of blindness.
Chapter 1
Background to the Review

Prof. Dr. Madan Upadhyay
Team Leader, MTR Review Committee

Introduction:
Vision 2020: The Right to Sight is a Human Rights Based Approach to eye health initiated by WHO in partnership with its Member States and International Agency for Prevention of Blindness (IAPB) in response to escalating burden of global blindness. This initiative was formally launched at the global level on February 18, 1999 by the Director General of World Health Organization (WHO) in Geneva. The objective of the initiative is to:

1. Eliminate avoidable blindness by the year 2020 as a medium term goal.
2. Establish sustainable eye care systems integrated within the general health systems of the Member States as long term goal.

For medium-term goal, a set of diseases were identified and targeted for elimination as public health problems within a defined time frame employing known strategy. The four pillars of Vision 2020 strategy consist of

1. Reducing burden of disease due to five major avoidable causes of blindness: Cataract, Trachoma, Onchocerciasis, Childhood blindness and Refractive errors & Low Vision.
2. Developing appropriate and adequate human resources.
3. Developing infrastructure and technology.

While the above were identified as key strategies, the following were agreed as core values given the fact that bulk of blindness resided in developing areas of the world whether they are in developed or
developing countries and in poor communities. The acronym I SEE captures it well,

I Integrated with the health system of the country
S Sustainable
E Equitable
E Excellence in service

Following the global launch, countries were encouraged to:

2. Develop a national Program for implementation.
3. Launch their own national vision 2020 programs and sign a declaration of support.
4. Mobilize national and international support for development of sustainable eye care systems.

**Evolution of eye care in Nepal:**

Although some Rana rulers were availing the services of expatriate allopathic medicine practitioners for themselves and their families, modern medicine was formally introduced to general population in Nepal with establishment of Bir Hospital in Kathmandu in 1890 AD. However, eye services in this hospital were not started until as late as 1935 with Dr. Yagya Man Vaidya, a licentiate in ophthalmology as its first Ophthalmologist. Subsequently, eye departments were set up in government hospitals in Biratnagar, Birganj and Pokhara. While the First Long term health plan of Nepal identified eye care as an important program area, the progress in eye care remained rather slow until launching of Nepal Prevention and Control of Blindness Project as a joint initiative of government of Nepal and the World Health Organization in 1980.

**Status before 1980**

The country had 7 ophthalmologists with 16 eye beds in Kathmandu, 8 make shift eye beds in the three urban centers outside Kathmandu, about 10,000 out-patient consultations a year, less than 1000 surgeries annually, not because there were not enough people requiring services, but because there were few service providers and limited facilities were available, mostly in large towns, notwithstanding the abject poverty of people of Nepal.

**National Program for Prevention and control of Blindness (1980-1999):**

As noted earlier, this program was launched in 1980 as a joint initiative of Government of Nepal and World Health Organization with an expatriate as a Project Manager. Under the aegis of the program, a national survey of the causes and determinants of blindness was completed; a large number of medical doctors were trained as ophthalmologists most of them in India and ophthalmic assistants trained in Nepal. A large number of medical officers were trained to provide eye care in district hospitals, as were some health post staff in different parts of the country. The Ministry of Health was an active player in areas of policy development, program management and service delivery through its extensive network. Donor participation for eye care increased phenomenally with donors running the program on sectoral
basis as well as contributing to policy development. The funds were channeled through World Health organization and managed by a sizable number of expatriate and national staff based in Nepal.

WHO had, and still has a system of charging 13% of the donor contribution as its administrative cost. Donors were unhappy with this system of having to part with 13%. Therefore, to obviate this, international agencies started working directly with national NGOs. This was facilitated by establishment of Social Services Coordination Council with the then Queen as the Chairman of the council and one of the Princess as chairperson of the Health Services Coordination Committee (one of the six committees under the council. At one time the council’s budget was close to government’s total budget and was labeled as a parallel government of the time, such was the power it enjoyed).

**Shifting Policy**

This stage in the evolution marks the beginning of GoN’s gradual withdrawal from and, NGOs’ entry into eye care. The period between 1980 and mid nineties was a period of remarkable development in eye care during which eye care infrastructure expanded most rapidly, large number of human resources were trained, and both inputs and outputs in eye health increased tremendously. This resulted because the government was an active player and WHO played a facilitating role in mobilizing support from both bilateral and multilateral donors. With passage of time Government’s priority shifted from eye health to other pressing national health issues. NGOs volunteered to take care of the eye care program on their own. Overburdened with several other serious health problems, the government authorities were happy to pass it on to NGOs. Then on, government role in eye care started declining and has now reached a stage where it has very little role in eye care.

Against this backdrop, NGOs having assumed a dominant role and government not too keen to be involved in eye care, Vision 2020: The Right to Sight was launched on 19 November 1999, an Apex Body for eye care having been established with the Secretary of Health as the chairman of the Apex Body in the previous month of the same year.

**Launching of Nepal Vision 2020**

Nepal launched its Vision 2020 program in 1999 with the then Minister of Health and the current President of Republic of Nepal Dr Ram Baran Yadav signing the declaration of support in presence of the then Prime Minister Hon’ble Krishna Prasad Bhattarai. The Regional Director of SEAR office was represented by Regional Adviser for Disability, Injury Prevention and Rehabilitation (Present Team Leader of Nepal MTR committee). A large number of eye care professionals from SAARC and the neighboring regions were present as the launching was piggybacked to SAARC ophthalmology conference.
Apex body for eye health (Prevention of Blindness Committee)

Composition
1. Secretary, Ministry of Health and Population
2. Secretary, Ministry of Health and Population
3. Chief, Policy, Planning and Foreign AID Division
4. Director General, Department of Health Services
5. Chairman Nepal Netra Jayoti Sangh
6. Director Tilganga Eye Center
7. President, Nepal Ophthalmic Society
8. Representative WHO
9. Director, B. P. Koirala Lions center for Ophthalmic Studies
10. Director, Nepal Eye Hospital
11. Head of Eye Department, Military Hospital

TOR of Apex Body for Eye Health
1. To formulate and implement a national eye care policy and program to achieve the goal of Vision 2020: The Right To Sight.
2. To act as directing, facilitating and coordinating authority on eye care.
3. To encourage technical cooperation between member organizations for eye care.
4. To ensure equitable access to eye care services.

Strategic plan 2000-2019
A sub-committee constituted by the Apex body prepared a document outlining a 20-year plan following several planning meetings and finally at an intensive workshop during August 4-6, 2001. The document was adopted by national workshop on eye care held from September 19-21, 2001. Ten years have passed since development of the plan and implementation of the program. It is therefore considered an appropriate time to review the progress made and obstacles encountered.

The Long term plan had proposed activities related to disease burden (burden of blindness), control of specific diseases, strengthening human resources, development of infrastructure and technology, strengthening coordination, advocacy, information and resources for Vision 2020. Specific target setting was rendered difficult because of lack of a recent base line data (NBS, a source of comprehensive data was by that time already 20 years old). The sub-committee, however, did a commendable job despite lack of accurate information and several uncertainties for which it took recourse to making several assumptions. This plan did not include specific targets, indicators, time frame and resources required. It therefore, remained largely unused or used only when it suited those who wanted to use it. The preparatory work for this document, however collected a set of information from different sources which, the present MTR team has found very useful for its work employing some of those data as base line for monitoring progress in the intervening period.
Mid-term review of Vision 2020

Objective:
- Review the progress made since the launching using the objectives and targets set in the original document and in line with WHO recommendations.
- Identify problems encountered during implementation period, suggest measures to achieve targets, identify resource gaps.
- Recommend a revised plan of action for accelerating implementation of Vision 2020 during the remaining period of 20-year plan.

Expected OUTCOME of MTR:
A comprehensive report on current status of Vision 2020 in Nepal and a road map for the future

Structure of the MTR Committee:
A two tier structure was proposed by the Apex Body for Eye care to complete the MTR process. There would be an advisory group drawn from among the members of the Apex body for overall guidance and to function as steering committee. The review committee would be responsible for doing the ground work. The composition of both these committees is given earlier.

Funds for the review were made available by Government of Nepal, Fred Hollows Foundation, SEVA Foundation and Eye Care Foundation.

Further Reading
7. Summary of Advocacy Work Over Recent Years. A briefing paper by Peter Ackland, CEO, and Julian Metcalf, Director of advocacy, IAPB. December 2010.


Chapter 2
Methodology

Ms. Binjwala Shrestha  
Coordinator, MTR Review Committee

Mr. YD Sapkota  
Member, MTR Review Committee

Prof. Dr. Madan Upadhyay  
Team Leader, MTR Review Committee

Introduction

Multiple approaches were adopted for the review of vision 2020. Both service side and demand side study were conducted using various techniques and tools to collect data on progress, experiences and perceptions on vision 2020 initiative. The service side study included: document review, observation of eye and general health facilities, key informant interview with central, district and village development committee stakeholders and focus group discussion with policy makers, eye health professionals and senior health managers of government, international and national non-government organizations.

Similarly, the demand side study consisted of: review of periodic report of Knowledge Attitude and Practice (KAP) study conducted by various organizations, exit interviews with service users in selected eye health facilities and Focus Group Discussion with marginalized community of study districts.
Table 2.1. Schedule of MTR

<table>
<thead>
<tr>
<th>Date /Duration</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2010</td>
<td>Apex body decision to conduct MTR</td>
</tr>
<tr>
<td>Jan 2011 (one month)</td>
<td>Desk review</td>
</tr>
<tr>
<td></td>
<td>Development of tools</td>
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<tr>
<td></td>
<td>Pretesting of tools</td>
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<tr>
<td></td>
<td>Planning preparation for field work</td>
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<tr>
<td>Feb 2011 (one month)</td>
<td>Desk review continued</td>
</tr>
<tr>
<td></td>
<td>Field work in district for data collection</td>
</tr>
<tr>
<td>March 1-30 (one month)</td>
<td>Field report collection and compilation</td>
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<tr>
<td></td>
<td>Central level interaction program for data collection</td>
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<tr>
<td></td>
<td>Periodic meeting for data analysis</td>
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<tr>
<td>April and May (two months)</td>
<td>Data analysis and draft report writing</td>
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<tr>
<td></td>
<td>Review committee meetings</td>
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<td></td>
<td>Advisory committee meeting</td>
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<tr>
<td>June 1-8</td>
<td>Plan and preparation for National workshop</td>
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<tr>
<td>June 9-11</td>
<td>National workshop</td>
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<tr>
<td>June 15 to 30</td>
<td>Draft Interim report</td>
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<tr>
<td>End of August</td>
<td>Feedback and comments on draft report</td>
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<tr>
<td>September 30</td>
<td>Final report printed</td>
</tr>
<tr>
<td>October 13, World Sight Day</td>
<td>Release of MTR report</td>
</tr>
<tr>
<td></td>
<td>Dissemination of key findings</td>
</tr>
</tbody>
</table>

Data sources:
The following constitute the major sources of information for MTR Process

1. Desk review of published and unpublished literature
2. Data collected by the MTR Team during field study
3. Data collected by different organizations during 2006-2010 through Rapid Assessment of Avoidable Blindness (RAAB) surveys.
4. Feedback from a national workshop with participation of key stakeholders.

1. Desk Review
Over 100 published and unpublished articles were reviewed by the team members over a month as a part of the preparation for the study. These were discussed among the team members at several rounds of meetings.

2. MTR Field Study:
Selection of study team, Selection of study districts, Tools development, Pretesting of tools.

Six (3 male, 3 female) final year students of Bachelor of public health studying at Tribhuvan University Institute of Medicine were selected from among the applicants to conduct the field research. The selected researchers were given orientation and training by the team leader, resource persons and supervisors. The training was both didactic as well as hands on.
Selection of study districts

The districts were selected as per the availability of eye hospitals and district eye centers for review. Altogether 19 districts of five regions both from hill and terai ecology were selected for conducting the review of eye care programs.

Table 2.2. Study districts

<table>
<thead>
<tr>
<th>Region</th>
<th>Districts</th>
<th>Hill</th>
<th>Terai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>Terathum</td>
<td>Sunsari</td>
<td>Morang</td>
</tr>
<tr>
<td>Central</td>
<td>Kathmandu</td>
<td>Lalitpur</td>
<td>Ramechhap</td>
</tr>
<tr>
<td>Western</td>
<td>Kaski</td>
<td>Baglung</td>
<td>Rupandehi</td>
</tr>
<tr>
<td>Mid western</td>
<td>Surkhet</td>
<td>Dang</td>
<td>Banke</td>
</tr>
<tr>
<td>Far western</td>
<td>Dadelhura</td>
<td>Kanchanpur</td>
<td>Kailali</td>
</tr>
</tbody>
</table>

Fig. 2.1: Study districts in the map of Nepal

Study period

The data was collected during February to April of 2011. The detail study schedule of MTR has been described earlier (Table 2.1).

Data collection methods and tools

A. Review of Record of hospitals and district eye centers for service coverage

- Self administered questionnaire, Tool 1.3 was sent to all eye hospitals and Tool 1.6 was sent to all medical colleges of Nepal in order to assess the progress of eye service coverage in last three years both from base hospitals and outreach eye camps.
- Information on the institutional capacity, HR availability, service availability, user fees policy, planning and management of eye services was also collected from most of the eye hospitals of
Nepal using self administered questionnaire Tool 1.4.

- The self administered format Tool 1.5 was sent to all eye hospitals and medical colleges to collect data on ocular morbidity pattern (top 15 eye problems) as per ICD 10.
- Study team visited selected primary eye care centers (PECC) and community eye care centers (CECC) and reviewed the records to collect service utilization trends for last three years using Tool 1.7.

B. Key informant interview

Key informant interviews were carried out using Tool 2.1. The interview was conducted with managers of eye hospitals, medical college eye departments (Tool 2.4), and in-charge of PECC, CECC, PHCC/HP/SHP (Tool 2.6), DPHO, DDC (Tool 2.3), chief of regional, zonal and district hospitals (Tool 2.2). The interviews were focused on collecting information on perception, availability, accessibility, acceptability and sustainability of eye health service.

C. Observation

Study team carried out observation in various settings of eye and general health facilities of study districts using the observation checklist Tool 3.1 (eye hospital), Tool 3.2 (DH/PHCC/HP/SHP) and Tool 3.3 (PECC/CECC). The observation was mainly focused on assessing the availability of infrastructures, supplies, equipments and services.

D. Exit interview

Structured interview using Tool 4 was carried out in study PECC and CECC and study Eye hospitals. Altogether 25 facilities were covered for exit interview and a total of 406 persons were interviewed.

E. Focus Group Discussion

FGD with Stakeholders:

FGD was carried out with eye health professionals (Optometrists, Ophthalmic Assistants and Ophthalmologists); Government officials as well as NGO and INGO leaders using FGD guideline.
The purpose of the focus group discussion was to explore the experiences and perceptions on Nepal’s eye health services including issues of human resources, planning, policy and management with respect to vision 2020 national plan of action.

**FGD with Marginalized community**

A total of 10 FGD were conducted with women from marginalized community (Dalit, Mushhar and Chamar) of study district from all five regions. The discussions were held with an aim to explore the accessibility and barriers to eye care and their eye care seeking behavior.

![FGD with women from a Dalit Community](image)

### Table 2.3. Summary of data collection methods and tools

<table>
<thead>
<tr>
<th>Tool No.</th>
<th>Format</th>
<th>Data Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>SAQ</td>
<td>All Eye Hospitals</td>
<td>Trends in Service Utilization for 3 consecutive Years</td>
</tr>
<tr>
<td>1.6</td>
<td>SAQ</td>
<td>Medical Colleges</td>
<td>Ophthalmic service utilization for 3 consecutive Years, simplified for medical colleges</td>
</tr>
<tr>
<td>1.4</td>
<td>SAQ</td>
<td>All Eye Hospitals</td>
<td>Institutional Capacity, HR availability, service availability, user fee, planning and management systems (Governance)</td>
</tr>
<tr>
<td>1.5</td>
<td>SAQ</td>
<td>All eye hospitals and medical colleges</td>
<td>Ocular morbidity pattern (Top 15 diseases)</td>
</tr>
<tr>
<td>1.7</td>
<td>Review of Records using check list</td>
<td>P/CECC</td>
<td>Service utilization trends for the 3 years</td>
</tr>
</tbody>
</table>

### Table 2.4. Informants for Key Informant Interview (KII)

<table>
<thead>
<tr>
<th>Tool No.</th>
<th>Informants</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4</td>
<td>Managers of Eye Hospitals and Eye Departments of Medical Colleges</td>
<td>Perception of the interviewees on availability, accessibility, acceptability and, when relevant, sustainability of eye care services</td>
</tr>
<tr>
<td>2.6</td>
<td>In-charges of P/CECC/PHCC/HP/SHP</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>DHO, DDC Personnel</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Chief of District, Zonal and Regional Hospitals</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2.5. Observation Using a Checklist

<table>
<thead>
<tr>
<th>Tool</th>
<th>Data Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Eye Hospitals</td>
<td>Direct Observation of availability, adequacy of Infrastructure, Supplies and Equipments.</td>
</tr>
<tr>
<td>3.2</td>
<td>DH/PHCC/HP/SHP</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>PECC/CECC</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2.6. Exit Interview

<table>
<thead>
<tr>
<th>Tool</th>
<th>Data Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Eye Hospitals</td>
<td>Perceptions of services provided</td>
</tr>
<tr>
<td>4</td>
<td>PECC/CECC</td>
<td>Perceptions of services provided</td>
</tr>
</tbody>
</table>
### Table 2.7. Focus Group Discussion

<table>
<thead>
<tr>
<th>Tool</th>
<th>Group Data Source</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guideline for FGD</td>
<td>Nepal Ophthalmic Society, Nepalese Association of Optometrists, Ophthalmic Assistants Society</td>
<td>Seek Professionals’ perceptions</td>
</tr>
<tr>
<td>Guideline</td>
<td>Government officials</td>
<td>Seek Perceptions</td>
</tr>
<tr>
<td>Guideline</td>
<td>INGO/NGO leaders</td>
<td>Seek perceptions</td>
</tr>
<tr>
<td>Guideline</td>
<td>Marginalized communities</td>
<td>Service access and barriers to care</td>
</tr>
</tbody>
</table>

### Table 2.8. Summary of data collection methods

<table>
<thead>
<tr>
<th>Study Stakeholders</th>
<th>Coverage in Number</th>
<th>Data collection techniques</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye hospitals</td>
<td>11</td>
<td>Self administered questionnaires for data collection of service utilization and morbidity</td>
<td>Tool 1.3, Tool 1.4, Tool 1.5</td>
</tr>
<tr>
<td>Eye hospitals</td>
<td>10</td>
<td>Interview, observation</td>
<td>Tool 2.4, Tool 3.1</td>
</tr>
<tr>
<td>Primary eye care centers</td>
<td>12</td>
<td>Interview, observation</td>
<td>Tool 1.7, Tool 2.6, Tool 3.3</td>
</tr>
<tr>
<td>Primary eye care centers</td>
<td>10</td>
<td>Interview, observation</td>
<td>Tool 2.6, Tool 3.3</td>
</tr>
<tr>
<td>Primary eye care centers</td>
<td>7</td>
<td>Interview, observation</td>
<td>Tool 2.6, Tool 3.3</td>
</tr>
<tr>
<td>Zonal/ Regional hospitals</td>
<td>10</td>
<td>Interview</td>
<td>Tool 2.3</td>
</tr>
<tr>
<td>Eye departments of medical colleges and general hospitals</td>
<td>6</td>
<td>Interview, observation and service utilization data collection from records</td>
<td>Tool 1.6, Tool 1.5, Tool 2.4, Tool 3.1</td>
</tr>
<tr>
<td>DDC</td>
<td>4</td>
<td>Interview</td>
<td>Tool 2.2</td>
</tr>
<tr>
<td>DPHO/DHO</td>
<td>6</td>
<td>Interview</td>
<td>Tool 2.2</td>
</tr>
<tr>
<td>NGO</td>
<td>3</td>
<td>Interview</td>
<td>Tool 2.2</td>
</tr>
<tr>
<td>Exit interview with eye care service users in eye hospitals and PEC/CEC</td>
<td>406</td>
<td>25 facilities (eye hospitals, PECC/CECC, and medical colleges)</td>
<td>Tool 4</td>
</tr>
<tr>
<td>Marginalized community</td>
<td>10</td>
<td>Focus Group Discussion (FGD)</td>
<td>Tool 5</td>
</tr>
</tbody>
</table>

### Data management process

#### Quantitative data processing

The field researchers and the supervisors shared their field experiences in a series of meetings with the full team members of MTR committee and clarified the status of the data collection and impressions on eye service and other issues and challenges.

- All the filled formats and forms collected from the districts were compiled and checked for consistency and accuracy of data.
- The quantitative data were processed in excel software.

#### Qualitative Data processing

- The qualitative data were reviewed and analyzed as per the field note submitted by field researchers.
- The national level FGD transcription was analyzed by the review committee members.
• Some of the stakeholders provided their written concerns based on the FGD (Nepalese Association of Optometrists, Nepal Ophthalmic Society, Nepal Trachoma Program and Fred Hollows Foundation)
• The transcription of FGD and key informant interview were analyzed manually with process of sorting, coding and summarization.
• The summary of each interview and FGD was reviewed in matrix to analyze the pattern of information as per the type of health facility and type of participants.

**Data Analysis Framework**

**Analysis Framework of quantitative data**

• Three years trend review and assessment of eye service coverage by eye health facilities (eye hospitals, PECC and CECC) based on institutional records.
• Equity analysis on eye service utilization by age, gender, caste/ethnicity and geography.
• The data collected from exit interview were used to describe socioeconomic profile of participants and their perceptions and experiences on available eye services.

**Analysis framework of document review**

• The content of the relevant documents were reviewed as per the policy and program relevant to eye care program in Nepal. The main domain of analysis was identified as per the indicators set by the Vision 2020 National Plan of Action.

**Analysis framework of key informant interview and FGD with service providers**

• The main domain of the analysis of key informant interview with eye service mangers and providers was their perceptions and experiences regarding eye service delivery and management including issues and challenges of human resource, support from national, international partners and government.

**Analysis framework of key informant interview and FGD with service users**

• The main domain of the analysis of FGD with marginalized community were perceptions, experiences regarding use of eye care services and care seeking practices including barriers and problems faced to access eye care in nearby eye facilities including their expectations on how to meet their eye care needs.

3. **RAAB SURVEY**

WHO recommended protocol for population based survey among the elderly population of Gandaki, Lumbini and Terai area of Narayani zones done in 2006 and RAAB survey in 11 zones between 2009-2010 are the sources of data. Although these surveys were done at different times and by different investigators, the methodology followed was pretty much the same. They are therefore, fairly reliable source of information. RAAB methodology is described briefly as under.

A Rapid Assessment of Avoidable Blindness (RAAB) was conducted in 11 zones from 2009 to 2010 making nine sampling frames. Those were: Seti and Mahakali zone, Karnali zone, Bheri zone, Rapti zone, Dhaulagiri zone, Bagmati and Janakpur zones, Sagarmatha zone, Koshi zone and Mechi zones. Door to door household enumeration was carried out in selected clusters by trained enumerators. Presenting and pinhole visual acuity assessment was done by an Ophthalmic Assistant. Anterior segment examination with torch light and fundus evaluation using direct ophthalmoscope was done by an Ophthalmologist.
in centrally located places in each cluster.

Survey was carried out in 12 sampling frames of the country. A total of 39,908 persons aged 50 years and over were examined in 596 randomly and systematically selected clusters. The purpose of study was to assess the prevalence of blindness, cataract surgical burden, cataract surgical coverage and visual outcome of cataract surgery in persons 50 years and older.

**4. Feedback from a National Workshop**

A national workshop was held between 9 to 11 June 2011 to share the findings of MTR as a part of national effort to review the progress made in eye health status and eye care services since the launching of Vision 2020. Following detailed presentation of the findings by MTR, participants provided their feedback in plenary and breakout sessions. Participants involved were over 70 persons representing Government, NGO, INGO and World Health Organization. The Honourable Minister of Health attended the concluding session on June 11, 2011 and drew the attention of the participants to eliminate disconnect between eye health and general health services. Participating senior government officials included both Secretaries of Health, Joint Secretary and Chief of Policy, Planning and International Cooperation Division as well as Under Secretaries and Desk Officers. Over 13 stake holders made presentations of their work in eye care and rehabilitation of the blind persons in Nepal.

Following intensive discussions, a set of recommendations were made which constitute an integral part of this report.

*Participants at national workshop on MTR Vision 2020 with Minister and Secretary, Ministry of Health and Population*

*Group discussion at national workshop on MTR of Vision 2020*
FURTHER READING

3. RAAB Instruction Manual, A package for entry and analysis of data from population based Rapid Assessments of Avoidable Blindness, Version 4.02 for Windows®, August 2007, International Centre for Eye Health, London School of Hygiene & Tropical Medicine, UK
5. Summary of advocacy work over recent years. A briefing paper by Peter Ackland, CEO, and Julian Metcalfe, Director of advocacy, IAPB. December 2010.
Chapter 3
Burden of Blindness and Eye Diseases in Nepal

Mr. YD Sapkota
MTR Review Committee
Prof. Dr. Madan Upadhyay
Team Leader, MTR Review Committee

Introduction

Source of information for this section of the report is the findings of the RAAB survey, review of published and unpublished literature and consensus development among the reviewers supplemented with inputs from over 70 eye care and health policy leaders at a three-day national workshop participated in also by representatives of major NGOs and INGOs. This section describes the following:

1. Prevalence of blindness based on RAAB survey.
2. Burden of disease due to major specific eye diseases based on RAAB supplemented with literature review and local surveys.
3. Top 15 causes of ocular morbidity based on MTR survey of district primary eye care centers and eye hospitals.
4. Estimates of the number of people in need of eye care services.
5. Economic burden of blindness.

1. Prevalence of Blindness:

The predominant source of data for estimating prevalence of blindness comes from RAAB survey. The methodology for RAAB survey has been described in the previous chapter. Key findings are summarized in Table 3.1.
Table 3.1. Age Sex Adjusted Prevalence of Blindness in Nepal

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Sampling frame</th>
<th>PVA&lt;3/60</th>
<th>PVA&lt;6/60</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>All</td>
</tr>
<tr>
<td>1</td>
<td>Mechi</td>
<td>1.9</td>
<td>2.86</td>
<td>2.36</td>
</tr>
<tr>
<td>2</td>
<td>Koshi</td>
<td>1.54</td>
<td>2.75</td>
<td>2.14</td>
</tr>
<tr>
<td>3</td>
<td>Sagarmatha</td>
<td>0.76</td>
<td>1.79</td>
<td>1.26</td>
</tr>
<tr>
<td>4</td>
<td>Janakpur and Bagmati</td>
<td>1.19</td>
<td>1.52</td>
<td>1.35</td>
</tr>
<tr>
<td>5</td>
<td>Gandaki</td>
<td>1.2</td>
<td>1.5</td>
<td>1.4</td>
</tr>
<tr>
<td>6</td>
<td>Narayani</td>
<td>5.7</td>
<td>7.7</td>
<td>6.7</td>
</tr>
<tr>
<td>7</td>
<td>Lumbini</td>
<td>2.4</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>8</td>
<td>Rapti</td>
<td>1.38</td>
<td>2.01</td>
<td>1.69</td>
</tr>
<tr>
<td>9</td>
<td>Dhaulagiri</td>
<td>1.04</td>
<td>1.29</td>
<td>1.16</td>
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<tr>
<td>10</td>
<td>Bheri</td>
<td>2.69</td>
<td>4.38</td>
<td>3.48</td>
</tr>
<tr>
<td>11</td>
<td>Karnali</td>
<td>2.04</td>
<td>4.16</td>
<td>3.03</td>
</tr>
<tr>
<td>12</td>
<td>Mahakali and Seti</td>
<td>2.46</td>
<td>3.04</td>
<td>2.75</td>
</tr>
<tr>
<td>All</td>
<td></td>
<td>2.0</td>
<td>2.9</td>
<td>2.5</td>
</tr>
</tbody>
</table>

The overall prevalence of blindness among people 50 years and older with presenting visual acuity cut off of <3/60 is found to be 2.9% and for cut off of < 6/60 to be 5.3%. Prevalence of blindness in female in both VA categories is higher than in male. At 17.4% Narayani zone has the highest prevalence of blindness followed by Koshi 5.15%, Karnali 4.91% and Mechi zone 4.86% among person 50 years and older using less than 6/60 as criteria for blindness.

**Limitation**

Conventional RAAB data include only persons over 50 years of age, however, in one sampling frame in this study, persons 45 years of age and older were included. Secondly, the RAAB surveys were done at different times with a gap of several years and may have been influenced by temporal changes. The prevalence of blindness for general population in 2010 is estimated on the basis of extrapolation of RAAB data, which as mentioned earlier, include only older population. These estimates should therefore be viewed with caution. The limitations of extrapolating the findings of a section of the population to the whole population is well recognized. We also recognize the possible pitfalls of comparing a modified limited population survey to an actual population based survey of general population, such as the, 1980-1981 Nepal Blindness Survey. However, since the purpose of this review is to get as close an estimate of change in prevalence of blindness as permitted by available resources, the limitations may be acceptable. A national blindness survey along the lines of the first Nepal Blindness Survey would provide more reliable data to determine change in prevalence and causes of blindness over a time. Although useful, such surveys are expensive to conduct. Given these limitations, it may be reasonably concluded that prevalence of blindness has declined over the years, although the actual percentage of decline may be different from the figures shown here.

Of course, it would be difficult to attribute this decline to Vision 2020 initiative because what is seen is possibly a result of cumulative decline over a period of thirty years. A survey in Gandaki zone had revealed a decline in prevalence of blindness from 1.32 in 1981 to 0.85 in 1997 using less than 6/60 as a criterion. However, a study in Lumbini and Bheri zone in 1995 concluded that there was no significant reduction in blindness between 1981 and 1995 and the problem of blindness remains challengingly high.
**Table 3.2: Change in prevalence of blindness in 2010 from the prevalence in 1981**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechi</td>
<td></td>
<td>0.64</td>
<td>0.38</td>
<td>0.79</td>
</tr>
<tr>
<td>Koshi</td>
<td></td>
<td>0.99</td>
<td>0.35</td>
<td>0.84</td>
</tr>
<tr>
<td>Sagarmatha</td>
<td></td>
<td>0.98</td>
<td>0.21</td>
<td>0.6</td>
</tr>
<tr>
<td>Janakapur</td>
<td></td>
<td>0.73</td>
<td>0.22</td>
<td>0.52</td>
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<td>Bagnati</td>
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<td>0.62</td>
<td>0.22</td>
<td>0.52</td>
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<td>0.99</td>
<td>0.98</td>
<td>2.8</td>
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<td>0.46</td>
<td>0.23</td>
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<td>0.53</td>
<td>0.22</td>
<td>0.5</td>
</tr>
<tr>
<td>Lumbini</td>
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<td>0.75</td>
<td>0.37</td>
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<td>Rapti</td>
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<td>0.87</td>
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<tr>
<td>Bheri</td>
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<td>1.26</td>
<td>0.57</td>
<td>1.12</td>
</tr>
<tr>
<td>Karnali</td>
<td></td>
<td>1.63</td>
<td>0.5</td>
<td>0.83</td>
</tr>
<tr>
<td>Seti</td>
<td></td>
<td>1.24</td>
<td>0.44</td>
<td>0.76</td>
</tr>
<tr>
<td>Mahakali</td>
<td></td>
<td>1.24</td>
<td>0.44</td>
<td>0.76</td>
</tr>
<tr>
<td>Ali</td>
<td></td>
<td><strong>0.84</strong></td>
<td><strong>0.39</strong></td>
<td><strong>0.82</strong></td>
</tr>
</tbody>
</table>

**Geographical distribution of blindness**

![Geographical distribution of blindness in Nepal](image)

**Fig 3.1: Geographical distribution of blindness in Nepal**

The difficult terrain of Nepal presents a major challenge to service delivery.

![Geographic difficulty in accessing and providing health services](image)
As shown in Figure 3.1 blindness prevalence is unacceptably high in at least 19 districts (shown in red and purple) with highest prevalence in Bheri zone and Terai part of the Narayani zone.

While comparing the findings of 1981 survey result with recent survey data (extrapolated) it is found that blindness with visual acuity cut off <3/60 is reduced by more than half (0.84 to 0.39). Although the prevalence of blindness may have declined by half, the number of blind persons in Nepal in 2010 at 112,800 remains almost the same as the number of blind persons in 1980-81 (117,623). Therefore, our efforts of last 30 years have no doubt been able to contain blindness in Nepal but not significantly reduce the number of blind persons in the country as a whole. Most areas show decline in prevalence of blindness although it remains stubbornly high in Narayani zone.

**Cataract surgical coverage**

As shown in figure 3.2, Cataract surgical coverage is relatively low in the areas where prevalence of blindness is high. The central part of the country has higher surgical coverage than that of peripheral areas (far east and far west).

![Cataract Surgical Coverage](image)

**Fig 3. 2. Cataract surgical coverage across Nepal**

**Gender equity**

Another noteworthy finding is that women still continue to carry a higher burden of blindness (Table 3.1). This is almost the same as in 1980 despite the progress in eye care clamoring for policy reforms which aim at addressing the persistent gender inequity.
In summary, while the prevalence of blindness using <3/60 as a criteria may have declined and the number of blind persons remains at 1981 level, the prevalence of blindness with presenting visual acuity of < 6/60 is challengingly high at 0.82% with an estimated 275,000 blind Nepalese in 2010 for a projected population of 30 million. Blindness therefore continues to remain a major public health problem in the country reinforcing call for sustained efforts for its control.

**Causes of blindness:**

![Image of people at a free eye camp](image)

**Fig: 3.3. Causes of Blindness in 2010 in Nepal**

This is shown in Fig 3.3. Cataract is responsible for 65% of blindness in 2010 from earlier 72% in 1981. This is followed by retinal diseases 9%, corneal diseases 6%, glaucoma 5%, ARMD 4%, refractive error 4%. Because of different diagnostic criteria used, comparison with 1980 data is not very helpful. Nutritional blindness and blindness due to trachoma and cataract has declined. Blindness due to glaucoma and retinal diseases has increased though, as mentioned earlier, they are not strictly comparable. Refractive error, not reported in 1981 NBS, was found responsible for 4% of blindness in 2010.

**Magnitude of Blindness due to Cataract**

Since cataract still remains the commonest cause of blindness, we estimated the number of blind eyes requiring cataract surgery using <3/60 and <6/60 as indications for surgery.
Table 3.3: Estimates of magnitude of blindness due to cataract

<table>
<thead>
<tr>
<th>Sampling frame</th>
<th>BCVA&lt;3/60</th>
<th></th>
<th>BCVA&lt;6/60</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>All</td>
<td>Male</td>
</tr>
<tr>
<td>Mechi</td>
<td>5,068</td>
<td>7,254</td>
<td>12,322</td>
<td>7,225</td>
</tr>
<tr>
<td>Koshi</td>
<td>5,101</td>
<td>10,694</td>
<td>15,795</td>
<td>10,179</td>
</tr>
<tr>
<td>Sagarmatha</td>
<td>5,658</td>
<td>8,539</td>
<td>14,197</td>
<td>9,018</td>
</tr>
<tr>
<td>Janakpur and Bagmati</td>
<td>15,824</td>
<td>20,732</td>
<td>36,556</td>
<td>22,697</td>
</tr>
<tr>
<td>Gandaki</td>
<td>3,664</td>
<td>4,144</td>
<td>7,808</td>
<td>23,963</td>
</tr>
<tr>
<td>Narayani</td>
<td>23,963</td>
<td>24,030</td>
<td>46,122</td>
<td>11,764</td>
</tr>
<tr>
<td>Lumbini</td>
<td>1,989</td>
<td>2,536</td>
<td>4,525</td>
<td>2,823</td>
</tr>
<tr>
<td>Rapti</td>
<td>1,421</td>
<td>1,780</td>
<td>3,201</td>
<td>2,016</td>
</tr>
<tr>
<td>Dhaulagiri</td>
<td>5,938</td>
<td>8,565</td>
<td>14,503</td>
<td>8,390</td>
</tr>
<tr>
<td>Bheri</td>
<td>377</td>
<td>630</td>
<td>1,007</td>
<td>634</td>
</tr>
<tr>
<td>Karnali</td>
<td>11,443</td>
<td>14,433</td>
<td>25,877</td>
<td>14,195</td>
</tr>
<tr>
<td>Mahakali and Seti</td>
<td>52,819</td>
<td>75,163</td>
<td>127,983</td>
<td>116,568</td>
</tr>
</tbody>
</table>

Using a cut off of PVA of < 3/60 close to 130,000 Nepalese are blind in one or both eyes due to cataract which increases almost 2 times to nearly 280,000 with < 6/60 as cut off visual acuity. While WHO recommends <3/60 as a criteria for blindness, it is now generally agreed that at this level of vision most people are not economically active, though they are able to move around with some degree of independence. Therefore, for economic productivity it is more useful to estimate number of persons with less than 6/60 vision.

Effective blindness prevention program can return over 70% of the currently cataract blind persons to productive employment. According to a conservative estimate this could contribute NRS 8.5 billion to GDP per year assuming a basic minimum wage of NRS 6,000 per person per month.

**Visual outcome of cataract surgery**

Good visual outcome of cataract surgery was seen in 62.8% of cases, visual outcome remained border line to poor in 37.2% of cases taking presenting visual acuity as criterion. Vision could be improved to 76.8% with correction (an improvement of 9.4%) indicating possibly a residual refractive error. Even after best possible correction vision remained border line to poor in 24.2% of cases indicating a need to improve surgical outcome. WHO recommends a good visual outcome (6/18 or better) in 90 percent of cases, yet to be achieved in Nepal.
Table 3.4. Visual Outcome of Cataract Surgery in Nepal 2008 – 2010 in Percent

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Sampling frame</th>
<th>PVA Good</th>
<th>PVA Borderline</th>
<th>PVA Bad</th>
<th>BCVA Good</th>
<th>BCVA Borderline</th>
<th>BCVA Bad</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Mechi</td>
<td>56.1</td>
<td>21.3</td>
<td>22.6</td>
<td>72.5</td>
<td>10.5</td>
<td>17.1</td>
</tr>
<tr>
<td>2</td>
<td>Koshi</td>
<td>62.1</td>
<td>22.9</td>
<td>15</td>
<td>68.9</td>
<td>16.4</td>
<td>14.7</td>
</tr>
<tr>
<td>3</td>
<td>Sagarmatha</td>
<td>73</td>
<td>15.9</td>
<td>11.1</td>
<td>77.4</td>
<td>14.3</td>
<td>8.3</td>
</tr>
<tr>
<td>4</td>
<td>Janakpur and Bagmati</td>
<td>73.7</td>
<td>13.2</td>
<td>13.1</td>
<td>82.1</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Gandaki</td>
<td>63.5</td>
<td>15</td>
<td>21.2</td>
<td>80.4</td>
<td>6.9</td>
<td>12.7</td>
</tr>
<tr>
<td>6</td>
<td>Narayani</td>
<td>48.02</td>
<td>32.01</td>
<td>19.7</td>
<td>78.5</td>
<td>10.32</td>
<td>11.1</td>
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<tr>
<td>7</td>
<td>Lumbini</td>
<td>58.55</td>
<td>27.62</td>
<td>13.83</td>
<td>84.74</td>
<td>7.83</td>
<td>7.4</td>
</tr>
<tr>
<td>8</td>
<td>Rapti</td>
<td>58.2</td>
<td>16.4</td>
<td>25.4</td>
<td>72.7</td>
<td>15.7</td>
<td>11.6</td>
</tr>
<tr>
<td>9</td>
<td>Dhaulagiri</td>
<td>63.9</td>
<td>20.7</td>
<td>15.4</td>
<td>74.4</td>
<td>17.5</td>
<td>8.1</td>
</tr>
<tr>
<td>10</td>
<td>Bheri</td>
<td>62.6</td>
<td>19.5</td>
<td>17.9</td>
<td>71.1</td>
<td>13.9</td>
<td>15</td>
</tr>
<tr>
<td>11</td>
<td>Karnali</td>
<td>66</td>
<td>12.5</td>
<td>21.5</td>
<td>80.6</td>
<td>9</td>
<td>10.4</td>
</tr>
<tr>
<td>12</td>
<td>Mahakali and Seti</td>
<td>67.4</td>
<td>17.1</td>
<td>15.6</td>
<td>78.5</td>
<td>17.1</td>
<td>15.6</td>
</tr>
<tr>
<td>All</td>
<td></td>
<td>62.8</td>
<td>19.5</td>
<td>17.7</td>
<td>76.8</td>
<td>12.4</td>
<td>11.8</td>
</tr>
</tbody>
</table>

2. Burden of specific eye diseases

Refractive error

1. Uncorrected refractive error has emerged as the commonest cause of ocular morbidity and an important cause of visual impairment in Nepal.

2. An estimated 1,013,041 children under 16 years of age (prevalence among under 16 age group assumed to be 10% based on different studies varying from 3 to 20%); 1,164,053 persons between 16-35 years of age have uncorrected refractive error for distance (estimated prevalence 15%) and 3,716,970 people over 35 years need presbyopic glasses (estimated prevalence 59.6% based on different studies).

3. Uncorrected refractive errors are suspected to be an important cause of poor performance in, and high dropout rates from, schools - the real magnitude of which is yet to be determined.

4. Glasses are not dispensed by all primary eye care centers, some of them only prescribe glasses, people have to travel long distances spending lot of money, often more than the cost of glasses to get the prescription filled. Most primary eye care centers are located at district headquarters, inaccessible for a majority of people living in far flung areas of Nepal.

5. Even when glasses are prescribed and made, children do not wear them because of stigma, ignorance and negative parental attitude etc.

6. Lack of infrastructure and human resources is a major constraint for refractive correction.

7. All frames and glass blocks have to be imported.

8. Human resources available for correcting refractive errors is grossly inadequate; 150 ophthalmologists, 275 ophthalmic assistants and 36 optometrists is all the entire workforce available for providing refractive services to nearly 5.5 million people in need of refractive correction.

9. To screen large number of people, alternative strategies would need to be developed such as training teachers and students in senior classes for vision screening. Similarly staff at sub-health post and
health posts would need to be trained to screen patients visiting these health facilities. Pilot studies have shown that both teachers and students can effectively screen school children. They should be encouraged to refer persons with defined levels of visual impairment to nearest health facility where refraction services are available.

10. Plans should be made to provide at least one refractive service outlet for 100,000 population (All primary health care centers).

**Cataract**

1. Cataract was responsible for 73% of blindness in 1980-81, and 65% in 2010.

2. An estimated 130,000 persons are blind (PVA <3/60) in one or both eyes due to age-related cataract representing almost two thirds of all causes of blindness.

3. About 90,000 cataract operations were performed for a CSR of 3000 surgeries per million population per year in 2010.

4. Presently, persons with 6/24 and even 6/18 vision are being operated for cataract in many centers. Assuming this level of visual acuity as indication for surgery, Nepal would need to perform about 500,000 cataract operations every year. This will require a quantum jump from 90,000 cataract operations in 2010.

5. Women carry 2/3rd of cataract blindness, while the number of male and female receiving cataract surgery is about equal, thus cataract surgery is disproportionately low in women in view of higher burden of cataract blindness in them.

6. Outcome of cataract surgery is still below WHO recommended standards for good visual outcome.

**Challenge:**

A persistently high burden of cataract blindness despite all our efforts for elimination of cataract blindness in a program accused of excessive focus on cataract calls for a rethinking on our approach in the way we are dealing with cataract blindness.
**Childhood Blindness**

1. There are an estimated 30,240 blind children in Nepal and 3 times as many (90,000) (altogether 120,000) children have low vision at the present time.

2. 7 children become blind and 2 of them die every day.

3. Causes of Childhood Blindness
   a. Cornea - 45%
   b. Cataract - 25%
   c. Glaucoma - 10%
   d. Hereditary conditions - 10%
   e. Retinal Diseases - 10%

4. Of the 120,000 blind and low vision children, less than 7,000 are enrolled in schools.

5. Service utilization by children is low. Children constitute only 15% of the service users while they constitute 40% of Nepal’s population. Barriers to access of eye care services by children need to be identified and more children brought to health facilities. A girl child suffers even more exclusion among excluded children with girls in the Terai suffering the worst form of exclusion.

6. Refractive errors are a common cause of visual impairment in children. Over a million children up to 15 years suffer from uncorrected refractive errors.

7. Over 125,000 children suffer from lazy eyes (Amblyopia).

8. Negative parental attitude to wearing spectacles by children is a major barrier to refractive correction in children.

9. An estimated 125,000 children have strabismus (Squint) often leading to permanent unilateral visual loss and loss of stereopsis.

10. Among the causes of blindness in children, corneal scar (due to xerophthalmia, though much less than before, ophthalmia neonatorum and harmful traditional medications) remains the commonest cause of preventable visual impairment as seen in surveys of children in inclusive schools; cataract and glaucoma are among important treatable causes of blindness in children of Nepal.

11. Hereditary and non-hereditary diseases are important causes of blindness, not preventable and in most instances untreatable at present time requiring further research.

12. National Vitamin A capsule distribution program has helped in reducing the prevalence of sight threatening VAD.
13. Blindness associated with global developmental delays, hitherto unrecognized is being increasingly recognized.

**Glaucoma**

1. Prevalence of glaucoma varies in Nepali population in different ethnic groups from 1.38 Khopasi in Kathmandu; 1.9 (Bhaktapur Glaucoma Survey) to 12.4 % in Gurungs 30 years and older (Ghandruk survey).

2. An estimated 100,000 Nepalese 30 years and older have glaucoma; three times as many (300,000) are glaucoma suspects and are at risk of developing glaucoma. There are therefore 400,000 people with definite or probable glaucoma.

3. Lack of awareness about the disease in general population for an essentially asymptomatic disease makes the situation even more difficult to manage.

4. There is no reliable technique available for screening of glaucoma.

5. Excessive focus on cataract in the national program has led to neglect of glaucoma diagnosis and treatment.

6. While eye care system cannot reach all persons with suspected glaucoma, glaucoma is more often missed than diagnosed even among patients reporting to eye health facilities.

7. Acceptance of surgery in the fellow eye, which is still seeing, is poor (a more problematic issue in case of angle closure glaucoma).

8. Management of acute angle closure glaucoma is non-optimal.

**Low Vision**

1. An estimated 230,000 people of all ages are reported to have low vision in Nepal.

2. Service coverage for low vision at present is less than 1% (1,500 out of 230,000).

3. Unavailability of skilled human resource is a major constraint to provide low vision services.

4. People are still unaware of low vision service and its availability.

5. Devices Bank: A devices bank has been established and maintained at the Central NNJS to ensure smooth supply of low vision devices to different service centers. In order to create awareness and encourage people to use them properly in the first five year of the program period, a policy decision was taken to provide 90% subsidy on devices in the first year, 75%, 50%, 40% and 25% respectively by the end of five years.

6. Over half of the users of low vision services are children under 16 years of age; adolescents and adult between 16 to 39 years of age constitute 35.35% of service users. Persons
over 40 years constitute just over 12% of LV service users, in sharp contrast to the situation in developed countries where LV services are used predominantly by older population.

7. Serious gender inequity is evident in use of LV services, women constitute only one third of all users of LVD although they carry two thirds of burden of blindness.

8. Refractive error/Amblyopia is found to be the major cause of LV accounting for 26.83% of cases, followed by retinal problem including retinitis pigmentosa, macular degeneration etc.

9. Lens related conditions account for 16.75% of low vision use which may signal that early detection of cataract, appropriate surgery and adequate early rehabilitation may reduce the need for low vision devices.

10. Various reports from Nepal indicate that in 30 to 60% of children with so called low vision, sight could be improved sufficiently for them to use regular prints had they been screened at the time of school admission and provided appropriate corrective devices.

11. The above finding has huge policy implications. As Braille education is 18 to 20 times more expensive than mainstream education using print.

**Trachoma**

1. The NTP implemented the first phase of its program (2002-2004) with financial and Zithromax support from ITI. In four years of its implementation, the program has screened nearly 1.5 million people for trachoma in nine program districts. However, there still remains a backlog of an estimated 34,524 unoperated trichiasis cases.

2. NTP implemented SAFE program activities in 15 trachoma endemic districts with integrated approach between 2005-2009. Out of total 15 program districts, 7 districts (Chitwan, Nawalparasi, Kailali, Kanchanpur, Surkhet, Dang and Kapilvastu) have completed Mass Drug Administration (MDA) and seven districts (Chitwan, Nawalparasi, Kailali, Kanchanpur, Surkhet, Dang and Kapilvastu) completed impact survey. According to survey findings, the trachoma incidence in all districts is reported TF <5% in children age 1-9 years old.

3. Blinding trachoma has been prevented in 15,161 persons through trichiasis surgery in 19 program and non-program districts.

4. Nepal is poised to declare elimination of trachoma as a public health problem by 2014. However, presence of over 34,000 un-operated and, possibly more trichiasis cases and prevalence of active trachoma in over 5% of population in 19 districts, coupled with unavailability of data from 8 districts regarding current prevalence of active trachoma appear to be major impediments to achieve the elimination goal by 2014.

5. Given the finding that over 34,000 people still have trichiasis in 2010 and less than 900 trichiasis surgery was done in 2009, it will take more than 35 years to reduce the prevalence of trichiasis to less than 0.1% of the population as required for certification of elimination of trachoma.
6. Either the estimates of trichiasis would need to revised, as has been suggested by some who consider this to be too high a number, through a survey or the number of surgery increased to 9000 per year, almost an impossible task judging from past performance. Regardless, the number of trichiasis surgery would need to be dramatically increased using massive community mobilization to bring more persons to surgery and harnessing more human resources to perform surgery.

7. Questions have also been raised regarding the quality of trichiasis surgery being currently performed. A WHO supported study is currently underway to verify this. In either case, it is unlikely that Nepal will be able to eliminate trachoma by 2014.

8. While national efforts need to be galvanized to eliminate trachoma at the earliest, it is advisable to shift target dates by another few years. All stakeholders need to work in unison to eliminate one of the oldest human scourges, which is well within our reach.

**Corneal Opacity due to Trauma, Infections and Harmful Practices**

1. Corneal diseases are number three cause of ocular morbidity in primary eye care settings and number five in tertiary centers among top 15 eye diseases.

2. Xerophthalmia prevalence at various times is shown below

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Year</th>
<th>Prevalence</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>NXS</td>
<td>1979</td>
<td>1.85% (Bitot’s spot)</td>
<td>0-72 months</td>
</tr>
<tr>
<td>NBS</td>
<td>1980</td>
<td>1.65% (Bitot’s spot)</td>
<td>0-72 months</td>
</tr>
<tr>
<td>Mechi</td>
<td>1998</td>
<td>0.67% (Bitots)</td>
<td>5-15 years</td>
</tr>
<tr>
<td>Kathamandu</td>
<td>2003</td>
<td>0.36% (Bitots)</td>
<td>5-15 years</td>
</tr>
</tbody>
</table>

   Active xerophthalmia in number ten among top 15 eye diseases presenting at PECC.

3. Ocular morbidity due to trauma/injury is number 6 among top 15 causes of ocular morbidity in primary eye care settings and number 8 in secondary and tertiary centers.

4. As estimated 1000 Nepalese sustain trauma every day, only a small number of them report to health facility.

5. NBS reported that 8.6/1000 (120,717) have signs and history of trauma with 27% unilaterally and 3% bilaterally blind.

6. BES reported a prevalence of 1788/100,000 population/year; 357,000 eye injuries/year in 1990 (1000/day)

7. Nepal has the highest per capita rate of corneal ulcer due to bacterial and fungal infection. Everyday 526 Nepalese are affected with corneal ulcer. Among them, 150-200 eyes become unilaterally blind with vision of <3/60; and 3 times as many end in <6/60 vision.

8. Difficulties in accessing services because of distance, unavailability and cost make a simple injury not only sight threatening but, at times, eye threatening.

9. Suitable drugs, particularly antifungal drugs are not easily available.
10. Laboratory facilities for microbial diagnosis are often not available in most centers.

11. Many eye hospitals do not have anesthetic staff to provide anesthesia for the repair of perforating injuries.

12. Many eye care facilities work on day care basis with very limited availability of emergency services.

13. Donor corneas for corneal graft are hard to come by, at the only eye bank in the country. Recently about half a dozen collection centers have been set up.

**Diabetic Retinopathy and ARMD (emerging causes)**

**Present situation:**

1. There are an estimated 400,000 cases of Diabetes mellitus in the country (prevalence varying from 2-20 %).

2. Estimated 100,000 have diabetic retinopathy. Estimated number of people blind due to Diabetic retinopathy is 20,000. Every year 6000 people lose their sight due to Diabetic retinopathy.

3. With increasing life expectancy, ARMD may also be increasing

4. Gandaki study showed that ARMD affected 8.6 % of all blind eyes and was responsible for 10.9 % of bilateral blindness in that study.

5. A study reported 9 ARMD cases in Khopasi (out of 362) and none at Ghandruk (out of 333).

6. There is limited availability of Laser for treatment of DR.

7. There is a serious shortage of HR and infrastructure for vitreo-retinal surgery in Mid west and Far west

### 3. Top 15 causes of ocular morbidity

**Table 3.5 Ranking of ocular diseases at PECC and Eye hospitals.**

<table>
<thead>
<tr>
<th>Disease</th>
<th>PECC</th>
<th>Eye Hospitals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refractive error</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Cataract</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Presbyopia</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Corneal lesions</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Diseases of eye lid and lacrimal system</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Trauma/Injury</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Strabismus</td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>Retinal disorder</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Diseases of uvea</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>Low vision</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Active xerophthalmia</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Trachoma</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Amblyopia</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>
4. Population in need of eye care services

The problem of visual impairment and eye diseases in 2010 appears to be huge in Nepal. Over one million people have poor vision due to eye diseases or refractive error and over 7 million have some eye diseases which have not affected eye sight yet. The latter may be considered people at potential risk of losing vision in future. That 3% of Nepal’s population has defective vision is a matter of serious concern given the demographic profile of Nepal with large young population.

5. Economic burden of blindness

- While estimating the economic effects of visual impairment direct and indirect costs need to be taken into account. The direct costs are those for the treatment of eye diseases, including the relevant proportions of costs for running medical and allied health services, pharmaceuticals, research and administration.

- The indirect costs include lost earnings of visually impaired people and their caregivers and costs for visual aids, equipment, rehabilitation, welfare payments, the pain, suffering and premature death that can result from visual impairment.

- The annual global economic impact of blindness and low vision in 2000 was estimated to be $42 billion. In the absence of a decrease in the prevalence of blindness and low vision, this figure was projected to rise to $110 billion per year by the year 2020.

- Blindness has been reported to cause an annual loss of 1.45% of GDP. For Nepal this would indicate an annual loss of NRS. 9,771,405,000.

- Assuming that it would take NRS 5000 to restore sight to 300,000 people it would cost a total of
NRS 1.5 billion resulting in a net saving of NRS 8.2 billion annually.

- Prevention of blindness would also contribute to increasing the average national life expectancy by another few years (since blind people die earlier than their age and sex-matched sighted peers). With improved vision it will also ensure that more children are enrolled into schools, they perform better at schools and find more paying employments in future helping to reduce poverty. Improvement in visual status will also reduce the number of road traffic accidents, saving millions of rupees for the health system and preventing deaths due to injuries.

Further Reading

Cataract


17. Lusianawaty T. Cataract surgical coverage rate among adults aged 40 years and above, Universa Medicina 2009; 28(3).


Refractive Error


Visual Impairment and Blindness


**Glaucoma**


Xerophthalmia


Trachoma


trachomatous visual impairment: lessons from 30 years of trachoma control in Burma, British Journal of Ophthalmology, 80, pp. 880-889.


Childhood Blindness


3. Gogate P., Kalua K., Courtright P., 2009. Blindness in Childhood in Developing Countries: Time for a Reassessment?, PLoS Medicine, 6 (12)


Diabetic retinopathy


ARMD

Corneal Blindness


Presbyopia


Economic burden of blindness


Chapter 4
Eye Care Infrastructure and Services in Nepal

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Member MTR Team

Introduction
As noted earlier, eye health services in Nepal are primarily NGO driven. After Nepal blindness survey of 1980-81, many INGOs took interest in Nepal’s eye care program and started to work with Government and national NGOs facilitated by GON/WHO Nepal Prevention of Blindness Project. INGO/NGOs expanded their activities in eye services delivery including establishment of eye hospitals in partnership with national NGOs. Gradually, these hospitals and eye care facilities started to replace the government services. Government also started closing down its services from prestigious and historical government hospitals like Bir hospital. Another eye specialist was not recruited or posted once an Ophthalmologist retired. Gradually almost all eye care services went to the hands of NGOs and GoN stayed at the background. The organizational growth in the last 25 years has been tremendous with the establishment of 20 eye hospitals, 19 eye departments of medical colleges and surviving government hospitals and 63 district eye centers (called primary or community eye centers). This resulted in eye care being viewed as only a specialized service. Eye care service therefore has remained confined to regional, zonal and district headquarters with no reach beyond district headquarter. Now the eye health providers have realized that without the involvement of government’s extensive network of health institutions and support, eye care services cannot reach the grassroots and will not be sustainable in the long run.

Data sources:
Data sources for assessment of infrastructure and services include primary data collected by the MTR team from its field based studies. Annual reports of the different NGOs and INGOs constitute additional sources of information. A description of the tools used is given in the table 4.1.
Table 4.1. Tools used for MTR survey of Infrastructure and services

<table>
<thead>
<tr>
<th>Study Stakeholders</th>
<th>Coverage in Number</th>
<th>Data collection techniques</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye hospitals</td>
<td>11</td>
<td>Self-administered questionnaires for data collection of service utilization and morbidity</td>
<td>Tool 1.3, Tool 1.4, Tool 1.5</td>
</tr>
<tr>
<td>Eye hospitals</td>
<td>10</td>
<td>Interview, observation</td>
<td>Tool 2.4, Tool 3.1</td>
</tr>
<tr>
<td>Primary Eye care Centers</td>
<td>12</td>
<td>Interview, observation</td>
<td>Tool 1.7, Tool 2.6, Tool 3.3</td>
</tr>
<tr>
<td>HP/SHP/PHCC</td>
<td>10</td>
<td>Interview, observation</td>
<td>Tool 2.6, Tool 3.3</td>
</tr>
<tr>
<td>DH</td>
<td>7</td>
<td>Interview, observation</td>
<td>Tool 2.6, Tool 3.3</td>
</tr>
<tr>
<td>Zonal/Regional hospitals</td>
<td>10</td>
<td>Interview</td>
<td>Tool 2.3</td>
</tr>
<tr>
<td>Eye departments of Medical colleges and general hospitals</td>
<td>6</td>
<td>Interview, observation and service utilization data collection from records</td>
<td>Tool 1.6, Tool 1.5, Tool 2.4, Tool 3.1</td>
</tr>
<tr>
<td>DDC</td>
<td>4</td>
<td>Interview</td>
<td>Tool 2.2</td>
</tr>
<tr>
<td>DPHO/DHO</td>
<td>6</td>
<td>Interview</td>
<td>Tool 2.2</td>
</tr>
<tr>
<td>NGO</td>
<td>3</td>
<td>Interview</td>
<td>Tool 2.2</td>
</tr>
<tr>
<td>Eye hospitals, P/CECC and Medical Colleges</td>
<td>406 person in 25 facilities</td>
<td>Exit Interview with eye care service users</td>
<td>Tool 4</td>
</tr>
<tr>
<td>Marginalized community</td>
<td>10</td>
<td>Focus Group Discussion (FGD)</td>
<td>Tool 5</td>
</tr>
<tr>
<td>Central Level Stakeholders</td>
<td>25</td>
<td>Focus Group Discussion (FGD)</td>
<td>FGD Guide</td>
</tr>
</tbody>
</table>

Eye Health infrastructure of Nepal:

Institutions currently involved in providing eye care services are shown in the figure below.

![Figure 4.1. Eye Care Infrastructure in Nepal](image-url)
Twenty eye hospitals, 19 eye departments in general hospitals and medical colleges and 63 district eye centers are currently providing eye services in the country.

Three zones namely Mahakali, Karnali and Dhaulagiri were without eye hospitals and 12 districts; Darchula, Mugu, Ilam, Bajhang, Bajura, Dolpa, Rukum, Salyan, Manang, Parbat, Syngja, Tanahun) were without district eye centers in 2010.

<table>
<thead>
<tr>
<th>Table 4.2. Growth of Infrastructure for Eye Care Service in Nepal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
</tr>
<tr>
<td>Eye units of general hospitals</td>
</tr>
<tr>
<td>Eye Hospitals</td>
</tr>
<tr>
<td>Eye Beds</td>
</tr>
<tr>
<td>Primary Eye Care Centers</td>
</tr>
<tr>
<td>Cataract surgery/year</td>
</tr>
<tr>
<td>Outcome of cataract surgery</td>
</tr>
<tr>
<td>Ophthalmic consultations</td>
</tr>
<tr>
<td>National programs for training Ophthalmologists</td>
</tr>
<tr>
<td>National programs for training Ophth. Assistants</td>
</tr>
<tr>
<td>Ophthalmic drug production</td>
</tr>
<tr>
<td>IOL factory</td>
</tr>
<tr>
<td>National program for training optometrists</td>
</tr>
</tbody>
</table>

*2 in government hospitals closed, the remaining are eye departments in medical colleges most of them in private sector.

As has been mentioned earlier, eye care services in Nepal are NGO driven, services being provided by specialists, either ophthalmologists or ophthalmic assistants and a small number of optometrists. These services are provided through eye hospitals, district eye centers and in recent years through eye departments of medical colleges, most of them in private sector. As shown by the study, government has virtually no role in provision of eye care services except in Koshi zonal hospital, Narayanai sub-zonal hospital and, once or twice weekly OPD service at Bir Hospital in Kathmandu. **There is a huge gap in service provision at primary health care level as none of the extensive public health institutions are involved in provision of meaningful eye care services on one hand and NGOS have no reach or have limited capacity to reach beyond district headquarters on the other.**

This has led a former director general of health services to remark "Nepal has very good eye hospitals attracting patients from India but has been unable to provide eye care service for its own population as yet." The excellent tertiary care services and modest secondary level services lack strong foundation of primary care.

**Findings of the Study of Eye Hospitals**

**Infrastructure**

Based on the completion of self administered questionnaires, most eye hospitals reported that they owned
their own land as well as buildings. Water and sanitation systems were reported to be generally satisfactory. Only few hospitals had functional incinerator. While waiting areas and consultation rooms were spacious, there was no privacy during consultation.

The number of operation theatres varied from 1 to 6 and number of operating tables varied from 3 to 20. Although most hospitals carry out surgery daily, medical college hospitals and Nepal Eye Hospital have surgery only 2-3 days a week. General anesthesia facilities were reported to be available at many with the exception of Rapti, Geta and Kedia eye hospitals. Infection control mechanisms were reported to be in place in most institutions although there have been several instances of unreported outbreak of postoperative infections. Routine laboratory services, Dispensary, Pharmacy and Optical dispensing are available in most of the eye hospitals. Bulk of the dispensing of glasses is still done through private sector resulting in considerable loss of revenue. Bio-medical maintenance services are available in most eye hospitals.

Direct observation by the researchers seemed to confirm adequacy of diagnostic and surgical equipments in all eye hospitals. Although routine laboratory tests were available, most eye hospitals lacked optimal facilities for diagnosis of corneal ulcer, the commonest cause of corneal opacity and for management of postoperative infections- the most dreaded complication of intraocular surgery.

<table>
<thead>
<tr>
<th>Eye condition</th>
<th>Eastern</th>
<th>Central</th>
<th>Western</th>
<th>Mid Western</th>
<th>Far Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Refractive Error</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
<td>Available</td>
</tr>
<tr>
<td>Vitreo-retinal Services</td>
<td>Available 1</td>
<td>Available 3</td>
<td>Available 1</td>
<td>NA</td>
<td>Available (Limited)</td>
</tr>
<tr>
<td>Cornea services</td>
<td>Available 1</td>
<td>Available 2</td>
<td>Available 1</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Special Pediatric Care</td>
<td>A/NA</td>
<td>Available 3</td>
<td>Available</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>A/NA</td>
<td>Available</td>
<td>Available</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Uveitis</td>
<td>NA</td>
<td>Available 2</td>
<td>Available 1</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Oculoplasty</td>
<td>NA</td>
<td>Available 3</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Neuro – Ophthalmology</td>
<td>NA</td>
<td>Available 2</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

* NA - Not Available

The figures indicate the number of institutions with specified specialized services

**Findings on nature of services in eye hospitals**

1. All eye hospitals provide refractive services, cataract surgical services, diagnostic and therapeutic services for common ocular problems.

2. Most of the eye hospitals outside Kathmandu are cataract-centric because of the high load of cataract cases presenting to them and also because cataract surgery is a source for revenue generation.

3. This leads to neglect of other blinding diseases such as glaucoma, diabetic retinopathy etc. and other non-blinding conditions. (some hospitals do not admit cases of corneal ulcers even with threatened corneal perforation or perforating injuries because of long bed-occupancy by these patients interfering with admission and surgery of cataract cases)
4. As most eye hospitals are located close to the Indian border, a large number of Indian patients are attracted to these hospitals with the result that over 70-80 percent service users are Indian patients. In 2010 in the eastern region 3 eye hospitals served a total of 309,862 patients among whom 89,707 (28.96%) were Nepali patients and 220,155 (71.04%) were foreigners receiving OPD services. The percentage of foreigners using surgical services reaches up to 90% in many of the Terai institutions.

5. Most eye hospitals run static satellite clinics as well as mobile screening and operating eye camps as a part of their outreach activity. Many of them have dedicated personnel for outreach programs, an example of good practice.

6. Most specialty services are often limited to central development region.

7. Services for management of corneal ulcer are non-optimal because of lack of facilities for laboratory diagnosis and difficulty in availability of antibiotics and particularly, the antifungal drugs.

8. The most disturbing aspect of Nepal’s eye care system is that it has not reached all districts and in districts where there are district eye care centers, these centers are all located at the district headquarters. Thus, large segments of the population living beyond the district headquarter has virtually no access to eye care. This has led some people to remark that “Nepal’s eye care service has been able to pick low hanging fruits”.

9. There is no fast-track service for women in most eye hospitals, which may be one of the factors for lower utilization of eye care services by women from eye hospitals.

10. There is no conscious effort to promote social inclusion by bringing in marginalized communities to the hospitals with targeted programs (although one medical school -BPKIHS- has a focused program for Mushars, Bantars and other marginalized communities). Ethnicity of the service users is not recorded.

11. No record of socio-economic status of service users is available in eye hospitals.

12. In all, eye care system is very weak on gender and social inclusion agenda, a key element of national development goal.

13. In absence of a common standard list of basic equipment and instruments for different levels of the eye health facilities, the level of technology development is uneven and many a times inadequate for a comprehensive eye care.

14. Medical audit system is conspicuous by its absence rendering judgment of quality of care difficult.

15. Government run eye departments in general hospitals do not have adequate surgical facility even for cataract.

16. There is room for increasing the surgical output of medical colleges by system improvement.
A. Service delivery at District Eye Centers

As described earlier there are no DECs in 12 districts. Among the existing DECs following were selected randomly for review: Terathum, Saptari, Bara, Ramechhap, Dang, Surkhet, Dadeldhura, Kanchanpur, Baglung.

Assigned Functions of DEC: Diagnosis and treatment of common ocular disorders, perform common minor ophthalmic procedures, initiate treatment, refraction and dispensing of glasses, refer patients to base hospitals, and conduct screening camps, school health programs and other outreach activities.

i) Findings based on interviews with DEC in-charge:

Daily OPD services were reported to be available in all institutions for common eye problems and minor surgeries on a fairly regular basis. Dispensing of the medicines and spectacles is carried out in most though not all eye centers. The DECs are run by a particular parent hospital and they all have a special connection with those hospitals. Some examples of good practice are evident. For example, if cataract patients are referred to Kedia eye hospital for surgery, patients receive 10-35% discount. Tilganga Institute of Ophthalmology provides free Outreach Microsurgical Eye Clinic (OMEC) in Ramechhap district after they conduct screening camps. There are different models of DEC. All of them are run by the NGOs. Coordination with DPHO, DDC and parent organization is at different levels, often not satisfactory. All of them report to their parent organization rather than to national health management information system. Referred patients are treated differently (subsidized surgery) than self reporting patients, another example of good practice in some centers. Shortage of OA is a major HRH issue resulting in cutting down of the services. Some DECs reported that they do not have needed equipment like generator, auto refractor, lensometer, edging machine etc.

Suggestions from DEC in-charges: Provision of further training opportunities to the OAs working in DEC and uninterrupted posting of OAs, should be ensured.

ii) Findings based on observation of DECs

The study team observed various district based eye care centers during their field visit. The observed centres were in Dadeldhura, Ghrahari, Surkhet, Sallaghari, Nawalparasi, Baglung, Terathum, Rajbiraj, Kalaiya and Manthali Ramechhap.

Physical facilities:

Most eye centers were well organized with appropriate location of registration counter. The service users could follow the specific examination and treatment rooms reading the written instructions posted in the specific rooms and corridors. The citizen charter with fees policy was posted in seven centers out of ten. The eye health education material was posted in some eye centers. Most of the eye centers have provision of waiting room with furniture, toilet and drinking water for service users.

Availability of infrastructure, equipments and supplies for Eye Service:

Vision test facilities: The facilities for vision test such as illumination, adequate room size, test type were available in all study eye centers. However, privacy during vision test and eye examination was not maintained in most eye centers.

Refraction and eye examination: Required equipments for refraction and basic eye examination
such as Test type, Retinoscope, Trial Set, Lens meter, Slit Lamp, Direct Ophthalmoscope, Tonometer were available in the DECs under review. Illumination was also well maintained in most of the study eye centers. In many eye centers privacy during eye examination and refraction was not maintained.

*Infection Prevention:* The facilities for hand washing, sterilization of eye instruments, septic disposal of waste, sharp needles were maintained in most eye centers.

*The pharmacy store:* The cleanliness, storage of medicine with label, protection from direct sunlight was observed to be satisfactory. However, there was insufficient stock of essential drugs.

The number of patents examined at the DEC varied from less than 10 to over 60.

**B. Eye Care Services in Medical Colleges:**

There are a total of 19 medical colleges in Nepal. Department of Ophthalmology of 3 medical colleges viz. Nepalgunj Medical College in Kohalpur; Kist Medical College in Patan and National Medical College in Birgunj were randomly selected for observation. According to the informant, all had underutilized general Ophthalmic OPD. None of these 3 had subspecialty services. Cataract surgical service was available in all three departments although the number of surgery done was very low in most cases. Glaucoma surgery is carried out in 2 of the 3 departments. No outreach services are provided. Additionally, responses to self administered questionnaire were received from 5 departments of five medical colleges. They include Manipal in Pokhara; Universal College of Medical Sciences in Bharatpur; Nepal Medical College in Kathmandu; Kist Medical College in Patan and Nepalgunj Medical College. All five medical colleges put together, treated 49,018 eye patients in 2010, which must be considered inadequate for a total annual intake of over 700 medical students. The surgical output ranged from 27 surgeries in Universal College of Medical Sciences to 633 in Nepal Medical College in 2010.

The user fee is different in all 5 medical colleges reviewed. For registration, it ranges from Rs 30 in Nepalgunj Medical College to Rs 150 in Universal College of Medical Sciences.

Some medical colleges were observed to lack basic eye examination equipments and had just one part time ophthalmologist. Yet, they were running postgraduate programs. It is a matter of serious concern that these medical colleges are running post-graduate ophthalmology programs, without sufficient human resources and infrastructure. This requires serious attention of the Nepal Medical Council and Nepal Ophthalmic Society.

**C. Eye care services in Government health facilities**

Altogether, chiefs of 7 district hospitals and 10 Zonal/Regional hospitals; members from 4 DDC and 6 DPHO were interviewed to explore availability of eye services in the respective institutions and their management systems.

*Key informant interview with chief of Regional and Zonal hospitals.*

The study hospitals consisted of Rapti Zonal Hospital, Mid Western Regional Hospital, Mahakali Zonal Hospital, Kailali Zonal Hospital, Western Regional Hospital, Pokhara, Narayani Subregional Hospital and Koshi Zonal Hospital. These interviews were focused on exploring availability of eye care in GoN’s Regional, Zonal and District hospitals and the practices followed by them. The main findings are described below:
i) Findings of Zonal, Regional hospitals

Most of the Zonal and Regional hospitals have no eye department. Koshi Zonal Hospital and Narayani Zonal Hospital provide Eye OPD services only. District hospitals do not have even basic eye examination tools like Test Type for vision test. There is no effective referral system between eye hospitals in the area (when available) and general hospitals. The diabetic, hypertensive and other medical patients with eye problems have to visit eye hospitals as advised by general physician. This was reported to be unsatisfactory from point of view of both the physicians and the patients. Ocular trauma and injury cases often do not receive adequate eye care in general hospitals. This is a serious issue considering the fact that morbidity and mortality due to all types of injuries is rapidly increasing. In accidents from modern high speed vehicular transport systems, multiple injuries including eye injuries are not uncommon in the same trauma victim.

Case report of Koshi Zonal Hospital and Narayani Sub regional Hospital

Koshi Zonal Hospital eye department (Source: Head of department of Eye department, Koshi zonal hospital)

Eye service availability: General eye OPD, refraction and minor surgery services are available. There is no inpatient service for eye care. No major operation. Only minor operations are performed in OPD. Patient flow: about 80 patients per day in eye OPD. Among them about 20 referred from medical and other departments. Staff: There are two ophthalmologists, one from GoN and one recruited by hospital board. Neither OA nor an optometrist is available as there is no sanctioned post. Everything needs to be done by ophthalmologists. There is no opportunity for career development and the posts are gradually abolished due to government policy. Ophthalmologists and OA are not motivated to work in GoN due to lack of equipment and poor priority given by GoN to eye care. We need OA but hospital management recruits Ophthalmologist: there is no operating microscope so no surgical services. Why we need more ophthalmologists if government is not willing to provide an operating microscope? asked the HOD of eye department of Koshi Zonal hospital. Equipment: There is no operating microscope and other related surgical equipment, so services for even cataract surgery is not available. Government should develop policy for eye care service with specific HR policy. Hospital management board makes most of the decision. Eye care is not a priority. Hospital management board is struggling to tackle the major burden of general health problem. There is no system of participatory planning and decision making. Hospital superintendent makes most decisions. There is no system of regular monitoring. “Once I participated in a workshop for Vision 2020 in Kathmandu. After that there is no specific support to achieve goal of Vision 2020.” reported a doctor. OPD total case and the morbidity of indoor report are being submitted to DPHO and through him to Government HMIS. Suggestions: Need policy for eye care also. HR should be planned as per service need and the equipments made available to provide quality service.

Case of Narayani Sub Regional Hospital Eye department (Informant: Ophthalmic Assistant)

The Eye department of Narayani sub regional hospital is now converted to dental OPD. One OA is providing eye OPD services with refraction, general eye service and minor operation since Ophthalmologist recently retired from government service. Every day 15-20 eye patients visit this hospital. Slitlamp and auto refractometers are not functioning. There is no support from MoHIP to upgrade eye services. Most of the complicated cases and cases for cataract surgery are referred to Kedia and Tilganga eye hospitals. There is no free service for the referred poor patients in Kedia. Lions Clubs are organizing periodic eye
camps mobilizing the resources of Kedia. The patients who visited Narayani eye OPD are referred back to Eye camp if they want free cataract acts. There is no quota for referred cases. The Vitamin A supply is not adequate in DPHO. We have to fight to get Vitamin A capsule from DPHO for suspected vitamin A deficiency cases. The interviewee opined that in zonal hospitals one ophthalmologist, operating microscope and slit lamp is necessary.

In both these hospitals, eye services existed long before launching of national program for prevention of blindness. The above examples show how existing eye care service has already been abolished in one and is in the process of abolition in the other government hospital on the plea of avoiding duplication, old ones are shut and new ones are opened in the close vicinity.

The need for eye units with ophthalmologist and either OAs or optometrists in Regional and Zonal hospitals was strongly voiced by all interviewees.

**ii) Findings in DH/PHCC/HP/SHP:**

All together in-charge of 7 district hospitals and 10 PHCC/HP and SHP were interviewed to explore the availability of eye care and their practices of managing eye problems.

**Findings based on responses of HF in-charge and patients reporting to these facilities**

**Referral system**

In general, both the providers and those seeking eye services admitted to unavailability of any meaningful eye care services in these health facilities. Because of this, patients had to travel long distance to reach the nearest eye care facility in the hilly districts which caused them higher travel cost and often discouraged them from accessing eye care. As all the DECs charge user fees for the services provided by them, therefore free health service introduced by the Government is of no use to the eye patients. Distance, however, is not reported to be a major issue in Terai districts, although the cost is.

In far and mid western region there is an informal coordination between the eye hospitals and public health facilities, an example of good practice.

There is no clear eye care policy or program in PHCC- HP and SHP and the free health care policy for general health is not applied to eye health. There is no formal mechanism to refer patients to eye care service facility. Similar views were expressed by the patients who also reported that as no treatment is available at these facilities, they were often referred to other hospitals making travel to these facilities worthless.

*The interviewees also stressed the fact that although the burden of eye problem is perceived to be increasing in the districts, health facility in charge feel that their staff do not have sufficient training to treat eye ailments. Lack of equipment in the health facilities is also a major barrier to service delivery.*

"Training pani chhaina, Saman pani chhaina , Vision chart pani chhaina , kam garya pani Chhainaun"

Thus eye care services in Nepal is not an integral part of health care. This was voiced uniformly across the entire sampled health system from east to west, north to south (eye care considered different from health care).
Observation notes on Health Facility

Direct observation of health posts, sub health posts and primary health care centers revealed that none of them were providing any eye care services as reported by health facility staff.

On observation only a functioning torch was found in few and only a few essential drugs for eye care provided by the government were available in some facilities.

Recommendations made by GoN stakeholders

1) There should be integration between general health and eye health services, eye care should be part of general health just as eyes are part of human body.

2) Free health care policy should also include free eye care policy

3) Formal referral system should be established between eye hospitals and government institutions.

4) Awareness program on prevention of blindness and ocular morbidity should be further intensified.

5) Logistics supplies for primary eye care in HP, SHP, PHCC and DH should be improved.

6) Capacity of health workers working in PHCC, HP and SHP on primary eye care and referral should be enhanced by periodic training.

7) To increase access to eye health services, out-reach program should be carried out.

Recommendations of the MTR Team

1) Basic standard list of equipment for all eye hospitals and DEC should be prepared and the facilities appropriately equipped.

2) DEC should be immediately established in districts where they do not exist now.

3) Eye hospitals should be encouraged and appropriately facilitated to expand the range of services, currently focused on cataract, for effective management of other blinding and non-blinding conditions.

4) Eye health should be integrated with general health system to strengthen the weak primary health care foundation of eye care starting from PHC downwards.

5) Quality audit of the service should be carried out in all the eye care facilities.

6) For cataract services almost all the reviewed services have adequate equipment and instruments but few even high volume cataract centers do not have vitrectomy machines. These should be made available on a priority basis.

7) Vigorous infection control mechanisms should be implemented in some institutions with high post-operative infections.

8) To combat childhood blindness, pediatric ophthalmologists and pediatric eye care teams including pediatric anesthetists should be trained for effective and efficient pediatric eye care services. The National Children Eye hospital under construction should be entrusted with this responsibility in partnership with other eye care facilities.
9) Free eye care should be available also for those with eye problems just as free health service is available to people with other health problems.

10) The free service policy should proactively target women, children and marginalized communities.

Summary of eye care infrastructure and services in Nepal

Nepal has a good network of specialized eye care services (tertiary care) through a network of 11 eye hospitals alone in Terai, and 9 in the mid-hills. There are no eye hospitals in the mountains. Eye hospitals are available in 11 of Nepal's 14 administrative zones. Most eye hospitals particularly along the Terai belt are focused on cataract surgery because of the excessive load of patients coming from India. Although, of late specialized services have been introduced in some of these hospitals, subspecialty services are generally located in Kathmandu where there is also a massive concentration of ophthalmologists, ophthalmic assistants and optometrists.

Secondary eye care at the district level is made available through 63 district eye centers in 2010 (variously called Primary Eye care Center and Community eye centers). The district eye centers are located mostly in the district headquarters. Twelve districts do not have any district level eye centers at end of 2010.

The weakest link in Nepal's eye care system is lack of eye services at primary health care level (PHC, HP, and SHP). There are virtually no eye care services available beyond the district headquarters because Nepal's eye care system has grown independent of the general health system driven primarily by NGOs and supported by INGOs. The system has no grassroots penetration. Although Nepal's general health system has a nationwide network with penetration up to the ward level (smallest administrative unit), very little or no eye care is available through this extensive network of health facilities. Therefore majority of people living beyond the district headquarters are deprived of basic eye care services. There is a general perception among the eye care community that eye services cannot be provided within government health system because it functions poorly. In recent years Nepal’s health system has demonstrated its efficiency in improving health indicators such as infant mortality and maternal mortality (in fact received an award from United Nations for remarkable reduction MMR and for being on track to achieve MDG goals). It is in the larger interest of the nation and enlightened self-interest of eye care community that eye care services are rapidly integrated with primary health care system of the country.

Further reading

11. Summary of advocacy work over recent years. A briefing paper by Peter Ackland, CEO, and Julian Metcalf, Director of advocacy, IAPB. December 2010.
Chapter 5

Human Resource Development for Eye Care in Nepal: Progress, Challenges and Solutions

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Introduction

Human resources (HR) are a key component of any health care system. They play a critical role in delivering health services to the population. Secondly, they also have major responsibility to train next generation of health workforce. Human resources are also critical determinants of the quality, character and recurrent cost of health care provision, consume as they do between 60-80% of the entire scarce health budget. Therefore, Human Resource Development (HRD) has been identified as one of the key components of global initiative for elimination of avoidable blindness -vision 2020. Human resource development and planning is a way of estimating the number of required human resources, the type of knowledge, skills and attitudes they need to possess to meet predetermined health targets and, ultimately, national health objectives. The HR planning involves identifying work details like - who, what, when, where, how and with what resources for what population group or individuals, so that sufficient number of human resources with adequate skill can be made available according to predetermined policies and time schedules. This planning must be a continuing, and not a sporadic exercise. It requires continuous monitoring and evaluation. The purpose of strategic human resource planning is to develop efficient, effective and well-motivated workforce to ensure that right number of people, with the right skills, at the right place and the right time are available to deliver quality health services for the population at an affordable cost.
Mid Term review of human resources in eye care services

Objectives:-

- To review critically the human resources for eye health in Nepal with regard to number and their distribution.
- To identify the shortcomings in educational and management policies of HR.
- To provide guidelines for developing comprehensive human resources plan for eye health.

Various types of human resources required for eye care is summarized in table 5.1.

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<tr>
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<th>Specialized</th>
<th>General</th>
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<tbody>
<tr>
<td></td>
<td>Medical personnel:</td>
<td>Para-medical Personnel: (Midlevel Eye Care Personnel)</td>
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<tr>
<td></td>
<td></td>
<td>Ophthalmic Assistants</td>
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<tr>
<td></td>
<td></td>
<td>Orthoptists</td>
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<tr>
<td></td>
<td></td>
<td>Support staff</td>
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<tr>
<td></td>
<td></td>
<td>Instrument maintenance personnel</td>
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<td></td>
<td>Medical personnel:</td>
<td>Paramedical personnel</td>
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<td></td>
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<td>Ancillary services</td>
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<td></td>
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<td>Nursing</td>
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<td>Grassroots Health Personnel</td>
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</table>

Unfortunately, Nepal's eye care system has developed in isolation well outside the general health system so that general health workers are not involved in provision of eye care in any meaningful way, much to the disadvantage of people needing eye care services. This has limited availability of eye services to district headquarters at the most. Twelve districts do not have district eye centers yet. Therefore, the study also observed general health facilities and interviewed general health workers to seek their perceptions and assess their potentials for becoming front line health workers, also for eye care services.

Methods used

Both qualitative and quantitative methods were employed for data collection from various sources. These included Government, NGO, INGO, private sectors as well as service users. The reason for this in-depth analysis was to gain insights into the current status of human resources and challenges and issues confronting human resource development so that these could be addressed. These data were acquired through following tools.

1. Self administered questionnaires from institutional heads and administrators- these forms were carefully designed to obtain quantitative data on burden of eye disease, demographic details of the patients, disease pattern, infrastructure of the institutions, available human resources, specialized HR and future needs of HR etc.
2. **Key Informant Interviews** were held with head of the institutions and administrators to obtain qualitative data regarding OPD services, indoor services, sub-specialty services, surgical services, service utilization in hospitals and community mobile camps, status of human resources and their management issues etc. Interview was conducted by a team of researchers specially recruited and trained for this purpose. The researchers conducted the interview using KII guidelines in presence of their supervisors.

3. **Focus group discussions** with Ophthalmologists, Optometrists, Ophthalmic assistants, NGO/INGO involved in eye care services and health policy leaders to obtain both employee and employer perspectives. Focus group discussion was conducted by members of the mid-term review committee.

### Table 5.2. Current Status of Human Resources in Eye Care (2010)

<table>
<thead>
<tr>
<th>Category of HR</th>
<th>Existing Number</th>
<th>Present HR: population ratio</th>
<th>WHO Recommended Ratio by 2010</th>
<th>WHO Recommended Ratio by 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmologists</td>
<td>147</td>
<td>1:193,877</td>
<td>1:100,000</td>
<td>1:50,000</td>
</tr>
<tr>
<td>Optometrists</td>
<td>56</td>
<td>1:791,666</td>
<td>1:100,000</td>
<td>1:50,000</td>
</tr>
<tr>
<td>Ophthalmic assistants</td>
<td>275</td>
<td>1:103,636</td>
<td>1:50,000</td>
<td>1:25,000</td>
</tr>
<tr>
<td>Orthoptists</td>
<td>15</td>
<td>1:1,900,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye workers (PHC workers trained in primary eye care)</td>
<td>0</td>
<td>0</td>
<td>1:20,000</td>
<td>1:10,000</td>
</tr>
<tr>
<td>Trained technician available in</td>
<td>&lt;20 % tertiary centers</td>
<td></td>
<td>60%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>&lt;5 % secondary centers</td>
<td></td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>Eye care managers available in</td>
<td>20% tertiary centers</td>
<td></td>
<td>80%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>5% secondary centers</td>
<td></td>
<td>25%</td>
<td>50%</td>
</tr>
</tbody>
</table>

The existing number of all categories of eye health workers falls far short of the required number with greatest gap in PHC workers trained in eye care. Although the available numbers are far below the required, Nepal has made significant progress in the last 10 years of vision 2020 in increasing the number of different categories of health workers and to some extent, in their distribution.

### Table 5.3. Progress in human resource development since the launch of Vision 2020

<table>
<thead>
<tr>
<th>HR category</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmologists</td>
<td>76</td>
<td>147+(18)</td>
</tr>
<tr>
<td>Women Ophthalmologists</td>
<td>5</td>
<td>50</td>
</tr>
<tr>
<td>Optometrists</td>
<td>5</td>
<td>36+(20)</td>
</tr>
<tr>
<td>Ophthalmic Assistants</td>
<td>161</td>
<td>275+(75)</td>
</tr>
<tr>
<td>Ophthalmic Nurse</td>
<td>52</td>
<td>90</td>
</tr>
<tr>
<td>Eye care managers</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

# Figures in parenthesis indicate number of personnel who have migrated abroad

There were only 5 women Ophthalmologists in 2000 and in 10 years their number has increased to 50. Likewise, the number of optometrists increased from 5 to 56. However, it is doubtful if this can be attributed to Vision 2020.
### Table 5.4. Distribution of Ophthalmologists across developmental regions

<table>
<thead>
<tr>
<th>Development region</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
<th>Percentage of ophthalmologists</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far western</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2.6 %</td>
<td>9.63%</td>
</tr>
<tr>
<td>Mid western</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2.6 %</td>
<td>13.00%</td>
</tr>
<tr>
<td>Western</td>
<td>15</td>
<td>10</td>
<td>25</td>
<td>17.8 %</td>
<td>19.54%</td>
</tr>
<tr>
<td>Central</td>
<td>61</td>
<td>30</td>
<td>91</td>
<td>61.2 %</td>
<td>35.19%</td>
</tr>
<tr>
<td>Eastern</td>
<td>16</td>
<td>7</td>
<td>23</td>
<td>15.8 %</td>
<td>22.64%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>97</td>
<td>50</td>
<td>147</td>
<td><strong>100 %</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>

### Table 5.5. Distribution of Ophthalmologists across ecological terrain

<table>
<thead>
<tr>
<th>Geographical region</th>
<th>Number</th>
<th>Percentage of ophthalmologists</th>
<th>Percentage of population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountains</td>
<td>0</td>
<td>0</td>
<td>7.3</td>
</tr>
<tr>
<td>Hills</td>
<td>82 (Kathmandu)</td>
<td>61.8</td>
<td>44.3</td>
</tr>
<tr>
<td></td>
<td>9 (others)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terai</td>
<td>56</td>
<td>38.2</td>
<td>48.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>147</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

### Table 5.6. Distribution of Ophthalmic Assistants (OA) Regionwise

<table>
<thead>
<tr>
<th>Development Region</th>
<th>Ophthalmic Assistant</th>
<th>Ratio OA per 100,000 population</th>
<th>OA/Population Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern</td>
<td>58</td>
<td>0.45</td>
<td>111,677</td>
</tr>
<tr>
<td>Central</td>
<td>122</td>
<td>0.61</td>
<td>82,483</td>
</tr>
<tr>
<td>Western</td>
<td>52</td>
<td>0.47</td>
<td>107,457</td>
</tr>
<tr>
<td>Mid Western</td>
<td>31</td>
<td>0.42</td>
<td>119,882</td>
</tr>
<tr>
<td>Far Western</td>
<td>15</td>
<td>0.27</td>
<td>183,514</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>278</strong></td>
<td><strong>0.49</strong></td>
<td><strong>102,867</strong></td>
</tr>
</tbody>
</table>

### Table 5.7. Distribution of Optometrists Regionwise

<table>
<thead>
<tr>
<th>Dev. Region</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Far Western</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td>Mid Western</td>
<td>1</td>
<td>2.8</td>
</tr>
<tr>
<td>Western</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Central</td>
<td>25</td>
<td>69</td>
</tr>
<tr>
<td>Eastern</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Table 5.8. Brain drain pattern among eye health professionals

| Ophthalmologists | • Working in Nepal = 147  
|                  | • Outside Nepal = 18  
|                  | • 11% migrated  
| Optometrists     | • Working in Nepal = 36  
|                  | • Outside Nepal = 20  
|                  | • 36% migrated  
| Ophthalmic assistants | • Working in Nepal = 275  
|                | • Outside Nepal = 75  
|                | • 27.4% migrated  

Contrary to popularly held belief that migration among Ophthalmologists would be high, Ophthalmologists are the lowest on migration scale, optometrists the highest and ophthalmic assistants in between.

Key Findings of the MTR

1. There has been significant increase in the number of human resources for eye care since the launching of vision 2020 in the year 2000 (Table.-2).

2. Similar increase in the number of women ophthalmologists with over one third of total ophthalmologists being women since launching of Vision 2020 (at which time there were only 5 women Ophthalmologists). Similar increase in the number of women ophthalmic assistants and optometrists was, however, not observed.

3. Despite substantial increase in the number of ophthalmologists, ophthalmic assistants and optometrists, there is a serious shortage in HRH in all three categories (Table 5.2), most marked in case of optometrists considering the fact that uncorrected refractive errors are top on the list of ocular problems in Nepal.

4. There is a serious inequity in distribution of existing eye health human resources with 82 of the 91 ophthalmologists working in the hills concentrated in Kathmandu (over 60% ophthalmologists working for 2.6% population), with only 9 ophthalmologists available for other hills. No ophthalmologists are working in mountain areas (Table 5.5). Only 5.2% of ophthalmologists are working for one quarter of Nepal’s population living in mid west and far west development regions (Table 5.4.).

5. There is an inequity in distribution of Ophthalmic Assistants although the degree of mal-distribution is not as severe as in the case of ophthalmologists (Table-5.6.)

6. The most serious inequity in distribution is seen in case of optometrists with 70 percent of them working in the central development region.

7. While some ophthalmologists are overburdened (two thirds of surgical outputs come from one third the ophthalmologists), there are other ophthalmologists whose productivity could be substantially
improved by providing them with suitable infrastructure and appropriate enabling environment.

8. Most distressing finding of this review is that a huge number of general health workers (50,000 FCHV; 4000 SHP staff, 700 health post staff and over 500 staff in 206 PHC) are not involved in any meaningful way in providing eye care services because of lack of integration with general health system (KII, FGD,SAQ). The most serious missing link in Nepal’s eye health is absence of any significant role played in eye care by this category of huge health workforce in Nepal’s general health system with its deep roots in the community. If the existing staff at health facilities such as sub-health post, health post, primary health care centers are trained to provide specified services at each of these institutions, this will have salutary effects on improving Nepal’s eye health by serving people closer to their doorsteps, reducing morbidity and relieving workload on limited number of eye care personnel who could then devote more time to tasks that require their expertise.

9. Retention of health workers was expressed as a major concern by employers during FGD with NGOs, INGOs and government officials.

10. The employees identified the following as major causes of difficulty in retaining HR at peripheral eye hospitals: Job insecurity, low salary and disparity in salary

   a. Some Ophthalmologists expressed that they have often harbored a sense of job insecurity working under NGO. Although salary is higher than in government service, it is very low in comparison to the work load and long hours of work they have to put in out of compulsion because of heavy patient flow from neighboring country. Ophthalmologists also expressed that the basic salary scale and salary norms are not uniform even between those hospitals which are functioning under same NGO. Most hospitals in the periphery are focused on cataracts. Routine cataract surgery in bulk soon becomes a monotonous work for them and the job at hand is no longer challenging. Lack of various sub-specialty services discourages ophthalmologists to take up assignments in periphery. Therefore, doctors expressed that they are not able to develop their career in specific branches.

   b. Limited opportunities for higher education/continuing professional development opportunity. Optometrists reported that there was no opportunity for them to do higher studies like masters degree in Nepal. This will offer them the chances of developing their career and at the same time reduce brain drain.

   c. Ophthalmologists, optometrists and ophthalmic assistants expressed that there was lack of opportunity for those working in periphery to upgrade their knowledge and skill through continuing professional development. By default, these opportunities appeared to be much better for those working in Kathmandu.

   d. Lack of career ladder.

Optometrists and ophthalmic assistants both reported that there is a lack of opportunity for career ladder development. There is no provision for them to get promoted after certain level. OAs also complained of lack of higher educational opportunities.

   e. All categories of eye health workers complained bitterly about belonging to a country which does not employ them in its public services.
Addressing the gap

There are several issues that need to be taken in to account for addressing the shortfall in the number of required human resources to deliver the needed services for the people of Nepal. There is a problem in estimating even the number of required personnel in different categories because there is no national policy on how many categories of personnel are required for eye care in Nepal. Different NGOs are training their own categories with different skill mix which are generally not employed by many others. Some examples include nurses, eye workers (local category run by a couple of institutions), orthoptists etc. The number of certain categories (Ophthalmologists, Optometrists, Ophthalmic Assistants, Eye Workers (WHO definition) has been calculated on the basis of recommended population to HRH ratio. We are not able to recommend on the basis of number of facilities such as those for eye care managers and instrument maintenance technicians, because there is no long term planning of how many facilities Nepal is going to have in the next five to ten years and with what level of function.

Before the numbers are worked out a clear consensus needs to be developed on these two principal issues. 1. How many institutions with what level of functioning are required for Nepal for the next 5, 10 and 15 years. For example how many eye hospitals are required /will be set up in the next 5, 10 and 15 years. What services will each of these hospitals provide .2. The second issue to be resolved is what category of HRH are going to manage these institutions and in what numbers. Although such information was asked for from the head of the institutions both on self administered questionnaire as well as key informant interview, they were not forthcoming because they had not been worked out.

Getting sufficient number is only solving part of the problem. Major challenges are to get them to where they are needed, keep them there, keep them motivated, keep them productive by providing enabling environment and fulfilling life experiences-a complex human resource management issue requiring expert handling.

Key issues to be addressed for future HRH planning for eye care

1. Do nurses have a role within the NGO sector in eye care institutions? They are playing an important role in government institutions and medical colleges. There are a large number of nurses being trained by many training institutions. If their role is considered important, possibility of recruiting the services of nurses in eye care merits serious consideration. This may reduce pressure on ophthalmic assistants.

2. Ophthalmologists could then delegate some of their tasks to ophthalmic assistants who would then feel elevated having been given higher responsibilities.

3. Given the fact that uncorrected refractive errors are the commonest cause of ocular morbidity, it is only natural that category of personnel dealing with refractive error correction should constitute the bulk of national eye health workforce. Unfortunately only 5-10 optometrists are being trained every year in a single institution. It is therefore essential that the number of training institutions be increased to increase the output of optometrists.

4. The most serious missing link in Nepal’s eye health is absence of any significant role played by health workforce in Nepal’s general health system with its deep roots in the community. If the existing staff at health facilities such as sub-health post, health post, primary eye care centers are trained to
provide specified services at each of these institutions, this will go a long way in improving Nepal’s eye health by serving people closer to their doorsteps, reducing morbidity and relieving workload on limited number of eye care personnel who could then devote more time to tasks that require their expertise.

**Eye Health Human Resource users in Nepal**

Eye health human resources are utilized by various levels of service providers like eye centers/ hospitals, eye departments of general hospitals and medical colleges, NGO and INGO projects, private clinics etc. Among these most of them are absorbed by eye hospitals run by NGO and INGOs. In absence of a clearly defined policy it has become difficult to project the number of different categories of personnel required.

**Production of HR:**

- Number of Universities producing Ophthalmologists - 4
- Number of University producing Optometrists- 1
- Number of Institutions producing OA and eye workers - 4

**Future Needs:**

As noted earlier, there are great difficulties in projecting future needs of eye care human resources in a systematic way. We have therefore taken recourse to fixed HRH- population ratio to project the future needs for 4 categories of eye health workers viz. Ophthalmologists, Ophthalmic Assistants, Optometrists and eye workers (general health workers trained in eye care)

**New Areas in HRD:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Existing Number</th>
<th>Required for proposed ratio</th>
<th>Gap in Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmologists</td>
<td>147</td>
<td>570</td>
<td>423</td>
</tr>
<tr>
<td>Optometrists</td>
<td>36</td>
<td>570</td>
<td>534</td>
</tr>
<tr>
<td>Ophthalmic assistants</td>
<td>275</td>
<td>1,140</td>
<td>865</td>
</tr>
<tr>
<td>Eye workers*(PHC workers trained in primary eye care)</td>
<td>0</td>
<td>5,700</td>
<td>5,700</td>
</tr>
</tbody>
</table>

While the table above lists some of the traditional workers, the need for new categories of personnel has been highlighted for an evolving eye care in Nepal. The categories suggested are: IT managers, Outreach coordinators, Public health experts, Eye health educators, Rehabilitation counselors, Patient/Parent counselors.

**Recommendations:**

Given the complex array of problems enumerated above and the key role of human resources in health development, MTR review committee recommends the following:

**Immediate Measure**
• As an immediate measure request the Ministry of health to facilitate with Center for Technical Education and Vocational Training (CTEVT) for setting up at least four more training centers for ophthalmic assistants.

• MOH to request TU, NAMS, BPKIHS to increase the intake of ophthalmologists and optometrists and provide necessary support for it.

• Initiate training of general health workers in eye care in a phased manner with a pilot in 15 districts starting fiscal year 2068-2069 (2011-2012) and additional 30 districts each in the following two fiscal years. This will have salutary effects on improving Nepal’s eye health by serving people closer to their doorsteps, reducing morbidity and relieving workload on limited number of eye care personnel who could then devote more time to tasks that requires their expertise.

• Convene a round table of public and private training institutions to explore possibility of increasing the number of trainees.

**Short term measure for long term solution**

Constitute a high level multi-sectoral HRH policy and planning committee within the ministry of health with participation of concerned stakeholders to formulate policy and draw a plan for HRH development taking in to account the findings of the MTR.

**Summary of Human Resources for Eye Health in Nepal**

A great deal of progress has been made in the HR development in eye care with encouraging increase in the number of specialized human resources such as ophthalmologists, ophthalmic assistants and to a limited extent optometrists. This specialist driven eye care system is unable to cater to the need of bulk of Nepali population which is far removed from the services of specialists as of now. There is therefore an urgent need to train over 5700 primary health workers currently employed within Nepal’s health system.

The limited number of specialists, far short of the required number, will not be able to address the need of the population even if the number of specialized category is increased. While the available number is far below required, there is a serious inequity in their distribution exemplified by 60% of Nepal’s ophthalmologists serving 2.6% of its population in Kathmandu. There are similar issues with distribution of other categories of eye care personnel.

Additionally, there are concerns with the knowledge and skill mix of the health workers due to lack of uniformity and defined standards in training programs.

Available HR are not fully motivated due to lack of financial incentives, career opportunities and opportunities for professional development. While some are overburdened with work, the productivity of many others is far below the potential due to systemic weakness and managerial shortcomings.

Even if all the above issues are satisfactorily addressed, with a stroke of good luck, vast majority of Nepalese will continue to remain deprived of eye care through this specialist driven eye care model currently in practice.

The most serious missing link in Nepal’s eye health care needing to be redressed is the non-involvement of HR for general health services because of the existing design. The challenge therefore is to harness the potential of this huge workforce. One single measure that is likely to help is integration of eye care
with general health care. This is not likely to be easy because a whole generation of eye care personnel has worked during most of its professional life independent of national health system, this may present difficulties.

**Further reading**


Chapter 6
Health Development in Nepal and Policy, Plan and Programmes for Eye Health Care

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Member MTR Team

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Chairman, B.P. Eye Foundation
Team Leader MTR Team

Dr. B.K Suvedi
Chief Policy, Planning and International Cooperation Division, Ministry of Health

Overview of the Health Development in Nepal

The process of planned national development in Nepal started with launching of 1st Five Year Development Plan (1956-1961). The second plan was for a three years period, (1962-1965) as the country was going through transition due to change in political system. The successive five year plans were, Second (1965-70), Third (1970-75), Fourth (1975-80), Fifth (1980-95) and Sixth (1985-90) each of which ran full five years. Because of transition from panchayat to multi-party democracy the period from 1990 to 1992 was taken as a “plan holiday”.

Again, Eighth, Ninth and Tenth Plans were issued from 1992 to 2007 each having a plan period of five years. Once more, due to historical political change that occurred in 2007 following a Janaandolan (2nd Popular Movement) the plan that was drawn was for three years only (2007-2010). Presently, the 11th plan has been also formulated for three years (2010-2013) because of unpredictable political situation of the country such as uncertainty about the federal structure, administrative model etc which is yet to be decided in the new constitution.

However, even before the launch of First Five Years Plan in 1956, steps for national health development had been initiated, such as training of doctors under the Colombo Plan in India, a nursing school established at the Bir Hospital with the support of WHO, etc. In 1951 a plan was chalked out for establishing a number of health facilities in different parts of the country with different level of functioning and given the status of health posts, health centers and hospitals at central, zonal and district levels.

The evolution of health development and key elements of the successive plans is summarized in table 6.1.
<table>
<thead>
<tr>
<th>Plan</th>
<th>Plan Period</th>
<th>Thrust Area</th>
<th>Eye Care Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre plan period AD</td>
<td>1890</td>
<td>• Establishment of Bir Hospital.</td>
<td>• 1st eye care service started in Bir Hospital (1935).</td>
</tr>
<tr>
<td></td>
<td>1933</td>
<td>• Establishment of Department of Health Services.</td>
<td>• Eye departments were set up in government hospitals in Biratnagar, Birganj and Pokhara.</td>
</tr>
<tr>
<td></td>
<td>Between 1933-1951</td>
<td>• Government established 33 hospitals, several Ayurvedic dispensaries and an Ayurvedic School and a Civil Medical School for producing middle level health workforce.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between 1951-1956</td>
<td>• Training of doctors under the Colombo plan in India.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nursing school established at Bir Hospital with support of WHO.</td>
<td></td>
</tr>
<tr>
<td>1st Five Year Plan</td>
<td>1956-1961</td>
<td>• Establishment of Ministry of Health (1956).</td>
<td>• ANM school subsequently shifted to Bharatpur</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stressed on curative aspects of Health.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Establishment of Auxiliary Nurses training centre in Hetauda(1958).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Initiation of Malaria Control activities.</td>
<td></td>
</tr>
<tr>
<td>2nd Plan Interim plan for 3 years</td>
<td>1962-1965</td>
<td>• Along with curative aspects, additional emphasis on preventive aspects of health.</td>
<td>Nepal Red Cross Society established(1963)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Starting of small pox survey (1962).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pilot projects for control of Leprosy (1963) and Tuberculosis (1965).</td>
<td></td>
</tr>
<tr>
<td>3rd Five Year Plan</td>
<td>1965-1970</td>
<td>• Promote and Improve Curative aspects of Health care.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Leprosy eradication Project (1965).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Small Pox Eradication Project (1967).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Family Planning and Maternal and Child Health Project (in 1968).</td>
<td></td>
</tr>
<tr>
<td>4th Five Year Plan</td>
<td>1970-1975</td>
<td>• Focus on Human Resource Development. Establishment of Institute of Medicine under Tribhuvan University</td>
<td>Nepal Eye Hospital established 1974 Nepal's 1st Eye Hospital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Integration of vertical projects recommended.</td>
<td>• Establishment of GoN/WHO Prevention and Control of Blindness in 1980 as a vertical WHO supported program largely as a program promoted by former Small pox eradication project staff of WHO based in South East Asia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Nepal signed the Health for All strategic document at an International Conference at Alma Ata in 1978.</td>
<td></td>
</tr>
<tr>
<td>6th Five Year Plan</td>
<td>1980-1985</td>
<td>• King enunciated a strategy of fulfilling Basic Minimum Needs (BMN) for the Nepalese people in which Health was one of the components.</td>
<td>• Nepal Blindness Survey Conducted (1980-1981).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Discussions held on attracting private investors in the development of rural and urban health services.</td>
<td>• Private sector could not be lured to join hands</td>
</tr>
<tr>
<td>Plan</td>
<td>Plan Period</td>
<td>Thrust Area</td>
<td>Eye Care Programs</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 7\(^{th}\) Five Year Plan | 1985-1990   | • Process of integration completed at the peripheral level in 1987 and at the central level by 1990.  
• In 1986 Department of Health Services was dissolved and ten divisions were kept directly under ministry of health.  
• Regional Directorate of Health Services was also set up in all 5 Development regions, indicating attempts at decentralization of health administration. | • Nepal Prevention and Control of Blindness project trained OAs, Medical officers sent to India for PG degree in India.  
• First national ophthalmology Residency program launched at IOM in 1987. First 2 nationally trained ophthalmologists graduated 1990. |
• Priority shifted to preventive and promotive health services.  
• Expansion of health service coverage up to grass root by establishing at least one health service facility in all village development committees (VDCs).  
• Encourage private sector and NGOs to provide health services.  
• New structure of ministry of health and reestablishment of Department of Health Services (1993).  
• New hierarchical organizational structure of the MoH had three departments and five regional directorates above the district level and Primary Health Centers, Health posts and Sub-health Posts below the district level. | • B.P. Eye Foundation (Promoters of B.P. Koirala Lions Eye Center) established (1991)  
• Nepal Eye Care Program (Tilagunaga Eye Center) established 1992  
• B.P. Koirala Lions Center for Ophthalmic Studies inaugurated 1996 |
| 9\(^{th}\) Five Year Plan | 1997- 2002   | • **Second Long Term Health Plan (SLTHP) (1997-2017) was developed** with the “vision of an integrated health system including public, NGO and private sectors in which there is equitable access to health care, self-reliance, full-community participation, decentralization, gender sensitivity and efficient management, resulting in improved health status of the population”.  
• Focused on poverty alleviation. | • In the Package of Essential Health Care Services of SLTHP, prevention and control of blindness was placed at the 9\(^{th}\) position.  
• Vision 2020: The Right to Sight was launched on 19 November 1999  
• National Plan of Action (2002-2019) for Eye Care Services in Nepal was drawn up in 2000. |
| 10\(^{th}\) Five Year Plan | 2002- 2007   | • Focused on poverty alleviation.                                                                                                                                                                           | Establishment of many eye hospitals and Primary/Community Eye Centers.                                                                                                                                               |
| Interim 3 year plan     | 2007-2010    | Equity, Quality service, Alignment to MDG HR development, Strengthening district health system.                                                                                                             | School screening for visual and hearing impairment was incorporated, but not implemented.                                                                                                                            |
| 11\(^{th}\) (Interim Year Plan) | 2010- 2013 | • Addressing the increasing health problems due to non-communicable diseases.  
• Continued focus on MDG                                                                                                                        | MTR of Vision 2020 commissioned in 2011 by MOHP. Task force constituted to develop a plan for integration of eye care.                                                                                           |
It would be reasonable to accord due credit to these policies and programs for the remarkable achievements in health sector that Nepal has made over the period of last six decades (Table 6.2). For example, there has been a drastic reduction in infant mortality rate, maternal mortality rate which are taken as the very sensitive indicators of a country’s health status. Likewise, control of common communicable diseases and substantial increase in life expectancy of the people are also evidence of success of the plans. Nepal has been awarded by United Nations for its remarkable achievement in reducing maternal mortality. Also, Nepal is one of the countries moving at fastest pace to achieve Millennium Development Goals largely due to achievement of health sector as well as education sector.

<table>
<thead>
<tr>
<th>Outcome Indicator</th>
<th>Achievement</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal Mortality Ratio</td>
<td>539</td>
<td>539</td>
</tr>
<tr>
<td>Total Fertility Rate</td>
<td>5.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Adolescent Fertility Rate (15-19 years)</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>CPR (modern methods)</td>
<td>24</td>
<td>26.0</td>
</tr>
<tr>
<td>Under-five Mortality Rate</td>
<td>158</td>
<td>118.3</td>
</tr>
<tr>
<td>Infant Mortality Rate</td>
<td>106</td>
<td>78.5</td>
</tr>
<tr>
<td>Neonatal Mortality Rate</td>
<td>49.9</td>
<td>43</td>
</tr>
<tr>
<td>% of underweight children</td>
<td>49.2</td>
<td>48.3</td>
</tr>
<tr>
<td>Spread of HIV/AIDS among population 15-24 years</td>
<td>0.29</td>
<td>0.55</td>
</tr>
<tr>
<td>TB incidence, prevalence and death rates (prevalence rate per 100,000)</td>
<td>460</td>
<td>2.4</td>
</tr>
<tr>
<td>Malaria incidence and death rates (prevalence rate per 100,000)</td>
<td>196</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Eye Health Care Policy, Plan and Status

We will now review the development of eye care within this framework of successive national health development plans and policies.

Although the first allopathic hospital of Nepal was established in 1890, eye services in the country’s first hospital did not start until after 45 years in 1935. Subsequently, eye departments were set up in government hospitals in Biratnagar, Birganj and Pokhara. Though several policies and strategies specific to many health problems related to malaria, tuberculosis, reproductive health, leprosy, etc. were developed by MOH during successive years of health planning, no specific strategy and plan was developed for prevention of blindness until the establishment of GoN/WHO Prevention and Control of Blindness in 1980 as a vertical WHO supported program.

Under the aegis of this program, a national survey of the causes and determinants of blindness was completed; a large number of medical doctors were trained as ophthalmologists most of them in India, as were a large number of ophthalmic assistants trained in Nepal. Many medical officers were trained to provide eye care in district hospitals. Similarly, staffs at health posts were also trained. The Ministry
of Health was an active player in areas of policy development, program management and service delivery through its extensive network.

The donor funds for the project were channeled through World Health Organization and managed by a sizable number of expatriate and national staff based in Nepal. WHO had and still has, a system of charging 13% of the donor contribution as its administrative cost. Donors were unhappy to part with this 13% as administrative charge. Around this time NNJS was established as an eye care NGO which provided an outlet that the international agencies were looking for to overcome the need of paying overhead to WHO as well as to overcome the hassles of health bureaucracy. Therefore, to obviate this, international agencies started working directly with national NGO. Affiliation of NNJS to Social Services Coordination Council with the then Queen as the Chairman of the council and one of the Princess as chairperson of the Health Services Coordination Committee was an added attraction and a means to avoid bureaucratic hassles. This stage in the evolution marks the beginning of GoN’s gradual withdrawal from and NGOs’ entry into eye care.

In fact at one stage, the NGO sector was assigned the responsibility of addressing the problem of eye health in late Eighties by the Ministry of Health. For the next several years, Nepal Netra Jyoti Sangh (NNJS) provided leadership in developing eye care services in Nepal by successfully negotiating, coordinating and working together with several INGOS, NGOs and some individual philanthropists in mobilizing support for eye care development. Several eye hospitals and district eye centers were set up under NNJS with funds channeled through PBL project. These centers continue to provide services till date. During this rapid expansion of eye care services, NNJS was well supported by the Social Welfare Coordination Council chaired by the then Queen of Nepal which greatly accelerated the development process.

With the departure of monolithic Panchayat political system from the national scene and ushering in of pluralistic democracy in 1990, new actors entered in eye care such as Nepal Eye Care Program (Tilaganaga Eye Center), B.P. Eye Foundation (Promoters of B.P. Koirala Lions Eye Center), Nepal Red Cross Society and others. These organizations have enriched Nepal’s eye care program greatly by expanding infrastructure and services in many parts of the country and by advocacy for enhanced support for eye care. The launching of a national residency program at Institute of Medicine and its strengthening with establishment of B.P. Koirala Lions Center for Ophthalmic Studies has helped to enhance the national human resource base so much so that more than half of ophthalmologists and 90 percent of optometrists are product of this program. Establishment of intraocular lens factory at Tilganga brought down the cost of lenses so much that they not only became cheaper than thick aphakic glasses but also affordable for all.

Following liberalization of economic policy in the 1990s, private sector, hitherto shy to invest in health sector, entered in a powerful way with implications to eye health care as well. Many private hospitals and private medical colleges are providing services to huge number of patients as well as turning out over 1,500 medical graduates every year. Private sector is also contributing to development of paramedical and nursing workforce. While the above are positive contributions of private sector, it has, in recent years become a source of internal brain drain siphoning HRH, particularly the ophthalmologists from NGO and public sector to the private medical colleges. The other concern emerging from this shift is low output in terms of services from eye departments of medical colleges although they turn out a large number of medical graduates some of whom become ophthalmologists later.

In the wake of another major political change of 2007 following the violent insurgency by Maoists and peaceful movement by mainstream political parties, the interim constitution of Nepal has granted health
as a fundamental human right to the people of Nepal. In an attempt to make health services universally accessible, the government has introduced free health service from sub-health posts up to primary health care centers. Unfortunately this has not helped eye health sector as very little eye care service is available at these facilities. **Therefore most eye care services have to be paid for largely through out of pocket expenses.**

Nepal Health Sector Programme NHSP-IP I (2004-2009) started in 2004 for developing a sector wide approach with government and external development partners working in unison to implement national health strategy through essential health service package. This program had a focus on poor and marginalized. However, this program did not include eye care in the essential health services package.

NHSP-IP II (2010-2015) has focused on gender and social inclusion, an agenda which was weak in NHSP -I. It has made a brief mention about eye health without spelling out details of how this is proposed to be implemented. It was brought to the knowledge of MTR committee that EDPs questioned inclusion of eye care in NHSP-IP II. Strong advocacy is needed to convince the EDPs to support eye care as a component of NHSP-IP II.

Review team noted painfully that eye care has not been included in government’s successive health development plans. In fact eye care in Nepal developed independent of health system and is currently NGO-driven. This model of service delivery has not been able to reach out to populations living below the level of district headquarters because the NGOs have not been able to reach beyond district headquarters on one hand and the government health facilities do not provide any meaningful eye care on the other. **Below the district level is where most of below the poverty line people live and by corollary most of the blind and visual impaired people reside.**

**Governance:**

Vision 2020: The Right to Sight was launched on 19 November 1999. An Apex Body for eye care was established with the Secretary of Health as its Chairperson and representatives of various organizations as its members. The main function of the Apex Body as envisaged in the Terms of Reference was to provide policy guidelines, closely monitor the programme and mobilize resources. A National Plan of Action (2002-2019) for Eye Care Services in Nepal was drawn up in 2001. Because of the nature of the membership of the Apex Body, (all its members have other primary functions), absence of a secretariat support and a working budget, the Apex body for eye care was not able to function effectively. Review of the minutes of Apex Body over the last 10 years confirms that it did not take any major policy decision, neither any of the NGO (key player) programs were reviewed meaningfully at its meetings. Minutes of the meetings although recorded in the register, were seldom circulated and reviewed. It held less than 10 meetings in 10 years between 2000 and 2010.

Absence of a clearly spelled out policy has made coordinated work in eye care difficult for both national stake holders as well as international partners. Each partner organization has its own short and long term plans. It is essential to formulate a policy and develop a revised national plan for eye health because the existing plan seems to have lost much of its relevance.

**Financing:**

Just as there is no policy and plans with regard to infrastructure, services and human resources, there is no policy for financing eye care although ad hoc funds have been made available to NGOs by the
government. Since most of the eye services are provided by non-state actors, people have to pay for eye services mostly through out of pocket expenses. Lions club international provide subsidy for a limited number of cataract surgery and some other organizations also support surgical eye camps in partnership with some eye hospitals. Government of Nepal supported free cataract surgery for 4000 patients in Karnali zone during the year 2010-2011. Ministry of Health (and possibly Ministry of Finance) has no information about the flow of fund into eye health sector through different external development partners. Voices have been raised in concerned quarters regarding transparency.

Monitoring:

With regard to its monitoring function, review of the Apex Body minutes did not reveal any activities which would indicate serious monitoring efforts. Each NGO has its own monitoring system, which often do not interface with each other, neither are they reviewed by the Ministry of Health or National Planning Commission. HMIS does not collect any information on eye care to be useful for monitoring purposes and consequently eye health services are not reflected in HMIS in any meaningful way.

Issues and Challenges:

Major issues confronting eye health in Nepal is the serious disconnect between general health and eye health systems in which tertiary and secondary centers based eye care development has left behind the weaker sections of the community in its journey of last 30 years due to poor primary eye care services. Eye care is focused excessively on cataract at the cost of other common blinding and non-blinding eye conditions. Technical approach to prevention and control of blindness has ignored the development implications of eye health.

The second issue is the weak involvement of the government in eye health because of other pressing demands in health development and, a legacy of the past. This is evident both in financing as well as governance and stewardship, the latter role, weakened during Panchayat era.

Third major issue is that all eye care services have to be paid for because they are provided by NGOs. NGOs have to generate their own resources in absence of State support. Given the fact that about 40% of Nepal’s population lives below World Bank defined below poverty line of $1.25 day, most Nepali population is unable to afford the cost. In fact, the cost has been a major barrier to accessing services by the Nepali population as shown by several studies conducted in the past. It must be emphasized that eye care services and particularly cataract surgery is neither complicated nor expensive. In fact, it is one of the most cost effective health interventions identified by World Bank. Patients from India find cataract surgery cheap in Nepal which is an important reason for flow of Indian patients (quality of service being another). It is not that the cost of cataract surgery is high; it is just that Nepali patients requiring cataract surgery are too poor to pay.

Because it has been able to attract a large number of patients from across the border, there is a kind false sense of security prevailing both among the enlightened and the uninitiated, that Nepal’s eye care is excellent. True, eye care services are excellent for those who can afford, but not available to those who cannot afford. Therefore, there is a degree of reluctance to take up major reforms and to remain within the comfort zone of continuity. Nepal’s eye care system must be reformed in such a way that it is available to all Nepalese in need of eye care services. Continuation of business as usual is unlikely to improve the situation in eye care if the objective is to reach to all and not a few who have been able to afford. There is therefore, a need for paradigm shift to make eye health more inclusive and sustainable by a
process of collaboration between civil society, private sector and the government.

**Recommended Policy reforms**

1. **Integrate primary eye care into general health system in a phased manner beginning 2011-2012 and completing the process by 2014-2015 to eliminate the disconnect between eye health and general health.**

2. **Direct existing eye care institutions to make eye care services comprehensive and not focused on few diseases.**

3. **Formulate an inclusive, sustainable and equitable eye care policy to reflect current ground realities and to ensure quality eye care.**

4. **Develop a detailed plan of action to reflect new policies on a short-term and long term basis.**

5. **Restructure Apex Body for eye health with revised terms of reference to enable the Government to assume stewardship of eye care as an integral part of public health service. Apex body or its equivalent should be well empowered and well resourced to discharge its new role.**

6. **Allocate funds for eye care in annual budget, publish eye care data in annual HMIS.**

7. **Develop a policy of disbursements of fund to NGOs, and ensure that about a third of fund is allocated for relieve bilateral visual impairment, another third to women and the remaining to the marginalized population including children.**

8. **Government should actively intervene to galvanize national and international support to overcome the problem of acute shortage of human resources.**

9. **Help in establishment of a forum of NGO/INGO/Academia/Research institutions to provide a platform for promoting co-operation among all stakeholders.**

Government is now committed to eliminate the existing disconnect between general health and eye care in its efforts to eliminate avoidable blindness. It has initiated measures to incorporate primary eye care into primary health care. With implementation of this process, eye care is bound to reach to the population left behind in eye care’s march of last 30 years. The environment for eye care development in Nepal has perhaps never been as favorable as it is today. There are at least six positive developments which augur well for health care as well as eye care.

- With political liberalization, there are an increasing number of national civil society organizations, at least six on the last count, actively engaged in eye care, not to mention individual initiatives of large and small philanthropists. Vision 2020 global and national advocacy has made our international partners ever keen to work together.

- Economic liberalization has brought in a hitherto reluctant partner in to health development – the private sector with massive inflow of resources in recent years which is bound to have an effect on eye care.

- Constitution of Nepal has granted health as a human right to its citizens which has mandated successive governments to make universal access to health a reality. To promote this, government of Nepal has introduced free health service up to primary health care centers to be gradually upgraded to district hospitals and higher level health facilities.

- Nepal is moving towards approach of social protection in health sector with right based approach in basic health care as exemplified by Maternity Incentive Scheme, Free essential health care,
Targeted subsidized scheme in hospitals, Demand and Supply side financing in disease control, Safety Net in catastrophic illness treatment, Free treatment of prolapsed uterus, Mandatory service for medical graduates on scholarship, Incentive for retention of health personnel in remote districts, Upgrading of health facilities and more. State has also increased budgetary allocation to health in the last few years to 7% of national budget. Declining poverty level will also enable more people to access health care.

- Current focus of policies is on maternal health, child health delivering essential health care universally, upgrading of health facilities and human resource management driven by mortality agenda. Introduction of such health metrics such as burden of disease and DALY are shifting health planners’ priorities from mortality alone to disability and quality of life considerations.

- The fourth facilitating factor is the greatly increased level of awareness (although still not enough) about health in general population, both in terms of citizens’ rights and their duties. Likewise there is increasing awareness among health providers of the issues of social inclusion and gender equity.

- The fifth factor is the existence of a general health system with its reach to even very remote villages. Nepal’s health system has demonstrated its ability to improve the health status of people despite a decade long war. It potentials to do even better during peace time is even greater. It has been recognized by the international community for reduction in child mortality and maternal mortality. In fact this country is on track to meeting the targets of MDG largely due to performance in social sector (health and education). Nepal is actually one of the countries moving at fastest pace for achieving MDG.

- Finally, Nepal now has an eye care infrastructure with a well-spread out network of tertiary and secondary centers capable of providing support to primary health care for primary eye care, the most conspicuously missing element of eye care in contemporary Nepal.

Although this report is meant to be a review of only 10 years of Vision 2020, there is a lot of comfort that we can draw from looking back at the last three decades of eye care development in Nepal. With integration of eye health in to general health now on anvil, and attempts at diversification of services within the eye care sector to make it more comprehensive, Nepal can achieve even greater heights and meet its population’s eye care needs in next 10-15 years, bringing in to mainstream those people who have been left behind by the last thirty years of an eventful journey.

Further Reading


5. Long Term Health Plan, 1975-90. (2034 BS), MoH, Pachali, Kathmandu.


21. Medium Term Expenditure Program (MTEP) Operationalise 1st Three Years of 10th Five years Plan’s Health Programmes


25. Elements of Essential Health Care Services by Main Interventions or Program Components HMGN Ministry of Health, Kathmandu May 2000.


27. MOH/New ERA/Measure DHS, ORC Macro: Nepal Demographic and Health Survey 2006, Kathmandu, Nepal.
32. HMG/Ministry of Health, Strategic Guidelines for National Immunisation Program of Nepal, EPI Section, Child Health Division, DoHS Services, Teku, September 2002.
34. Nepal Operational Issues and Prioritisation of Resources in the Health Sector, Report No. 19613, June 8, 2000 HNPU South Asia Region, WB.
Chapter 7
Analysis of findings on Four Key Values of Vision 2020:
The Right to Sight

Prof. Dr. Madan Upadhyay
Team Leader, MTR Review Committee
Ms. Binjwala Shrestha
Coordinator, MTR Review Committee

Introduction:
We have so far reviewed the progress in four key strategies (Disease burden, infrastructure and services, human resources and policy, advocacy & resource mobilization) of Vision 2020: The Right to Sight. As noted, there have been significant achievements in most areas. However, these strategies are only a means to achieve the declared objectives of Vision 2020 which is to ensure equitable and sustainable, quality eye care integrated into national health systems. Incorporation of four core values: Integration, Sustainability, Excellence and Equity (I SEE) were also reviewed by MTR Team in Nepal’s eye care system. This chapter reports on each of these against the evidence gathered through the review process which has been described in detail earlier.

Integration
Eye care in Nepal is not considered an integral part of health care. This was voiced uniformly across the entire sampled health system from east to west, north to south, from grassroots workers to midlevel managers and national policy leaders. Some evidence to support this inference is described below:

1. General health staff across the country claimed lack of training in eye care and poor support “Training pani chhaina, Saman pani chhaina, Vision chart pani chhaina, kam garya pani Chhainaun”.
2. District health leaders voiced similar views.
3. Eye health information is not reflected in HMIS except for conjunctivitis, cataract, corneal ulcer and blindness which has been introduced only recently. They are not monitored regularly.
4. Health system staff admitted to having no or little idea of the progress and achievement in eye health.
5. DHO/DPHO were unaware of vision 2020 and progress in eye health.
6. None of the several ministry of health periodic reviews and plans mention anything about eye health status (except probably for NHSP-IP-2).
7. Because of lack of integration with the existing health system, eye care has not reached all parts of Nepal, certainly not beyond the district HQ in districts where PECC/CECC are located. Some districts are completely deprived of eye care even at the district headquarter level.
8. Virtually no eye care services are available in nearly 200 PHC and below.
9. Tertiary eye care centers at zonal and regional hospitals have either been closed (Pokhara) or are in the process of being closed (Biratnagar and Birgunj).
10. The vast majority of eye care service workforce is employed in NGO or private sector, very few in public sectors.
11. Once the remaining 7 ophthalmologists in government service retire, there will be no ophthalmologists and or paramedical eye care personnel in public health system.

A proposed model of integration of eye care is presented at the end of this chapter.

**Coordination**

1. Poor intra-sectoral (within eye care) and inter-sectoral coordination resulting in duplication, confusion etc both among national and international stakeholders.
2. Apex body for Eye Care’s role in coordination is perceived to be ineffective.
3. Clarity on government policy on eye care is lacking. Modality of partnership with civil society and private sectors is ill-defined.
4. State not actively involved even in stewardship and governance of eye care. “Rajya le ankha sewa lai panchhaeko chha”.
5. Fair practices in partnership are not being followed and it appears that government has contracted out services to one NGO or a couple of them (NOS, NGO, INGO)

**Sustainability**

1. Most eye care programs are geared toward financial sustainability. In fact eye care in Nepal is driven so much by financial sustainability agenda that elimination of avoidable blindness and equitable eye care takes a back seat.
2. Sustainability is viewed within the narrow perspective of financial sustainability.
3. Other important sustaining factors such as human resources, program sustainability on a long term basis have not received serious attention.
4. Many eye care institutions which have attained financial sustainability are in dire straits in so far as human resources are concerned.

5. Current financial sustainability of Terai-based eye centers is India-dependent. With massive resource input by government of India to improve eye health in India (INR 15,000 crore every year), the current inflow of patients from India may not continue for long. Thus “this sustainability may only be temporary and is very fragile”.

6. With eye care not being a State priority, its long term sustainability remains seriously questionable.

**Equity**

1. A review of 2,453,960 hospital cases, 142,457 camp cases 28,640 population based studies showed that the percentage of men utilizing the eye care services from the hospital was 49.86% which was almost the same as women, 50.14%. Given the fact that blindness in women is twice as much prevalent than in men, the utilization of eye care services by women is therefore disproportionately low, an inequity which has persisted over the years. In eye camp settings the gap narrowed, but persisted. The utilization of service by Terai women was found to be even lower. Likewise, gender gap persisted even when it came to schooling of blind and visually impaired children with more boys (57%) than girls (43%) enrolled in inclusive schools.

2. Inequitable access to eye care by women has persisted over the last thirty years of highly acclaimed Nepal’s eye care system with women still carrying over 60 percent of national burden of blindness.

3. No affirmative actions have been initiated until recently to address the issue of inequity.

4. Some institutions are not maintaining gender disaggregated data.

5. Since record of ethnicity was not available in eye care institution, we conducted an exit interview of service users in 16 eye care facilities across the nation. This showed that 58.76% of service users were male and 76% of them were from middle income group(income sufficient for a year with some surplus). With regard to caste and ethnicity, about 53% of service users were from higher caste group (Newar, Bramhin, Chhetri); Dalits constituted only 8% of those utilizing eye care services.

6. The reasons why dalits do not go and avail eye care facilities became clear during a focus group discussion. They prefer to go to the traditional healers for eye ailment because of easy accessibility and non-availability of eye care services at government health facility. When referred by these public health facilities, they do not go to the eye hospitals because of cost involved in transportation, food and medicines including glasses.

7. Children continue to remain marginalized. In a study by Gender and Eye Health Group children constituted only 15% of those utilizing eye care services while they constitute over 40% of Nepal’s total population.

8. No systematic and reliable information is available regarding inclusion/exclusion of other marginalized communities. Their special needs is not recognized, their access to eye care is not recorded, therefore not reported.

9. Gender, generation, geography, caste/ ethnicity, economic status were found to be key determinants of inequity. Eye care is virtually unavailable to people living outside district head quarters.

10. There is gross inequity in distribution of ophthalmologist with 60% of them located in Kathmandu
serving a population of less than 5%, same is also true for ophthalmic assistants though to a much lesser extent.

11. In conclusion Nepal’s eye care does not score well on equity and social inclusion agenda.

**Excellence**

1. While the number of patients operated (output) is available in most cases, there are limited reports available on outcome of surgery in particular.

2. Available studies indicated that WHO recommended standard of visual acuity of equal to better than 6/18 in 90 percent of cataract operated cases is not achieved, but is improving.

3. Only one available study on vision related quality of life has indicated poor outcome. This may have improved in recent years.

4. Standardized clinical protocols are seldom available and when available are seldom followed. Excellent services in some institutions co-exist with poor quality services in others.

5. Subjectively, however, based on the findings of exit interview and focus group discussion, 75% of patients understood the prescription and were satisfied with counseling and consultation they had received and about 88% were generally satisfied with eye care services they were provided.

6. Improvements sought by users included reduction in user fees, shortening of procedures and, waiting time.

7. Medical colleges starting postgraduate degree in ophthalmology without sufficient infrastructure and human resources has long term quality-related implications.
<table>
<thead>
<tr>
<th>Level</th>
<th>Health Worker</th>
<th>Number Available</th>
<th>Tasks to be Performed</th>
<th>Inputs Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward Level Population 5000-10,00</td>
<td>FCHV</td>
<td>50,000</td>
<td>- Identification of Ophthalmia neonatorum (new born baby with profuse muco-purulent discharge in eye)</td>
<td>Training, Logistics support</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Chloramphenicol ointment for eye injury and non painful red eyes, VAC for night blindness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Identification and referral of severe vision loss self-reported or reported by care takers and pain in eye</td>
<td></td>
</tr>
<tr>
<td>VDC (SHIP)</td>
<td>AHW</td>
<td>4000</td>
<td>All of the above plus + Management of non-painful red eye with other antibiotics + Diagnosis of corneal ulcer (painful red eye) and referral Test VA, Remove conj. FB, Refer “white pupil”, painful red eye, Impaired vision(&lt;6/9) + Train school teachers for vision screening</td>
<td>In-service training Logistics + Snellen's test type</td>
</tr>
<tr>
<td>Ilaka (HP)</td>
<td>HA/Senior AHW</td>
<td>700</td>
<td>All of the above plus + Management of painful red eye + primary treatment of Corneal Ulcer + Diagnose and refer cataract with less than 6/18-6/24 vision</td>
<td>In service training Logistics + Snellen's test type + Additional supply of drugs</td>
</tr>
<tr>
<td>Electoral Constituency (PHICC)</td>
<td>OA/Optometrist</td>
<td>206</td>
<td>All of the above plus + Refraction services with dispensing facility + Management of common ocular conditions such as: sty, chalazion, Blepharitis, conjunctivitis, dacryocystitis + diagnosis of squint and initial management and referral + Identification of Uveitis, DR and Glaucoma + Perform minor procedure such as Syringing, I/C, FB removal, IOP measurement, suture removal + Periodic cataract surgical camps, preoperative, postoperative and follow-up care of surgical patients</td>
<td>+Logistics for cataract surgery. + Optometrist/OA</td>
</tr>
<tr>
<td>District Hospital</td>
<td>OA/Optometrist plus visiting ophthalmologist once a month or 2-3 months</td>
<td>75</td>
<td>All of the above plus + Training of HP/SHP Staff</td>
<td>+ Mobile Trainers</td>
</tr>
<tr>
<td>Zonal Hospital</td>
<td>+ Posted ophthalmologist OA, Optometrist</td>
<td>11</td>
<td>General Ophthalmic Services</td>
<td>General ophthalmic equipments and instruments</td>
</tr>
<tr>
<td>Regional</td>
<td>Same as above</td>
<td>11</td>
<td>+ training/education, some subspecialty</td>
<td>+ Training and educational facilities</td>
</tr>
<tr>
<td>Central</td>
<td>+ sub speciality professionals</td>
<td>3</td>
<td>Sub speciality service</td>
<td>+ Equipments and facilities for sub-specialty service</td>
</tr>
</tbody>
</table>
Further Reading


Chapter 8
Eye Care Service User’s Perspectives (Exit Interview)

Mr. YD Sapkota
Member, MTR Reivew Committee
Ms. Binjwala Shrestha
Coordinator, MTR Review Committee

The findings are based on the responses of the eye care service users in study eye hospitals and primary eye care centers. The objective of this analysis is to gain an insight into the patients' perspectives on available eye services. The exit interview was conducted with randomly selected service users in eye hospitals, eye departments of general hospitals and eye care centers in study districts. The list of eye health facilities where the study was done is shown in Table 8.1.

Table 8.1. The study health facilities for exit interview

<table>
<thead>
<tr>
<th>Eye hospitals/ departments</th>
<th>Primary/Community eye care centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. BPKIHS eye department, Dharan</td>
<td>1. Terathum PECC</td>
</tr>
<tr>
<td>2. Manipal Medical college, Pokhara</td>
<td>2. Mantali CECC (Ramechhap)</td>
</tr>
<tr>
<td>3. UCMS, Bhairahawa</td>
<td>3. Dadeldhura PECC</td>
</tr>
<tr>
<td>5. Geta Eye Hospital, Dhangadhi</td>
<td>5. Surkhet CECC</td>
</tr>
<tr>
<td>6. Sagarmatha Chaudhary Eye Hospital, Lahan</td>
<td>6. Sallaghari PECC,</td>
</tr>
<tr>
<td>7. Rapti Eye Hospital, Dang</td>
<td>7. Kandel ECC, Nawalparasi</td>
</tr>
<tr>
<td>8. Himalaya Eye Hospital, Pokhara</td>
<td>8. Baglung PECC</td>
</tr>
<tr>
<td>9. Shree Rana Ambika Shah Eye Hospital, Bhairahawa</td>
<td>9. Rajbiraj PECC</td>
</tr>
<tr>
<td>10. Biratnagar Eye Hospital, Biratnagar</td>
<td>10. Kalaiya PECC, Bura</td>
</tr>
<tr>
<td>11. Ram Lal Golchha Eye Hospital, Biratnagar</td>
<td></td>
</tr>
<tr>
<td>12. Kedia eye Hospital, Birgunj</td>
<td></td>
</tr>
<tr>
<td>13. Fattehbal Eye hospital, Nepalgunj</td>
<td></td>
</tr>
<tr>
<td>14. Kist Medal College, Patan</td>
<td></td>
</tr>
<tr>
<td>15. Til Ganga Eye Hospital, Kathmandu</td>
<td></td>
</tr>
<tr>
<td>16. Nepal Eye Hospital, Kathmandu</td>
<td></td>
</tr>
</tbody>
</table>
Socioeconomic profile of the study participants

Gender
On an average 5 to 15 participants were included in the exit interview in one facility as per the patient load and time availability for interview. All together 548 eye service users: Male 322 (58.76%) and Female 226 (41.24%) were interviewed.

Caste ethnicity
The caste/ethnicity classification was done as per the GoN HMIS format. About 53% of service users belonged to advanced Group (Newar, Bramhin, Chhetri). Dalit constituted only 8% of the service users while they constitute 12-18% of Nepal’s population.

Economic status
Most service users (70%) were form middle income group (income sufficient for a year and also surplus). Range of service fees varied from Rs 10 to more than Rs 500 as per the type of services received. The distribution of user fees paid by the patients is given in Table 8.2.

<table>
<thead>
<tr>
<th>Service charge Paid (NRS)</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 to 50</td>
<td>122</td>
<td>22.3%</td>
</tr>
<tr>
<td>&gt;50 to 99</td>
<td>87</td>
<td>15.9%</td>
</tr>
<tr>
<td>100 to 199</td>
<td>123</td>
<td>22.4%</td>
</tr>
<tr>
<td>200 to 499</td>
<td>81</td>
<td>14.8%</td>
</tr>
<tr>
<td>500 or more</td>
<td>122</td>
<td>22.3%</td>
</tr>
<tr>
<td>Missing</td>
<td>13</td>
<td>2.4%</td>
</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
The study population was mostly from so-called higher caste/ethnicity and middle class economic status. The operation fees are not included in this category. The 86% of study participants replied that the fees were appropriate and they could afford to pay from their own income. However, the remaining low economic group (15%) managed user fees taking loan or from other sources they did not want to share with the interviewers. It is of some concern that this group will not be able to afford the cost of surgery if needed. This is not surprising considering the fact that over 70% of the service users who reported being able to pay belonged to middle income group.

**Purpose of Eye service visit and type of service received**

About 50% of the study participants visited the study eye health facility more than one time for eye care. Most of them (61%) were self-referrals (walk in) and only 3.28% were referred by health workers. The eye service users mentioned a variety of eye problems. Among them 22% had blurring of vision as their main symptom. The detail distribution of eye problems of study participants is given in table 8.3.

<table>
<thead>
<tr>
<th>Eye problem at this visit</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blurred vision</td>
<td>121</td>
<td>22.08</td>
</tr>
<tr>
<td>Headache</td>
<td>72</td>
<td>13.14</td>
</tr>
<tr>
<td>Injury</td>
<td>38</td>
<td>6.93</td>
</tr>
<tr>
<td>Other</td>
<td>195</td>
<td>35.58</td>
</tr>
<tr>
<td>Pain in the eye</td>
<td>89</td>
<td>16.24</td>
</tr>
<tr>
<td>Red eye</td>
<td>32</td>
<td>5.84</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>548</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Blurring of vision, pain in the eyes, redness of the eye and headache are the commonest symptoms bringing patients to eye units for ophthalmic consultation.

**Counseling and consultation**

The study participants received various types of services in the eye hospitals and eye centers such as eye drops and ointment 47%, glasses 18.43% and surgery 6.57%. About 94% of participants interviewed had received prescription for the treatment of eye problems. The prescriptions were reviewed and the participants were asked if they understood the information written on the prescription. About 75% patient who understood the prescription were able to mention type of their eye problem, dose and duration of prescribed medicine and timing of the follow-up, indeed a very encouraging finding.

**Facilities for Women friendliness**

It has been known for long that burden of blindness is higher in women and that it has persisted over the years. We were interested to find out how eye care facilities had responded to the problem of persistent gender inequity in utilization of eye care services. We were disappointed that none of the hospitals paid any attention to the need of making any special provisions. Eye care, in fact health care in general has remained gender neutral. It is high time for the gender neutral eye care system to internalize the special needs of women and initiate measures to bring in more women to eye centers and make the facility more
gender friendly by introducing gender-specific interventions at the hospitals.

**Satisfaction level on eye care**

Most patients mentioned that they would visit the health facilities again because of effective services (20%), good physical facilities (8%) and quality of care (36.7%). Of the study participants (88%) reported that they were satisfied with health services they received. However few of them (6%) mentioned that they will not visit that facility again because of health workers behavior, longer time consumed, poor physical facilities and quality of care etc. About 12% were not satisfied because they faced difficulties to locate the rooms, found user fees too high, eye care procedures too lengthy or too brief and waiting time too long.

**Access barrier while traveling to Eye facilities**

*Decision taken for eye care in the family*

- Women service seekers responded that in over 70% of cases they had to take permission from their husband or in-laws to visit health facility. Women also face difficulties to visit eye centers because it is often difficult to find somebody to accompany them to the center. Their responsibility with household chores also makes it difficult for them to visit hospitals. They also reported that because of the domestic responsibilities they cannot afford to spend long hours at hospitals.

*Travel and transportation facilities*

- Most of the eye service users travelled to facilities using public transportation and walking. The travel cost ranged from Rs.10 to 500.

*Difficulty faced during travel*

- Seventy two percent of the participants faced difficulties to visit health facilities due to lack of transport facility, friend to accompany, nobody to take care of home etc.

**Findings of Focus Group Discussion with women from Marginalized community**

**Eastern region:** Focus Group Discussion was carried out with marginalized community in Teratham-Dalit, Sunsari-Mushahar, Saptari-Chamar, Bara –Meshtar and Ramechhap-Majhi.

All of them would prefer to go to the traditional healers should they have an eye problem, next preference would be local pharmacy. Only if the situation did not improve they would go to a modern health facility. The reason for not going to the modern health facility is because of the high cost and lack of faith on the medications provided free of cost from the government health facility. Although it is not very cheap to go to the traditional healers for eye ailment, they go to them because they are easily accessible. The members participating in this focus group discussion had their health facility i.e. sub health posts within a walking distance of 10 minutes to an hour but they have to be referred to bigger centers because there is no treatment available for eye diseases in these facilities. The referred patients do not go to the hospitals because of cost involved in transportation, food and medicines including glasses. Wearing glasses is a social stigma for them and they believe that glasses make it difficult for them to work. All the participants were satisfied with the service provided by the PECC/CEC but in Lahan hospital the registration closes at 10 AM and the charge after 10 AM is too much for them to afford. *Suggestions from the participants of the FGD:* Eye health care should be available in the local government health facility. For poor referred patients there should be provision of travel, spectacles and medicine free of cost.
**Central and Western region:** FDG was conducted with Dalit women of Lahare pipal of Baglung and Palhi VDC of Nawalparasi. In both VDCs they went directly to PEC for their eye problem. Although they would have preferred to go the PHCC for eye problem as well but there is no eye care services available in PHCC so they have to go to the eye hospital which is far away requiring an escort. It results in treatment becoming more expensive for them. They all feel that it is costly to go to the eye care facility as they have to pay for everything including registration. One of the main reasons for not having glasses is the cost. There are no separate toilets or queue system for men and women which make them wait longer. **Suggestions:** The registration fee should be reduced including provision of free treatment for Dalit women. There should be a separate queue for registration for men and women as well as separate toilets.

**Mid Western and Far Western region:**

FDG was carried out with the dalit women of Dang, Surkhet, Dadeldhura and Kanchanpur. Most of them go to the SHP as it is the nearest place for health problems. If it is not cured with the simple drops and ointments they go the dhamis or to the PEC/CEC. PECC/CECs are not always accessible to them because of the distance, and because they have to pay for registration, medicines and glasses. So they wait for the camps as the treatment at these camps is free.

**Further reading**


Chapter 9

Plan of Action
for
Vision 2020: The Right to Sight for Elimination of
Avoidable Blindness

Prof. Dr. Madan Upadhyay
Team Leader, MTR Review Committee
Dr. Reeta Gurung
Coordinator, MTR Review Committee

Introduction

Member States of WHO requested for an action plan at the Sixty-first World Health Assembly to accelerate efforts toward elimination of avoidable blindness. Following this request, WHO secretariat prepared a draft action plan using an open consultative process. This draft was endorsed by the 124th Session of the Executive Board and subsequently adopted by Sixty second General Assembly. Five objectives are defined within this action plan to serve as road map for future plan for elimination of avoidable blindness. This plan proposed for Nepal follows guideline endorsed by the General Assembly.

Objectives of the Plan of Action:

1. Strengthen Advocacy to increase political, financial and technical commitment in order to eliminate avoidable blindness.

2. Develop and strengthen national policies, plans and programs for eye health and prevention of blindness and visual impairment.
3. Increase and expand research for the prevention of blindness and visual impairment.
4. Improve coordination between partnerships and stakeholders at national and international levels for prevention of blindness and visual impairment.
5. Monitor progress in elimination of avoidable blindness at national, regional and international levels.

1. **Strengthen Advocacy to increase political, financial and technical commitment in order to eliminate avoidable blindness.**

*Present situation*

- Political commitment for elimination of avoidable blindness is weak.
- Role of State in eye care in terms of stewardship and governance is not effective.
- Eye care in Nepal largely NGO driven.
- WHO country cooperation strategy non-inclusive of eye care.
- WHO support to PBL which was instrumental in development of Nepal’s eye care programme has been virtually withdrawn.
- National plan drawn in 2000 at the time of launching of national vision 2020 remains largely unimplemented for a variety of reasons listed below.
- Reporting and assessment of implementation of the plan is insufficient in frequency and in details
- National plan of action lacks linkages with national health development plan and larger context of national development and millennium development goals.
- National committee for prevention of blindness is ineffective

*Action plan:*

- Sensitize law makers, policy makers and health bureaucracy and other stakeholders of the contributions prevention of blindness makes to reducing poverty, increasing longevity, and meeting broader development goals such as increasing school enrollment and reducing drop outs from schools and reducing road traffic injuries and household accidents.
- Lobby/advocate jointly with Ministry of Health, Finance and National planning commission for greater appreciation of the value of prevention and control of blindness and for greater budgetary allocation for prevention of blindness.
- Ensure proper utilization of available resources so that there is not only more money for eye health but more eye health with the money available through establishment of an effective coordination mechanism, transparent accounting system and periodic reporting.
- A unit/ cell to be established within the ministry of health for coordinating different agencies and stakeholders.
- Observe World Sight Day regularly to create awareness and promote advocacy.
2. Develop and strengthen national policies, plans and programs for eye health and prevention of blindness and visual impairment.

Present situation

- No clearly defined policies for eye care in Nepal’s health policies, plans and programs.
- Eye care services often considered outside the purview of Health Ministry’s responsibilities even by health workers.
- Ministry of Health's HRH Development plan does not include plans for development of HRH for eye care.
- Eye care system in Nepal functions virtually independent of general health system.
- Trachoma elimination program is facing difficulty due to a huge backlog of un-operated trichiasis cases and suspected poor outcome of operated trichiasis cases.

Action plan:

- Formulate an inclusive eye health policy to reflect all four core values of Vision 2020: The Right to Sight- as well as to align it to broader national development goals.
- Revise the existing plan to reflect new reality.
- Develop appropriate strategies and programs.
- Develop plans to incorporate prevention of blindness within national health agenda and broader development goals such as poverty reduction strategy, millennium development goals.

# Note: Following the Interim report of the MTR Ministry of Health has initiated efforts to integrate eye care into general health. A Task force has been constituted which is engaged in intensive exercise. Similar efforts should be made to strengthen sustainability, excellence and equity, particularly gender equity, which has remained a neglected agenda in Nepal's eye care system.

3. Increase and expand research for the prevention of blindness and visual impairment.

Present situation:

- World class research in Vitamin A nutrition, corneal ulcer treatment and prevention, use of single dose Azithromycin in Trachoma, etc successfully implemented.
- Epidemiological survey of glaucoma completed in one district (Bhaktapur). Epidemiological survey of Diabetic retinopathy is ongoing.
- Prevalence of refractive errors in different ethnic groups and at different ages not known well.
- Information on barriers to refractive correction (Number needing glasses, number prescribed glasses and number wearing glasses) not available.
- Although, Diabetes and diabetic retinopathy is increasing, its true magnitude and effect on vision not known accurately. Likewise, risk factors and protective factors in Nepali population are not known.
- A large proportion of causes of childhood blindness is unknown, mode of inheritance and risk factors are ill understood.
• Although, awareness about eye diseases and availability of eye care services has increased, there still remains a large section of the population with very low level of awareness.
• Reliable information on cost of blindness and cost of prevention and control of blindness not available.
• Although patchy information is available on prevalence of blindness, comprehensive data on determinants and distribution are not available.

Action plan:
• Assess causes and determinants of childhood blindness including mode of inheritance in blinding and non-blinding childhood eye diseases.
• Estimate economic cost of blindness and cost of preventing it, and its share of DALY loss and its impact on socio-economic development more precisely.
• Determine magnitude of DR in urban areas including in urban poor.
• Develop methods/techniques for early detection, treatment of DR in community settings.
• Conduct controlled trails on role of nutrition and smoking in age-related macular degeneration.
• Evaluate outcome of bilateral lamellar tarsal resection in surgery for entropion.
• Develop innovative strategies for increasing awareness in the community, taking advantage of modern communication technology.
• Explore feasibility and look for support for comprehensive epidemiological survey of the magnitude and determinants of visual impairment for forward planning.
• Undertake periodic HRH research.

4. Improve coordination between partnerships and stakeholders at national and international levels for prevention of blindness and visual impairment.

Present situation
• Identification of stakeholders incomplete.
• Cooperation and coordination between stakeholders insufficient.
• No effective central coordinating mechanism in place.
• No clear policy on partnership development.

Action plan:
• Undertake mapping and identification of stakeholders.
• Constitute a coordination committee/mechanism/cell/center for blindness control in the Ministry of health.
• Establish a full time national coordinator’s post in the ministry of health with adequate support (Financial and human resources).
• Facilitate joint action group of all INGOs/NGOs to meet at least quarterly.
• Make arrangements for interaction of the INGO/NGO group with Coordinator quarterly.
• Ensure that joint annual national and regional plans are drawn three months before the beginning of financial year for budgetary allocation.

5. Monitor progress in elimination of Avoidable blindness at national, Regional and international levels

Present situation
• Nepal’s rather well–acclaimed HMIS provides very little or virtually no useful information for monitoring eye care.
• Standardized data collection forms are not in use (Use of ICD in disease classification is uneven).
• No system of determining the trends in magnitude, causes, distribution of blindness disaggregated for gender, age and ethnicity (socio-economic status) in place for monitoring progress.
• Currently available WHO recommended monitoring tools for prevention and control of blindness not in use.

Action plan:
• Develop standardized data collection forms and train personnel on use and reporting.
• Establish Sentinel centers for regular flow of data for monitoring key indicators.
• Integrate eye health monitoring with reformed national HMIS.
• Hold six monthly joint annual reviews with key stakeholders.
• Organize annual review meetings/workshops with all stake holders to review progress and set targets.
• Publish annual report on eye care.
• Conduct five yearly intensive reviews (2016).
• Conduct end of term review (2021).

Further Reading
Blindness and Visual impairment in Nepal: Facts and Figures
(As of December 2010)

Nepalese are becoming rapidly blind at a rate of at least 125 per day
Every day 7 Nepalese children become blind.

Epidemiology of Blindness and Visual Impairment
1. Three out of one hundred Nepalese are either blind, severely visually impaired or have low vision.
2. There are over 1 million people with marked vision loss in Nepal: 120,000 blind (unable to count fingers at 3 meters); 275,000 with severe visual impairment (unable to count fingers at 6 meters) and 750,000 with low vision.
3. Every day 125 Nepalese become blind.
4. There are 30,240 blind children and over 90,000 low vision children.
5. Every day 7 children become blind, and 2 of them die.
6. One out of three persons has some eye problem at any given time, in other words 10 million Nepalese have some eye problems at a given point in time. In 2010 only 15% of those needing eye care actually accessed services.
7. Of the 120,000 blind and low vision children, less than 7,000 are enrolled in schools.

Infrastructures and services for eye care:
8. Twenty eye hospitals, 17 eye departments in general hospitals and medical colleges and 63 district eye centers are currently providing eye services in the country.
9. Eye hospitals are available in 11 of Nepal's 14 administrative zones. There are no eye hospitals in the mountains.
10. In 2010 in the eastern region 3 eye hospitals served a total of 309, 862 patients among whom 89,707 (28.96%) were Nepali patients and 220,155 (71.04%) were foreigners receiving OPD services. The percentage of foreigners using surgical services reaches up to 90% in many of the Terai institutions.
11. Although blindness is twice as common in female, only one woman accesses eye care service for every man accessing eye care and one woman is left out.

Human resources:
12. After 10 years of launching Vision 2020, the number of human resources working for eye health in Nepal has increased tremendously. Number of Ophthalmologists increased from 76 to 147, ophthalmic assistants from 161 to 275 and Optometrists from 5 to 36 who are currently working in Nepal.
13. However, there is a huge gap in human resources in the eye care, according to the WHO (Vision 2020) criteria, Nepal is short of 423 ophthalmologists, 534 optometrists and 865 ophthalmic assistants and 5,700 eye health workers (primary health care workers trained in eye care).
14. There is serious inequity in distribution of existing eye health human resources with 82 of the 91 ophthalmologists working in the hills concentrated in Kathmandu (over 60% ophthalmologists working for 2.6 % population), with only 9 ophthalmologists available for other hills. Only 5.2 % of ophthalmologists are working for one third of Nepal's population living in mid west and far west development regions.

Economic Burden of Blindness:
15. Blindness is estimated to cost the nation at least NRS 9.7 billion every year (1.45% of 2010 GNP) through loss of income opportunities and for upkeep of blind persons.
16. Operating on 300,000 cataract blind persons will cost NRS 1.5 billion, resulting in a saving of 8.2 billion, making blindness prevention one of the most cost-effective health interventions.