

STRICTLY EMBARGOED UNTIL 13TH OCTOBER 2005

**STATE OF THE WORLD'S SIGHT
VISION 2020: THE RIGHT TO SIGHT
1999–2005**

EXECUTIVE SUMMARY

This document is a summary of the full report, which can be accessed on www.v2020.org or www.who.org.

1. REVIEW OF BLINDNESS

In 1975, the Twenty-eighth World Health Assembly requested the Director-General of the World Health Organization (WHO) “to encourage member countries to develop national programmes for the prevention of blindness”. In the same year, the International Agency for the Prevention of Blindness (IAPB) was established as the umbrella organization for professional groups and nongovernmental development organizations (NGDOs) involved in eye care.

Soon after, in 1978, the WHO Programme for the Prevention of Blindness (WHO/PBL) was established and set up a global blindness databank.

WHO/PBL also helped Member States to formulate national programmes for the prevention of blindness. By 1999, over 100 'national programmes' were in varying stages of development, ranging from a focal point in the ministry of health to well-formulated national programmes developed through the activities of national committees.

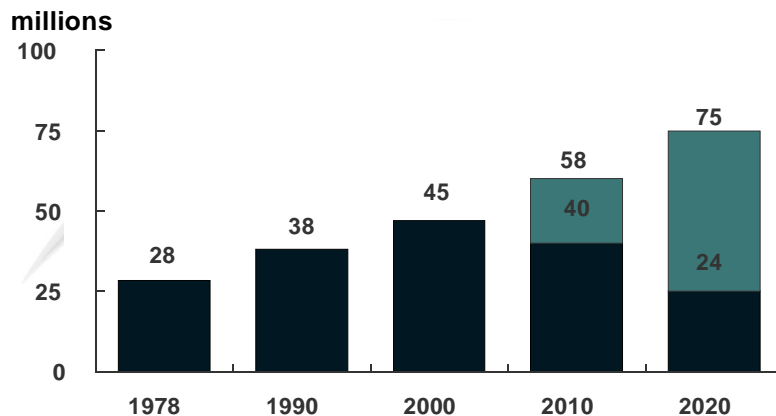
The most successful efforts involved effective partnerships between national governments, nongovernmental organizations (NGOs), donors and the targeted communities. VISION 2020 was conceived to facilitate this approach in a focused, sustainable way.

Blindness projections

In 1979, WHO reported that in 1975 there were 28 million blind people (<3/60 in the better eye with correction). There were approximately three times as many people with low vision (<6/18). These estimates were revised in 1990 and projected into the future (Figure 1).

Figure 1

Estimates of global blindness



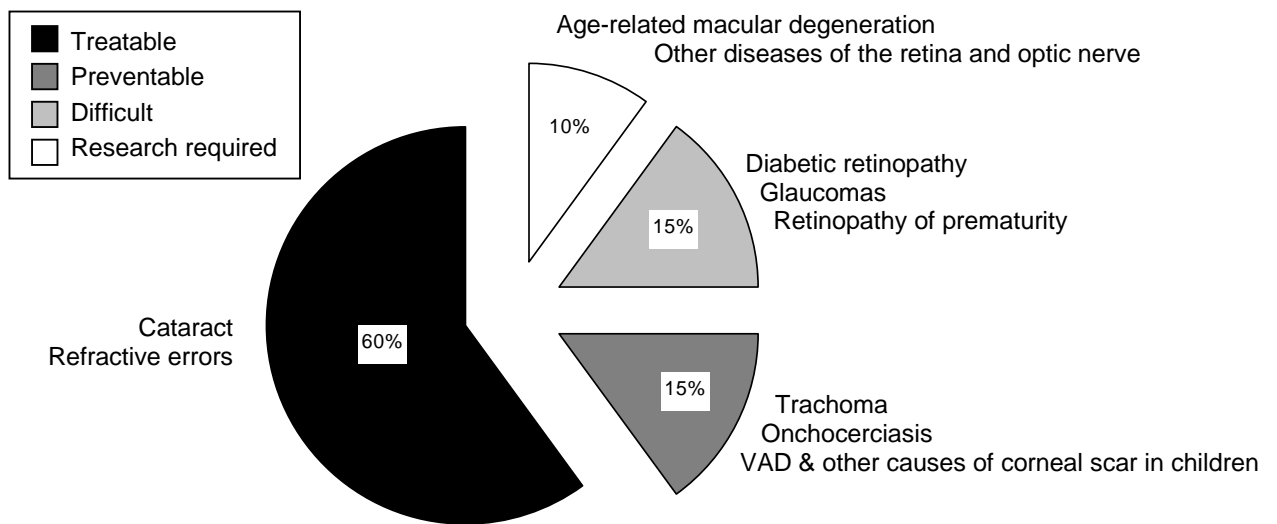
Note: Coloured bars show potential impact of VISION 2020.

Source: Fig. 1 Prof. Hugh R. Taylor, IAPB Regional Chair - Western Pacific Center for Eye Reserach

Three quarters of this vision loss was considered preventable or treatable (Figure 2). If avoidable blindness were addressed, blindness due to cataract, refractive errors, trachoma, vitamin A deficiency and onchocerciasis, and some due to diabetic retinopathy and glaucoma, would be eliminated. .

Figure 2

Schematic illustration of the proportion of blindness by cause in the 1990s, grouped by degree of 'avoidability'

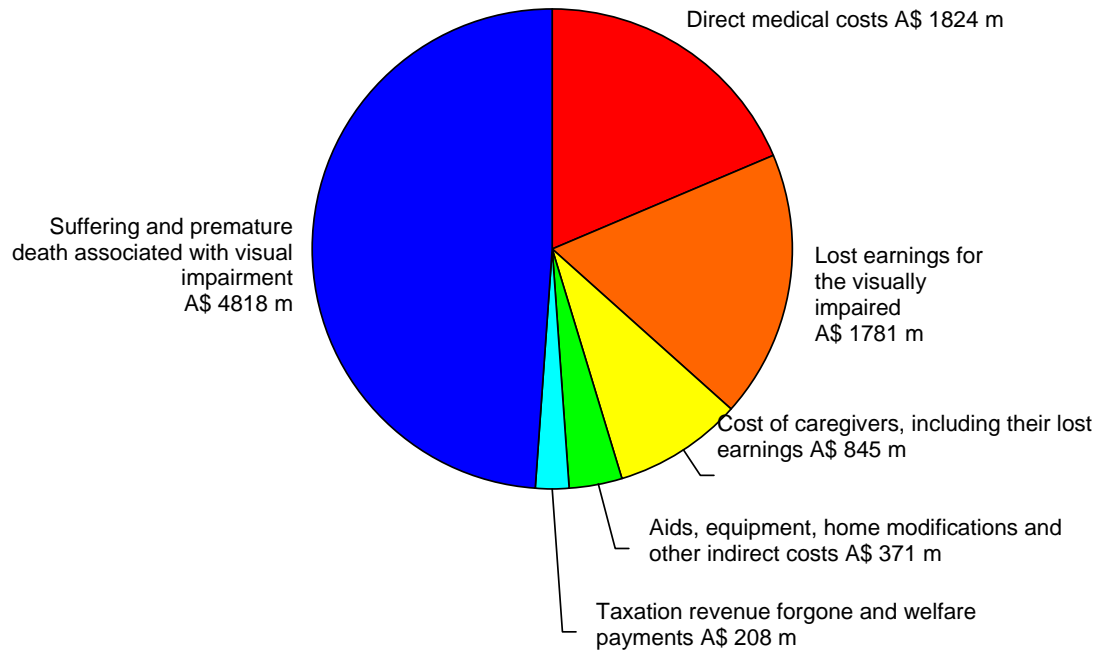


Economic projections

In 2004, an assessment of the economic cost of visual impairment in Australia showed direct health-care costs were A\$ 1.8 billion (US\$ 1.3 billion): more than the costs of managing coronary heart disease, stroke, arthritis or depression, and more than would be spent on diabetes and asthma combined. Indirect costs were predicted to add another A\$ 8.0 billion (Figure 3).

Figure 3

Estimated total costs of eye disease, Australia, 2004



Note: All figures are in Australian dollars.

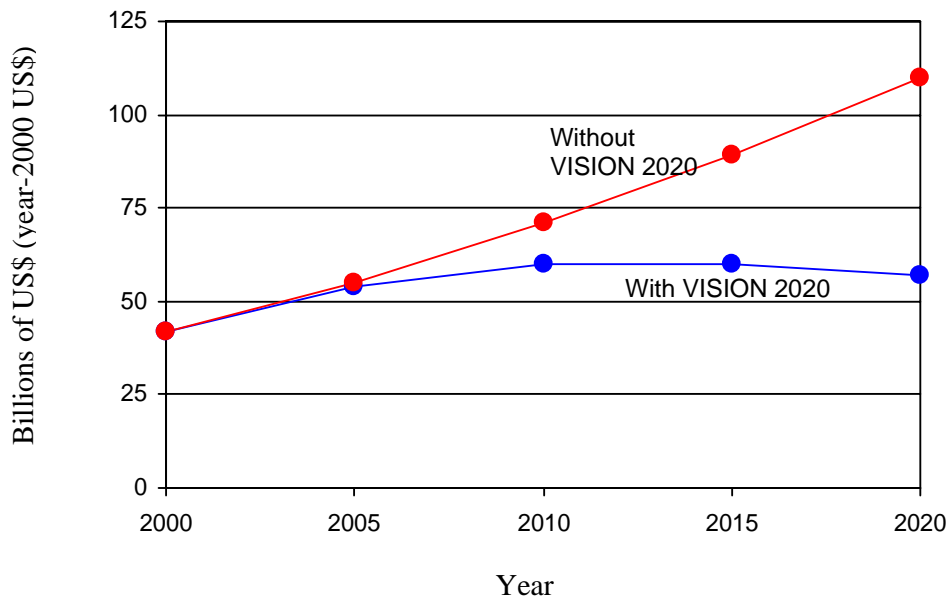
Source: Data from Access Economics. *Clear insight: the economic impact and cost of vision loss in Australia*. Melbourne, Centre for Eye Research Australia, 2004.

Based on the personal productivity loss of individuals with visual impairment, the annual global economic impact of blindness and low vision in the year 2000 was US\$ 42 billion. This was projected to rise to US\$ 110 billion (in year-2000 US\$) per year by 2020 (

Figure 4). VISION 2020 would reduce this figure to US\$ 58 billion (in year-2000 US\$) in 2020; a global saving of US\$ 223 billion over 20 years.

Figure 4

Projected worldwide annual personal productivity loss of individuals with visual impairment, 2000–2020 (with and without VISION 2020)



Source: Data from Frick KD, Foster A. The magnitude and cost of global blindness: an increasing problem that can be alleviated. *American Journal of Ophthalmology*, 2003, 135:471–476.

The African country of the Gambia provides a small but highly significant application of the economic perspective. In that country, the prevalence of blindness decreased from 0.70% in 1986 to 0.42% in 1996 after interventions against cataract and trachoma. This programme cost US\$ 1.28 million (in 1995 US\$), giving an internal rate of return of 10%.

2. VISION 2020: THE RIGHT TO SIGHT

VISION 2020, a joint initiative of WHO and IAPB, was launched in 1999 and provides technical support and advocacy. At the national level, a strong partnership between the ministry of health, national and international NGOs, professional organizations, and civil society groups – brought together in a national prevention of blindness or VISION 2020 committee – should facilitate the implementation of effective and efficient eye-care services across the country.

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The mission of VISION 2020 is “to eliminate the main causes of avoidable blindness in order to give all people in the world, particularly the millions of needlessly blind, the right to sight.”

The goal is to eliminate avoidable blindness by the year 2020. In the long term, the initiative seeks to ensure the best possible vision for all people, and thereby improve their quality of life. This goal should be achieved through the establishment of a sustainable, comprehensive eye-care system as an integral part of every national health system.

The objectives are to:

- raise the profile – among key audiences – of the causes of avoidable blindness and the solutions that will help eliminate the problem;
- identify and secure the necessary resources around the world in order to provide an increased level of activity in prevention, treatment and rehabilitation programmes; and
- facilitate the planning, development, and implementation of the three elements of the VISION 2020 strategic plan by national programmes.

The strategy of VISION 2020 is built upon a foundation of community participation, with three essential components or elements:

- cost-effective disease control interventions;
- human resource development (training and motivation); and
- infrastructure development (facilities, appropriate technology, consumables, funds).

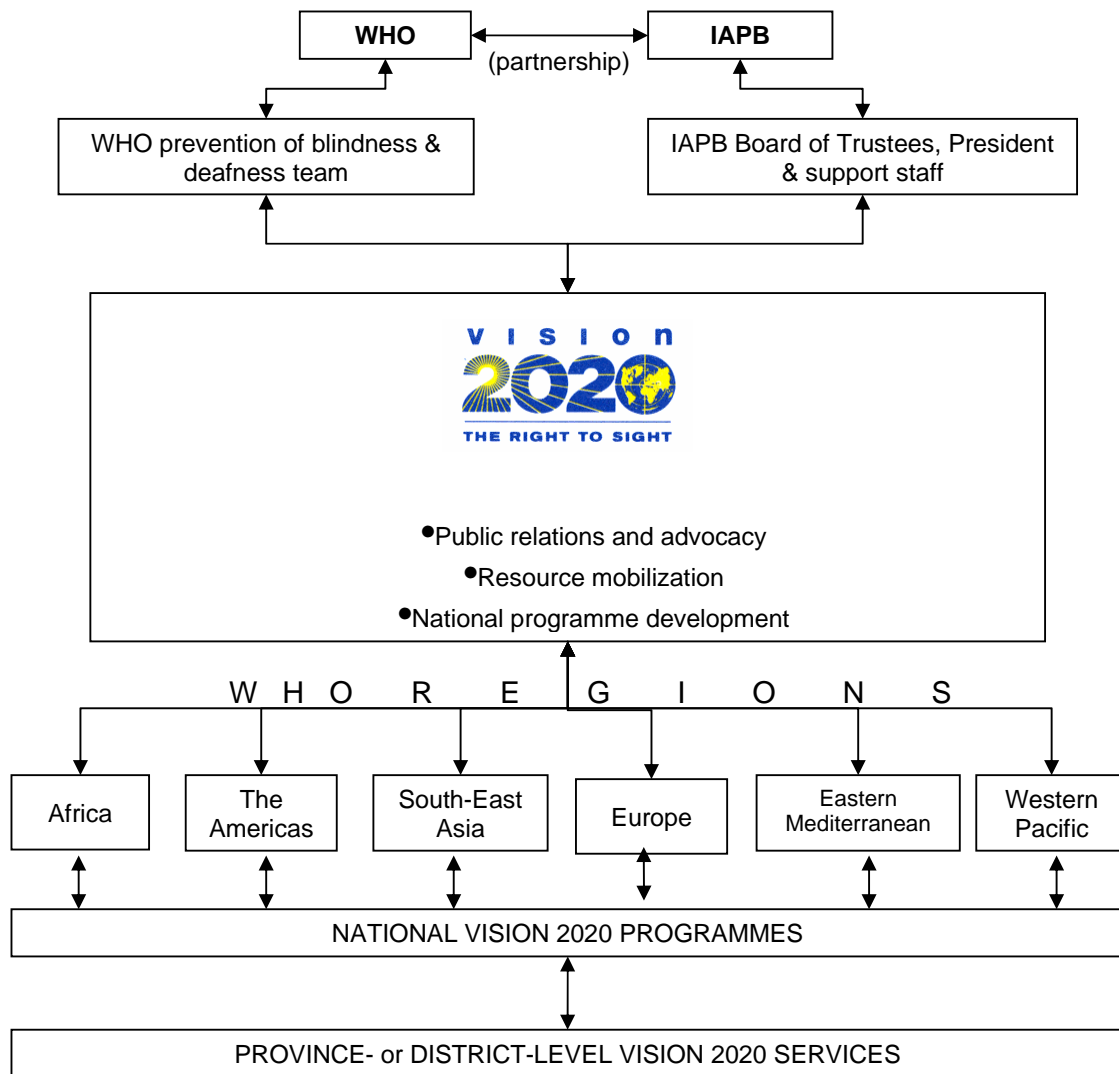
The guiding principles are summarized in the acronym ISEE:

- **I**ntegrated into existing health care systems
- **S**ustainable in terms of money and other resources
- **E**quitable care and services available to all, not just the wealthy
- **E**xcellence – a high standard of care throughout.

The structure of the VISION 2020 programme is shown in Figure 5.

Figure 1

The structure of VISION 2020



Source: World Health Organization, Prevention of Blindness Programme (WHO/PBD), 2005.

Fifty-sixth World Health Assembly resolution WHA56.26, limitation of avoidable blindness

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Global political commitment to VISION 2020 was reaffirmed in 2003 by the adoption of this resolution that urged each Member State to:

- support the Global Initiative for the Elimination of Avoidable Blindness by setting up, not later than 2005, a national VISION 2020 plan, in partnership with WHO and in collaboration with nongovernmental organizations and the private sector;
- commence implementation of such plans by 2007 at the latest; and
- include in such plans effective information systems with standardized indicators and periodic monitoring and evaluation, with the aim of showing a reduction in the magnitude of avoidable blindness by 2010.

The resolution also requested the Director-General of WHO to:

- maintain and strengthen WHO's collaboration with Member States and the partners of the Global Initiative for the Elimination of Avoidable Blindness; and
- ensure coordination of the implementation of the Global Initiative, in particular by setting up a monitoring committee grouping all those involved.

3. FIVE YEARS OF IMPLEMENTATION

The work of facilitating national VISION 2020 programme implementation includes the following elements.

- **VISION 2020 workshops.** These include short advocacy workshops and national VISION 2020 planning workshops to review current eye-care activities, identify constraints and gaps, and plan future priority actions for a VISION 2020 national plan.
- **Signing of a VISION 2020 Global Declaration of Support.** Ministers of health or other national government officials are encouraged to sign a Declaration of Support for the VISION 2020 initiative.
- **National VISION 2020 committee.** The most effective VISION 2020 committees are those that have collaboratively prepared the national plan. They coordinate its implementation including its monitoring and evaluation.
- **VISION 2020 national plan.** The plan is often multiphase with several intermediate goals. Local data such as prevalence, cataract surgical rate and number of ophthalmologists per million population, help to monitor progress. A 'Tool Kit' or interactive CD-ROM, *Developing an action plan to prevent blindness at national, provincial and district levels* – prepared jointly by IAPB and WHO – contains guidelines and background material (available at <http://www.iapb.org>, <http://www.v2020.org> and http://www.who.int/pbd/blindness/vision_2020/en/index.html).

- **World Sight Day.** Observed on the second Thursday of October each year, World Sight Day provides an opportunity to raise public awareness of vision loss. VISION 2020 and local organizations create favourable publicity for the public involvement in and ownership of the prevention of blindness.

4. IMPLEMENTATION SUCCESSES

An indication of the engagement of Member States with VISION 2020 is reflected in Table 1 below.

Table 1

Indicators of national commitment to VISION 2020 by WHO region in early 2005

WHO region	Total number of Member States in region	Number of Member States which have			
		Signed VISION 2020 Global Declaration of Support	Formed national committees	Participated in a VISION 2020 workshop	Drafted a VISION 2020 national plan
AFR	46	20 (43%)	15 (33%)	31 (67%)	15 (33%)
AMR	35	12 (34%)	12 (34%)	31 (89%)	12 (34%)
SEA	11	7 (64%)	8 (73%)	9 (82%)	8 (73%)
EUR	52	2 (4%)	16 (31%)	15 (29%)	1 (2%)
EMR	21	21 (100%)	17 (81%)	20 (95%)	9 (43%)
WPR	27	16 (59%)	17 (63%)	22 (81%)	13 (48%)
Total	192	80 (41.7%)	78 (41%)	115 (60%)	53 (27.6%)

Note: The WHO regions are Africa (AFR), the Americas (AMR), South-East Asia (SEA), Europe (EUR), Eastern Mediterranean (EMR), and Western Pacific (WPR).

Source: WHO/PBD, 2005.

Disease control

Cataract

Cataract causes half of the blindness worldwide, but vision can be restored by cataract surgery. A huge increase in cataract surgery will be required to achieve VISION 2020's goals.

Table 2

Cataract surgery projections

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	Number blind from cataract	Number of cataract surgeries	Cataract surgical rate
1995	20 million	7 million	1100
2000	15 million*	12 million*	2000*
2002	17.6 million	14 million	2300
2010	7 million*	20 million*	3000*
2020	0 million*	32million*	4000*

*Figures projected in 1995.

Source: Prof. Hugh R. Taylor, IAPB Regional Chair - western Pacific Center for eye Research

In 2002, data were available for 125 Member States. Cataract surgical rates (CSR) ranged from fewer than 100 to 8000 cataract operations per million population per year. Forty-one countries (33% of those providing reports) had a CSR of below 500 and seven (6%) had a CSR of 4000 or more. Eye-care services in some countries are beginning to reduce the backlog of unoperated cataract but disparity in distribution of services needs to be addressed.

Cataract surgery is one of the most cost-effective of all health interventions. Low-cost consumables and efficient use of resources have reduced the cost of high-quality cataract surgery to less than US\$ 20 per patient in some areas. However, cost is still a significant barrier to patient uptake of surgery: governments, donors or NGOs must commit to cover the cost for poor patients.

Trachoma

The WHO Alliance for the Global Elimination of Trachoma by 2020 (GET2020) was established in 1997. Blinding trachoma was endemic in 48 countries. In 1998, WHO reported 10.6 million people worldwide with trachomatous trichiasis, 146 million with active trachoma, and 5.9 million blind and severely visually impaired from trachoma.

Trachoma is controlled by a four-pronged strategy, which has as its acronym 'SAFE':

- Surgery for in turned eyelids
- Antibiotics to treat ocular *Chlamydia trachomatis* infection
- Facial cleanliness
- Environmental improvement to reduce the risk factors which favour transmission.

An annual oral dose of azithromycin is effective against trachoma and the drug's manufacturer (Pfizer Inc.) has donated Zithromax ® (azithromycin) to a number of trachoma control programmes.

By 2002, the estimated number blind from trachoma had decreased to 1.3 million. In 2004, estimates were 7.6 million people with trichiasis, and 84 million with active trachoma.

Onchocerciasis

In 1974, WHO launched the Onchocerciasis Control Programme (OCP) in collaboration with other United Nations agencies, the World Bank, donors and national governments. The OCP used vector control to stop the transmission of infection in 11 countries in western Africa.

An annual oral dose of ivermectin (Mectizan®) essentially halts the progression of disease and reduces transmission. In 1987, Merck & Co., Inc. started the Mectizan Donation Programme to provide ivermectin treatment for all those with onchocerciasis.

In 1995, the OCP's sponsoring agencies, NGOs, and national governments launched the African Programme for Onchocerciasis Control (APOC) – a treatment programme for African countries outside the OCP. Community-directed treatment with one annual dose of ivermectin (CDTI) is the primary strategy. APOC has established 107 projects, which in 2003 treated 34 million people in 16 countries. The programme will treat 90 million people annually, protecting an at-risk population of 109 million and preventing 43 000 cases of blindness every year.

The Onchocerciasis Elimination Programme in the Americas (OEPA) was launched in 1992. It operates in the six endemic countries of Latin America. Like OCP and APOC, OEPA is a partnership. The OEPA partnership includes national governments, the Pan American Health Organization, Merck & Co., Inc. and international NGOs.

Childhood blindness

Children with vision loss face a lifetime of blindness. The conditions of blindness are closely linked to under-five mortality; up to 60% of children die within a year of becoming blind. Blindness in children causes about one third of the total economic cost of blindness.

The causes of blindness in children are different from those in adults. The major preventable causes of childhood blindness are vitamin A deficiency (VAD), measles and ophthalmic neonatorum. Treatable causes include retinopathy of prematurity (ROP), cataract, and glaucoma. Interventions require multiple coordinated services – maternal and child health, community health, education, and tertiary child eye care.

The 1990 World Summit for Children estimated that VAD affected 40 million children and proposed four strategies to eliminate VAD:

- breastfeeding support with vitamin A supplementation for new mothers;
- increased consumption of vitamin A-rich foods;
- vitamin A supplementation for children; and
- fortification of foods where possible.

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The Vitamin A Global Initiative was created in 1998. In 2002, 43 countries distributed at least one high-dose vitamin A capsule to more than 70% of their children. The elimination of VAD is planned to be achieved by 2010.

Refractive errors and low vision care

Good global data on refractive errors are lacking. Worldwide, visual impairment due to uncorrected or undercorrected refractive error (VA<6/18 in adults, <6/12 in children) affects about 200–250 million people. Presbyopia will affect virtually everyone over the age of 45 years, or about 23% of the world's population.

Refractive services and corrective spectacles need to be affordable and available to populations-in-need through primary care facilities, school vision screening and low-cost spectacle production. The principal target groups are school-age children with myopia and those over the age of 40 with presbyopia.

People with no perception of light can benefit from mobility training and other forms of rehabilitation. Millions of those with varying degrees of visual impairment require multidisciplinary low vision care. Strengthening of low vision services is a high priority.

Both children and adults with low vision benefit from the efficient use of 'residual' visual function. A range of low-cost low vision aids is now available from the VISION 2020 Low Vision Resource Centre in Hong Kong, www.hksb.org.hk.

Human resource development

Adequately trained human resources are a core requirement for the prevention, treatment and rehabilitation of avoidable blindness. VISION 2020 requires a team approach with eye-care professionals working together in complementarity to eliminate avoidable blindness in whole populations.

An appropriate model has a team for a manageable unit of population of between 100 000 and 1 000 000 people – a VISION 2020 or 'district-level' delivery unit. In most developing country eye-care programmes, lack of human resources still prevents formation of enough appropriate teams, or the establishment of other effective staffing models. The training of doctors and mid-level eye care workers for Africa is a priority for VISION 2020.

In 2003, only 13 (28%) of the 46 African Member States had achieved an ophthalmologist to population ratio of 1:500 000 or more – the target set for the year 2000. Ten countries (22%) had one or fewer ophthalmologists per million population. New training centres have been established in both eastern and western Africa and already-established programmes have increased their output.

Training of mid-level personnel (ophthalmic medical assistants, ophthalmic clinical officers, ophthalmic nurses) is undertaken in a number of countries. However, most African countries have still not yet reached the minimum target of four mid-level personnel per million population, and very few have 10 per million. Some countries

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(for example, Malawi, Mali, Uganda, and the United Republic of Tanzania) have trained ophthalmic medical officers to function as cataract surgeons.

Training courses in planning and management of eye health services based upon a community and public health perspective are important. Short and longer courses have been developed in Africa, Latin America, Asia, and Europe.

Infrastructure and technology development

Technology transfer has enabled the low-cost, local production of eye drops, spectacles, sutures and, more recently, low vision devices. The impact of this approach has been most notable in cataract surgery. Mass production of low-cost, high-quality intraocular lenses (IOLs) has made possible their widespread use in developing countries.

The VISION 2020 Technology Working Group has produced the *Standard list of medicines, equipment, instruments, optical supplies and educational resources* to aid district-level eye-care services. The list includes affordable but high-quality items suitable for primary and secondary level eye-care services, and is revised every two years (see www.v2020.org).

The current situation

Blindness estimates for 2002 showed a global reduction in the number of blind people to 37 million, and of those visually impaired to 124 million.

Distribution of blindness by region

Africa still had the highest regional rate of blindness in 2002. The estimated number of blind people in India fell from 8.9 million in 1990 to 6.7 million in 2002: a 25% decrease (Table 3).

Table 2

Regional burden of blindness (RBB), 2002

WHO region	Blind		Population		RBB (=a/b)
	Number ($\times 10^3$)	% of global total (a)	Number ($\times 10^3$)	% of global total (b)	
Africa	7 288	19.8	715 289	11.5	1.72
The Americas	2 418	6.6	852 551	13.7	0.48
South-East Asia	12 558	34.1	1 799 358	29.0	1.18
Europe	2 732	7.4	877 886	14.1	0.52
Eastern Mediterranean	2 482	6.7	286 933	4.6	1.46
Western Pacific	9 378	25.4	1 681 851	27.1	0.94
Totals	36 857	100.0	6 213 869	100.0	

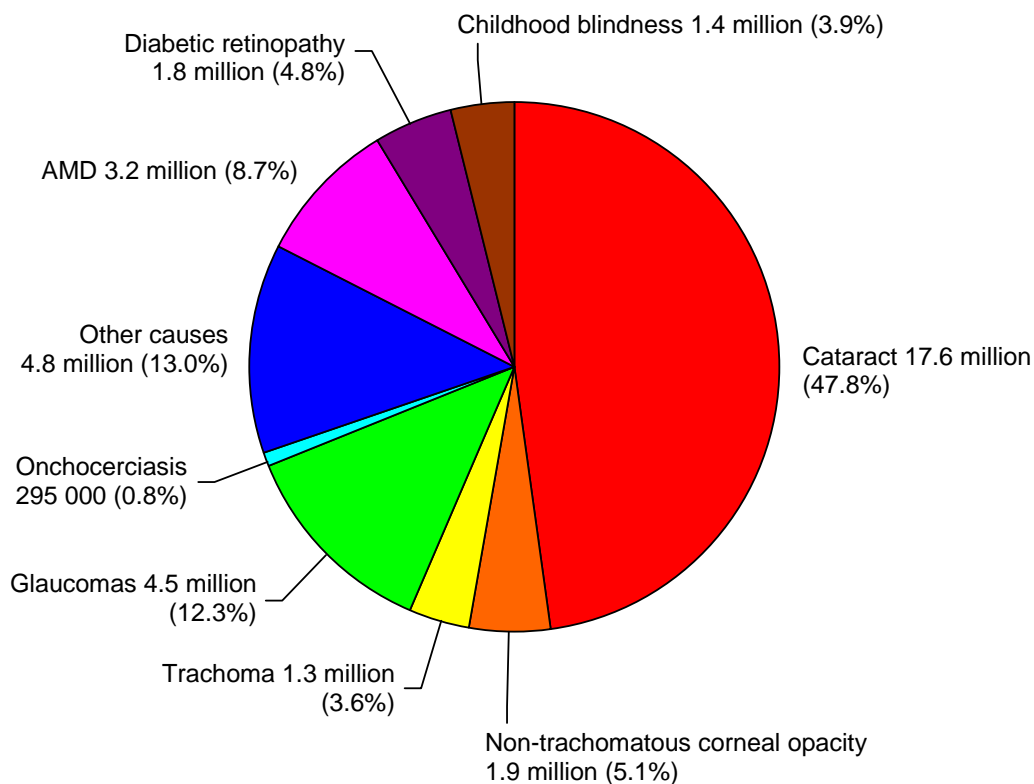
Source: Data from Resnikoff S et al. Global data on visual impairment in the year 2002. *Bulletin of the World Health Organization*, 2004, 82:844–851.

Distribution of blindness by cause

In 2002, cataract was still the leading cause of prevalent blindness (Figure 2). The estimated number of people blind from trachoma in 2002 was 1.3 million (compared to 5.9 million in 1990); and those blind from onchocerciasis fell from 360 000 to 295 000 in the same period. These changes represent decreases of 78% and 18% respectively. However, there was an increase in blindness from conditions associated with ageing.

Figure 2

Major causes of blindness worldwide, 2002



Contributing factors to reduction in blindness

Factors unrelated to data collection methodologies that are likely to have contributed to the shift in the global picture of blindness include:

- increased global political commitment to prevention of vision impairment;
- increased professional commitment to prevention of vision impairment;

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- increased commitment and support of nongovernmental organizations;
- increased involvement and partnership with the corporate sector;
- development of high-quality, low-cost, IOL surgery and its increasing provision in areas of need;
- development of the SAFE strategy and the provision of azithromycin for mass distribution;
- donation of ivermectin and its increased delivery to endemic communities through CDTI;
- increased delivery of vitamin A supplementation to children at risk of VAD;
- increased coverage with measles vaccine;
- more effective primary eye-care activities as part of primary health care;
- increased public awareness and utilization of eye-care services;
- increased availability and affordability of eye-care services;
- increased human resources at the secondary and tertiary levels of eye care;
- increased transfer of ophthalmic technologies from the developed to the developing world.

CALL TO ACTION

Globally, blindness and vision loss are common and will increase with the ageing population.

Three quarters of blindness and vision loss can be prevented or treated.

Blindness and vision loss have a significant economic and social impact, but have very cost-effective interventions.

VISION 2020 has made considerable gains since it was launched by WHO and IAPB in 1999.

Further global and national commitment and effort are required to give all people the Right to Sight by 2020.