

SIGHTSAVERS INTERNATIONAL, INDIA

EYE CARE IN INDIA

A SITUATION ANALYSIS

Report Prepared by
Family Health and Development Research Service Foundation,
Hyderabad, India

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Abbreviations and Acronyms

AECS	: Aravind Eye Care System
AIOS	: All India Ophthalmologic Society
CBM	: Christoffel Blindenmission
DANIDA	: Danish International Development Assistance
DANPCB	: Danish Assistance to the National Program for Control of Blindness
DBCS	: District Blindness Control Society
DFID	: Department for International Development
EBAI	: Eye Bank Association of India
GIS	: Geographical Information System
GOI	: Government of India
ICARE	: International Centre for Advancement of Rural Eye Care
IEF	: International Eye Foundation
IT	: Information Technology
LAICO	: Lions Aravind Institute of Community Ophthalmology
LCIF	: Lions Clubs International Foundation
LRSP	: Long Range Strategic Plan
LVPEI	: L V Prasad Eye Institute
MIS	: Management Information System
MLOP	: Mid Level Ophthalmic Personnel
NPCB	: National Program for Control of Blindness
OEU	: Operations Eyesight Universal
R P Centre	: Rajendra Prasad Centre for Ophthalmic Sciences
SN	: Sankara Nethralaya
SSI	: Sightsavers International
TM	: Tele Medicine
UNDP	: United Nations Development Program
UNICEF	: United Nations Children's Fund
USAID	: United States Agency for International Development
VHAI	: Voluntary Health Association of India
WB	: World Bank

WHO : World Health Organization

Executive Summary

Sightsavers International (SSI) earlier the Royal Commonwealth Society for the Blind, works to combat blindness in developing countries, restoring sight through specialist treatment and eye care. Sightsavers mission to work in the poorest and least developed regions in the country is aided and facilitated by an earlier situational analysis in 2001 that primarily identified priority states that needs to be reached. The states identified included Chattisgarh, Madhya Pradesh, Uttaranchal, Uttar Pradesh, Rajasthan, Bihar, Jharkhand, & Orissa. Taking this into account, Sightsavers also decentralized operations to 3 more area offices in Jodhpur, Kolkata and Bhopal in addition to the Regional Office at Mumbai with respect to program implementation in these states. Currently Sightsavers works with more than 85 partners across the country and has prevention activities as a core activity in its comprehensive eye care strategy. Sightsavers is in the course of revitalizing itself to address the same through its regional and area offices currently and to chart a strategic direction for the period 2009 – 2013 in the contextual circumstances for eye care in India. Sightsavers would have the 5-year plan of the government of India preceded by a year for it to look at compatibility and contributing to national efforts in blindness control and prevention

The primary objective of this situational analysis document is to comprehensively explore several aspects of blindness and vision impairment in India, including the magnitude of blindness, various on-going interventions at the national level addressing blindness and vision impairment. The document will also explore the position of eye care indicators and programs in India relative to global indicators. The document is expected to recommend strategic directions that Sightsavers, India should focus on for the next five years.

The report has been prepared mainly collecting information through:

- Interactions with Sightsavers
- Secondary sources: Published documents, Annual reports and Websites
- Primary sources of information through email/phone/fax
- Experience inputs of the consultants and
- Analytical views of the consultants.

Sightsavers International, India plans to align its interventions and strategies with the overall goals of VISION 2020: The Right to Sight Initiative and contribute to poverty alleviation and millennium development goals. Sightsavers proposes to develop its strategies keeping in mind the capacity of current partners and potential new partners, and the benefits to them as well. The focus that Sightsavers would pursue includes:

1. Area of disease control with specific focus on comprehensive eye care, continued support to cataract control in defined geographical areas, refractive errors, low vision, diabetic retinopathy, obvious glaucoma. Primary Eye Care and preventive programs for children and corneal blindness would be an integrated approach.
2. Developing Human Resources for Eye Care with focus on low vision and rehabilitation, dispensing opticians, management and ophthalmology fellowship and sub-specialty training support.
3. Strengthening Service Delivery through developing models for eye care delivery.
4. Promoting Community Ownership and Participation through working with community based organizations and peoples based institutions.
5. Developing Institutional Capacity, Partnerships and Networking through appropriate allocation of resources and development of programs.
6. Operational and epidemiological research to support the above

Sightsavers will leverage its position within the eye care milieu in the country at the national, state and local levels as well as its position in the Vision 2020 India forum to pursue the directions set and achieve the objectives outlined.

Chapter I: Background

1.1 Sightsavers International India Regional Program

Sightsavers International (Sightsavers) earlier the Royal Commonwealth Society for the Blind, works to combat blindness in developing countries, restoring sight through specialist treatment and eye care. Sightsavers supports people who are irreversibly blind by providing education, counseling and training. Sightsavers helps people who need it most - those living in poverty in some of the world's poorest countries. Today, Sightsavers works with partners in over 30 countries and its mission has expanded to also provide services to the blind and campaign for the eradication of needless blindness. Sightsavers supports eye health care, education and rehabilitation programs for blind and visually impaired people in 4 countries in Asia, namely India, Pakistan, Bangladesh and Sri Lanka.

India, being the world's second most populous country presents its own problems in delivering health care, but together with its partners Sightsavers has made great progress in India. Since 1966, Sightsavers has supported thousands of local partners to become self-sufficient in providing eye care services, helped treat over 20 million eye patients and brought eye care to some of the least-served areas of the country. Sightsavers has also revolutionized the affordability of cataract surgery in the developing world with the establishment of a unit in India to produce high-quality, low-cost plastic lenses. In addition, many thousands of irreversibly blind people have received rehabilitation and educational support to enable them to lead lives of independence and dignity. Sightsavers' vision is of a world in which no-one is needlessly blind and where everyone who is irreversibly blind or severely visually-impaired enjoys the same rights, responsibilities and opportunities as their sighted peers. Towards this end Sightsavers in the last decade has move towards partnerships and networks with developmental and community based organizations to reach them in collaboration with institutions and other higher centres for eye care.

Sightsavers mission to work in the poorest and least developed regions in the country is aided and facilitated by an earlier situational analysis in 2001 that primarily identified priority states that needs to be reached. The states identified included Chattisgarh, Madhya Pradesh, Uttaranchal, Uttar Pradesh, Rajasthan, Bihar, Jharkhand, & Orissa. Taking this into account, Sightsavers also decentralized operations to 3 more area offices in Jodhpur, Kolkata and Bhopal in addition to the Regional Office at Mumbai with respect to program implementation in these states. Currently, Sightsavers works with more than 85

partners across the country and has prevention activities as a core activity in its comprehensive eye care strategy.

The eye care scenario in the country has been steadily changing with new service providers emerging, policies of the governments at the country and state level with respect to health, competing health priorities, legislations and laws, roles and strategies of other eye care players including I/NGO's and institutions and Sightsavers is in the course of revitalizing itself to address the same through its regional and area offices currently and to chart a strategic direction for the period 2009 – 2013 in the contextual circumstances for eye care in India. Sightsavers would have the 5-year plan of the government of India preceded by a year for it to look at compatibility and contributing to national efforts in blindness control and prevention.

1.2 Purpose of the Document & Methodology

The primary objective of this situational analysis document is to comprehensively explore several aspects of blindness and vision impairment in India, including the magnitude of blindness, various on-going interventions at the national level addressing blindness and vision impairment. The document will also explore the position of eye care indicators and programs in India relative to global indicators. The document is expected to recommend strategic directions that Sightsavers, India should focus on for the next five years.

More specifically, the Situational Analysis report will:

- Serve as a base document to promote deliberations and group work on various topics covered and derive action points
- Serve as a critical input to thrash out strategic decisions while developing program strategic approaches for Sightsavers in India and evolve a strategy for Sightsavers for its program interests and operations in India for the next five years.
- Look at options and opportunities for convergence to eliminate duplication of efforts in the country and area.
- Explore and consolidate its position as a major eye care international organization partner in the country and different states of the country and work in collaboration with other stakeholders including the Government of India's program for blindness control.

The report has been prepared mainly collecting information through:

- Interactions with Sightsavers
- Secondary sources: Published documents, Annual reports and Websites
- Primary sources of information through email/phone/fax
- Experience inputs of the consultants and
- Analytical views of the consultants.

Chapter II: Blindness Scenario

2.1 Global Perspective^a

2.1.1 Magnitude and Prevalence

The definitions for visual impairment, low vision and blindness follow those given in the International statistical classification of diseases, injuries and causes of death, 10th revision (ICD-10): H54 (9) where: visual impairment includes low vision as well as blindness; low vision is defined as visual acuity of less than 6/18, but equal to or better than 3/60, or a corresponding visual field loss to less than 20 degrees in the better eye with best possible correction (ICD-10 visual impairment categories 1 and 2); and blindness is defined as visual acuity of less than 3/60, or a corresponding visual field loss to less than 10 degrees in the better eye with best possible correction (ICD-10 visual impairment categories 3, 4 and 5).

The number of people with visual impairment worldwide in 2002 was in excess of 161 million, of whom about 37 million were blind and 124 million had low vision. The ratios of people with low vision to those with blindness, by sub region, ranged from 2.4 to 5.8 with a median value of 3.7. There has been significant progress in the therapeutic interventions for eye diseases, especially surgical interventions for cataract. However, cataract remains the leading cause of blindness and visual impairment in all regions of the world, except in the most developed countries. The burden of visual impairment is not distributed uniformly throughout the world: the least developed regions carry the largest share. Visual impairment is also unequally distributed across age groups, being largely confined to adults 50 years of age and older. A distribution imbalance is also found with regard to gender throughout the world: females have a significantly higher risk of having visual impairment than males due to social and medical reasons.

Although childhood blindness remains a significant problem (there are an estimated 1.4 million blind children below the age of 15 years), its magnitude is relatively small when compared to the extent of blindness in older adults when considered as numbers; more than 82% of all blind people are 50 years and older. The number of women with visual impairment, as estimated from the available studies, is higher than that in men even after adjustment for age. Female/male prevalence ratios indicate that women are more likely to remain with a visual impairment than men in every region of the world: the ratios range from 1.5 to 2.2.

^a Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel GP, Mariotti SP. Global data on visual impairment in the year 2002. Bull World Health Organ. 2004 Nov;82(11):844-51.

In 2002, the population 50 years and older, with the highest prevalence of visual impairment, represented more than 30% of the population in developed countries and 15% of that in developing countries. If the prevalence of blindness is taken as an indicator, all sub regions with prevalence above 0.5% for all ages should be considered for priority action according to WHO objectives. The eight WHO sub-regions concerned (Afr-D, Afr-E, Emr-B, Emr-D, Sear-B, Sear-D, Wpr-B1 and Wpr-B2) are home to 70% of the world's population and contribute 85% of the total number of blind people.

Age-specific prevalence of blindness and number of blind people, by age and WHO sub region, 2002a						
WHO Sub-region	Prevalence of blindness (%)			No. of blind persons (millions)		
	<15 years	15–49 years	≥50 years	<15 years	15–49 years	≥50 years
Afr-D	0.124	0.2	9	0.191	0.332	3.124
Afr-E	0.124	0.2	9	0.196	0.336	3.110
Amr-A	0.03	0.1	0.4	0.021	0.114	0.560
Amr-B	0.062	0.15	1.3	0.085	0.369	0.937
Amr-D	0.062	0.2	2.6	0.017	0.075	0.241
Emr-B	0.08	0.15	5.6	0.039	0.117	0.920
Emr-D	0.08	0.2	7	0.043	0.146	1.217
Eur-A	0.03	0.1	0.5	0.021	0.204	0.713
Eur-B1	0.051	0.15	1.2	0.020	0.136	0.462
Eur-B2	0.051	0.15	1.3	0.009	0.043	0.090
Eur-C	0.051	0.15	1.2	0.021	0.192	0.822
Sear-B	0.083	0.15	6.3	0.102	0.332	3.779
Sear-D	0.08	0.2	3.4	0.390	1.423	6.530
Wpr-A	0.03	0.1	0.6	0.007	0.070	0.315
Wpr-B1	0.05	0.15	2.3	0.162	1.166	6.404
Wpr-B2	0.083	0.15	5.6	0.041	0.120	1.069
Wpr-B3	0.083	0.15	2.2	0.002	0.006	0.017
World				1.368	5.181	30.308

Afr, WHO African Region; Amr, WHO Region of the Americas; Emr, WHO Eastern Mediterranean Region; Eur, WHO European Region; Sear, WHO South-East Asia, Region; Wpr, WHO Western Pacific Region.

Global estimate of visual impairment by WHO sub region, 2002a						
WHO Sub-region	Total population (millions)	No. of blind people (millions)	Prevalence of blindness (%)	No. of people with low vision (millions)	Prevalence of low vision (%)	No. of persons visually impaired (millions)
Afr-D	354.324	3.646	1.0	10.715	3.0	14.361
Afr-E	360.965	3.642	1.0	10.573	3.0	14.215
Amr-A	322.309	0.694	0.2	4.029	1.2	4.723
Amr-B	456.432	1.392	0.3	7.600	1.7	8.992
Amr-D	73.810	0.332	0.5	1.488	2.0	1.820
Emr-B	142.528	1.076	0.8	3.580	2.5	4.656
Emr-D	144.405	1.406	0.97	4.116	2.9	5.522
Eur-A	415.323	0.937	0.2	5.435	1.3	6.372
Eur-B1	169.716	0.618	0.4	2.546	1.5	3.164
Eur-B2	53.130	0.142	0.3	0.590	1.1	0.731
Eur-C	239.717	1.035	0.4	4.219	1.8	5.254
Sear-B	405.313	4.214	1.0	9.669	2.4	13.883
Sear-D	1394.045	8.344	0.6	28.439	2.0	36.782
Wpr-A	150.867	0.393	0.3	1.883	1.2	2.276
Wpr-B1	1374.838	7.731	0.6	26.397	1.9	34.128
Wpr-B2	148.469	1.229	0.8	2.898	1.9	4.127
Wpr-B3	7.677	0.025	0.3	0.090	1.2	0.115
World	6213.869	36.857	0.57	124.264	2	161.121

Afr, WHO African Region; Amr, WHO Region of the Americas; Emr, WHO Eastern Mediterranean Region; Eur, WHO European Region; Sear, WHO South-East Asia, Region; Wpr, WHO Western Pacific Region.

Causes of blindness as a percentage of total blindness – by WHO sub region, 2002									
WHO Subregion	Cataract	Glaucoma	AMD	Corneal opacities	Diabetic retinopathy	Childhood blindness	Trachoma	Oncho cerciasis	Others
Afr-D	50	15		8		5.2	6.2	6	9.6
Afr-E	55	15		12		5.5	7.4	2	3.2
Amr-A	5	18	50	3	17	3.1			3.9
Amr-B	40	15	5	5	7	6.4	0.8		20.8
Amr-D	58.5	8	4	3	7	5.3	0.5		13.7
Emr-B	49	10	3	5.5	3	4.1	3.2		22.2
Emr-D	49	11	2	5	3	3.2	5.5		21.3
Eur-A	5	18	50	3	17	2.4			4.6
Eur-B1	28.5	15	15	8	15	3.5			15.0
Eur-B2	35.5	16	15	5	15	6.9			6.6
Eur-C	24	20	15	5	15	2.4			18.6
Sear-B	58	14	3	5	3	2.6			14.4
Sear-D	51	9	5	3	3	4.8	1.7		22.5
Wpr-A	5	18	50	3	17	1.9	0.025		5.0
Wpr-B1	48.5	11	15	3	7	2.3	6.4		6.8
Wpr-B2	65	6	5	7	3	3.6	3.5		6.9
Wpr-B3	65	6	3	3	5	9.5	4.3		4.2
World	47.8	8.7	12.3	5.1	4.8	3.9	3.6	0.8	13.0

Afr, WHO African Region; Amr, WHO Region of the Americas; Emr, WHO Eastern Mediterranean Region; Eur, WHO European Region; Sear, WHO South-East Asia Region; Wpr, WHO Western Pacific Region.

2.1.2 Interventions^{b, c}

International initiatives for prevention and control of blindness have been a part of the international health development agenda of the WHO for many years. The first initiative by the WHO in this area was the call in 1956 for Control of Trachoma through international cooperation. As a result of this, programs for control of trachoma were launched in many countries, including the SAFE strategy. This has led to dramatic reduction of active trachoma cases and blindness from trachoma in the world. WHO issued a new call to deal with new challenges pertaining to blindness based on changes in demographic pattern and epidemiology of eye diseases. In 1976 the World Health Day was celebrated with the slogan: "**Foresight prevents blindness**". The partnership that ensued between WHO and International Agency for Prevention of Blindness (IAPB) saw major advances with focused programs currently in operation in many countries. National societies and national programs for prevention and control of blindness were constituted in many countries. This saw a spurt of activities, which resulted in reduction of vitamin A deficiency as cause of blindness in many parts of the world including this region. In fact the programs for

^b<http://www.who.int/blindness/history/en/>

^chttp://www.iapb.org/mile_stone1.htm

prevention of blindness from vitamin A deficiency led to the major discovery of role of vitamin A in reducing childhood morbidity and mortality. Large volume cataract surgery was another major activity undertaken in addition to prevention of Vitamin A related blindness that helped restore sight to millions. Onchocerciasis (not of importance to the South East Asia (SEA) Region) is now greatly under control. WHO's continued vigilance subsequently revealed that as infectious and nutritional diseases came under control, age related cataract has become the single most important cause of blindness in the developing world. It also became apparent that non-cataract age-related vascular and degenerative conditions have progressively become more important causes of blindness. Initiatives of the WHO were instrumental in recognizing uncorrected refractive errors as a major cause for blindness.

Despite these concerted efforts for prevention of blindness during the past 25 years, the number of blind persons in the SEA Region is still increasing. There are more blind people in the Region (15 million – using the WHO definition) in the new millennium than there were in 1975 (7 million). It is estimated that this number will double before we approach the first quarter of the next century. The reasons for this are the rapid increase in the total population as well as ageing population. The other reason for this increase is the low priority, therefore, poor financial allocations that blindness prevention programs have received in the past in the countries of the Region. All this requires a change in focus.

A global initiative was launched by the name of '**Vision 2020: The right to sight**'^d on February 18, 1999 by the World Health Organization (WHO) and the International Agency for Prevention of Blindness (IAPB) for elimination of the avoidable blindness by the year 2020 by means of global co-operation and collaborative approach, which involves WHO, IAPB, International non-governmental organizations like Sightsavers and CBM being founding members, philanthropic institutions and other organizations and individuals working with National Governments. Globally 'Vision 2020' aims at 20 million cataract surgeries annually by the year 2010 and 32 million cataract surgeries annually by the year 2020.

Given the population in 2000, the regional figures implied a global prevalence of blindness of 0.72%. The global prevalence of blindness in 2020 was projected to increase to just over 1% (75.9 million blind persons). The prevalence increased most rapidly in regions predicted to have a significant demographic transition over the next 20 years. This excluded the established market economies and former socialist

^d <http://www.v2020.org/>

economies, where the demographic transition has already occurred and sub-Saharan Africa, where the demographic transition has not been projected to occur through 2020. If VISION 2020 were as successful as projected, the global prevalence of blindness would decrease to 0.33% in 2020. Under these projections, the number of blind persons decreased to 24.4 million in 2020 despite world population growth. The number of cases in the population aged 15 to 64 years increased from 25 million in the year 2000 to 33 and 43 million in 2010 and 2020, respectively without VISION 2020 but decreased to 23 and 13 million in 2010 and 2020 with VISION 2020.

According to Frick and Foster^e, the global economic productivity loss for non-estimated blindness alone was projected to grow from \$19 billion in the year 2000 to \$50 billion in the year 2020 without the VISION 2020 initiative, whereas the figure associated with blindness and low vision combined was projected to grow from \$42 billion to \$110 billion. These increases were the result of the increase in the 15- to 64-year-old population and the growth in GDP per capita. With the VISION 2020 intervention, the global figure for blindness increased from \$19 billion to only \$26 billion in year 2020 with the increase in productivity offsetting the decrease in prevalence; the figures were \$42 billion and \$57 billion for blindness and low vision combined. Counting low vision's costs more than doubled the loss. Using a 3% discount rate, the present value of this increase in economic productivity associated with fewer blind individuals with a successful VISION 2020 initiative was \$151 billion. Including the impact of projected low vision cases resulted in an additional \$159 billion for a total of \$310 billion in present value of productivity increase over 20 years. This represented a drop from a present value of \$1,546 billion lost without VISION 2020 to only \$1,236 billion lost with VISION 2020. A similar figure counting only the effect associated with blind 15- to 64-year-olds and not including informal care was \$102 billion gained.

^e Frick KD, Foster A. The magnitude and cost of global blindness: an increasing problem that can be alleviated. *Am J Ophthalmol.* 2003 Apr;135(4):471-6.

Estimated Millions of Blind Persons by Age Group and World Development Region With and Without VISION 2020

WDR	2000	2010		2020	
		Without VISION 2020	With VISION 2020	Without VISION 2020	With VISION 2020
China	8	10	7	14	5
Established Market Economies	2	3	3	3	2
Former Socialist Economies	1	1	1	1	1
India	10	13	9	18	4
Latin America/Carribbean	3	4	3	5	2
Mid Eastern Crescent	4	6	5	8	3
Other Asia/Islands	6	9	6	12	4
Sub Saharan Africa	9	12	7	15	4
Global	44	58	40	76	24
Age Group					
0-14	2	2	1	2	1
15-64	25	33	23	43	13
65+	17	22	16	31	10

Annual Global GDP Loss From Blindness + Low VISION Measured in Millions of Dollars

WDR Region	2000	2010		2020	
	Blind+ Low Vision	Without VISION 2020	With VISION 2020	Without VISION 2020	With VISION 2020
China	1,330 + 1,576	2,460 + 2,912	1,706 + 2,020	4,165 + 4,931	1,451 + 1,719
Established Market Economies	11,104 + 13,150	17,700 + 20,960	16,708 + 19,785	24,901 + 29,486	17,973 + 21,283
Former Socialist Economies	358 + 425	566 + 670	535 + 634	750 + 889	542 + 641
India	805 + 953	1,458 + 1,727	1,012 + 1,198	2,538 + 3,005	613 + 725
Latin America/Carribbean	1,469 + 1,740	2,651 + 3,139	2,206 + 2,612	4,571 + 5,412	1,695 + 2,007
Mid Eastern Crescent	919 + 1,089	1,746 + 2,068	1,376 + 1,629	3,117 + 3,692	1,093 + 1,295
Other Asia/Islands	2,398 + 2,840	4,572 + 5,415	3,005 + 3,558	8,128 + 9,625	2,370 + 2,807
Sub Saharan Africa	838 + 992	1,324 + 1,568	767 + 908	2,003 + 2,371	514 + 609
Global	19,223 + 22,764	32,477 + 38,459	27,314 + 32,344	50,172 + 59,412	26,251 + 31,086

2.2 WHO South East Asia Regional Perspective^f

2.2.1 Magnitude and Prevalence

One third of the world's 37 million blind and half of the 1.4 million blind children in the world live in the South East Asian region. Of the 12 people who become blind every minute in the world, 4 are from South East Asia. With one quarter of global population and one third of the world's blind, South East Asia has an enormous burden of blindness. The blind persons in this region are among the poorest in the world and from the lower strata of society, most of them women. There are another 38 million people in this region with low vision, and the region is estimated to have 50 million Visually Impaired Persons (VIPs).

The prevalence of blindness in the Region is around 0.8%. The rates vary from 0.3% for Thailand to 1.5% for Indonesia. The blindness prevalence rate for Thailand is comparable to developed countries and is a reflection of the outstanding achievement of the Thai National Program for Prevention of Blindness. The highest blindness prevalence rate of 1.5% reported from Indonesia is comparable to sub-Saharan Africa. The prevalence of blindness varies not only between countries but also within the countries. Cataract is the single most common cause of blindness in the countries of the Region, being responsible for 50% to 80%. Other important causes include uncorrected refractive errors, trachoma, childhood blindness, glaucoma, corneal ulcer, ocular trauma, diabetic retinopathy, and age-related macular degeneration. In 1981, a national program for the prevention and control of blindness was launched in Nepal. The program was preceded by a national epidemiological survey to determine the magnitude, causes, and regional distribution of blindness. The survey reported 0.84% of the population to be blind using the best corrected visual acuity (VA) cut-off of 3/60. In the year 2002 alone, Nepal performed 111 740 cataract surgeries (Annual Report 2002, Nepal Netra Jyoti Sangh). As per a very recent survey, there are an estimated 650 000 blind adults aged 30 and over in Bangladesh, the large majority of whom are suffering from operable cataract. The problem of childhood blindness in Bangladesh as per recent studies and supported by key informant interviews have also shown to be 0.6-1.0/1000 children.

Blindness is estimated to cost the countries of South East Asia US\$ 5.6 billion annually, in lost productivity, education and rehabilitation. Additionally, the life expectancy of blind persons is one third less than their sighted peers.

^f <http://www.searo.who.int/meeting/rc/rc53/rc53-3rev1.htm>

2.2.2 Major Causes of Blindness in South East Asia

Cataract

Quality of visual outcomes and low surgical output of cataract in some defined geographical areas remains the most critical issue in the region at present. There is an estimated un-operated cataract backlog of about 10-12 million blind persons, which is increasing very rapidly. The cataract surgical rate varies from a low average of 350/million population/year in Indonesia to 4800/million population/year in India. Intraocular lens implantation rates are increasing and vary from a low 20% of all cataract surgeries in Indonesia to 90% in India and close to 100% in Bhutan and Sri Lanka. However, the visual outcome of cataract surgery is still poor in one –fourth to one-third of the operated cases, and this poor outcome is often a barrier to uptake of surgery by prospective clients as has been highlighted by rapid assessment studies and the national survey of blindness and visual outcomes in 2002.

Trachoma

Trachoma is currently confined to pockets of blinding disease in some South Asian countries. Large-scale control efforts since the 1950s, initiated through WHO with country support also through UNICEF, has led to a considerable reduction of the toll of blindness from trachoma. Today, the disease in its severe blinding form is limited mainly to Myanmar and Nepal, affecting certain population groups of low living standards. The present estimate (WHO-SEAR 2000) indicates that there are some 660,000 cases of active disease in need of treatment in those countries. Endemic trachoma in some pockets along the Himalayas and certain northern states in India has been reported recently but blinding trachoma is not a cause for concern.

Childhood Blindness

The leading causes of childhood blindness in the Region are xerophthalmia, congenital cataracts, globe anomalies, hereditary causes, congenital glaucoma, optic atrophy due to meningitis, retinopathy of prematurity, and uncorrected refractive errors. While blinding xerophthalmia is largely under control with vitamin A distribution in many countries, strategies to provide a long-term solution, including promotion of consumption of vitamin A-rich food, are needed. The inclusion of rubella vaccination in the general program for immunization in the countries may go a long way in preventing rubella cataracts, an important cause of childhood blindness.

Others

Uncorrected refractive error is now recognized to be an important cause of visual impairment and blindness in the Region. Present estimates indicate significant variations in the prevalence of visually disabling refractive errors; thus the above-mentioned population-based study in children revealed a prevalence of 2.9% in Nepal, 4% in India, but as much as 12.8% in China. In addition, there are an estimated 3-4 million persons blind due to corneal opacity (1999). While trachoma and xerophthalmia were the main causes in the past, the consequences of ocular trauma and corneal ulceration are now emerging as important causes of corneal blindness. According to some estimates, 6.5 million people suffer from ocular trauma, and 1.3 million eyes become blind from corneal ulcers every year in the Region.

2.2.3 Interventions

Given the magnitude of this problem in South-East Asia, the prevention and control of blindness has become a regional priority. This has been a pioneer region in terms of blindness prevention for several decades. Disease-control programs were initiated already from the mid-1950s (trachoma control in India) and a number of national policies and programs were established in the 1970s and 1980s. National committees for prevention of blindness exist in most countries. However, in many countries they need to be revamped, while in others they have to be reorganized in order to take key stakeholders on board. Many countries have their annual and five-year plans for prevention of blindness. A long-term strategic plan for 20 years and intermediate- and short-term plans of action need to be drawn up in most countries.

Despite concerted efforts for the prevention of blindness during the past 25 years, the number of blind persons in the Region has been increasing. The number of blind people today in the Region (15 million) has doubled from what it was in 1975 (7 million). At the present rate of intervention, it is estimated that this number will double by the year 2020. The reasons for this are the rapid increase in the total population, as well as in the ageing population, and the low priority and, as a consequence, the poor financial allocations that blindness prevention programs have received in the past in the countries of the Region. All this requires a change in focus.

On the above background, South East Asia Region 'Vision 2020: The Right To Sight', was launched on 30 September 1999 to eliminate avoidable blindness from the Region. The significance of this initiative is

the introduction of the concept of sight as human right - recognition of sight as a fundamental human right by all countries can be an important catalyst of initiatives for prevention and control of blindness. This initiative is likely to decrease the number of blind population to 8 million by the year 2020. Various international NGOs working under the auspices of the International Agency for the Prevention of Blindness (IAPB) and collaborating with WHO is spending over US\$ 80 million per year in support of national eye care programs. A substantial part of this funding goes to South-East Asia, where collaborating national NGOs are also making significant contributions to the activities undertaken at the local level. Summary of the present INGO input for blindness prevention in South-East Asia is presented as an annexure.

Eye Health Status in SEAR (dated as of year 2001-02) – inserted for comparison purpose – WHO definition

Country	Prevalence of blindness (%)	No. of blind	Main causes of blindness	Blind due to cataract	CSR	IOL rate (%)	No. of ophthalmologists	Mid-level	National PBL prog. comm.	Focal point
Bangladesh	1	1300000	Cataract Refractive error Corneal blindness Childhood blindness	738816	500	30	500	NA	+	
Bhutan	0.8	5600	Cataract Refractive error Childhood blindness Trauma	3777	1019	100	3	15	+	+
DPR Korea	NA		NA	NA	NA	NA	NA	NA	NA	NA
India	0.7	6800000	Cataract Refractive error Childhood blindness Corneal blindness	6546053	3400	34	11000	6000	+	+
Indonesia	1.5	2948761	Cataract Childhood blindness Refractive error	1562843	350	20	500	2200	+	+
Maldives	0.8	1959	Cataract	1254	700	35	3	4	NA	NA

Country	Prevalence of blindness (%)	No. of blind	Main causes of blindness	Blind due to cataract	CSR	IOL rate (%)	No. of ophthalmologists	Mid-level	National PBL prog. comm.	Focal point
			Refractive error Corneal blindness							
Myanmar	0.9	427617	Cataract Trachoma Refractive error Angle-closure Glaucoma	273675	500	50	125	160	+	+
Nepal	0.8	325918	Cataract Trachoma Refractive error Childhood blindness	291508	900	85	82	204	+	+
Sri Lanka	0.5	92920	Cataract Refractive error Glaucoma	64579	1337	100	35	59	+	+
Thailand	0.3	242341	Cataract Glaucoma Refractive error Age-related macular degeneration	136296	1667	90	556	320	+	+

Chapter III: Eye Care Scenario in India^{g, h, i}

India is the second most populous and seventh largest country in the world. It comprises of 28 states and 7 centrally administered union territories. There are wide variations amongst the states, which were constituted on linguistic basis, with varied size, level of economic development and cultures. The population of the country rose by 21.34 % between 1991 and 2001. It is estimated that there are between 15 - 18.6 million people with blindness in India using the Indian definition and the visual field as a criteria, which amounts to about one fourth of the world's blind population.

3.1 Magnitude and Prevalence of Blindness

India houses highest percentage of cataract population of the world as well as high cataract prevalence rate. It was estimated that in India 3.8 million people become blind from cataract each year in the early nineties.^j Blindness in India is known to increase rapidly after 50 years of age. Nearly half of the world's micronutrient deficient people may be found in India. For example, of the 20-40 million children worldwide who are estimated to have at least mild vitamin A deficiency (VAD), half reside in India. VAD causes an estimated 60,000 children in India to go blind each year.

As per the National Survey records, the States like Madhya Pradesh, Rajasthan and Jammu & Kashmir have high blindness prevalence (2% and above). The prevalence of blindness is higher among population having lower socio-economic status. Females are found to have a higher preponderance of blindness as compared to males. The prevalence is significantly higher in rural and backward areas.

^g Murthy GVS, Gupta S, Bachani. D. The principles and practice of Community Ophthalmology, National programme for control of blindness, Government of India, New Delhi, 2002, Power printers, 2/8-A New Delhi.

^h Present status of the National Program for Control of Blindness. Ophthalmology Section. DGHS, MOHFW, GOI, 1993

ⁱ National Program for Control of Blindness in India 2001, GOI

^j D C Minassian and V Mehra. 3.8 million blinded by cataract each year: projections from the first epidemiological study of incidence of cataract blindness in India. Br J Ophthalmol. 1990 June; 74(6): 341-343.

Prevalence of Blindness (Visual Acuity <6/60) as per the National Survey (86-89)^k

Category	Prevalence (%)	States & regions of the country
Low Prevalence	< 1	Punjab, Himachal Pradesh, Delhi, West Bengal, & N.E. States
Moderate Prevalence	1 to 1.49	Gujarat, Haryana, Kerala, Bihar, Karnataka, Andhra Pradesh and Assam
High Prevalence	1.5 to 1.99	Maharashtra, Orissa, Tamil Nadu & Uttar Pradesh
Very High Prevalence	2 and above	Madhya Pradesh, Rajasthan and Jammu & Kashmir

A World Bank Assisted Cataract Blindness Control Project^l was launched in 7 states over 7 years in 1994 to help improve the National Program for the Control of Blindness^l (NPCB's) quality of service and expand its treatment capacity by: (a) enhancing quality of care and expanding service delivery through new strategies, policies, technical and operational norms; increased use of modern surgical techniques; and expanded coverage of rural and isolated populations with extensive Non Governmental Organization (NGO) and private sector involvement; (b) developing human resources for eye care delivery by strengthening selected training institutions, upgrading the skills of ophthalmic and health personnel, and providing management training for Central, State and District project managers; (c) promoting outreach activities and public awareness by supporting NGO's and community involvement, and raising awareness about cataract blindness through mass and traditional folk media, and interpersonal communications; and (d) developing institutional capacity at the Central, State and District levels, developing collaborative mechanisms with the non-government sectors, introducing measurable monitoring mechanisms, and conducting operations research. The 7 states happened to be states with the highest prevalence of cataract blindness as per the 86-89 except the State of Jammu and Kashmir for political unrest reasons.

Between 2001 to 2002 a **National Survey on Blindness and Visual Outcomes after Cataract Surgery^m** was undertaken in population aged 50+ years across almost all states of the country. It was undertaken with the intention to assess the change in the blindness and visual outcome situation after a decade since the last nation wide survey that was held in India from 1986-89. The present survey was confined to individuals aged 50+ as against the earlier survey (1986-89) which included all age groups. As opposed

^k Madan Mohan. Survey of Blindness (86-89). In: Present status of National Program for Control of Blindness. Ophthalmology section, DGHS, MOHFW, GOI, 1992

^l Jose R, Bachani D. World bank-assisted cataract blindness control project. Indian J Ophthalmol 1995;43:35-43

^m National Survey on Blindness and Visual Outcomes after Cataract Surgery, 2001-2002, Ophthalmology Section, DGHS, MOHFW, GOI, 2002

to the results of the 1986-89 survey that estimated 8% of individuals aged 50+ suffered from cataract blindness, in 01-02 there seems to be a significant change in this trend which showed that the prevalence of cataract blindness (as per the NPCB criteria) was only 5.32% (prevalence of blindness as per NPCB criteria was 8.5% and cataract was responsible for 62.6% of blindness as defined by NPCB). It was also observed that even in the high prevalence States, the prevalence of cataract blindness was 6.02% now (prevalence of blindness as per NPCB criteria- 9.3%; cataract as a cause of bilateral blindness-64.7%). Therefore the World Bank assisted Cataract Blindness Control Project has been able to reduce the prevalence of cataract blindness significantly. It was also evident that adequate attention to the other causes of blindness, in addition to cataract was urgently needed if the situation has to be completely redressed. The survey also suggested a need for setting up of an effective MIS to effectively monitor the changing trends and ring warning bells as and when the need arises. A finding of immense importance from the survey was that in spite of the improved infrastructure, follow up services were /have not been augmented. This was evident in the poor visual outcomes after cataract surgery. Many of the operated individuals who could have benefited tremendously with an appropriate pair of spectacles did not have access to them. Operational research to search for the appropriate strategy to provide need based affordable spectacles to the underprivileged populations was also of urgent concern. A revolution in surgical techniques was visible in the country. In many States, IOL implant surgery has now become the main surgical modality with far better visual rehabilitation than what was evident a few years ago. Also of great significance is the fact that more than a quarter of the population paid for services suggesting cost recovery mechanisms working for eye care. The reduced number of surgeries at peripheral eye camps was also a trend worth mentioning as it means that more and more surgeons are moving to the confines of a safe and sterile operating room rather than compromise with less sterile or less ideal conditions.

Summary of the current status eye care service delivery in India

- About 65% of surgical performance in the country is performed in the private and voluntary sector and only 35% is within the government sector.
- About 11,000 ophthalmologists and an equal number of trained and recognized mild level personnel (MLP) exist as opposed to the ratio of having at least 4-5 MLP for each ophthalmologist. 50% of the ophthalmologists are surgically inactive within the country.
- The ophthalmologist to population ratio in urban India is 1:25,000 but in rural India it is about 1:250,000.
- Rapid Assessment surveys in 14 districts in the country have pegged the coverage for eye care services at around 70%.
- Proportion of IOL surgery has gone up to nearly 90% at the end of 2005-06.
- Population based studies cut a very sorry picture on the results of the outcomes after cataract surgery. Poor outcome is an average of 40% following conventional cataract surgery whereas poor outcome is around 10% after IOL surgeries.

Main Causes of Blindness in this population are as follows

A	Cataract	62.6%
B	Refractive Error	19.70%
C	Corneal Blindness	0.90%
D	Glaucoma	5.80%
E	Surgical Complication	1.20%
F	Posterior Capsular Opacification	0.90%
G	Posterior Segment Disorder	4.70%
H	Others	4.19%

Table: Causes & Barriers of Major Eye Care Diseases in India

Priority Disease Areas	<i>Principle causes & barriers</i>					
	Environmental	Social	Economic	Institutional	Political	Medical
Cataract	Sunlight exposure (UV Light) Trauma Smoke & Pollution	Awareness Fear & Lack of Escort Waiting for maturity Low socio-economic status Not empowered to take decisions Bad experiences of others	Cost of treatment Wage loss – direct & indirect Other economic support systems	Access to facility Availability of service Quality of care Affordable service provision Accountability for service provided Acceptability of care	Provision & deployment of services Financing of care Focus on quantity than quality Research findings not translated into policy	Drugs (ex. steroid use) Diabetes Disease Diet Dehydration
Refractive errors & Low vision	---	Awareness among professionals and community Spectacle use – taboos and perceptions	Wage loss Cost of correction & devices Replacement costs	Facilities to treat Quality of correction Few Human Resources Production of devices	Import-export policy Legislation	Change of definition Heredity Genetics
Childhood blindness	Water & sanitation Arid & dry land	Consanguinity Beliefs and taboos Traditional medicine use	Cost of treatment Blind-person years Nutrition	Facilities for treatment Genetic counseling Rehabilitation facility	Legislation Other programs (RCH, ICDS etc)	Immunization Common treatments Other diseases
Glaucoma	---	Awareness of condition Consanguinity Compliance to treatment	Cost of treatment Lifelong medical treatment	Facilities to diagnose and treat Human resources Counseling - genetic	---	Other diseases Drugs
Diabetic Retinopathy	---	Awareness of condition Lifestyle, diet, sedentary work, low SE status	Cost of treatment Lifelong expenditure on disease	Facilities to diagnose and treat – lasers etc Human resources	Technology transfer Liberalization Not a priority	Control of diabetes Drugs Obesity and other disease Lack of

Priority Disease Areas	<i>Principle causes & barriers</i>					
	Environmental	Social	Economic	Institutional	Political	Medical
				Counseling services		comprehensive care
Corneal Blindness	Physical and Chemical Injuries	Awareness Delay in seeking help Traditional medicine use	Cost of treatment	Facilities to diagnose and treat Production of storage medium for cornea Basic research	Eye Banking Legislation – transplant act Hospital Cornea Retrieval programs	Laboratory Other diseases like leprosy
Trachoma – focal	Dry, dirty and dusty Water and sanitation FE of SAFE Fly breeding conditions	Low SE status Poor Hygiene Waste disposal	Cost of treatment (medicine especially) Lack of development	Facilities to treat Human resources SA of SAFE Availability of medicine	Networking with pharmaceutical industry – for Azithromycin Low priority	Lid correction surgery facilities Availability of antibiotic

3.2 Interventionsⁿ

India has developed a strong infrastructure for eye-care. The country presently has about 120,000 health Sub-centers manned by two health workers (for every 6000 population), 22,000 Primary health centers with a doctor and other paramedical staff (for every 40,000 population), 6000 Community health centers/first level Referral centers (for every 120,000 population) and over 500 District and sub-district hospitals. Health services in India are available in both the public and private sector, the latter absorbing about 75% of all health expenditure, public and private.

India, the second most populous country in the world, is home to 23.5% of the world's blind population. In 1976 India became the first country in the world to start a national program for control of blindness. All surveys in the country have shown that cataract is the most common cause of blindness and all prevention of blindness programs have been "cataract-oriented." However, it has recently been recognized that the visual outcome of the cataract surgeries as well as the training of ophthalmologists has been less than ideal. There is now increasing emphasis on high-quality surgery and up-gradation of skills among ophthalmologists. Other important causes of blindness are refractive errors, childhood blindness, corneal blindness, and glaucoma that need to be addressed.

Prevention and control of blindness is one of the India's compelling development challenges. Recognizing the massive scale of blinding situation, Government of India launched the National Program for Control of Blindness (NPCB), with a goal of reducing the prevalence of blindness. Over the time, various multilateral and bilateral development agencies such as WHO, World Bank, Danida, DFID and international NGOs such as CBM, ORBIS International, Sightsavers International, OEU, Lion's International have extended adequate support to strengthen the blindness prevention initiatives. The national program developments in India for the prevention and control of blindness have served as a blueprint for many other countries.

3.2.1 National Program for the Control of Blindness (NPCB)^o

NPCB was launched in the year 1976 as a 100 percent centrally sponsored program. That program was declared a national priority by the late Prime Minister H. E. Indira Gandhi in the 1980s, particularly for a

ⁿ <http://www.cbhidghs.nic.in/hia2005/content.asp>

^o <http://mohfw.nic.in/default.htm>

focus on cataract and childhood blindness. Various activities of the program include establishment of Regional Institute of Ophthalmology, upgradation of medical colleges and district hospitals and block level Primary Health Centers, development of mobile units, and recruitment of required ophthalmic manpower in eye care units for provision of various ophthalmic services. The program also extends assistance to voluntary organizations for providing eye care services including cataract operations and eye banking. The goal was to reduce the prevalence of blindness from 1.4% to 0.3% by 2000 A.D. Voluntary organizations are playing an important role in this program. District Blindness Control Societies (DBCS) for decentralized program management have been established throughout the country under the Chairmanship of District Collector/ Deputy Commissioner.

There is a national program management cell in the Office of the Director-General of Health Services in the Ministry of Health at the center; likewise, there are State ophthalmic cells. Regional institutes of ophthalmology and tertiary-level eye hospitals provide venues for training, research and complicated medical and surgical treatment. For district-level activities, there are district blindness control societies. Eye care services are also provided at district and sub-district hospitals.

The budget for various service components under this program has been enhanced since 1994-95 after the launching of World Bank Assisted Cataract Blindness Control Project.

Achievements (Personal communication with NPCB)

Development of Infrastructure	Nos
Regional Institute of Ophthalmology	11
Upgraded Medical Colleges	82
Paramedical Ophthalmic Assistants Training Centres	39
Eye Banks	166
District hospitals equipped	445
District Blindness Control Society	520
Central Mobile Units	80
District Mobile Units	341
Primary Health Centers Upgraded	5,633
Para Medical ophthalmic Assistants posted	4,881

Increase in Cataract Operation

From 1.2 million Cataract operations in 1985-86 to 5 million in 2006-07, a four- fold increase in last 15 years.

Cataract Surgical Rate (CSR) per million population

CSR/million	States
> 5000	Gujarat, Tamil Nadu, Delhi, Maharashtra, Punjab
3000 – 4999	AP, Kerala, Karnataka, Haryana, Madhya Pradesh, W.B.
Less than 3000	Uttar Pradesh, Orissa, J & K, Rajasthan, NE states, Bihar

Other Achievements^P

- Construction of 309 Eye Wards and dedicated Eye OTs under the World Bank Project
- Training of over 2000 Eye Surgeons in IOL microsurgery
- Over 30 NGO hospitals were supported for expansion or setting up facilities
- Supply of equipments required for IOL surgery in over 300 hospitals
- Rapid assessment surveys in 12 districts in 2001-2002 showed that 70% of cataract blind had surgery.
- IOL implantation rates went up to more than 90% till 2006-07 and evidence of improving visual outcomes as assessed by the rapid assessment surveys among cataract operated.

School Eye Screening Programme

Year	Teachers Trained	School Children Screened	Children Detected with Refractive Errors	Poor Children provided free glasses
2002-03	35,267	97,36,805	5,06,663	98,697
2003-04	88,317	1,92,60,984	5,52,963	1,84,305
2004-05	97,310	2,68,62,932	5,72,691	2,83,070
2005-06	1,24,981	2,94,73,371	7,26,803	3,50,048

Donated Eyes Collected

Year	Total No. of Eyes Collected
2003-04	23,741
2004-05	23,553
2005-06	25,978

^P Report. Working group on communicable and non-communicable diseases for the eleventh five year plan. September 2006. DGHS, MOHFW, GOI, 2006.

Commodity Assistance: Consumable items like sutures and intraocular lenses are procured centrally and being distributed to States and DBCS. Equipments, vehicles and other supplies are also procured centrally. 30 NGOs have been granted non-recurring Grant in Aid (GIA) to set up or expand eye care facilities in addition to GIA to NGO's for undertaking service delivery.

Program support: Government of Denmark through the Danish Assistance to NPCB (DANPCB) and a World Bank Assisted Cataract Blindness Control Project support in 7 states have supported the NPCB since its inception. The World Bank supported Cataract blindness control project improved cataract service delivery and reduced blindness over a seven year period in 7 states of the country.

Within the organizational structure of the national program, policy level decisions are undertaken at the central level, whereas strategy level planning is carried out at the state level. Implementation level planning and decision making is carried out at the district and performing unit level. Appropriate advocacy and engagement opportunities exist for private sector, INGO/NGO's at each of this level through their own compatible organizational structures.

Support to Voluntary Organisations

Voluntary organizations play an important role in implementing various activities under the programme. District Blindness Control Societies (DBCS) have been established throughout the country under the chairmanship of District Collector/Deputy Commissioner. Till date, 590 DBCS have been established. Under the scheme if non-recurring grant a maximum of Rs.25.00 lakhs was granted for expansion/up gradation if Eye Care Units for tribal and backward rural area. So far, 54 NGOs have been assisted under this scheme since 1996-97. Till date 24 eye banks in voluntary sector were assisted to promote collection if donated eyes.

Decentralized Approach

India is a vast country having 28 states and 7 union territories with 600 districts with an average population of nearly 2 million per district. The programme implementation has been decentralized up to the state and district level where State Blindness Control Societies (SBCS) and District Blindness Control Societies (DBCS) have been set up as the nodal agencies. Members of the SBCS and DBCS include officials from State and District Administration, Health, Education and Social Welfare Departments, Media, Community Leaders and NGOs/Private Sectors involved in Eye Care etc. The concept is to

establish a bottom up approach in dealing with blindness through multi-sectoral and coordinated efforts. These societies in the district are responsible for identifying the blind in every village; organizing diagnostic screening camps at suitable locations; arranging transportation of patients to the designated facilities and ensure follow up etc.

Organizational Structure for National Program for Control of Blindness



3.2.1.1 Disease Control Status

Cataract

Cataract continues to be the major cause of blindness. However the strong focus under the NPCB on cataract seems to have made significant impact. The cataract surgical rate quadrupled within a span of 12-13 years to 4,800catops/per year/million. Some of the recent surveys showed that cataract as a cause of blindness is now less than 65% level as opposed to 80% level in the survey done in the mid 80's. The proportion of IOL surgery has increased to about 90% across the country. In spite of the success in cataract intervention the following issues remain:

The northern region has a much lower percentage of IOL surgery compared to the southern states which have switched completely to IOL surgery.

The quality of cataract surgery has to be measured by long-term post-operative visual acuity, which requires significant improvement. Much of this would be addressed by switching over to the IOL surgery there by reducing the need for refractive correction if the proper IOL power for insertion and the technique is mastered. There is also a need for reducing post-operative complications and increasing the overall quality.

Geographic Coverage: This has very wide variation within the country between various states. There is almost 10-fold difference with Gujarat performing over 8,000 surgeries per million populations while the rate in Bihar is less than a 1,000.

Socio-economic: There is a bias for the urban, literate population getting a better coverage of cataract services than the others. Lack of escort, fatalistic attitude and fear in spite of increased awareness and waiting for decision making to undergo surgery within the Indian household are important barriers.

Gender Issues: Several studies have shown that the burden of cataract among the female is about 40% more than the male. Against this the actual service delivery is either equal or in some states is in favor of men getting more cataract services more due to the social situation in favor of men. To achieve gender equity there is a need to ensure 60% of all cataract surgeries for women.

Cornea

The main area of concern is corneal infections arising out of trauma or other infectious reasons. In order to address primary level management as well as awareness issues, the World Health Organization has conducted a small multi- country trial covering India, Bhutan and Myanmar to see if village level health workers can provide the first line treatment of giving anti-biotic/anti-fungal ointment and refer them to an appropriate facility. For more advanced corneal diseases requiring corneal grafts, it is reported that the number of eyes collected in the year 2005-06 was 25,000 pairs. Hospital corneal retrieval for eye donation has seen good growth over the last few years. Eye donation fortnights to advocate as well generate awareness happens every year in the months of August – September in the country. Gujarat, Tamil Nadu, Andhra Pradesh and Maharashtra who are also good performing states for cataract blindness seem to be doing well in corneal/eye donation as well but of course less than 50% tissue are viable and used.

The issues in corneal causes of blindness and visual impairment relate to both ensuring that the patient engage in right health behavior when in need as well as to ensure that the providers have both the skills for making the right diagnosis and the required infrastructure. A lot of the corneal injuries happen in the rural areas and mostly during the peak agricultural seasons. Often such injuries are minor when they happen and there is a tendency to ignore it or resort to local harmful practices. The institutions that provide eye care facilities are also not all equipped with the basic laboratory facilities to identify the organism causing the infection for starting effective medication. Thus, there is a need to work both at the community and the institutional level for awareness generation.

For more advanced case of corneal infection which lead to corneal capacity, the intervention often requires corneal graft. While a need for donor corneas is around two million, however, there has been no definite study to support this. It would be an important step to establish such a base line data both in terms of current backlog as well as the annual new cases that would require corneal transplant. Such a data can drive the eye banking process in India in a more rational and effective manner. At the current level of cornea collection, it is supposed to be 1/10th of the need and if the tissue usage is considered it may even be less.

Childhood blindness^q

Childhood Blindness is an important public health problem in developing countries due to its social and economic implications. Though prevalence of childhood blindness is comparatively low as compared to blindness in the aged, it assumes significance due to large number of disability years of every child remaining blind. It is a dilemma that nearly half of the childhood blindness can either be prevented or easily corrected. While efforts have been mainly directed to control blindness due to cataract in developing countries including India, childhood blindness has not been given adequate attention. Though no population based nationwide survey has been undertaken on the prevalence of childhood blindness in India, data is available from some pockets- Andhra Pradesh (0.61/1000), West Bengal (0.51/1000) and Delhi (1/1000) and more recently from Maharashtra confirming the above numbers. A figure of 0.8/1000 children has been used for India using the co-relation between under five mortality rates and prevalence. Currently, there are an estimated 270,000 – 320,000 blind children in India, and larger number has visual disorders leading to impairment. Approximate figures for the country are estimated to be as follows:

- Approx. 60,000 – 70,000 blind children due to posterior segment problems;
- Ocular trauma responsible for 20-40% of one eye blindness;
- 9.2 million children have vision < 6/18 in the better eye due to refractive errors;

Refractive errors are the commonest causes of visual impairment in children. Recent studies in India indicate that refractive errors were responsible for visual impairment in more than 80% affected children.

This is an area, which has not developed well in India. Only in the last few years few centers in the country that offer both the services to children as well as training to ophthalmologists in this discipline have been developed. While the capacity is an issue, the other one that will emerge soon will be in establishing an effective service delivery mechanism for children not only to cover the blinding conditions but also to take care of all eye care needs in that age group. Constraints for developing services under childhood blindness include:

^q National programme for control of blindness, Prevention and control of childhood blindness in India, Plan of action: 2002-2007, Ophthalmology/blindness control section, Ministry of health & family welfare , Nirman bhavan, New Delhi

- Specific infrastructure for detection and management of childhood blindness is not available at primary and secondary health care system of the country.
- At the tertiary level, very few centers (both Govt. and NGO) are equipped to manage childhood blindness.
- Inadequate general anaesthesia facilities in the country, especially for ocular injuries where urgency of the situation is often not recognized.
- Posterior segment disease detection is presently not possible at the primary and even some secondary centres.
- Human Resources are inadequate at the level of PHC/CHC; no trained personnel are available. Posterior segment care is grossly inadequate. Approximately, 150 ophthalmologists (including govt. and private sector) are trained to deal with posterior segment disorders.
- Because of inadequate trained ophthalmic human resources, many conditions like ocular injuries are treated by non-ophthalmologists like general surgeons or physicians in most places.

Refractive Errors and Low Vision

Refractive errors, though very simple condition to rectify, has not had sufficient importance till now. Some of the recent studies are started showing that 60–70% of the vision impairment can be addressed by providing glasses. Children between 10-15 years and adults over the age of 40+ as well as those who have had cataract surgery are the principal target groups for service provision. Based on evidence, there are between 1 & 2 children for every 1000 children in the 10-15 years age group that are blind just because of uncorrected refractive errors. The prevalence of refractive errors (Presenting vision of $<6/12$ in any eye) was in the range of 2.7% to 6.4% in this age group. Myopia $\{< (-) 0.5 \text{ D sphere}\}$ ranged from 1.2% to 7.4% and more in the urban areas, while hypermetropia $\{> (+) 2.0 \text{ D sphere}\}$ was in the range of 0.8% - 7.7%. Children between 10-15 years have 5-10% as the prevalence of refractive errors that needs services. Another 5% in the age group 16-39 years has refractive errors. Based on recent evidence the prevalence of refractive errors goes up to 50% in the age group 40+ years and above. Presbyopia or difficulty in near work is the main reason for this increase in prevalence. It is estimated that 0.4 million people would require refractive error services in an average district population of 2 million in the country of which 0.05 million would be in 10-15 years group, 0.1 million in the 16-39 years age group and 0.25 million in the 40+ years age group. Close to 180-190 million inhabitants in the country would need refractive error services all refractive problems inclusive.

Formal human resources that were available to correct refractive errors was about 15/ 2 million population (0.77/100,000 people) and there is misdistribution of resources of these.

The National Plan of Action under the NPCB for the period 2002-2007 set out the following objectives for refractive errors:

- To provide eye glasses to about 1.5 million children having significant refractive errors assuming that at least 5% of children below 15 years of age will need glasses to correct their refractive errors. This translates for the Xth Plan (2002-2007) to free glasses for 10% children with refractive errors, which is to cater to 1.5 million children. The average cost of a pair of glasses is estimated to be Rs. 150/- (USD 3.5)
- Besides school eye screening Program that is undertaken under National Program for Control of Blindness, PHCs and NGOs should be involved in community based refraction services.
- There should be mechanisms to identify refractive errors in out-of-school children also.
- Dilatation of pupils should be must before confirmation of refractive errors as per the guidelines.
- Vision centers in rural areas at PHCs and NGO screening centers should be developed.
- Glasses should be distributed through the PHCs and where the PHC is not functioning, they could be distributed through the Panchayats

However, some of the challenges in this are trained human resources, availability of glasses and provision of services with accessibility, availability, acceptability and affordability. The potential for refractive services to subsidize eye care programs is yet to be utilized to its fullest possible extent.

Low Vision

Low vision is defined as permanent visual impairment that is not correctable with refractive error correction or surgical intervention. Those with best-corrected distance visual acuity <6/18 to perception of light or central visual field <10 degrees because of an untreatable cause in both eyes are considered as having low vision. Low vision prevalence in India is estimated to be about 1.05% with most frequent causes of low vision being retinal diseases, amblyopia, optic atrophy, glaucoma, and corneal diseases. Increasing age, and a trend for higher prevalence with decreasing socioeconomic status is also reported. If we extrapolate these data to the estimated population of India now, 11 million people would have low vision.

Significant barriers ranging from both the providers and beneficiary side exist with respect to low vision. There is a significant burden of low vision in this population, suggesting the need for low vision services. There are few centers that provide low vision services in the country. The capacity is less than the potential demand. There is a need to create capacity in terms of train human resource, establish a reliable and affordable supply chain for low vision devices and have a mechanism in place, which can actively identify those who can benefit from low vision services. There is also a need to advocate for low vision and address knowledge gaps among eye care professionals with respect to low vision which are key barriers to service delivery as well.

Diabetic Retinopathy

The WHO has estimated that within the next three decades, India is likely to have a prevalence of diabetics at 6% of the rural population and as high as 15-20% in urban areas. It is estimated that 25% of these patients would have diabetic retinopathy and a significant proportion of this would require active treatment for this condition. This is an emerging problem and is likely to get compounded by changing life styles and ageing of the population. The need is to develop the capacity for treatment as well as mechanisms that can screen the diabetics at the first level and at the second level those who have developed diabetic retinopathy.

Glaucoma

The Glaucoma affects a significant number of people and is probably the leading cause of permanent blindness. However, as of date there are no reliable screening mechanisms that can be carried out in the community. The treatment regimen has also to be customized to each individual requiring a very high level of patient compliance. One of the immediate steps that can be taken is to ensure that all the eye care providers are encouraged to have in place a process to examine all the patients who come into the system (either in the hospital or in camps) for glaucoma and initiate necessary treatment. This can help prepare community to become more aware of the disease and the treatment options.

3.2.1.2 Human Resources in Eye Care^{r, s}

India has a CSR of 4,800 per million per year, one of the highest in the world, approximately 11,000 ophthalmic surgeons achieve this. Currently there are a variety of paramedical personnel in eye care. Some common categories include: paramedical ophthalmic assistants, opticians, ophthalmic nurses, refractionists, orthoptists, and ophthalmic technicians. The estimated number of personnel in these categories is about 15,000. However, another 15,000-20,000 persons are working in eye care facilities without acquiring any formal training or qualification.

Approximately 80 institutions are currently training the MLOPs in India, with a combined admission capacity of approximately 1300 each year. Among the various medical education programs within the country, fellowship training in anterior segment diseases for ophthalmologists are undertaken in 9 institutions, glaucoma and uvea in 6 locations, orbit, plastics and oncology in 4 institutions, pediatric ophthalmology in 3 institutions, retina and vitreous in 13 institutions, and general or comprehensive ophthalmology in 9 institutions. Various short-term fellowships of up to 3 months and observership of 1-2 weeks in the above-mentioned specialties are also available in these institutions. Few of these institutions also help in conversion training from ICCE to ECCE + IOL and to phaco-emulsification training as well. Currently “manual small incision cataract surgery (MSICS)” training, recognized to be the appropriate technology for the country has also been offered.

Training for MLOP, in optometry, ophthalmic techniques, instrument maintenance, opticians and supporting services have also been offered by these institutions. Community outreach, management and low vision and rehabilitation training has also been offered by a few institutions in the country. Focused training on indirect ophthalmoscopy and lasers in diabetic retinopathy training has also been offered and so to contact lens courses in capsules of 1-week. Training programs in some institutions are recognized by bodies like the Berkeley school of Optometry, Joint CommiSightsaverson for Allied Health Personnel in Ophthalmology (JCAHPO), USA and ICCE Australia.

^r Murthy GV, Gupta SK, Bachani D, Tewari HK, John N. Human resources and infrastructure for eye care in India: current status. *Natl Med J India*. 2004 May-Jun; 17(3):128-34.

^s “ Vision 2020: The Right to Sight – India” Plan of Action, DGHS, MOHFW, GOI, 2001

Human resources for India	Current	2005	2010	2015	2020
Ophthalmologists	11,000	15,000	18,000	21,000	25,000
Mid Level Personnel	24,000	40,000	51,000	62,000	73,000
Eye Care Managers	200	500	1,000	1,500	2,000
Community Eye Health Specialists	20	50	100	150	200

An ophthalmic workforce and infrastructure planning survey was undertaken recently to provide a valid evidence base for human resource and infrastructure requirements for elimination of avoidable blindness. Pre-tested questionnaires were administered to all district-level blindness officials and ophthalmology training institutions during April 2002-March 2003. Supplementary data sources were used wherever necessary. More than half the eye care facilities were located in the private sector. Sixty-nine per cent of the ophthalmologists were employed in the private and non-governmental sectors; 71.5% of all dedicated eye beds were managed by these two sectors. Five states (Maharashtra, Uttar Pradesh, Karnataka, Andhra Pradesh and Tamil Nadu) had half the practising ophthalmologists in India. There was a wide disparity in access to ophthalmologists and dedicated eye beds across the country. It is estimated that there are 9478 practising ophthalmologists and 59 828 dedicated eye beds in India. Based on these estimates, it is felt that India will be able to meet the requirements for trained ophthalmologists and dedicated eye beds to achieve the goals of Vision 2020. Some states will need special attention. Instead of an across-the-board increase in ophthalmologists and eye beds, regions which are deficient will need to be prioritized and concerted action initiated to achieve an equitable distribution of the available resources.

More recently an International NGO sponsored study on the human resources and facilities for control of childhood blindness, low vision and corneal blindness was undertaken in India. Conclusions from the study report corroborated the earlier study quoted and only a 1/3rd of the human resources and facilities offered these specialty services. Human resources for low vision seemed woefully inadequate from what was reported. Few selected institutions and states have done well with respect to corneal blindness and eye banking. Only 4 institutions in the country seemed to have all that is required for tertiary and advanced pediatric eye care in the country and all of them in the state of Tamil Nadu and Andhra Pradesh. Pediatric oriented and pediatric ophthalmologists were a recent phenomenon auguring well as well as the supportive professionals for childhood blindness control.

3.2.1.3 Infrastructure and Appropriate Technology

Most of the causes of blindness are amenable for prevention and control. Risk factors that are non-modifiable like aging as well as modifiable ones like human behaviour and social factors are equally responsible for increased prevalence. Non-communicable or lifestyle related disorders like diabetes also contribute to increased prevalence of unavoidable blindness. Emphasis has therefore, been made to develop infrastructure at various levels to provide eye care. Efforts were made to enhance capacities for eye care through: -

- Construction of dedicated eye operation theatres and eye wards at secondary level in public sector. 307 such units have been developed in Government sector since 1997;
- Supply of ophthalmic equipments for diagnosis and treatment of common eye disorders, particularly for IOL implantation in district hospitals;
- Training of Eye Surgeons in IOL surgery and nurses/ophthalmic assistants in ophthalmic techniques. This training is imparted at centres of excellence in India both in Government and Non-Government sector;
- Assistance to NGOs for setting up/expanding eye care facilities. 30 such units have been funded since 1996.
- India has embraced the infrastructure pyramid proposed and recommended by WHO starting from the community upwards to centres of excellence covering units of population with primary, secondary, tertiary and advanced tertiary eye care as appropriate. Towards working towards such a structure by the year 2020, following inputs will be required:
- Dedicated eye operation theatre and eye wards located at service centres for each 5,00,000-10,00,000 population. This will ensure reach-in approach universally. Service centres may, preferably, be located in towns with population above 50,000 so that the catchment ocular morbidity patterns supports the infrastructure set up for eye care.
- Strengthening of Medical Schools will be necessary to enhance their capacity to provide services as well as training. Provision of lasers, fluorescein angiography, automated perimeters, and equipments for setting up pediatric ophthalmology units and low vision centres should be made.
- Provision of operating microscope, slit lamps, direct ophthalmoscopes and gonioscopes should be made at District level hospitals;
- Goals recommended for infrastructure development by the year 2020 for issues discussed above are as follows: -

- a) To set up 10 centres of excellence from the existing 15 by 2010, 20 by 2015 and consolidate the 20 by 2020.
- b) With respect to the training centres, to increase from the 50 to 100 by 2010, 150 by 2015 and 200 by 2020.
- c) The targets for service centres being 750 by 2005, 1000 by 2010, 1500 by 2015 and 2000 by 2020.
- d) For the vision centres it is to increase the numbers from current levels to have atleast 20,000 by the year 2020.
- e) 200 pediatric ophthalmology units and 100 accredited eye banks are also proposed to be developed by the year 2020.
- f) IOL surgery will be the norm unless medically contraindicated and more and more surgeries will be done by the manual small incision cataract surgery modality (MSICS).

Infrastructure for training in specialty services is inadequate and there is a need to augment them. Technological advances like IT and communications has not been harnessed for eye care although they are available. Academics and research to further clinical care in ophthalmology and for policy making needs to be catalyzed. Libraries and resource centres are other aspects related to infrastructure and technology for ophthalmology that needs to be organized.

3.2.1.4 Monitoring and Evaluation including levels of planning

NPCB has the following tools for effective monitoring of the program:

1. Standard prototypes for reporting of performance and expenditure by district blindness control societies; standard cataract surgery records and patients discharge cards; standard referral cards for children having refractive errors. Specific software to facilitate computerized MIS at various levels
2. Sentinel Surveillance Units (25) have been set-up in the departments of Ophthalmology and preventive and social medicine in Medical colleges for assessment of beneficiary profile, visual outcomes based on cataract surgical records and follow-up of a sub-sample of operated cases to assess visual outcomes. Ocular Morbidity data are also collected to assess patterns and trends of eye diseases
3. Independent studies to evaluate the program activities. These include: communication needs assessment, Beneficiaries assessment; Evaluation of trained eye surgeons; Rapid assessment of

prevalence, coverage and outcome; Epidemiological survey on Blindness in 50+ populations in 15 districts.

For more efficient management and monitoring of the programme, MIS needs to be developed at all levels. To begin with, it is proposed to take up following steps :

- Proper completion of Surgical Records for cataract surgery and other services needs to be maintained with complete, correct and reliable information;
- Standard referral cards from primary to secondary/tertiary level of care;
- Development of Management Information Systems at various levels so as to plan, monitor and evaluate the programme in an efficient manner;
- Network of Sentinel Surveillance Units to be established to study profile of beneficiaries and outcome of interventions;
- Independent evaluation on various programme activities and outcomes with standard protocols comparable with other nations.

3.2.2 Major Issues in Blindness Control in India

3.2.2.1 Issues in Strategic Program Management

Generally program administration has been limited to allocating resources, providing some technical advice, setting targets and monitoring target achievement without strategic planning or monitoring systems to measure appropriate resource allocation and performance. But the eye care program in India has been fortunate in a strong and proactive leadership which has given a lot of impetus at least in the last 2 decades.

3.2.2.2 Isolated Efforts by the Private, Voluntary and Public Sectors

The NPCB has been unable to establish a coherent strategy to coordinate the efforts of the private, voluntary and public sectors involved in blindness control in India; as a result, coverage has been insufficient and erratic. Urban areas are generally well served by all three sectors, but most rural areas, particularly the tribal ones, depend solely on the public sector and receive uneven and infrequent services or no service at all. There is a lack of coordination between Service Providers. Government facilities, NGOs and Private sector are usually located in urban/peri-urban areas. Outreach activities are

organized more by convenience rather than needs of the rural population that needs services. More recently this trend is being addressed to a large extent by INGO's through their partners and programs.

3.2.2.3 Balancing Quantity and Quality

NPCB has focused primarily on increasing the number of cataract operations without assessing the quality of outcomes or patient satisfaction. To meet numerical targets, most unilateral cases are being operated on with the traditional ICCE technique, which is medically inadvisable and leads to patient dissatisfaction. The target oriented approach also focuses on the surgical procedure and does not allow for completion of the appropriate follow up to be monitored. Thus, many patients who may not report for their second or subsequent follow up are still included as beneficiaries. A stratified analysis including appropriate follow up may help delineate the imbalance between quantity and quality. There are no mandatory protocols or mechanisms for accreditation. People seek services based on information about various service providers and their affordability. There is wide variation in quality of services and therefore outcomes. Most of the poor outcome following ICCE were due to inappropriate or non-provision of corrective glasses and not because of the technique of surgery but more due to the absence of a service.

3.2.2.4 Deficiencies in the Cycle of Care

Poor quality outcomes are often the result of inadequate diagnosis, inappropriate surgical procedures and lack of patient follow up. While ICCE technique was the practice earlier for bilateral cases, given the conditions available in developing countries, competent screening and appropriate selection of surgical techniques are critical for achieving visual restoration. This is often not achieved due to lack of adequate diagnostic training, and inadequate post-surgical follow-up. Quality audits of the cataract surgical process is not the norm till about a few years ago.

3.2.2.5 Role of camps and fixed facilities

India relies heavily on screening eye camps to reach rural populations even now in spite of investments in setting up quality infrastructure till the sub district or block level. Improvised camps are widely used for several reasons. First, patients are more willing to seek treatment when they are part of a group. Camps have a festive and communal atmosphere, are less intimidating and costly than hospitals, and are more accessible. Secondly, camp organizers gain social prestige and restoring eye sight has a religious

value for many. Further, restoring sight is seen by many as charity rather than a health service and therefore in many instances, the quality of care is unwittingly compromised. And finally, surgeons are more readily available for sporadic camp services than for permanent assignments in rural areas. The camp approach is now being replaced by the vision center approach. The Vision center has a trained vision technician who is selected from the local community and trained to provide basic eye care services. Standardization of selection processes, training processes including curriculum, accreditation, quality assurance processes, as well as career development paths and refresher training for the vision technicians are issues to be deliberated upon.

3.2.2.6 Utilization of Existing Facilities

Despite the investments in infrastructure, equipment and manpower, many facilities remain underutilized for lack of materials and supplies required for service delivery. Primary Eye Care is a need-based program for a developing country like India. Though secondary and tertiary level eye care facilities have come up in several cities, there is a vacuum existing due to the lack of organized primary eye care. Primary eye care aims at identifying diseases of the eye at an early stage and providing remedial measures and where necessary timely referrals to secondary and tertiary eye care services. Within the India developing such a system offers lot of challenges since the primary health care system in the country is not very effective in its functioning and is not an integral part of the community.

3.2.2.7 Human Resource Distribution

Two thirds of the nation's ophthalmologists work in the private sector with a few working in remote areas. Efforts to place ophthalmologists in rural areas have been problematic. Inadequate living accommodation, lack of educational and professional opportunities and higher health risks are major disincentives. It follows then that most of the paramedical personnel trained for ophthalmology stay in urban areas since they link to the ophthalmologists. This disparity has led to significant differences in services offered/sought by the public. While urban clients go for IOL implants at VA 6/18, there are bilaterally blind persons with VA <1/60 in rural areas. It is estimated that about 50% qualified eye surgeons are "non-operating" surgeons. They are either practicing medical ophthalmology/refraction services (typically in urban areas because of peer competition and reluctance to set-up facilities in rural areas where client's capacities to pay for services is limited) or are providing general medical care (typically in rural areas where they are posted at Primary Health Centres without any eye care facility).

3.2.2.8 Ophthalmic Training & Education

The quality of ophthalmology training within the country in residency programs has varied from the very good to the very poor. Residents coming out of these programs sometimes have not had exposure to even routine standards of care and surgeries due to inherent problems within the institutions training them to lack of resources to the program. The numbers of registered and certified paramedical professionals are grossly inadequate in the country. Some of the schools for paramedical training are non-functional and there is no intake. Institutions and facilities have started to train their own cadres as paramedical staff but there is absence of systems and accreditation. Other supportive services and management training are also lacking so is the capacity for community eye care. Instrument maintenance and opticians training is lacking even though the speciality of ophthalmology has embraced technology and refractive errors have emerged as a major cause of low vision in the country.

3.2.2.9 Socio-cultural, Logistical and Financial Issues

Among rural populations, folk beliefs and practices play an important role in decisions to seek treatment. Generally people suffer from eye diseases, do not seek surgery for various social, cultural and psychological reasons such as fear of surgery, hospitals or travel, poor quality outcomes among relatives or neighbours, family obstacles, fatalistic beliefs, and reliance on outdated practices such as "couching," and folk medicine. Many individuals consider blindness a natural condition of life, predestined by supernatural forces and therefore irreversible. There is also a widespread belief that treatment is possible only in the winter months.

In addition some patients do not seek treatment because of logistical and economic constraints. Geographical isolation limits access to facilities posing a serious problem for women who often cannot find an escort. Other major obstacles include: transportation costs, loss of wages as a result of accompanying family members for treatment, unauthorized fees at service facilities and other related expenses.

While several studies have been performed to understand barriers to eye care in India, there are very few programmatic approaches to address these barriers.

3.2.3 India Vision 2020 plan^s

The overall objective of Global Vision 2020 is to assist Member Countries in building their national capacity for prevention and control of blindness, specifically to assist them to eliminate avoidable blindness from major causes (cataract, xerophthalmia and other causes of childhood blindness, refractive errors and low vision, trachoma and other causes of corneal blindness) by the year 2020. While targets will necessarily vary according to the specific country situation and must be determined by the countries themselves, it is aimed that no country in the region will have a blindness prevalence rate higher than 0.5 per cent. This global initiative requires that each member country develops a national plan and strategy to achieve the goals of the plan. **Vision 2020: The Right to Sight** was launched in India on October 10-13, 2001 at Goa. The following will be the priorities for the country

- I. Disease Control includes Cataract, Diabetic Retinopathy, Glaucoma, Corneal Infections ,Childhood Blindness and Refractive Errors & Low Vision
- II. Human Resource Development
- III. Infrastructure – Eye Care Facilities
- IV. Technologies, Supplies & Eye Care Delivery Systems
- V. Strategies for Effective Implementation that includes Situation Analysis, Structure, Coordination amongst all providers, Monitoring and Information Systems will be pursued

3.2.3.1 Strategies & outcomes

Strengthening Advocacy

Vision 2020 initiative will be used to strengthening patronage from high-level decision makers and seek commitment from professional groups, industry, community leaders, NGOs and other agencies involved, directly or indirectly with health care in general and eye care in particular. Some of the steps for strengthening advocacy are given below: -

- Commitment from politicians, high-level decision-makers, public health administrators and professionals in the field of ophthalmology would be sought to implement the programme;
- Advocacy materials, prototype IEC material and continuous communication channels through news letters and other media will be encouraged;
- Networking between various implementing agencies and high volume providers will be set-up;

- Motivation and involvement of Village level committees, Panchayati Raj Institutions, grass-root NGOs, women groups, formal and non-formal leaders and other active community leaders would be necessary for enhancing coverage in the under-served areas;
- Introduction of topics in school curricula including basic tips on eye care, incorporating eye care in training of trainers of schools and comprehensive health check ups including eye check should be made mandatory at school entry with due certification will strengthen services for detection and correction of refractive errors;
- Distance education modules will be prepared for children as well as for para professionals;
- Grief counselling involving volunteers, forensic departments, police etc. and strengthening of hospital retrieval programs for eye donation.

Strengthening Human Resources

- Ophthalmology should be treated as a separate subject in MBBS. During internship, two weeks of posting in community eye care programmes, in association with Community Medicine posting would orient students in understanding programme initiatives. Emphasis should be laid on training in fundus examination and tonometry at undergraduate level;
- Uniform curriculum and assessment during MS/MD courses including assessment of skills, maintenance of log-book (minimum 50 IOL microsurgical operations of reasonable quality during postgraduate training) and evaluation of the capacity of the existing PG training centres is advocated. Training of postgraduates of ophthalmology in direct ophthalmoscopy, slit-lamp examination, gonioscopy, applanation - tonometry, field charting, biomicroscopy is recommended;
- C.M.E. for ophthalmologists in IOL technique, management of glaucoma, pediatric ophthalmology, keratoplasty, vitreo-retinal surgery etc. will be continued to develop required skills in the existing surgeons;
- There is need to increase the capacity of the country to produce more para-medical eye care personnel so that a minimum Eye Surgeon/Paramedic ratio of 1:2 is maintained;
- Development of dedicated District Programme Managers (DPMs) and Hospital Managers will be required to optimally utilize available resources.

Eye Care Infrastructure

- Dedicated eye operation theatre and eye wards located at service centres for each 5,00,000-10,00,000 population. This will ensure reach-in approach universally. Service centres may,

preferably, be located in towns with population above 50,000 so that long term sustainability could be ensured.

- Strengthening of Medical Schools will be necessary to enhance their capacity to provide services as well as training. Provision of lasers, fluorescein angiography, automated perimeters, and equipments for setting up pediatric ophthalmology units and low vision centres should be made.
- Provision of operating microscope, slit lamps, direct ophthalmoscopes and gonioscopes should be made at District level hospitals;

Management-Information Systems

For efficient management and monitoring of the programme, MIS needs to be developed at all levels. To begin with, following steps should be taken:

- Proper completion of Surgical Records for cataract surgery and other services needs to be maintained with complete, correct and reliable information;
- Standard referral cards from primary to secondary/tertiary level of care;
- Development of Management Information Systems at various levels so as to plan, monitor and evaluate the programme in an efficient manner;
- Network of Sentinel Surveillance Units to be established to study profile of beneficiaries and outcome of interventions;
- Independent evaluation on various programme activities and outcomes with standard protocols comparable with other nations.

National activities

The role of Central Government would be mainly policy formulation, monitoring and resource mobilization and less of implementation.

Some of the crucial issues, which need to be tackled at the National level are given below: -

- Standardizing of under-graduate and post-graduate training in ophthalmology by taking up the issue with Medical Council of India (MCI) and various universities;
- Policy initiatives and legislation to facilitate eye donation;
- System for accreditation of various service and training centres;
- Re-deployment of eye surgeons at locations where ophthalmic surgery is possible;
- Development of standardized monitoring tools, guidelines and prototypes;
- Networking for information dissemination.

3.2.3.2 11th Five year Plan and blindness control^P

The following are the recommendations made for the 11th Five year plan for Blindness control in India:

A: Disease Intervention Phase

1. An increase in the number of cataract surgeries performed annually in incremental way up to 75,000,000 from the present 45,000,000 by the year 2012 employing high quality standards and modern surgical techniques. It is estimated to cover 37.5 millions of Cataract surgeries by the year 2012. Implantation of intraocular lenses will be mandatory unless medically not advisable.
2. Children below the age of 15 years with refractive errors and adults above 40 Years number approximately 6,25,00,000 with near vision problems to be provided spectacles by the 2012 and to eliminate all refractive blindness in all age groups by 2020.
3. Envisage that no child in India should go needlessly blind after 2012. All strategies including vitamin 'A' distribution, immunization against Measles and Rubella, development of primary eye care centres and adequate number of high quality tertiary children's eye care centres to be developed by 2012.
4. A very effective Eye Banking System of optimal medical standards and adequate number of trained corneal surgeons to be developed & completed by 2012. The framework for this to be in place in major cities and in all districts by 2012 and total coverage by 2020.
5. Low Vision Services will be initiated in all Tertiary Centres by 2012 and in all secondary level centers by 2020.
6. A very intensive drive to detect persons affected with diabetic retinopathy (7 million out of 35 million diabetics) to be targeted for immediate rescue over a 5 year cycle

B: Human Resource Development will be a major focus area and to include,

Development of a VISION CORPS from an Ophthalmologist for every 50,000 population to a Vision Guardian for every 5,000 population BY 2020. Adequately Human Resource is a core requirement for the Prevention, Treatment and Rehabilitation of Avoidable Blindness and a appropriate model as a team for manageable unit of population of between 100,000 and 1 million people as district level delivery unit. Training of such Human Resource is recommended as a priority of XI Five Year Plan.

- a. Training of all Ophthalmologists in microsurgery and modern cataract surgery by 2012 including those in residency training and in comprehensive eye care by 2020.
- b. Development of uniform basic curriculum for post graduate ophthalmology residency program

- c. Development of adequate number of paramedical personnel training programs by 2012 and meet the requirements by 2020.
- d. Training of eye care management teams and technical teams to cover all Tertiary Care Centres and District Programs by 2012 and to all secondary centres by 2020.
- e. Low vision professionals to be trained for all tertiary centres by 2012

C : Infrastructure Strategies

The entire eye care pyramid as proposed in the last plan is recommended to be pursued in this plan too and to develop five Centers of Excellence in the Government and NGO sector and 11 RIO as tertiary centers to be completed by 2012. All the existing Tertiary Care Training Centres to be strengthened by 2012, the entire network of 500 secondary centres by 2012 and 2500 vision centres to be ready by 2012. Technology transfer has to be enabled to deliver low cost, local production of eye drops, spectacles, switchers and more recently low vision devices under the XI Five Year Plan and there is a need for mass production of low cost high quality materials.

Other recommendations

- VISION 2020: The Right to Sight-India launched on October 14, 2004 and the Task Force established by January 17, 2006 will be further streamlined and supported
- Recognition of existing Centers of Excellence as the Global Resource centers for advanced tertiary care, training, research, planning and policy formulation related to eye care and prevention of blindness for the country These institutes already have international prominence and are recognized as the major resource centers by World Health Organization (WHO) and Global/National Vision 2020 – The Right to Sight Initiatives.

3.2.4 Eye Care in the Broader Health Agenda in India

India was the first country to have a National Program for Control of blindness anywhere in the world. A Resolution of the Central Council of Health & Family Welfare at its meeting in the year 1975 said that "One of the basic Human Right is to see and, therefore, it is to be ensured that no citizen goes blind needlessly; or being blind does not remain so, if, by reasonable deployment of skill and resources, his eye sight could be prevented from deteriorating and if already lost could be restored".

It was launched in 1976 as a 100% centrally sponsored programme to reduce prevalence of blindness from 1.4% to 0.3%. The National strategy for Prevention and control of Blindness adopted which included:-

1. Dissemination of information about eye-care through mass communication.
2. Emphasis on ocular health among children and vulnerable sections of society
3. Augmentation of ophthalmic services so that relief can be given in the shortest possible time
4. Establishment of proper infrastructure for community eye health care

The NPCB also found mention in the National Health Policy in 1983 and has been successfully supported by the Central Government and resource allocations have been made as a priority in the country. Successively the program has also been able to get international NGO support and funding from the World Bank for a Cataract blindness control project. Facilities for Scheduled Castes and Tribes: National Programme on Control of Blindness was launched in the year 1976 with cent percent assistance for strengthening of ophthalmic infrastructure, training of personnel, etc. in tribal and SC areas for treatment of eye ailments and control of blindness under TSP and SCP. In addition, schemes for non-recurring grant-in-aid to NGOs, for setting up or expansion of eye care units in tribal/remote areas, is being implemented to develop infrastructure for eye care in such areas. Special campaigns for identification and treatment of bilaterally blind persons due to cataract is undertaken in remote and underserved areas during mega eye camps. Under the revised strategy, coverage of eye care service in tribal and other underserved areas has been enhanced.

Blindness control activities form an important strategy for action under the National Rural Health Mission with at least 4 indicators monitored at the level of the community namely Cataract surgery rate, no. of children with refractive errors provided with glasses, % utilization of donated eyes and No. of teachers trained in vision screening.

Chapter IV: Role of Other Stakeholders in Eye Care in India

4.1 Multilateral and Bilateral Agencies

4.1.1 World Health Organization^a

WHO, the United Nations specialized agency for health, has been one of the pioneer organizations to undertake blindness prevention activities not only in India but also in the South East Asia Region. In 1978, the WHO Program for the Prevention of Blindness (PBL) was created. Ever since, PBL has developed science-based strategies to fight major causes of avoidable blindness and visual disability worldwide and provided assistance to several countries to set up and strengthen national programs for the prevention of avoidable blindness. Through its technical and managerial leadership PBL plays a key catalytic role in enhancing the partnership of nongovernmental organizations with WHO Member Countries.

WHO has been actively assisting India in the planning, establishment, monitoring and evaluation of NPCB. At the same time, in cooperation with leading scientists, institutions and collaborating organizations, WHO has developed strategies and technical standards for control of specific blinding diseases, which have been adopted by the Government Bodies and NGOs. It also provides funds for training fellowships and supports several policy workshops within the country. All this funds are rooted through the Government of India, Ministry of Health.

4.1.2 World Bank^t

Since 1991, the World Bank Group has significantly increased its emphasis on health sector development in India. The Bank has been working to help India reduce the level of mortality, morbidity, and disability through a three-pronged approach. The first is to reduce the burden of the most significant diseases by supporting priority programs with positive externalities. The second is to strengthen the performance of state health systems to deal with the evolving burden of disease by providing more efficient and effective health care. The third is to strengthen essential functions such as food and drug administration capacities.

^t Cataract Blindness Control Project—India, Implementation Completion Report, Ophthalmology/blindness control section, Ministry of health & family welfare, Nirman bhavan, New Delhi, 2004

In the year 1994, the World Bank group approved a Blindness Control Project aims to improve the National Program for the Control of Blindness (NPCB's) quality of service and expand its treatment capacity by:

- (a) Enhancing quality of care and expanding service delivery through new strategies, policies, technical and operational norms; increased use of modern surgical techniques; and expanded coverage of rural and isolated populations with extensive Non Governmental Organization (NGO) and private sector involvement;
- (b) Developing human resources for eye care delivery by strengthening selected training institutions, upgrading the skills of ophthalmic and health personnel, and providing management training for Central, State and District project managers;
- (c) Promoting outreach activities and public awareness by supporting NGO's and community involvement, and raising awareness about cataract blindness through mass and traditional folk media, and interpersonal communications; and
- (d) Developing institutional capacity at the Central, State & District levels, developing collaborative mechanisms with the NGOs, introducing measurable monitoring mechanisms, and conducting operations research.

The project was financed with an IDA credit of US\$117.8 million and was implemented in the States of Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Rajasthan, Maharashtra, Tamil Nadu, and Orissa, where the ailment was found to be higher than the national average of 1.49 per cent.

Achievements:

Objective 1: Upgrade the quality of cataract surgery

Following steps were taken during the course of the project to upgrade the quality of cataract surgery:

- a. **Development of Norms and Standards:**The guidelines included standard protocol for pre-operative examination, cataract surgery and post-operative care.
- b. **Procurement of equipments and goods of high quality:** As Intra Ocular Lens implantation was the main procedure to be developed during the course of the project, high quality ophthalmic equipment including operating microscopes were procured centrally through International Competitive Bidding (ICB). Similarly two most important consumables required for IOL surgery; Intra Ocular Lenses and Ophthalmic Sutures were procured centrally. Adequate funds were given to the states for maintenance

of high-tech equipments after warranty period. In many hospitals these equipments were installed in newly constructed or renovated dedicated eye operation theatres.

c. **Intensive training of eye surgeons in IOL Surgery:** To ensure that training is of high quality, a 16 weeks training of trainers was initiated where faculty of medical colleges were trained in 7 centres of excellence in the country. This was followed by intensive training of 8 weeks duration for district level surgeons in selected institutions of the country having adequate volume of IOL surgery, adequate training infrastructure and training facilitators. Standard protocols, guidelines and training manual for imparting training. During the course of the project, 842 eye surgeons have been trained in the project states.

d. **Shift in approach from surgical eye camps to fixed facilities:** Studies conducted during mid-term evaluation reconfirmed that success rate after IOL implantation is superior to conventional surgery. This not only resulted into shift from conventional to IOL surgery but also shift from camps to fixed facilities where sterile OT environment and requisite equipments were available. However, to ensure that interface between beneficiary and the provider are not adversely affected, screening camps were organized to identify operable cataracts, which were later transported to fixed facilities for surgery.

e. **Focus on sight restoration through improved follow-up after surgery:** During the mid-term evaluation, it was revealed through various studies that poor follow-up after cataract surgery was the main cause of poor visual outcomes. The project therefore, emphasized on follow-up services to operated cases so that visual outcomes could improve. Provisions of +10D aphakic glasses at the time of discharge were discouraged. The NGOs were not given full grants till follow-up services were not provided.

f. **Introduction of standard Cataract Surgery Records to facilitate monitoring:** After field-testing, a standard Cataract Surgery Record and a standard discharge cards were introduced and widely disseminated. The Cataract Surgery Record not only gives complete information about the person being operated but also gives details about pre-operative and post-operative visual acuity, complication, if any and prescription of spectacles. The discharge card also gives information about precautions requires to be taken in the post-operative period.

g. **Dissemination of quality assurance modules:** A series of quality assurance modules have recently being developed and disseminated to enthuse the providers of eye care to maintain high standards in delivering eye care services to the community. At the same time public is being made aware about advantages of IOL surgery through mass media and other conventional methods including inter-personal communication.

Objective 2: Expand Coverage to underprivileged areas.

a. Village blind registry: Under this activity, link workers from villages were identified and oriented on methods to identify blind persons including those affected with cataract. With this innovative approach, untreated cataracts were identified. Such people were confirmed by ophthalmic assistants before they were entered in the blind registers.

b. Organizing screening camps: To provide services to untreated cases detected through blind registry, screening camps were organized in different parts of districts so that operable cases could be identified, motivated and transported fixed facilities.

c. Micro plans at district level: Another strategy that was adopted to expand coverage to underserved population was micro planning within the districts. This aimed at identifying all services providers within each district and if required from outside the district.

d. Involvement of community and local leaders: With the decentralization of the programme, community involvement has become stronger as they participate in planning, implementation, resource mobilization and monitoring of the programme. In many places Local Self Governments (Panchayats) are involved in organizing/undertaking activities particularly in blind registry, screening eye camps and follow-up services.

e. Additional incentives for remote and tribal areas: Due to difficulty in communication and transportation, an additional incentive of Rs. 50 is provided to voluntary organizations for each case of cataract surgery performed there. In addition, NGOs provide them food and even clothes at some places, though these are arranged from their own funds. Under the scheme of providing non-recurring grants for setting-up or expanding eye care facilities for remote rural and tribal areas, grant up to Rs. 1.775 million were provided to 30 NGOs during the project period. This is expected to increase capacity for providing eye care in these areas.

Objective 3: Reduce the backlog of untreated cataracts to lower the prevalence cataract blindness by more than 50% by performing 11.03 million cataract operations.

The CSR in the project states averaged out at 4030 surgeries/million population from the prior 2400 surgeries/million/year. While most surgeries happened in the private facilities, there was a perceptible increase in the surgeries at the government and voluntary sectors as well. 65% of all surgeries were IOL surgeries under the project with coverage of the blind increased to 70%. In terms of numbers of surgeries it crossed the 12 million mark although only 55% could be categorized as sight restoring surgeries.

Objective 4: Develop human resources and institutional capacity for eye care

One of the objectives of the project was to enhance eye care infrastructure and develop human resources to meet the needs and demands of the affected population. This objective was achieved through the following:

- a) Training of Eye Care Personnel;
- b) Construction of Eye Wards and Operation Theatres;
- c) Installation of ophthalmic equipments in existing and new facilities.

Objective 5: Promote outreach activities/public awareness.

A communication needs assessment survey was undertaken in the initial phase of the project to identify gaps in knowledge and practices of beneficiaries, decision makers in the family, community leaders and providers of eye care. Communication strategies were developed on the basis of findings. IEC activities were undertaken at Central, State and District levels. Central activities included development of prototype spots and a film for telecast and radio-spots and jingles for broadcast. These were dubbed in various languages and relayed through national and regional channels of TV and Radio. In addition, prototype material for print media were also prepared and disseminated. State level IEC was mainly limited to replication of prototype material developed at the Central level. District level activities were varied and depended on local methods of communication, socio-economic and educational status of the people. Many procedural manuals & documents were also made during this project phase.

Objective 6: Establishment District Blindness Control Societies in all districts.

Establishment of District Blindness Control Society as the nodal agency for implementing of the Project was quite successful. All the districts of the Project States, including newly carved out districts formed District Blindness Control Society. Structure of DBCS was generally uniform and as per guidelines.

Objective 7: Create an enabling environment for involving NGOs and private Sector in eye care delivery.

In initial phases of the programme, there was over dependence on Government sector to implement NPCB. With the advent of Cataract Blindness Control Project, there has been large-scale participation of NGOs in various activities of the Project. This has been possible due to development of various schemes where financial assistance is provided under the project.

Objective 8: Develop mechanisms for cost recovery to sustain the project activities beyond the project period.

Government of India has decided to continue support to National Programme for Control of Blindness in the years to come so that momentum generated due to Cataract Blindness Control Project is sustained and gains from the program is consolidated further. This is evident from the following:

- **Sustainability after project period:** Due to availability of IDA credit, financial resources for NPCB had risen from Rs.200 million in pre-project period (year 1993-94) to Rs.1270 million (year 2001-02). Average amount available during the project period was Rs.750 million. For the period 2002-2007, Government of India has allocated from their own resources Rs. 4450 million (Average Approx. Rs 900 million), for the programme.
- **User charges for eye care:** Many States have initiated steps to initiate some user charges for eye care though poor would continue to get free services. Many NGOs, including those, which were given grants under the Project, have usually three tiers system-Paid, subsidized and free. Resources generated from this system are generally adequate to sustain the activities. With the advent of insurance sector in health care, it would be possible to generate resources for health sector including eye care sector. Due to large-scale procurement of key consumables under the project and availability of free/subsidized services, there has been check on rates charged by private sector. People are ready to pay for eye care, as returns are almost immediate.
- **Development of ophthalmic industry within the country:** Though this was not a set objective of the project, there has been significant growth in eye care industry in the country, which can at least partly be attributed to inputs under the Project. Large consumption of ophthalmic equipments, sutures, IOLs etc. have prompted indigenous production of these goods at reasonable cost

4.1.3 United Nations International Children's Education Fund (UNICEF) ^u

UNICEF in India has contributed to the alleviation of nutrition-related blindness through the support to the central and state governments by vitamin A supplementation and immunization interventions. UNICEF has also been supporting NPCB in association with the World Bank.

^u www.unicef.org/in

4.1.4 Danish Development Assistance Agency (DANIDA)^v

The development assistance from Government of Denmark focused on: blindness, leprosy, tuberculosis, the primary health service and polio. One of the major interventions in the field of India Eye Care is Danish Assistance to the National Program for Control of Blindness (DANPCB). In 1978, an agreement was signed between the Government of India and the Government of Denmark to provide support for development of services under NPCB including supply of equipment, manpower development, and establishment of management and monitoring and evaluation systems, preparation of educational material, teaching and information aids and training. Phase 1 (1978-87) and Phase 11 (1987-97) of the project have been implemented with assistance to the extent of Rs. 10.12 crore and Rs. 31.78 crore respectively.

The mission was to assist strengthening the capacity of NPCB in terms of infrastructure, techno-managerial, training and communication skill to serve the user needs better, especially the deprived section of the Indian society. Apart from working closely with the NPCB and providing support to the overall program of blindness control in India, DANPCB put special emphasis on pilot state of Karnataka and in four identified tribal districts in the states of Madhya Pradesh, Maharashtra, and Orissa.

Significant contribution of DANPCB were made in the following activities which are very noteworthy

1. School Eye Screening
2. Rapid Assessment Survey
3. Management Information System
4. Micro Planning
5. Community Based Rehabilitation

The DANPCB closed its country activities in the year 2003 after a glorious 26 years of support to the eye care program in India. The biggest contribution of the DANPCB has been the decentralization of the eye care program to the district level for better cohesive and participatory program management.

4.1.5 Department for International Development (DFID)^w

DFID's work priorities in India include strengthening the capacity of government to develop and implement pro-poor policies; promoting increased investment in education, health and clean water and

^v www.blindnesssurveillance.org/newsletter/VOL.2_NO.4.pdf

^w <http://www.dfid.gov.uk/countries/asia/india.asp>

supporting programs, which help poor people improve their own livelihoods (with special emphasis on women).

In the field of eye care, British council and DFID extended support for training, service delivery and research to 3 major regional institutes from 1993 – 2001. These institutes were:

1. All India Institute of Medical Sciences, New Delhi,
2. SD Eye Hospital and Regional Institute of Ophthalmology, Hyderabad and
3. Regional Institute of Ophthalmology, Kolkata.

During the course of the project, Medical Officers from upgraded PHC/CHC and eye surgeons in India were sensitized to the practice of Community Eye Care and Eye Care Management. In addition, childhood ocular morbidity survey and operational research on feasibility of delivery of eye care services in urban slums were also undertaken. Landmark studies on screening for diabetic retinopathy and glaucoma were also undertaken through DFID assistance.

4.1.6 United States Agency for International Development (USAID)^x

USAID has played an important role in India's development successes. India has benefited from more than \$13 billion for food aid, technology and scientific transfer, participant training, health and population programs, and agricultural innovations.

USAID has supported several research studies on the supply and demand of micronutrients in India and on approaches to increasing access to micronutrients. The USAID is also supporting a Child Eye Health Grant Program that offers organizational and program grants for eye care service providers focused on child eye care services.

4.2 International NGOs in India

4.2.1 Sightsavers International

Sightsavers is one the oldest International NGO's in India. Earlier they used to be known as Royal Common Wealth Society for the Blind. Its founder Sir John Wilson was instrumental in meeting Madam

^x <http://www.usaid.gov/in/>

Indira Gandhi, the then Prime Minister of Independent India and influencing India to launch the National Program for Control of Blindness.

In the early years, Sightsavers used to sponsor eye camps and later started supporting eye hospitals by paying subsidy for each case of cataract, glaucoma and other minor surgeries done on camp patients either at the campsite or in the base hospital. In the early 80's Sightsavers launched a program to reduce blinding malnutrition through xerophthalmia project. Under this project several nutrition rehabilitation centers were established across the country. From the late 80's there was an emphasis to develop the organizational capacity and long-term sustainability of the eye hospitals supported by Sightsavers International. This took the form of training both in clinical areas as well as management areas. In order to do this Sightsavers collaborated closely with national institutions like Aravind Eye Care System, L. V. Prasad Eye Institute etc.

Towards the mid 90's Sightsavers International also started supporting community based rehabilitation activities. These were well-defined project activities with defined target area, manpower, activities and reporting formats. With the launch of the Vision 2020 there has been a further shift towards working at the grass roots through comprehensive eye care approach. This has let Sightsavers International to partner with non-eye care institutions and with agencies that are essentially working on general development activities in the rural areas.

4.2.2 Christoffel-Blindenmission (CBM)^y

The Christian Blind Mission International (CBM) is an independent aid organization of Christians of various denominations, dedicated to serving eye patients, blind and otherwise disabled people in developing countries, regardless of nationality, race, sex or religion.

The major project-types supported by CBM are eye hospitals/mobile eye clinics, education for blind and deaf people, rehabilitation programs, and orthopedic clinics. CBM supports these projects financially and by seconding qualified employees such as eye doctors, nurses and experts in special education whose foremost task is to train national specialists.

^y http://www.cbm.org/en/general/CBM_EV_EN_general_article_36914.html

In India, CBM -South Asia Regional Office (South), Bangalore has over 150 projects spread over the States of Tamil Nadu, Kerala, Karnataka, Andhra Pradesh, Maharashtra and Sri Lanka. This includes VISION 2020 campaigning, cataract surgeries, Vitamin A distribution, Low Vision services and training of ophthalmologists and para-medical staff.

The goal is to provide comprehensive eye services through their partners and the objectives to reach this goal are:

1. Equip all partners to perform IOL surgeries
2. Develop Pediatric Ophthalmology services
3. Develop Low Vision services
4. Link medical partners with community based rehabilitation programs for referrals and case finding.
5. To take up new partnerships in unreached and remote areas, particularly in Karnataka, Maharashtra and Sri Lanka.
6. Strengthen medical partners to combat avoidable blindness and enable them to become more self-sustainable.
7. Develop strategies on prevention, cure and rehabilitation of VIPs.

CBM-South Asia Regional Office (North), Noida presently has 55 projects for eye care in India. Most of these projects are located in the states of Uttar Pradesh, Madhya Pradesh, Orissa, Gujarat, Haryana, Punjab and Himachal Pradesh. They have an agreement with Sightsavers India that they will leave out Rajasthan, as Sightsavers India has targeted this State as their priority area.

During the last four years CBM has been giving geographic priority to the northeastern states for developing eye services. A number of new programs have come up in Meghalaya, Tripura, Mizoram and Assam. They are also trying to obtain a balance between the medical eye work and education & rehabilitation work. In addition, they have also developed Low Vision services, both clinical and rehabilitative, and are in the

CBM's priorities with the medical eye projects are in line with Vision 2020 priorities - cataract with 100% IOLs, trachoma in endemic areas, and glaucoma; paediatric services with emphasis on squint surgeries; and refractions for all. To this end, they are upgrading training of all ophthalmologists and paramedics, hospital administrators, etc. They are also upgrading instruments and equipment to increase both the quality and quantity of services provided.

4.2.3 ORBIS International²

ORBIS is a non-aligned, non-profit, global development organization whose mission is to preserve and restore sight by strengthening the capacity of local partners in their efforts to treat and prevent blindness. With its head office based in New York, it has affiliates in UK, Canada, France and Hong Kong. ORBIS's interventions are concentrated in the countries with a high incidence of avoidable blindness like India, China, Bangladesh, Ethiopia and Vietnam. As a founding member of "Vision 2020 The Right to Sight" program, ORBIS supports the goal of eliminating the main causes of blindness in order to give all people in the world, particularly the millions who are needlessly blind, the right to sight by the year 2020.

In the year 1999, ORBIS has started its Liaison Office in New Delhi for India Country Programs. Capacity building and prevention of childhood blindness have been the major thrust of ORBIS in India. Some of the ongoing country programs include:

1. Hospital Based Training Programs-an on-site clinical training conducted by an international or in-country voluntary faculty (VF)
2. Hand-in-Hand Saving Sight Project to counter childhood blindness
3. DC – 10 Plane Program: Equipped with a surgical suite, laser treatment area, recovery room, 52-seat classroom and technical support areas, the ORBIS DC-10 Plane functions as an ophthalmic training center. It flies to developing countries the ORBIS international medical team and visiting volunteer doctors perform eye surgeries, while local health care professionals from the host country observe, learn and practice. DC-10 first visited India in 1988 with the first plane program in New Delhi and Hyderabad. Since then, 12 Plane programs have been conducted in partnership with the Government and the State Ophthalmologic Societies in different Indian Cities.
4. Strengthening Tertiary Eye Care Institutions
5. Hospital based Cornea Retrieval Program (HCRP)
6. Telemedicine

Following its new long range strategic plan in India for 2002-07, the ORBIS India program includes numerous projects focusing on childhood blindness, corneal blindness and eye banking. ORBIS India also works on eye health financing, the enhancement of management skills at eye hospitals and the Vision 2020 "Plan of Action" for India.

² <http://www.orbis.org.in/>

4.2.4 Operation Eyesight Universal (OEU)^{aa}

OEU is a Canadian charitable organization preventing blindness around the world. OEU has been involved in sight restoration and blindness prevention programs since 1963. The mission of OEU is to encourage, develop, and fund effective and sustainable blindness prevention and sight restoration programs directed to people in the greatest need. People are treated without regard to gender, caste, creed or religion. The vision of OEU is: All may enjoy the gift of sight.

Currently OEU works in partnership with eye hospitals in developing nations. Indigenous medical teams who receive resources, equipment and training funded by OEU perform all of its overseas work. OEU works with about 21 eye hospitals and programs in India.

4.2.5 Rotary International^{bb}

Rotary International is one of the important INGOs, promoting eye care in India. It has formed the Avoidable Blindness Task Force (ABTF) to distribute information on avoidable blindness and facilitate linkages between those with project needs and those with available resources. Rotary in India has been involved through local clubs in infrastructure development for eye care service delivery through a network of hospitals. They have also lately supported activities in eye banking in South and North India through setting up of eye banks, supplying equipment, training of staff and generating community awareness and participation. The Rotary Foundation, USA has taken up one lakh cataract surgeries with IOL in India as a Rotary Centennial year project.

4.2.6 International Eye Foundation (IEF)^{cc}

The International Eye Foundation has been helping people see since 1961. In more than 60 countries around the world, IEF's staff and volunteers have restored the gift of sight for hundreds of thousands of people in the developing world. The International Eye Foundation is dedicated to helping people see by:

- Expanding eye care services for those in need.
- Supporting programs targeting avoidable blindness - cataract, trachoma, river blindness, and childhood blindness.
- Providing affordable ophthalmic supplies, equipment, and medicines.
- Enhancing financial self-sufficiency of eye care providers to reduce dependence on aid.

^{aa} www.giftofsight.com

^{bb} <http://www.rotary.org/en/AboutUs/RotaryInternational/Programs/Pages/ridefault.aspx>

^{cc} www.iefusa.org

IEF has a focus on making eye clinics financially self-sufficient. IEF's achievements include developing eye health services, training ophthalmologists and para-medicals, and fighting vitamin A deficiency, trachoma and river blindness. IEF is now strengthening the management, quality of service, and income generating activities so that eye clinics are less dependent on outside donors and government funds.

4.2.7 Lions Clubs International Foundation (LCIF)^{dd}

The LCIF has a long tradition of being involved with eye care activities. In 1990 the Lions International decided to make a very significant contribution in reducing blindness and launched their global program called Lions Sight First Program. They set a target of raising US \$140 million from new sources and to spend the same on eye care activities globally. Recently Lions have given a grant of USD 3 million to the World Health Organization for work in Childhood Blindness. Similarly they made grants to other organizations for control of trachoma, onchocerciasis and for work in China where there are no Lions Clubs organization. Their grant for eye care activities covers a wide spectrum. They pay for subsidy for each cataract surgery in some countries, they have funded the construction of several eye hospitals, funded the equipment as well and supported for capacity building through management training. The main focus has been on Cataract, River Blindness, Trachoma, Diabetic Retinopathy, Glaucoma, and Preventable Childhood Blindness.

Sight First policy in India emphasises upgrading existing Lions Eye Hospitals to increase the quality and quantity of their output. The other initiatives in eye care in India have included Avoidable Childhood Blindness Project & Diabetic Retinopathy Control projects.

4.2.8 HelpAge India^{ee}

HelpAge India has been working for the cause and care of Older Persons, with the ultimate aim of empowering them to take decisions pertaining to their own lives. In more than the 24 years of its existence, it has implemented 2100 projects at a cost of Rs.180 crore, and made a difference in the lives of over 6 million persons. These programs focus on improved access to health and eye care services, community-based services, income-generating activities and training.

In the field of eye care, HelpAge concentrates on cataract operations for needy older persons through its eye camps.

^{dd} http://www.lionsclubs.org/EN/content/lcif_gr_sightfirst_home.shtml

^{ee} <http://www.helpageindia.org/>

4.2.9 Seva Foundation^{ff}

Seva Builds Partnerships to Respond to Locally Defined Problems with Culturally Sustainable Solutions. In the vision that inspires Seva's work in the world, health is not simply the elimination of disease; it is a condition of Wellness and freedom of being. Seva seeks to serve an evolving vision that integrates the ancient and the modern in ways that promote health and human harmony. It is a vision that has us working with modern surgeons and traditional healers, sharing the technology for surgically implanted lenses and supporting herbal remedies used by Mayan midwives.

4.3 National Eye Care Institutions

4.3.1 Rajendra Prasad Centre for Ophthalmic Sciences, AIIMS, New Delhi^{gg}

The Community Ophthalmology Section of the R. P. Centre was established in 1977 to assist NPCB for planning and implementing eye care services in the country. It was initially managed by the ophthalmic faculty in addition to their routine clinical duties. In 1992, the Section was upgraded and became fully functional with the induction of faculty with a Public Health background.

The R. P. Centre was involved in the planning and implementation of two major national level surveys on the magnitude and causes of blindness in 1976 and 1986-89. Since 1992, the scope and functions of the Community Ophthalmology Section were expanded to meet the needs of the country. The R. P. Centre has since then undertaken a large number of community based service delivery, operational and epidemiological research and training of eye care personnel. Several major activities of the center have included:

1. Coordination of Indo-UK Collaborative Project on Community Ophthalmology funded by British Council and later by DFID. During the course of this project 850 Medical Officers from upgraded PHC/CHC and 160 eye surgeons from North India were sensitized to the practice of Community Eye Care and Eye Care Management. In addition, childhood ocular morbidity survey and operational research on feasibility of delivery of eye care services in urban slums were also undertaken.
2. Coordination of USIF sponsored project on Development of Indian Visual Functioning Questionnaire.
3. Technical advice to Govt. of India on implementation of the World Bank Assisted Cataract Blindness Control Project
4. Rapid assessment of blindness in the States of UP and Rajasthan.
5. Magnitude of Blindness and Cataract Surgical Outcomes Survey in the States of UP and Rajasthan.

^{ff} <http://www.seva.org/site/PageServer>

^{gg} Personal Communication, Dr. G.V.S. Murthy, RP Centre for Ophthalmic Sciences, AIIMS, New Delhi

6. Refractive Errors Study among school aged children in East Delhi.
7. Pilot study on barriers to uptake of cataract surgical services in Haryana.
8. Initiation of base camp and reach in approach for cataract.
9. Facility survey in Uttar Pradesh
10. Beneficiary assessment after cataract surgery in Uttar Pradesh and Orissa.
11. Feasibility of health insurance schemes in UP and Rajasthan.
12. Preparation of innovative eye health educational material including teaching videos on Primary Eye Care.
13. Preparation of technical modules for Community Eye Care.
14. Training community based workers in primary eye care.
15. Technical Support for Technical Resource Groups.
16. Service delivery for urban slums and rural populations.
17. Support to District Blindness Control Societies including leadership for South Delhi DBCS.

4.3.2 Indian Council of Medical Research (ICMR)^{hh}

ICMR, New Delhi, the apex body in India for the formulation, coordination and promotion of biomedical research, is one of the oldest medical research bodies in the world. In addition to research activities, the ICMR encourages human resource development in biomedical research through (i) Research Fellowships (ii) Short-Term Visiting Fellowships (iii) Short-Term Research Studentships, and (iv) Training Programs and Workshops conducted by ICMR Institutes and Headquarters. ICMR in the past decades has carried out numerous studies on the prevalence, epidemiology and treatment of various causes of blindness in the country. The research efforts of ICMR have contributed significantly to policy formulation in the national blindness prevention and control programs.

4.3.3 IOL Training Centres

With the launch of the World Bank Blindness Control Program there was an equal emphasis on quality while attempting to increase the numbers to the required level. One of the activities under the quality initiative was to equip all district hospitals with capacity to perform cataract surgery with IOL implant as well as train at least two ophthalmic surgeons per district. This led the Government to launching a program of training of the trainers. Here the trainers essentially came from teaching hospitals across the

^{hh} www.icmr.ac.in

country that offers postgraduate education in ophthalmology. Subsequently the ophthalmologists from district levels were sent to these medical colleges for training in IOL surgery.

However in many of the medical colleges due to extremely low patient load such training could not be effectively done. Recognizing this the Government of India then went on to identify several institutions in the Non-Government sector across the country, which had adequate patient load and good IOL surgery skills and designated them as Government approved IOL training centers. These centers together train a very large number of ophthalmologists. It is expected that this training may continue for another year or two before all of them are trained. The Government of India is keen on continually improving the skills and is already planning on training for more refined cataract surgical procedures such as the phaco and the manual Small Incision Cataract Surgery.

4.3.4 L.V. Prasad Eye Institute (LVPEI)ⁱⁱ

In 1983, the idea of establishing a model of high quality, comprehensive eye care to be delivered to patient irrespective of ability to pay was conceived by Dr. Gullapalli N. Rao, then an Associate Clinical Professor of Ophthalmology at the University of Rochester Medical Centre, USA. This became a reality in 1986, and the institute started to function from 1987. Despite the limitations of the environment in which it was established, the Institute has developed a model of health care delivery that is medically up-to-date and strategically relevant to the needs of the patient population. L V Prasad Eye Institute is a world-class eye hospital, research, and training centre located in Hyderabad, India. Its mission is to provide excellent and equitable eye care to all in a caring and compassionate manner. The Institute's six areas of focus are comprehensive patient care, sight enhancement and low vision rehabilitation, community eye health, clinical research, education and training programmes, and product development. Today LVPEI has 400 staff, including 25 full-time salaried ophthalmologists, 2 internists, 6 part-time anesthesiologists, 20 optometrists, 10 basic scientists, 5 directors, and 30 administrators. Structurally, it is run as a non-profit organization that encompasses the six functional areas.

LVPEI is one of the major referral facilities for ophthalmology in all of India. Annually, about 200,000 patients are seen at the Institute and about 25,000 surgical procedures are performed. In addition, the five rural satellite clinics, functional for more than 3 years now, at Adilabad district, Mahaboobnagar, Prakasam and Chittoor districts handle approximately 35,000 outpatients and perform 6,500 surgeries

ⁱⁱ www.lvpei.org

annually. 16 partners are built on the lines of LVPEI and 2 more big tertiary eye care institutes in Orissa and North Andhra Pradesh have come this year. LVPEI has made a huge dent in providing eye care services to the unreached population through setting up close to 35 vision centres providing eye care services at the primary level and referral to networked hospitals. These are prototypes aligned with the “Vision 2020: the right to sight” initiative. These are considered excellent models for replication.

In the past few years the institute received the official designation of a World Health Organization Collaborating Centre for Prevention of Blindness. The Government of Andhra Pradesh has also officially designated the institute as a resource centre for the state in the area of eye care and thrust the responsibility of leading the state’s “Vision 2020: The Right to Sight Andhra Pradesh” program, the first such state level program in the world, under the global initiative.

4.3.5 Sankara Nethralaya^{jj}

Founded by Dr. Badrinath in 1976 at Chennai, Sankara Nethralaya has earned a worldwide reputation as a Centre of Excellence for clinical care, research and training. It does extend technical support to a few other hospitals started either by their alumnis. Some such centers are located in Guwahati, Ghanpathi Nethralaya in Maharashtra etc. The hospital provides charity services, however, their outreach activities has been limited. It develops partnership with a few organizations, who carry out the screening and send the patients to their hospital for surgery.

In the last two decades the Sankara Nethralaya has grown from a 14-bedded clinic into a world-class referral ophthalmic centre catering to all subspecialties in Ophthalmology. It is also involved in high quality basic and clinical research. One of the prime objectives of Sankara Nethralaya has been to ensure that quality ophthalmic care is readily available to the economically weaker section of society. Currently 40% of the out-patients and 30% of In-patients are extended free treatment at Sankara Nethralaya.

To ensure quality, it follows systems and procedures and it is the first ISO 9002 certified Eye Hospital in India. The institute has trained more than 300 Ophthalmologists spread over the length and breadth of the country. And through the new Sri Ratan Tata Fellowship Program it is providing intensive hands on training to 40 ophthalmologists every year in the most modern techniques of cataract surgery.

^{jj} <http://www.sankaranethralaya.org/>

4.3.6 Aravind Eye Care System^{kk}

Twenty five years since its beginning, Aravind Eye Hospital's transition from an 11 bedded hospital to a broad spectrum of diverse activities in eye care services, patient care activities, teaching, training, research, policy advocacy, capacity building, production of ophthalmic supplies and publications has seen it evolve as the conglomerate – the **Aravind Eye Care System (AECS)**. It is established under the auspices of the Govel Trust, a registered, not for profit charitable trust.

Patient care services are delivered through its network of five eye hospitals with combined bed strength of over 3,500 beds. The Aravind Eye Hospitals (AEH) provide primary to tertiary care with over 2 million patients crossing its threshold annually from all parts of India and does over 200,000 surgeries in a year. The Aravind service delivery model focus has been the delivery of quality eye care service to the entire community at affordable rates. This led to the concept of free care for those people unable to pay and the implementation of community outreach activities as a means of overcoming access barriers. For the core activity of patient care Aravind is entirely self-sufficient both for operating and capital costs.

Clinical training has become a significant activity at the Aravind Postgraduate Institute of Ophthalmology with an annual intake of 30 Residents, 20 Fellows (for sub-specialty training) and over 150 ophthalmologists for short-term (8 weeks) skill development courses with students coming from all over India. Residents from US, UK, Germany also find Aravind an excellent place to learn. The various short-term clinical courses, Fellowships and Continuing Medical Education Programs that are conducted yearly attract participants from all over.

Aurolab is a non-profit manufacturing facility producing Intraocular lens (IOL), sutur products at prices affordable to the common man in the developing countries. The stringent quality standards that it maintains has led it to receive the CE certification from the Danish Certifying Agency and the ISO 9002 certification from Underwriters Laboratory, USA based on continuous assessment.

Aravind Medical Research Foundation is a D.S.&T. recognized research facility involved in basic research in the area of ophthalmic genetics and immunology besides being involved in clinical trials, intervention studies and epidemiological surveys. The Tamilnadu MGR Medical University has recognised Aravind Eye Hospital for PhD studies in the field of ophthalmology, immunology and genetics.

^{kk} www.aravind.org

Rotary Aravind International Eye Bank is involved in donor screening, collection, evaluation and preservation and distribution of corneas. Training is also provided in eye banking, as well as corneal transplants.

Lions Aravind Institute of Community Ophthalmology (LAICO) focuses on promoting eye care services through teaching, training, research, consultancy and advocacy. It has been recently designated as one of the two institutions in India to be accorded the status of a **National Eye Care Resource Centre**. Besides promoting better eye care services in our country this move enables it to play a catalytic role in framing national policies. This will take forward the advocacy role it was already playing and further increase its contribution to the National Program for the Prevention of Blindness (NPCB). The “Global Initiative- Vision 2020-The Right to Sight’ provides opportunities to work in South East Asia and Africa. LAICO offers several management courses for improving the delivery of eye care by training various cadres of human resource with participants drawn from all over India as well as South East Asia and Africa. The training for Eye Care Program Managers and Ophthalmic Heads of Eye Hospitals are considered LAICO’s flagship courses. Through a structured process of training and consulting LAICO has enabled over 140 eye hospitals across Asia and Africa to increase their productivity, quality and financial viability. LAICO has been recognized by the Indian Institute of Technology, Chennai for registering and training external candidates in M.S. and Ph.D. in the fields of Health Management and Biotechnology. Emerging opportunities in the information technology are being harnessed to implement virtual classrooms and distance learning. Telemedicine facilities are being set up for remote diagnosis, distance learning and video conferencing.

4.3.7 All India Ophthalmological Society (AIOS)¹¹

AIOS, a national level NGO based in Delhi, has been conducting the annual meeting on eye care in India, since its commencement in 1930. Recently, it has also undertaken the activities to review the postgraduate training in ophthalmology to make necessary curriculum changes. The society also brings out a high quality peer reviewed journal in ophthalmology.

The objects of the society are cultivation and promotion of the study and practice of ophthalmic sciences, research and manpower development with a view to render service to the community and to promote social contacts among ophthalmologists of the country.

¹¹ www.aios.org

4.3.8 Eye Bank Association of India (EBAI)^{mmm}

Eye Bank Association of India (EBAI) is one of India's leading non-government organizations and the only national level body focused on relieving Corneal Blindness. Its mission is increasing collection, testing and distribution of quality corneal tissue.

The principal activities of EBAI are:

- Increasing awareness of eye donation through mass communication media including press, radio, television & the Internet.
- Training eye bank technicians & personnel, defining & enforcing medical & service quality standards for eye banks.
- Developing new concepts for cornea retrieval like Hospital Retrieval Programs & Grief Counselling.
- Encouraging governments to create & enforce a uniform legal framework for eye banking in the country

4.3.9 Venu Eye Institute and Charitable Society^{mm}

Venu Eye Institute was established in 1980 by late Dr. R. K. Seth, a brilliant ophthalmologist, in a small premise located in south of Delhi with a objective to take quality eye care to the doorstep of the visually afflicted, the majority of whom live on or below the poverty line in the urban slums and the rural areas of India.

With the inspiration and help of a group of like-minded people, Dr. Seth formed the Venu Charitable Society (VCS). Venu Charitable Society is a non profit-making voluntary organisation engaged in providing qualitative and quantitative eye care in and around Delhi for over 20 years. Venus's services are organised as a 3-Tier Eye care Network, comprising of 20-24 primary mobile eye care clinics, six satellite hospital, and its tertiary centre at a state-of-the-art base hospital in South Delhi, the nerve centre of the entire organisation: The Venu Eye Institute & Research Centre.

70% of the patients treated at Venu come from the economically weaker section of Society and are treated free. The 30% paid patients contribute 60% of the total revenue generated at Venu. The deficit of 40% is raised through donations received from individuals both within and outside the country, Government and international funding agencies.

^{mmm} <http://www.ebai.org/html/index.htm>

^{mm} www.venueyeinstitute.org

4.4 Networks and Partnerships – IAPB, India Vision 2020 Forum⁰⁰

In the mid-1970s the late Sir John Wilson amongst others, began to draw the international community's attention to the problem of global blindness. These efforts led to the setting up of the International Agency for the Prevention of Blindness (IAPB) on January 1, 1975, with Sir John Wilson as the Founder President. The founding members were the World Blind Union (WBU) and the International Federation of Ophthalmological Societies (IFOS/ICO). IAPB was established as a coordinating, umbrella organization to lead an international effort in mobilizing resources for blindness prevention activities. IAPB aspired to link professional bodies, non-governmental organisations (NGOs), educational institutions and interested individuals with national programs for the prevention of blindness. The first major achievement of IAPB was to promote the establishment of a WHO Prevention of Blindness and Visual Impairment team, with which it then entered into an official relationship. Within the mandate of combating avoidable blindness, the Agency has three major objectives. These are:

- Disseminating ideas and information on successful approaches to eye care delivery.
- Increasing public awareness of needs and solutions so that the experiences and resources of one country may assist another.
- Supporting the WHO programme and its strategies through close dialogue, mobilisation of resources and evaluation of activities

IAPB works to encourage the formation of national prevention of blindness committees and programmes, led by governments with inputs from the WHO, local and international non-governmental organisations. These now exist in over eighty countries. A significant feature of the IAPB over the past decade has been the growth of a network of international non-governmental organisations. These organisations are active at all levels of eye health provision, including health education, mobile eye care services, secondary and tertiary eye hospitals and clinics, and the training of national personnel. The latter include primary eye care workers, ophthalmic assistants and nurses, ophthalmologists and programme managers. IAPB holds a General Assembly every four years and regional conferences in the intervening years. The Agency also produces a quarterly newsletter. The meetings and newsletter are used as a forum for the exchange of information and ideas, and in particular for demonstrating

⁰⁰ <http://www.vision2020india.org/homepage.asp>

successful approaches leading to the development of comprehensive eye care and the prevention of blindness.

4.4.1 Vision 2020: The Right to Sight India

The Vision 2020: the Right to Sight - India a National Confederation of INGOs/NGOs and NNGOs established in 2004 as a coordinating, umbrella organization to lead national effort in mobilizing resources for blindness prevention activities. It is a National confederate Body to strengthen the implementation of the Vision 2020 activities in alignment to national objectives and targets and thus contribute to the elimination of avoidable blindness. It is poised to develop as a "National Entity for Transformation, Human Resource Development, Research, and Advocacy"- NETHRA (meaning eye) for action in eye care in India.

The Mission of the forum is to work with eye care organizations in India for the elimination of avoidable blindness by provision of equitable and affordable services as well as rehabilitation of visually challenged persons through development of appropriate policies, quality standards, advocacy, training, and promotion of best practices with a special emphasis on the poor and marginalized sections of society and underserved areas. Towards achieving this, the priorities include:

- Advocacy
- Policy & Programme Development
- Quality Eye care
- Resource Mobilization & Sustainability
- Resource Centre
- Organizational Capacity

Chapter V: Strategic Opportunities for Sightsavers International India Program

Blindness and Vision Impairment remain global public health problems despite several decades of programmatic focus. The problem remains acute in developing countries especially India. India has been making considerable efforts to achieve the goals of VISION 2020: The Right to Sight Initiative, however, the challenges ahead remain formidable. The formation of several state chapters of “VISION 2020: The Right to Sight” initiative through a public-private partnership model is a step in this regard.

Several major issues persist in eye care in India. Important among these are

- Inequitable distribution and sub-optimal utilization of human resources coupled with inadequate number of paramedical eye care personnel. Issues related to number of training centres, curriculum, accreditation and recognition of courses are major problems. It is also reported that the quality of ophthalmology residency programs in the country is also sub-optimal.
- Variation in quality of eye care treatment leading to unfavorable outcomes. Quality as a parameter assessed by outcomes following cataract surgery has become mandatory after lot of efforts by all stakeholders currently and this has at least ensured being evaluated in programs as an indicator of success.
- Persistent focus on numbers treated rather than outcomes which has undergone a change for the better recently with respect to cataract surgery but needs to be extended to all services provided.
- Persistent focus on curative services *after* blindness or vision impairment; almost non-existent preventive services
- Limited or negligible models of primary eye care services or an integrated model for comprehensive eye care at community levels.
- Very limited center or community based vision rehabilitation programs due to infrastructure, trained human resources and access issues.
- Sub-optimal coverage due to facility mismatch and concentration in urban areas whereas the problem is more pronounced in the rural and underprivileged areas. No clear cut structure with clear delineation of facilities to each level of service delivery causing lot of suboptimal quality output. Issues are also related to poorly designed and functional facilities with sub-optimum use of available human resources due to lack of technology.
- Cataract has received tremendous priority over the past decade and this has lead to decrease of cataract blindness in many parts of the country. Now there is an urgent need to provide

comprehensive eye care with due importance to refractive errors, low vision and preventable corneal blindness and emerging concerns such as childhood blindness, glaucoma and diabetic retinopathy, However since cataract is responsible for 50% of the blindness an area-specific approach for support will be required in areas with low cataract surgical rate and coverage.

- There is lack of awareness about availability of service and hence poor access and reduced coverage.
- Eye care is delivered through a predominantly vertical program which now needs to be integrated with other development programs using community based organizations
- There is a lack of adequate coordination between the Government sector and other sectors especially at the State and district level and there are opportunities to strengthen the same.
- Lack of scientifically valid data or approach to planning for human resources for eye care and mapping of available resources.

5.1 Possible Strategic Goals for the period 2009-2013

It is important to broaden the horizons of eye care service delivery from the current 'curative-after-the-problem' approach towards a 'prevent-the-problem-simultaneous- to- cure' approach focused towards the future. Traditionally, eye care programs in India have focused more on the curative approach that focuses on the now and the existing magnitude as opposed to reducing the future magnitude of disease. Preventive and promotive programs may potentially increase the impact of Vision 2020 programs although this has to be studied.

There are several reasons why preventive programs for eye care are not in vogue (besides programs focused on Vitamin-A supplementation, Measles Immunization and Trachoma) in India and other developing countries. The impact of preventive programs is often felt much later in the future and needs to be studied further with specific focus on magnitude of the disease and cost effectiveness/benefits. An understanding of the risk factors for disease at the population and individual level is essential to develop preventive programs. Although risk factors at the individual level are better known, population attributable risk for several of the risk factors are not known for developing countries. Additionally, several socioeconomic factors increase the risk for blindness and need to be addressed.

Primary eye care services are separate from although they may include preventive eye care services. The components of primary eye care need to be defined and probably expanded to include refractive

services and cataract services, in addition to all the elements of primary health care. It may be useful to include activities to make available primary health centres as base facilities for cataract surgery where operation theatres can be assured of asepsis and also bringing refractive services other than refractive surgery/ contact lenses under the purview of primary eye care considering that cataract and refractive services are responsible for the major burden of blindness and vision impairment. Access to care is a major issue and bringing these services under the purview of primary eye care services may help provide the service through the large primary health center network. Issues relating to training, co-payment, and scaling up of services, consumables and infrastructure, and quality assurance need to be worked out. It may be possible to develop a co-payment model of refractive services that can subsidize the cataract services and develop appropriate infrastructure. These are policy issues for deliberation.

As we move towards achieving the milestones laid out under the Vision 2020 initiative, at the global, regional and country level, it is very clear that eye care cannot be done in isolation or as “stand-alone” vertical programs. Towards this end, it is extremely important that eye-care, an important aspect of health care, has to be seen and treated as a part of the development process. There is great focus worldwide on achieving the Millennium Development Goals (MDGs). If one examines the MDGs, *all* of the eight broad goals overlap directly or indirectly with blindness prevention. Several cross sectional studies have reported on the impact of malnutrition on blindness. The association of childhood blindness with child mortality especially under-5 mortality is well known, as is the association of chronic undernourishment of mothers and low birth weight of babies. The association of illiteracy with blindness and access to available services is well studied. Studies from India and other countries have reported on gender inequalities in service utilization, and have reported on the positive impact of education among women on accessing services. Trachoma is a very good example of the association of environmental hygiene with eye diseases and the need for safe and clean water. Developing a global partnership for development focused on eye care is what the VISION 2020: The Right to Sight Initiative is all about.

The Eight Millennium Development Goals^{PP}

1. Eradicate extreme poverty and hunger
2. Achieve Universal Primary Education
3. Promote gender equality and empower women

^{PP} <http://www.un.org/millenniumgoals/>

4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, Malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

There is little reason for eye care programs to remain insulated from development programs considering the association between the MDGs and achieving the goals of control of blindness and vision impairment. A potential 'loss of focus', 'not our areas of strength', 'there are other players' are often cited as reasons why eye care programs do not get involved with other development programs. Such an insulated approach may not carry much conviction in the future when one considers that development programs aiming at achieving the MDGs and eye care programs end up competing for the same meager resources in developing countries, all the while trying to achieve goals of common mutual benefit.

5.2 Potential Areas for Interventions

Sightsavers International, India plans to align its interventions and strategies with the overall goals of VISION 2020: The Right to Sight Initiative. Sightsavers has to also develop its strategies keeping in mind the capacity of current partners and potential new partners, and the benefits to them as well. These goals can broadly be in the following areas

1. Disease Control
2. Developing Human Resources for Eye Care
3. Strengthening Service Delivery
4. Promoting Community Ownership and Participation
5. Developing Institutional Capacity, Partnerships and Networking
6. Operational and epidemiological research to support the above

5.2.1 Disease Control Priorities in Sightsavers Area office regions

Sightsavers, India has the opportunity to develop a niche in the delivery of primary eye care in India. Sightsavers, India is uniquely placed, through its various partnerships to transcend the bridge between formal eye care and the developmental sector, and to integrate eye care services with development. Sightsavers, India should also develop the capacity internally and of its partners to develop appropriate

operations research in these priority areas including perspectives from the community and patients, gender inequities, impact assessments and case studies. These can form part of a larger learning resource that Sightsavers can develop to inform itself and its partners.

Sightsavers has a rich history of supporting programs aimed at cataract especially training programs aimed at improving the capacity of ophthalmologists to perform cataract surgery with intraocular lens. Sightsavers, India, has in recent years been shifting its focus to other eye diseases that are not as well targeted as cataract.

Sightsavers, India may consider the following eye diseases/conditions as priority areas to develop its own niche in these areas (even as it continues its support to the cataract programs and refractive services). These areas are selected taking into consideration what the other partners and also the public sector in the country does.

1. Diabetes and eye diseases
2. Low Vision and Rehabilitation

The public health importance of diabetes in India is well known, and an estimated 75 million people may have diabetes in India by 2030. Approximately 25% of these persons with diabetes may have retinopathy, including 10% with sight threatening retinopathy. The public health importance of diabetic eye diseases especially retinopathy is compounded by the relatively fewer specialists trained either in medical retina or surgical retina. Appropriate control of diabetes goes a very long way in preventing onset and progression of retinopathy from diabetes. Sightsavers, India may focus on two important aspects pertaining to eye diseases from diabetes

1. Prevention programs focused on diabetes, and Integration of diabetes care at the primary care level
2. Training for medical retina including lasers for retinopathy at the secondary level

The magnitude of low vision in India is huge. Services for persons with low vision are still limited to a few tertiary care centers. The magnitude of persons needing low vision and vision rehabilitation services may increase as the population ages and becomes more at risk for retinal diseases. Sightsavers is working extensively in the area of low vision and can consider positioning itself for the following services pertaining to low vision and vision rehabilitation

- A) Develop strategies for and deliver low vision and vision rehabilitation services at the secondary and primary levels of care.
- B) Work with education sector towards inclusive education for persons with low vision and blindness
- C) Develop and deliver appropriate training programs for teachers in collaboration with the education sector

Sightsavers is uniquely placed through its partnership network to develop state wide plans addressing these disease control priorities focused on the states where the majority of its partners are active. Considering that most of the partners are in North India, such an approach will be very useful in addressing the large magnitude of blindness and vision impairment in India.

Sightsavers through its formidable partnerships at the community level and being more horizontal at that level can also undertake disease control activities for eye care that transcends cataract, refractive errors, childhood blindness, corneal blindness and referral systems through

- a) Setting up of primary eye care centre models that can be vision centres as well as be alternatives for the same.
- b) Community based spectacle delivery systems and models to address the burgeoning problem of refractive errors and especially near vision (presbyopia).
- c) Community based eye care surveillance mechanisms through its partners.
- d) Community based rehabilitation of the blind and integrated multi “differently abled” groups through increased involvement of Community Based Organizations (CBO) and optimising the resources and facilities. This also increases coverage and credibility in the community.
- e) Other approaches to reach children (and adults in communities) beyond schools including a few like “Child to Child and child to family approach”, extension of school eye screening programs, and involvement of captive population congregation areas to name a few.
- f) Focal research and service delivery for Endemic Trachoma through partners as well as pursuing the SAFE strategy. Even studies to demonstrate absence of the active problem of trachoma would add a lot of value to the knowledge of eye care in India.
- g) In addition to continued support for cataract related activities like training, infrastructure development and equipping, Sightsavers could through its area office increase geographical focus in

those states for cataract service with good outcomes to meet up to the recommended CSR of 4500/million population/year.

- h) A need to identify obvious glaucoma or “in the face glaucoma” by Sightsavers partners using a targeted or opportunistic screening approach and building the capacity at the secondary and tertiary levels to deal with advanced glaucoma care.
- i) Community based models to identify and refer children with eye ailments – blindness or visual impairment through networks and partnerships including that with ICDS, RCH and captive group populations.

5.2.2 Human Resource Development Activities under the Regional Plan

The human resource development plan has to be in alignment with the disease control plan for optimal benefits. We have identified three core areas where Sightsavers can play a major role. These areas are based on the current gaps that are evident from the program in the country and reviewed in the document.

A) Training, certification and accreditation, and quality assurance for primary eye care personnel including VT, low vision and vision rehab personnel. Sightsavers through the Vision 2020 India group can play a major role in standardizing training for different cadres of primary eye care. This effort will fill in a very large gap in services in India. The focus of such training should be on developing a professional cadre of primary eye care service personnel who can integrate with the formal eye care stream, and with the development sector. Sightsavers can consider developing a quality assurance system. Given the international reputation of Sightsavers, it may consider adding value to the courses by certifying the courses. Such a process will greatly enhance the value for such candidates in their career development

B) Management training for primary eye care personnel

Much of the training programs are oriented towards developing hard clinical skills. There is a place and potential for training in soft skills that are essential for the success of a program. Such training has to be realistic and in tune with the realities at the community level.

Sightsavers, with its partnership network and collaborations, is uniquely placed to facilitate such training programs. This training can be on many areas including but not limited to communication skills, basic accounting and book keeping, inventory and stock management, and public relations

skills. Situational analysis and mapping of available resources done at periodic intervals will support the proper deployment of available resources.

C) Optical dispensing

The magnitude of uncorrected refractive error is large. Only close to 30% of persons needing spectacles actually use them. There are several reasons including access to good quality spectacles. A major issue is the dispensing of spectacles and the turn-around time it takes from prescription to delivery of spectacles. This turn-around time is a very good indicator of the robustness of the eye care delivery system.

Sightsavers, with its partnership network, is uniquely placed to offer such training programs. The focus of such training should be on developing a professional cadre of primary eye care service personnel who can integrate with the formal eye care stream, and with the development sector. Sightsavers can consider developing a quality assurance system and a certification of such a course. The courses have the potential to develop as local income generating resources and can also subsidize the eye care/development programs.

In order to address the emerging causes of blindness and those that require advanced care Sightsavers may also consider training programs in specialty areas like cornea, retina, glaucoma, low vision and childhood blindness in line with the focus of VISION 2020 through identified and collaborating eye care institutions in the country.

5.2.3 Infrastructure and Appropriate Technology support from Area offices

Sightsavers is committed to facilitating the “Vision 2020: The Right to Sight” through its programs and support. While a blueprint for the infrastructure development for eye care exists in the form of a 4 -5 tier pyramidal infrastructure model, Sightsavers could look into areas and its partners and work on other alternate modalities at the community and primary level for eye care, building up of a referral mechanism through its own partners or through the public eye care system as well as the private providers and develop models that extend to meeting the rehabilitation needs of populations that suffer from intractable eye diseases. Sightsavers is a very unique organization in terms of having a solid partnership at the community level already over the last 50 years and extending the lengths and breadths of the country

There is a need for structured bi-directional information flow between the area offices and partners in the field. Systems for such bi-directional information flow currently exist. Sightsavers may evaluate the utility of information currently collected and the directionality of flow and decide upon further improvements if necessary. The utility of information collected may be assessed from the perspective of the service provider in the field as well as the regional and central offices of Sightsavers. The core areas of focus for Sightsavers can potentially be

1. Management Information Systems
2. Geographic Information Systems
3. Primary eye care infrastructure

Sightsavers may strive to develop a minimum quality of care standard across all its partners as well as an minimum to maximum output that each of its eye care performing partner may subscribe to also pursue quality and quantity together.

5.2.4 Opportunities in other areas worth pursuing

Given the large potential for eye care services in India and the very few models that attempt to integrate eye care laterally with the development sector, Sightsavers can, through its partners in the development sector, design, implement and evaluate alternate service delivery models- community owned and managed, community co-managed, etc. These models will be of use in disseminating eye care into rural remote areas in a sustainable manner.

In order to take these initiatives forward a clear statement of what Sightsavers would like to be involved in relation to the strategies of VISION 2020: The Right to Sight in India may be outlined as the next step. Suggestions for priority areas, geographical reach, monitoring & evaluation mechanisms, aid from the resource centres for Sightsavers in the region and country as well its role in advocacy, national and state level planning and formulation of policy at state and national levels with a short, medium and long term outlook is necessary.

5.2.5 Collaborations and networking with other stakeholders for Sightsavers interventions

Opportunities exist because of the strategic place that Sightsavers has in the eye care milieu of the country as well as its embracing of the development agenda.

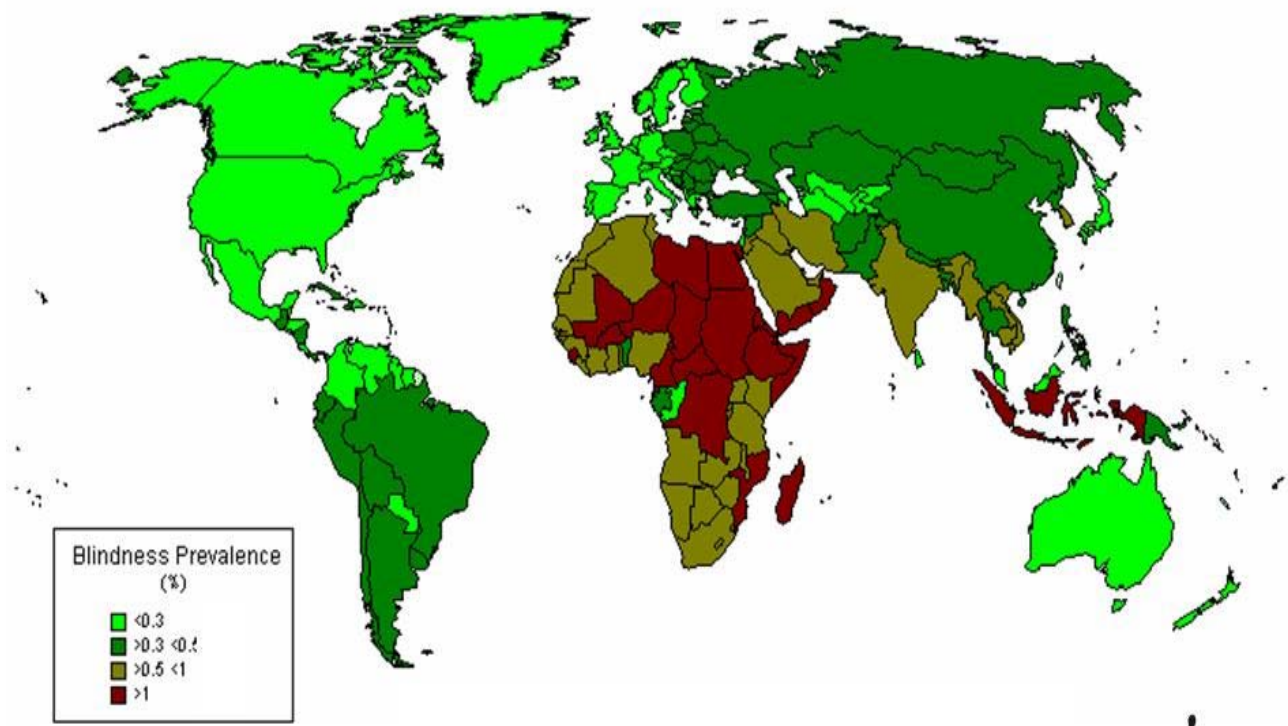
Some key partnerships include

- Founding member of the IAPB and Vision 2020: the right to sight India.
- Task Force member of committees at the National level for NPCB
- Formal and transparent understanding with other eye care INGO's and institutions within the country preventing duplication of similar efforts and synergy in combined efforts for prevention of blindness.
- Committed to the campaign "making poverty history" and a strong belief that eye care and poverty are interrelated and embracing the development agenda which is reflected in the partnerships and collaborations at the community level for provision of comprehensive eye care.
- Sightsavers has also been endowed with staff whose capacities have extended from their work in other child care, health and development organisations and hence understand the compatibility of organizations and institutions at all levels from the local self government, district, state, region/zone and national level.
- Sightsavers has not only sponsored meetings and workshops on itself but has also been invited and has participated in state and national society meetings as well as regional and international prevention of blindness conferences where sharing and learning of experiences happens.
- In the current context of the National Rural Health Mission (NRHM), Sightsavers can see itself as one of the strongest partners to achieve its goals and work with the government since it operates in almost all the states that are priority states for the work of NRHM. Sightsavers should also leverage the schemes and benefits available under this program for eye care in the rural areas of the country.

Annexure

Annex 1: Global Prevalence of Blindness - 2002

PREVALENCE OF BLINDNESS

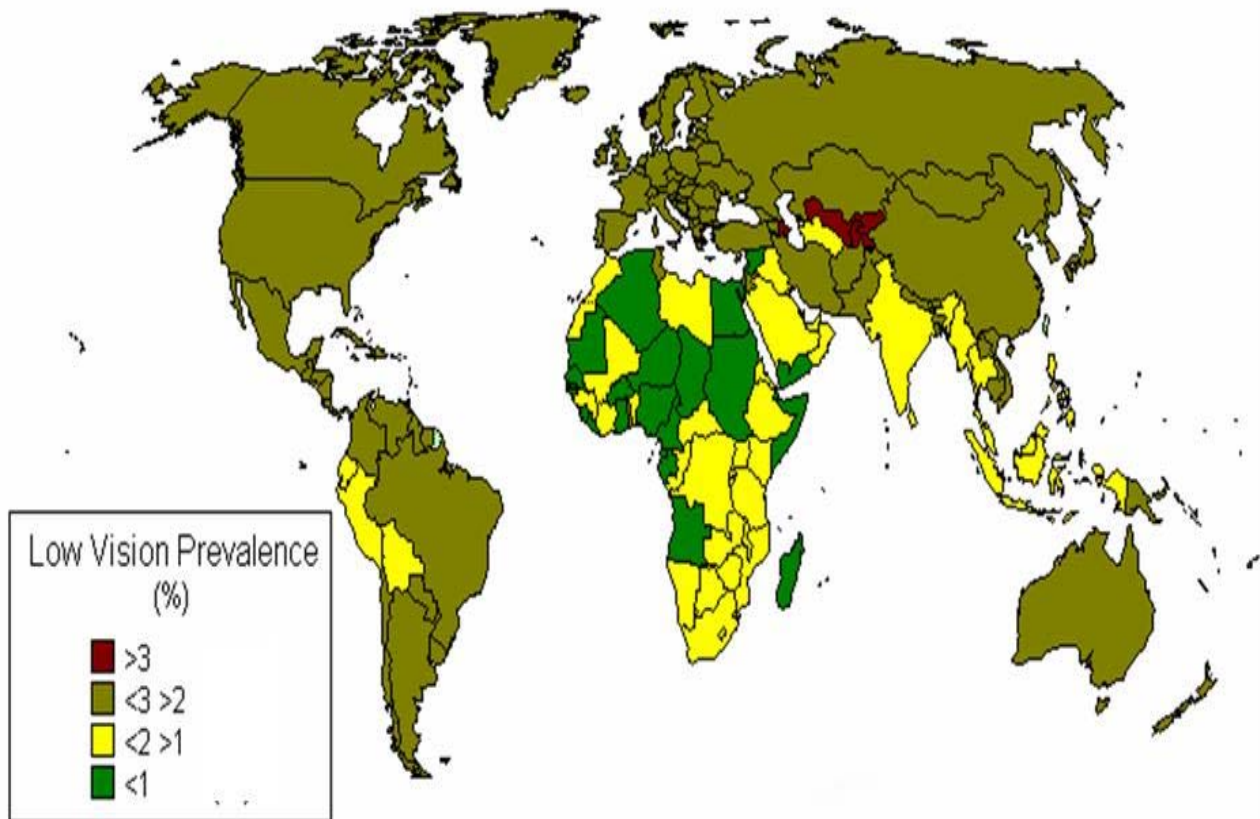


World Health Organization

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Annex 2: Global Prevalence of Low Vision - 2002

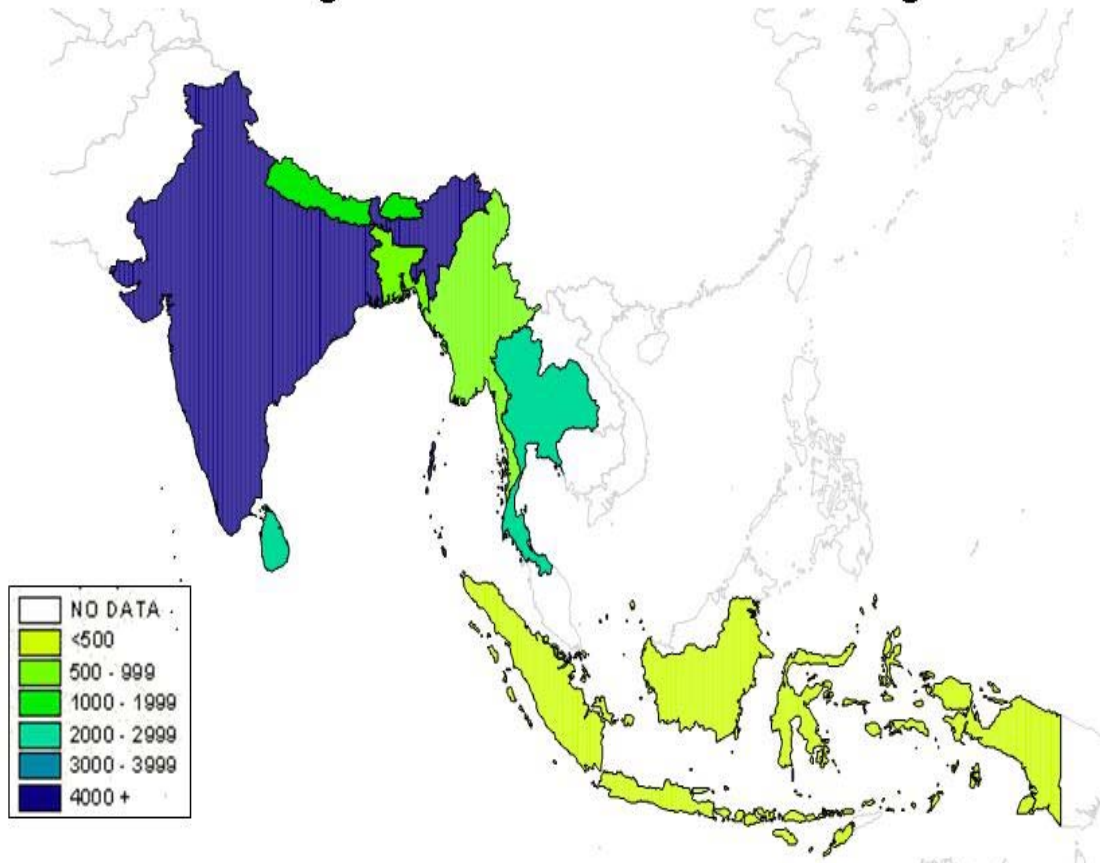
PREVALENCE OF LOW VISION



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Annex 3: Cataract Surgical Rate South East Asia 2004

Cataract Surgical Rates Southeast Asia Region 2004



World Health Organization

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NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS

SCHEMES

FOR

PARTICIPATION OF VOLUNTARY ORGANISATIONS

REVISED

September 2005

**GOVT. OF INDIA
OPHTHALMOLOGY/BLINDNESS CONTROL SECTION
DIRECTORATE GENERAL OF HEALTH SERVICES
MINISTRY OF HEALTH AND FAMILY WELFARE
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NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS

SCHEMES FOR PARTICIPATION OF VOLUNTARY ORGANISATIONS

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NATIONAL PROGRAMME FOR CONTROL OF BLINDNESS

SCHEMES FOR PARTICIPATION OF VOLUNTARY ORGANISATIONS

1. PREAMBLE

Blindness is a major public health problem in India with an estimated 12 million blind persons in the country. To tackle this problem, National Programme for Control of Blindness was launched in 1976 with the goal to reduce the prevalence of blindness from 1.4% (1974) to 0.3 % by developing eye care infrastructure and human resources, increasing accessibility to eye care services and improving quality of eye care services and visual outcome following medical and surgical management.

Cataract is the dominant cause of blindness as it accounts for nearly two-third of blind population. The purpose of cataract surgery is to restore vision of the affected person through provision of package of services that can enable the person to not only gain sight but also return to his normal working before this visual disability. Refractive errors, childhood blindness, glaucoma, diabetic retinopathy and corneal blindness are other important causes of blindness.

The revised pattern of assistance for the 10th plan aims at making National Programme for Control of Blindness a comprehensive eye care programme addressing all causes of blindness. Participation of voluntary organizations has been very significant in controlling blindness in the country. The schemes for their participation have been revised to make them more effective and need-based.

2. SCHEMES FOR VOLUNTARY ORGANIZATIONS

The purpose of the schemes is to develop eye care infrastructure and to provide appropriate eye care services to reduce the prevalence of blindness. Following schemes are presently available for the voluntary sector:

- I. Non-recurring grant-in-aid for expansion/upgradation of eye care units for underserved population;
- II. Non-recurring grant-in-aid for setting up/strengthening of Eye Banks and Eye Donation Centres
- III. Non-recurring grant-in-aid for setting up/strengthening Vision Centres
- IV. Recurring grant-in-aid for performing free cataract operations in hospitals;
- V. Recurring grant-in-aid to Eye Banks and Eye Donation Centres

3. ELIGIBILITY CONDITIONS

For the purpose of the schemes, a voluntary organization will mean:

- (a) A society registered under the Indian Societies Registration Act, 1860 (Act XXI of 1860 or any such act resolved by the State) or a charitable public trust registered under any law for the time being in force;
- (b) Track record of having experience in providing health services preferably eye care services over a minimum period of 3 years;
- (c) Having available well-trained staff, infrastructure and the required managerial expertise to organize and carry out various activities under the scheme; and
- (d) Agreeing to abide by the guidelines and the norms of the programme.

4. DETAILS OF THE SCHEMES

I. Non-recurring grant-in-aid for expansion/upgradation of eye care units in voluntary sector for underserved population

The scheme seeks to enhance capacity to provide free and subsidized Eye Care Services for underserved affected population in rural including tribal areas. The purpose of the Scheme is to encourage voluntary organizations to expand or upgrade eye care services for providing quality Eye Care Services to the affected persons in rural including tribal populations of the country. The scheme offers opportunity to develop capacity for sustainable eye care delivery in the NGO sector in areas having inadequate eye care facility. Three guiding principles influencing the design of this scheme are:-

- Long term sustainability;
- Providing quality eye care services; and
- Resource participation by the NGO.

Qualifying criteria: The organization should have:

- (a) Experience in providing Health care services for at least three years before it would be eligible for applying for Grant-in-aid under the scheme. Organizations having experience in providing eye care services will be given preference.
- (b) Appropriate infrastructure, trained staff and managerial capacity to organize delivery of eye care services
- (c) Properly constituted managing body with its powers duties and responsibilities clearly defined and laid down in a written constitution.
- (d) Services open to all without distinction of caste, creed, religion or language.

Project Formulation

For formulating a project proposal, following suggestions may be followed:

Population to be served:

Since the purpose of this scheme is to make eye care services available for tribal and rural population, which have inadequate eye care facilities, the first step is to identify population pockets of 3 to 5 lakh to be covered by the applicant NGO. Minimum population of 50,000 should be targeted in very sparsely populated/hilly/desert/difficult terrains.

Location of the Hospital:

For enabling easy access, it would be preferable to ensure that the facility is well connected and has electricity and water supply. The functioning hospital could also be located in adjoining urban area but population to be served by the unit should be clearly defined and must include rural/ tribal population and the same is endorsed by the respective DBCS.

Minimum requirements:

The applicant NGO should have adequate infrastructure, equipments and human resources for OPD services, operations and management of admitted patients. Minimum staff recommended for the facility is summarized below:

Category of Personnel	Minimum No. recommended	Minimum No. in difficult terrains
Ophthalmic Surgeons	2	1
Middle Level Ophthalmic Personnel (Ophthalmic Assistant/ Technician / Optometrists/ Ophthalmic Nurse etc.)	4	2
Support Staff (Counselor/ Accountant/Administrator)	2	1

Financial Implications

Under the scheme, financial assistance will be provided up to a maximum of Rs.25 lakh with equal contribution from NGO in the form of building, equipment and vehicle(s) or cash from management/donations, for any of the following purposes:

- a) Construction, renovation & furnishing.
- b) Ophthalmic equipments, instruments and other machines.
- c) Motor Vehicles

Recent investments made by the NGO on above-mentioned items during preceding one year can be taken as contribution from NGO as matching grant.

For long-term sustainability and resource participation, following recurring costs shall be borne by the NGO:

- a) Salaries of Staff
- b) Cost of Consumables
- c) Costs on maintenance of equipment and vehicles, POL, etc.
- d) Administrative overheads.

Grantee NGOs will be eligible for financial assistance from DBCS for other schemes including grants for free cataract operations performed.

Procedure for Approval of Grants

Two copies of application in prescribed formats would be submitted by applicant NGO along with necessary documents in support of qualifying criteria to the District Blindness Control Society of the district where the unit is located. District Blindness Control Society would examine the proposal in terms of eligibility criteria and also visit the NGO for assessing present facilities and requirements as per application. Eligible application would be forwarded to State Blindness Control Society (SBCS) with their comments/recommendations after seeking approval of Chairperson. Chairperson of State Society would be the competent authority to approve/reject applications.

Release of Grant

The Ministry of Health & Family Welfare will release funds for this scheme to State Blindness Control Society on the basis of targets. The State society would release grant-in-aid to approved grantees in one or two installments after following documents have been received from the applicant NGO:

- a) Execution of bond in the prescribed proforma as per Annexure-V.
- b) Other certificates/undertakings listed in the General Financial Rules as per Annexure –VII, VIII & IX.

Expected Output

NGOs receiving non-recurring grants will need to abide by the following conditions:

- a) Commit to take the responsibility active screening of population of villages allocated by the DBCS.
- b) Prepare and maintain village wise Blind Registers as per prescribed format.
- c) Complete the construction & procurement of equipments & vehicle within one year after following due procedures as laid down.
- d) Provide & maintain Cataract Surgical Cards for the patients operated and other OPD/ Indoor wards records (Annexure-II).

Penalties

Govt. of India reserves the right to inspect the premises/ accounts of the NGO. Any violation of conditions will lead to suspension of any Govt. grant to the organization in future.

Maintenance of Accounts

The NGO shall be required to open a separate account in a bank exclusively for the Government grant. The name and address of the bank and the number of Account should be intimated to SBCS. It will also be required to furnish a statement of accounts duly audited for the financial year by a chartered accountant to the authority, who sanctioned the grant-in-aid. The account of NGO shall be open to inspection by the sanctioning authority whenever the institution is called upon to do so.

Duration of the Project

The project is for a period of one year commencing from the year of sanction. However, if the State Society or Government of India is not satisfied with the progress of the project or it finds that the conditions of the grant are being violated, it reserves the right to terminate the project at any stage.

Disposal of Assets

NGO shall maintain a register of Assets acquired wholly or substantially out of Government grants as per the prescribed proforma at Annexure-VIII. Assets acquired wholly or substantially out of the Government grants will not be disposed of, encumbered or utilized for any purpose other than those for which the grants are sanctioned. If such assets are disposed of after due sanction, the money thus received will be credited to SBCS. Goods declared as obsolete and unserviceable or condemned as per the prescribed procedure may be disposed by NGO after prior approval of SBCS.

Monitoring and Evaluation

The NGO would submit 3 copies of the Progress Report on prescribed proforma (Annexure-IV) to Member Secretary of District Blindness Control Society on a quarterly basis who will be required to forward quarterly progress report of the NGO, to the concerned State Programme Officer and to the National Programme Management Cell.

The concerned DBCS may authorize Member Secretary of DBCS or any other official to visit the NGO at least four times a year and send verified quarterly reports to the State Blindness Control Society.

Audited Statement of Accounts & Utilization Certificate

NGO shall get its accounts audited by a Chartered Accountant and submit these accounts within three months of the closure of every financial year. NGO will also have to furnish a certificate of actual utilization of the non-recurring grant-in-aid for the purpose for which it was received within a period of 3 months of the closure of the financial year. Utilization Certificate shall be submitted in the prescribed proforma at Annexure-IX.

Nomination by Government

The State Government/SBCS may nominate one officer as its representative to the governing body of the NGO receiving Grant-in-aid.

II. Non-recurring grant-in-aid for setting up/strengthening of Eye Banks and Eye Donation Centres

Objective

To promote Eye Banking activity in the country through Government facilities, NGOs and other stake holders to get adequate tissue for corneal transplantation for treatment of corneal blindness.

Eye Donation Centre (EDC)

Eye Donation Centre is affiliated to a registered Eye Bank, which should provide:

- i. Public and professional awareness on eye donation;
- ii. Co-ordinate with donor families and hospitals to motivate eye donation;
- iii. Harvest corneal tissue and collect blood for serology;
- iv. Ensure safe transportation of tissue to the parent eye bank

Eye Bank (EB)

Eye Bank is an organization that should:

- i. Be registered under “The Transplantation of Human Organs, Act 1994”;
- ii. Provide a round-the-clock public response system for eye donation;
- iii. Co-ordinate with donor families and hospitals to motivate eye donation;
- iv. Harvest corneal tissue;
- v. Process and evaluate the collected tissue and blood;
- vi. Distribute tissue in an equitable manner to organizations having capacity for corneal transplantation;
- vii. Ensure safe transportation of tissue.
- viii. Conduct public awareness programmes on eye donation.

Corneal Transplantation Centre (CTC)

Corneal Transplantation centre is an organization in Government or Voluntary Sector that should:

- i. Be registered under “The Transplantation of Human Organs, Act 1994”;
- ii. Have capacity to perform corneal transplantation;
- iii. Have facilities and equipments required for corneal transplantation;
- iv. Have trained/experienced eye surgeons capable of performing corneal transplantation.

Conditions for eligibility:

- i. Eye Bank can be a Government or Voluntary Sectors and should not be run for profit to any individual or group of individuals;
- ii. In case of Voluntary Sector, the Organization must be registered under the Society’s Registration Act of 1860 or any other statute;
- iii. Its work and financial position should be satisfactory and it should not be involved in any corrupt practices;
- iv. The Eye Bank (EB)/ Cornea Transplantation Centre (CTC) should be registered under “The Transplantation of Human Organs, Act 1994”;
- v. It should have its own infrastructure to carry out the Eye Banking activities;
- vi. The Eye Donation Center (EDC)/Eye Bank (EB) should have good track record and should have collected not less than 25 Eye balls in the previous year;

- vii. The organization should have the necessary minimum staff as mentioned below:

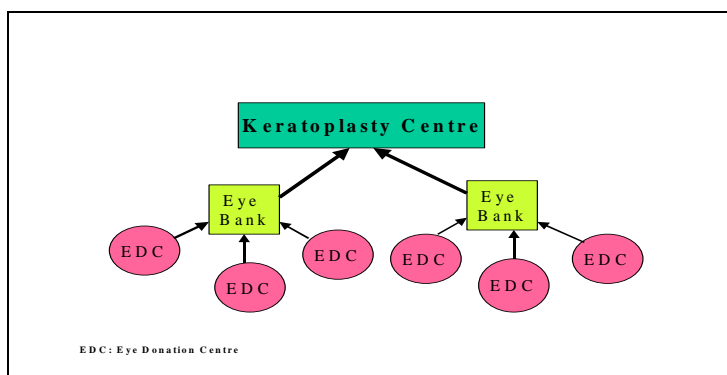
<u>Minimum Number of Personnel</u>	<u>EDC</u>	<u>EB</u>
<u>CTC</u>		
Ophthalmic Surgeons (Full time/ on Panel)	1	1
Ophthalmic Technician	1	1
O.T. Technician/Nurse	-	-
Social worker/Health Educator/Clerk	1	2
Driver	1	1
Helper cum watchman	1	1

Note:

For setting up of an Eye Donation Center (EDC)/Eye Bank (EB) in the State Govt./Central Govt. Institutions and established eye hospitals in voluntary sector, condition No.6 is not mandatory.

Eye Bank Network

Corneal Tissues collected by Eye Donations are precious and scarce. Steps should be taken to establish network between Eye Donations Centres, Eye Banks and Keratoplasty Centres with good communication system to reduce loss of time and tissue. A typical network is given below:



Pattern of Assistance

Eye Donation Center /Eye Bank in Government/Voluntary sector fulfilling all the above-mentioned conditions and seeking financial assistance under National Programme for Control of Blindness, the Govt. Institutions/ NGOs should apply in prescribed application form to concerned District Blindness Control Society (DBCS). The proposals would be examined by DBCS and forwarded to concerned State Blindness Control Society (SBCS).

Grants-in-aid approved for the 10th Plan is given below:

EYE BANK

Non-recurring assistance up to Rs.10.00 lakh for setting up/strengthening of Eye Banks for the following items:

S.No.	Item
1	Slit Lamp Microscope
2	Operating Microscope with camera attachment
3	Specular Microscope
4	Laminar Flow
5	Serology Equipment
6	Instruments for corneal excision and Enucleation including containers
7	Autoclave
8	Transport facility (one 4 Wheeler/One 2 Wheeler)
9	Refrigerator
10	Computer & Accessories
11	Telephone Line
12	Air-Conditioner
13	Renovation, Repair, Furniture & Fixtures

EYE DONATION CENTRES

Non-recurring assistance up to Rs.1 lakh for setting up/strengthening of Eye Donation Centre for the following items:

S.No.	Item
1	Refrigerator
2	Enucleation Set
3	Containers for corneal sets
4	Corneal sets
5	Autoclave
6	Device and/or material for Health Education activities.
7	Vehicle (Two wheeler)

III. Non-recurring grant-in-aid for setting up/strengthening Vision Centres

Setting up of Vision Centre at primary level has been given emphasis in Vision 2020-National Plan of Action. The country requires more than 20,000 Vision centre by the year 2020 in India. The out reach of the National Program for Control of Blindness (NPCB) largely depends on the successful running of Vision Centre in rural areas. It is the key point where people with visual problem seek advice. Mid Level Ophthalmic Personnel (MLOP) working in Vision Centre is the key person to provide information and necessary preliminary services.

Rationale

- Vision Centres need to be established in rural and urban underserved areas to provide primary eye care services including refractive services.
- Each Vision Centre is expected to cover minimum of 50,000 population.
- Existing VCs and Primary/Community Health Centers (PHCs) should be strengthened along with setting up of new Vision Centers.
- Each Vision Centre should be affiliated and linked to Service Centre.
- Government would collaborate with local NGOs & INGOs to set up new VCs in the Voluntary Sector.

Guidelines for Vision Centres

- Area/population to be covered by the Vision Centre should be clearly defined to avoid duplication of effort and seek co-operation between Govt., NGOs and local community.
- It is important to have a link with a Service Centre (Base Hospital). The Base Hospital could be a Govt. hospital or NGO hospital. A Vision Centre should be set up after formally establishment this link.
- The Base Hospital should preferably be within a radius of 50 km. from Vision Centre
- Transport of referred patients to the Base Hospital should be the responsibility of the latter
- The Vision Centre in Voluntary Sector should provide free services to the poor patients and children with refractive errors. District Blindness Control Society may sign an MoU with Vision Centre in Voluntary Sector to reimburse cost of spectacles provided free of cost as per approved rates

Services

- Identification and first line of management for external eye diseases like conjunctivitis, trachoma, vitamin A deficiency, eye injury etc.;
- Identification of conditions requiring services like cataract, glaucoma etc. and refer patients to affiliated at Service Centre;
- Vision testing & prescription / dispensing of glasses; Optical shop can be set up or outsourced.
- Conducting school eye screening programme;
- Organizing screening camps at the Vision Centre or other places;
- Participation in training of link workers, volunteers and teachers; and
- Imparting eye health education to the community.

Human resources

- There should be at least one Mid Level Ophthalmic Personnel (MLOP) at the Vision Centre.
- MLOP will work closely with other health care personnel, link workers, teachers, Anganwadi workers (under ICDS).
- MLOP would be supervised by Medical Officer of PHC/CHC/Service Centre.
- Ophthalmologist should visit VCs periodically from affiliated Service Centre

Infrastructure & Equipment

- For each VC, at least one room with minimum length of 6 meters will be required.
- Trial Set, Trial Frame (Adult and Child), Vision Testing Drum, Plane Mirror Retinoscope, Streak Retinoscope, Snellen's Charts, Binomag / Magnifying Loupe, Schiotz Tonometer, Torch (with batteries) Lid Speculum, Epilation Forceps, Foreign body spud and needle, Direct Ophthalmoscope (with batteries to be used by Medical Officers), Slit lamp (optional), Vision Charts for pre-verbal children and Vehicle or logistic support (optional).

Costs and Financial Assistance

- Non-recurring costs of Vision Centre include cost of infrastructure, equipment and training. A non-recurring grant of Rs. 25,000 would be provided by Government of India through State/District Blindness Control society to selected Vision Centres in Government and Voluntary Sector. Remaining cost can be mobilized from other funding organizations, NGOs & local community.
- Recurring costs include salaries, cost of spectacles and overheads. This expenditure will be met through registration fees and charges for spectacles (grants from District Blindness Control Society for poor patients and fees from paid patients).

Monitoring & Documentation

Following reports should be maintained at the VC:

- Out-patient register
- Refraction Register
- School screening records
- Stock Register

Following data would be required to monitor functioning of Vision Centre

Number of:

- OPD: Patients examined, Spectacles dispensed
- Referrals: Patients referred, patients followed-up
- School screening: Teachers trained, children examined, children with refractive errors, glasses prescribed/provided
- Training of village volunteers and teachers
- Revenue collected and expenditure incurred

(iv) Recurring grant-in-aid for performing free cataract operations performed at hospitals in Voluntary Sector

The DBCS will identify hospitals in voluntary sector that have facilities for secondary level eye care services including cataract operations, preferably with Intraocular Lens (IOL) Implantation. Following approach may be taken for NGO participation:

Identification of NGOs with Base Hospitals

The District Blindness Control Society will identify base hospitals located in the district, which have infrastructure, requisite equipments and trained manpower to undertake cataract surgery. Preference may be given to hospitals having facilities for IOL implantation based on availability of operating microscope and other equipments required and trained eye surgeon. Though preference may be given to hospitals within the district, the DBCS is empowered to identify hospitals located outside the district.

Memorandum of Understanding

A model MOU has been designed by Central Programme Unit for agreement between DBCS/SBCS and qualified participating NGOs giving detailed terms of reference and obligations of NGOs and the Programme authorities. This will bring in transparency and accountability in the system and also dispense with frequent permission from DBCS for conducting screening camps. The DBCS and the NGO would enter into a MoU to perform following activities under NPCB:

- a) Screening of population (50+ years) in villages/ townships allotted to NGO and preparation of village wise blind registers as per standard format (Annexure - I);
- b) Identification of cases fit for cataract surgery, motivation thereof and transportation (including one attendant if require to and fro) to the base hospital;
- c) Pre-operative examination and investigation as required;
- d) Performance of cataract surgery preferably IOL implantation through ECCE/IOL, Small Incision Cataract Surgery (SICS) or Phaco-emulsification;
- e) Post-operative care including management of complications, if any and post-operative counseling regarding do's and don'ts, importance for using glasses etc.
- f) Follow-up services including refraction and provision of aphakic glasses, if required providing best possible correction (not standard +10 D glasses).
- g) Submission of cataract surgery records of operated cases as per Annexure II.

Grant-in-aid:

Grant-in-aid to NGO for this scheme is governed by the following table:

(Rupees/operation)

Items	ICCE	ECCE/IOL	Phaco
Drugs & consumables	150	200	200
Sutures	50	50	0
Spectacles	125	125	125
Transport / POL	100	100	100
Organization & Publicity	75	75	75
IOL, visco-elastics & consumables	0	200	250
Total	500	750	750

The Grant-in-aid would be provided to the NGO who have good track record and have adequate facilities for free cataract surgeries. Following cases would be eligible for grant-in-aid to the NGO:

- a) Cases operated free of cost from allotted area as indicated in the MoU and transported to the base hospital by the NGO
- b) Cases attending the hospital of their own and are operated free of cost;
- c) Cases referred to the NGO by DBCS.

If required by the NGO, the DBCS may provide sutures and IOLs provided by Government of India as commodity assistance. In such an event, actual cost of these items would be deducted by DBCS from grant-in-aid. Presently cost of sutures is Rs.50 and IOL Rs. 42. NGO should not be insisted upon taking these items.

Important Amendments in Guidelines:

- a) Payment to NGOs should be made only after follow-up of operated cases and submission of cataract surgery records. Random sample checks (minimum 5%) may be made by authorized nominee of DBCS to verify number of cases operated at the place of surgery before discharge. Records of cataract surgery need to be retained by DBCS for a period of 3 years or till payment is made to NGOs whichever is later, after which DBCS may weed out the records.
- b) The DBCS may assign designated underserved areas to NGOs for providing eye care services. The NGOs would organize screening camps to identify operable cataracts and other ocular problems. Reimbursement would be made to NGOs for cataract surgeries performed on cases from the designated villages/blocks. Free cataract operations performed by the NGO on reach-in patients of the same district would also be eligible for Grant-in-aid, irrespective of the residence of the patients.
- c) In case of large NGOs, Grant-in-aid for poor patients coming from other districts may also be paid by DBCS of the district where the hospital is located. For such instances, verification of cases before discharge would be necessary. Information of patients operated by place of residence would be required to be furnished by the NGO with the certification that Grant-in-aid would not be claimed from any other source / DBCS. Details of such cases would be forwarded by the NGO to those DBCSs from where patients have been brought/have come.
- d) The total expenditure on Grant in aid to NGOs should not exceed Rs. 750 per IOL operation and Rs. 500 for conventional Operation. Sutures and IOLs may be given as commodity assistance to the NGOs if required. A deduction equivalent to cost of sutures and / or IOLs would be made by DBCS before releasing Grant-in-aid. For reach-in patients cost of transportation would not be paid to NGOs.
- e) As the Grant-in-aid has been enhanced significantly, no additional Grant-in-aid is permissible for tribal areas
- f) For scheme where Panchayats / NGOs are involved only in screening, motivation, transportation and escort services, the maximum amount payable would be Rs. 175 per cataract surgery performed.

Memorandum of Understanding (MoU) between District Blindness Control Society and Participating Non Government Organization

1. Preamble:

- 1.1.** WHEREAS the Union Cabinet has approved continuation of National Programme for Control of Blindness, hereafter referred to as NPCB, for implementation in all the States of the country during the 10th Plan (2002-07);
- 1.2.** WHEREAS the Cabinet has also agreed to follow the strategies of “Vision 2020: The Right to Sight” in NPCB as per Plan of Action developed for the country
- 1.3.** WHEREAS NPCB aims to reduce prevalence of blindness by implementing various activities through State and District Blindness Control Societies established in all the districts of the country;
- 1.4.** WHEREAS the NPCB seeks to involve eye care facilities in Government, Non-Government and Private sectors having capacity to perform various activities under National Programme for Control of Blindness;
- 1.5.** AND WHEREAS schemes for Non-Government Organizations (hereafter referred as NGO) providing eye care services are implemented as per pattern of assistance approved by the Cabinet;
- 1.6.** NOW THEREFORE the signatories of Memorandum of Understanding (MoU) have agreed as set out hereinbelow.

2. Parties of MoU:

This MoU is an agreement between District Blindness Control Society of _____ (Name of District) of the State of _____ (Name of the State); hereafter called District Blindness Control Society and _____ (Name of NGO).

3. Duration of MoU:

This MoU will be operative from the date of its signing by the parties and remain in force till 31 March 20___. MoU can be renewed through mutual agreement by the parties.

4. Commitments of NGO:

Through this MoU, the NGO agrees to provide following services under National Programme for Control of Blindness (Write ‘Yes’ against applicable clauses):

Activities	Yes/No
a) Screening of population (50+ years) in all the villages/ townships in the area allotted to the NGO and preparation of village wise blind registers	
b) Identification of cases fit for cataract surgery, motivation thereof and transportation to the base hospital;	
c) Pre-operative examination and investigation as required;	
d) Performance of cataract surgery preferably IOL implantation through ECCE/IOL, Small Incision Cataract Surgery (SICS) or Phaco-emulsification of patients identified in allotted areas, self motivated walk-in cases and those referred by DBCS	
e) Post-operative care including management of complications, if any and post-operative counseling regarding use of glasses;	
f) Follow-up services including refraction and provision of glasses, if required providing best possible correction	
g) Submission of cataract surgery records of operated cases.	

5. Commitments of DBCS;

Through this MoU, the DBCS agrees to provide following support to participating NGO to facilitate service delivery (Write ‘Yes’ against applicable clauses):

Clause	Clause of Agreement	Yes/No
5.1	Issue a Certificate of Recognition about participation in NPCB	
5.2	Undertake random verification of operated cases not exceeding 5% before discharge of patients;	
5.3	Sanction cost of free cataract operations performed by the NGO as per GOI guidelines indicated in para 6 below within one month of submission of claim along with Cataract Surgery Records;	
5.4	Make payment of the sanctioned amount to the NGO on monthly/quarterly basis;	
5.5	Regularly disseminate literature, guidelines or any other relevant information to participating NGO	

6. Grant-in-aid to NGO for this scheme is governed by the following table:

(Rupees/operation)

Items	ICCE	ECCE/IOL	Phaco
Drugs & consumables	150	200	200
Sutures	50	50	0
Spectacles	125	125	125
Transport / POL	100	100	100
Organization & Publicity	75	75	75
Intra Ocular Lens, visco-elastics & additional consumables	0	200	250
Total	500	750	750

7. Termination of MoU:

Commitments agreed to by the Parties are meant for prevention and control of blindness and therefore MoU should generally not be suspended or terminated. However, both parties can decide to suspend or terminate the MoU.

Signed this day, theof 200 .

.....
For and on behalf of
District Blindness Control Society

.....
For and on behalf of NGO



**Government of India
National Programme for Control of Blindness**

CERTIFICATE OF RECOGNITION

This is to certify that _____(Name of Participant NGO) is a participant unit in _____(District/s) of _____(State) under National Programme for Control of Blindness being implemented by the Government of India.

This organization has facilities and human resources to perform cataract surgery with IOL implantation and other procedures (specify).

This certificate is to recognize active participation of the organization in prevention and control of blindness in the country.

Chief Medical Officer

District Collector

Place:

Date:

(v) Recurring grant-in-aid to Eye Banks and Eye Donation Centres

DBCS has been empowered to monitor functioning of eye banks, collection and utilization of donated eyes and providing grant-in-aid to Eye Banks and Eye Donation Centres for recurring assistance.

GIA to Eye Banks

As per revised pattern of assistance, Rs.1000 per pair of Eyes collected may be provided to eye banks on the basis of eye collected. This grant can be utilized on the following items.

- a) Preservation Material (like MK Media) for preserving donor Eyes and for the purchase of reagents, chemicals, kits and other consumables required for preservation and testing of eyes;
- b) Payment of honorarium to surgeon, technician, social worker, etc.
- c) Expenditure on remuneration, transportation/POL, maintenance of vehicles etc. or hiring of vehicle for collection of Eyes.
- d) Rent of telephones, postage and other means of communication.
- e) Other expenses such as wreaths, garlands, stone eyes etc.
- f) Maintenance of Eye Bank equipment.

The grant-in-aid is released on the basis of actual number of donated eyes, on a reimbursement basis through DBCS.

GIA to Eye Donation Centres

As per revised pattern of assistance, Rs.500 per pair of Eyes collected may be provided to eye donation centres on the basis of eye collected. This grant can be utilized on the following items:

- a) Preservation Material (like MK Media) for preserving donor Eyes, container for corneal sets, etc.
- b) Payment of honorarium/remuneration to Surgeon, technician, social worker, etc.
- c) Expenditure on transportation/ POL, maintenance of vehicles etc. used for collection of Eyes.
- d) Rent of telephones, postage and expenditure on any other means of communication.
- e) Other expenses such as wreaths, garlands, stone eyes and consumables, etc.

The grant in aid will be paid to the Eye Donation Centre through the respective Eye Bank and/or District Blindness Control Society of their District on the basis of donated eyes.

Note:

Normally Eye Donation Centres are expected to deliver Eye balls to the Eye Bank/ C.T.C. The District Programme Manager (DBCS) should ensure that Eye Donation Centres/ Eye Banks are not paid twice for the same pair of Eyes.