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**BLINDNESS**

# DEFINITION

- WHO defined blindness as “visual acuity of less than 3/60 (Snellen) or its equivalent”
- WHO has now added “inability to count fingers in daylight at 3 metres”

# CATEGORIES OF VISUAL IMPAIRMENT

Categories of visual impairment	Visual Acuity	
	Maximum less than	Minimum equal to or better than
Low Vision	1. 6/18	6/60
	2. 6/60	3/60
Blindness	3. 3/60 (Finger counting at 3 m)	1/60 (Finger counting at 1m)
	4. 1/60 (Finger counting at 1 m)	Light perception
	5. No light perception	

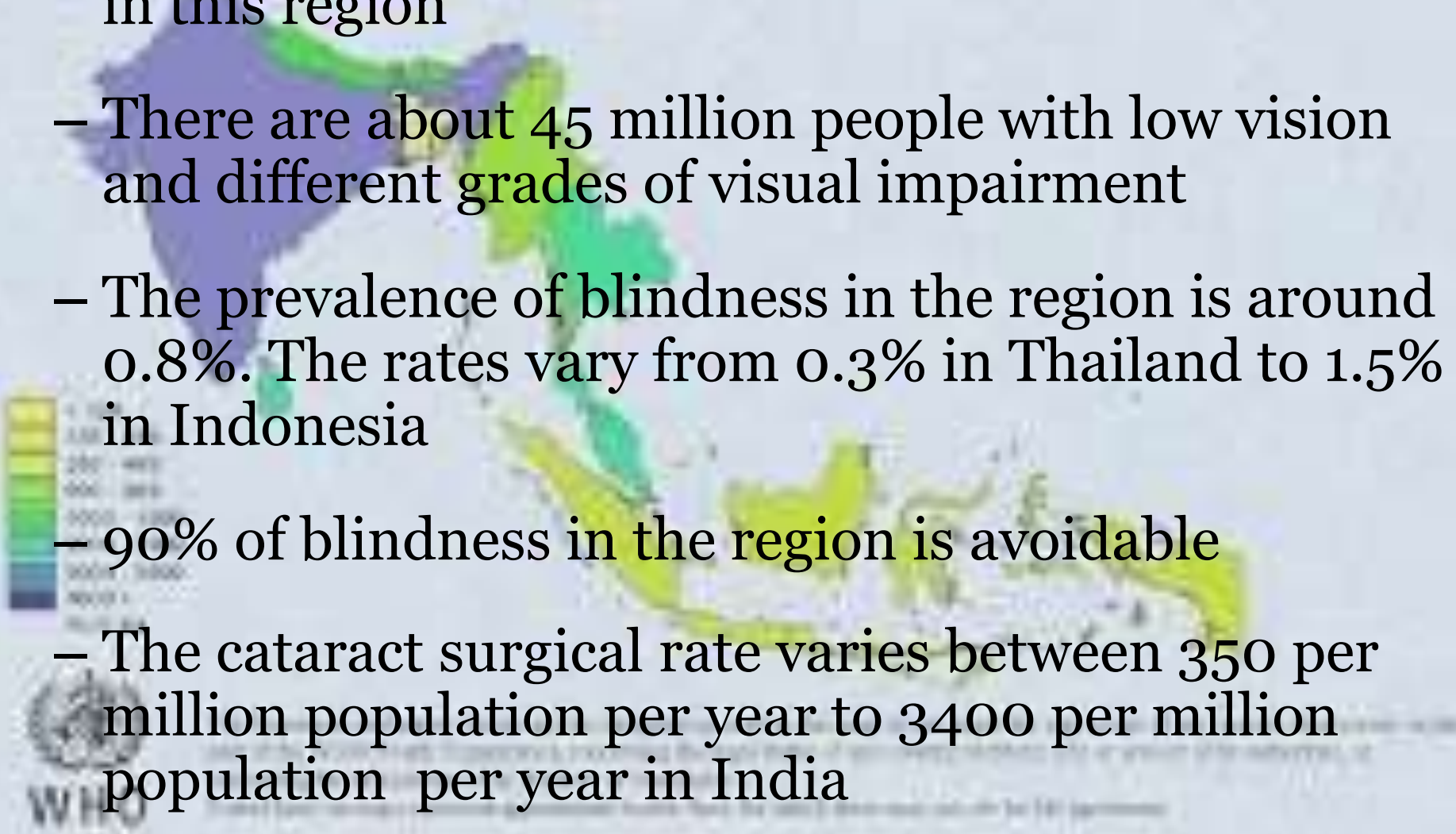
# THE PROBLEM

- WORLD

- 180 million people worldwide are visually disabled of whom nearly 45 million are blind, 4 out of 5 of them living in developing countries.
- Prevalence varies between countries from 0.2% or less in developed countries to more than 1% in some sub-saharan countries.
- About 32% of world's blind are aged 45-59 years but large majority (about 58%) are over 60 years old.
- About 80% of blindness is avoidable.

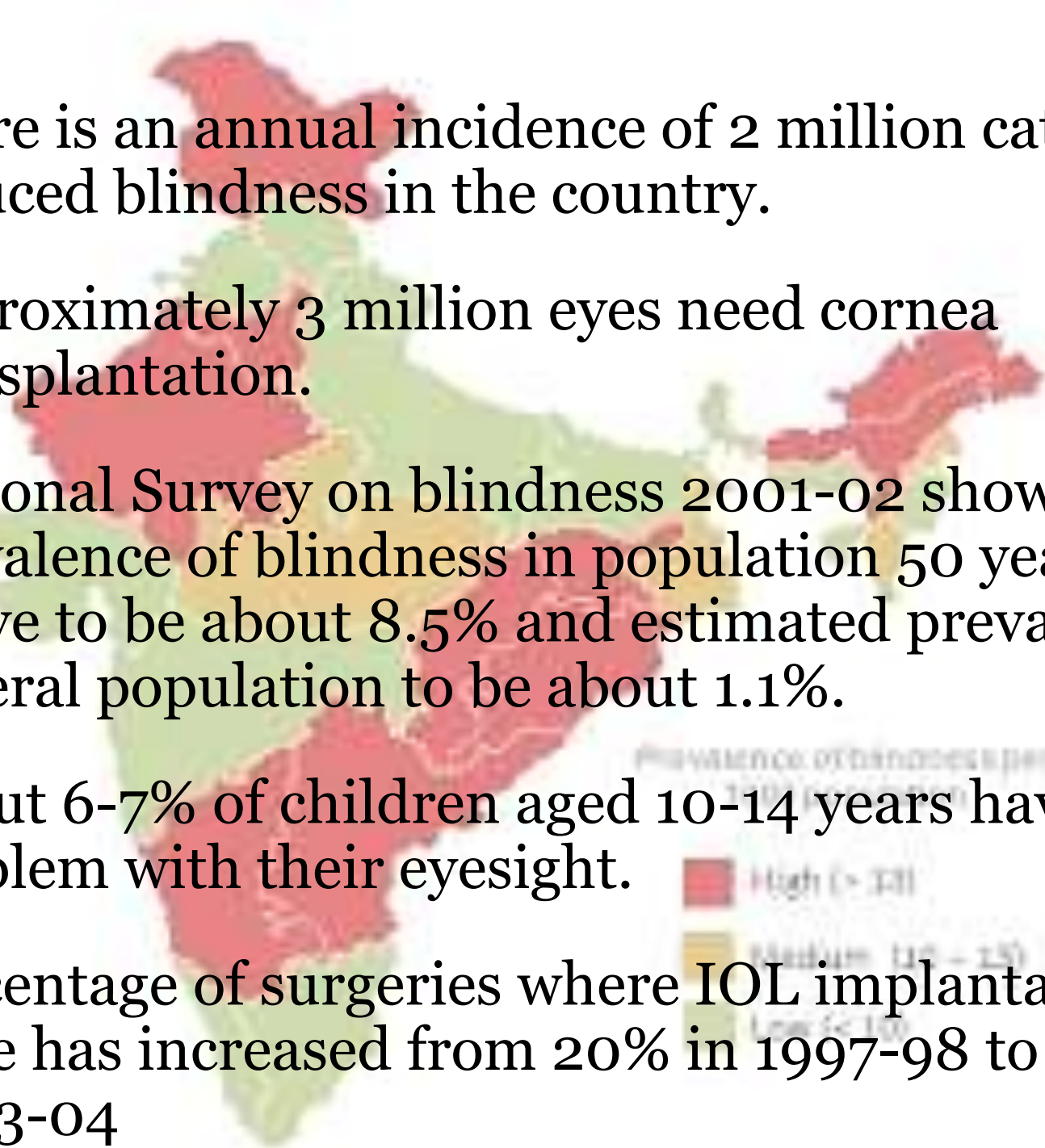
## Cataract Surgical Rate – SEARO

- South East Asia Region
  - 1/3<sup>rd</sup> of the world's blind (about 15 million) and 50% of the world's blind children (about 0.7 million) live in this region
  - There are about 45 million people with low vision and different grades of visual impairment
  - The prevalence of blindness in the region is around 0.8%. The rates vary from 0.3% in Thailand to 1.5% in Indonesia
  - 90% of blindness in the region is avoidable
  - The cataract surgical rate varies between 350 per million population per year to 3400 per million population per year in India



# • India

- There is an annual incidence of 2 million cataract induced blindness in the country.
- Approximately 3 million eyes need cornea transplantation.
- National Survey on blindness 2001-02 shows prevalence of blindness in population 50 years and above to be about 8.5% and estimated prevalence in general population to be about 1.1%.
- About 6-7% of children aged 10-14 years have problem with their eyesight.
- Percentage of surgeries where IOL implantation was done has increased from 20% in 1997-98 to 83% in 2003-04



# CAUSES OF BLINDNESS

- **WORLD**

- Cataract ( 19 million)
- Glaucoma (6.4 million)
- Trachoma (5.6 million)
- Childhood blindness ( more than 1.5 million)
- Onchocerciasis (0.29 million)
- Other causes (10 million)

- **DEVELOPED COUNTRIES**

- Accidents

- Glaucoma

- Diabetes

- Vascular diseases (hypertension)

- Cataract and degeneration of ocular tissues especially of retina

- Hereditary conditions



- **SOUTH EAST ASIA REGION**

- Cataract

- Uncorrected refractive errors

- Vitamin A deficiency

- Glaucoma

- Age related macular degeneration

- Diabetic retinopathy

- Corneal ulcer

- Ocular trauma

- **INDIA**

- Cataract (62.6%)
- Uncorrected refractive errors (19.7%)
- Glaucoma (5.8%)
- Posterior segment pathology (4.7%)
- Corneal opacity (0.9%)
- Surgical complication (1.2%)
- Posterior capsular opacification (0.9%)
- Other causes (4.19%)

# EPIDEMIOLOGICAL DETERMINANTS

- Age
- Refractive error, trachoma, conjunctivitis and malnutrition are important causes of blindness among children and younger age groups.
- Cataract, refractive error, glaucoma and diabetes are causes of blindness in middle age.
- Accidents and injuries can occur in all age groups, but more importantly in the age group 20-40 years .

## Sex:

A higher prevalence of blindness is reported in females than in males in India.

## Malnutrition

Malnutrition is closely related with low vitamin A intake, infectious diseases of childhood especially measles and diarrhea.

## Occupation:

People working in factories, workshops and cottage industries are prone to eye injuries because of exposure to dust, airborne particles, flying objects, gases, fumes, radiation, electric flash, etc.

- Social Class
- Blindness is twice more prevalent in the poorer classes than in the well to do
- Social Factors
- Ignorance, poverty, low standard of personal and community hygiene and inadequate health care services

# CHANGING CONCEPTS IN EYE HEALTHCARE

- Primary eye care
- The inclusion of an eye care component in primary healthcare system
- The promotion and protection of eye health together with on-the-spot treatment of the commonest eye disease
- Increasing the coverage and quantity of eye healthcare through primary healthcare approach and thereby improve the utilization of existing resources

## Epidemiological approach:

- The measurement of the incidence, prevalence of diseases and their risk factors. The local epidemiological situation will determine the action needed

## Team concept:

- Village health guides, ophthalmic assistants, multipurpose workers and voluntary agencies as personnel to fill gap between eye specialist and the population

## Establishment of National Programmes:

- The goal of the national programme for the control of blindness in India was to reduce blindness in the country to 0.3% by year 2000

# PREVENTION OF BLINDNESS

- Initial Assessment
- The first step is to assess the magnitude, geographic distribution and causes of blindness within the country or region by prevalence surveys
- This knowledge is essential for setting priorities and development of appropriate intervention programmes



- Methods of Intervention
- Primary eye care
- Treatment and prevention of eye conditions (eg. Acute conjunctivitis, trachoma, superficial foreign bodies) at the grass-root level by locally trained primary health workers.
- Secondary care
- Definitive management of common blinding conditions such as cataract, trichiasis, entropion, ocular trauma, glaucoma etc. in PHCs and District hospitals or in mobile eye clinics.
- It is problem specific and makes the best use of local resources and provides inexpensive eye care to the population at the periphery level.

- Tertiary care:
- Services established in the national or regional capitals and associated with Medical Colleges and Institutes of Medicine
- Provide Retinal Detachment Surgery, Corneal Grafting and other complex forms of management not available at secondary centres
- Establishment of Eye Banks
- Education of the blind in special schools and utilization of their services in gainful employment
- The Central government has established the National Institute for the Blind in Dehradun to work out new approaches and strategies for solving the problems of the blind

# d) Specific Programmes

- i. Trachoma control
- ii. School eye health services
- iii. Vitamin A prophylaxis
- iv. Occupational eye health



जीवजल "अ" - अक्षयस्य च दीप्तिर्न च क्षयते

अक्षयस्य "अ" जीवजलं एकं प्रकृतं चोपलब्धं कृते। अक्षयस्य "अ" जीवजलं एकं प्रकृतं चोपलब्धं कृते। अक्षयस्य "अ" जीवजलं एकं प्रकृतं चोपलब्धं कृते। अक्षयस्य "अ" जीवजलं एकं प्रकृतं चोपलब्धं कृते।

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“वाढ व संरक्षणासाठी”

Specific Programmes:

Trachoma control

School eye health services

Vitamin A prophylaxis

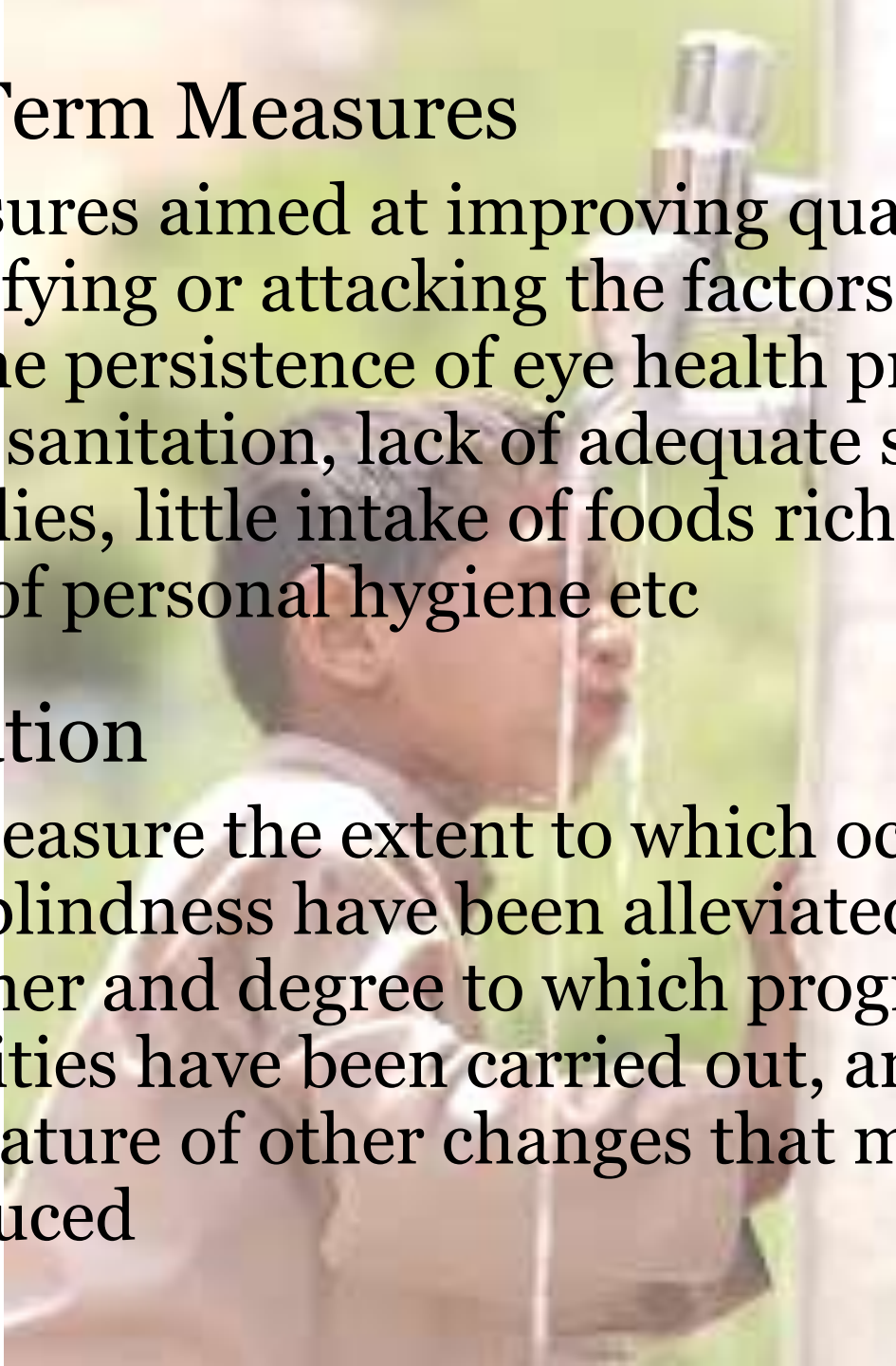
Occupational eye health

### 3. Long Term Measures

- Measures aimed at improving quality of life and modifying or attacking the factors responsible for the persistence of eye health problems eg. Poor sanitation, lack of adequate safe water supplies, little intake of foods rich in vitamin A, lack of personal hygiene etc

### 4. Evaluation

- To measure the extent to which ocular diseases and blindness have been alleviated, assess the manner and degree to which programme activities have been carried out, and determine the nature of other changes that may have been produced



# NATIONAL AND INTERNATIONAL AGENCIES

- The National Association for the Blind (1952)
- The Royal Commonwealth Society for the Blind (1950)
- International Agency for Prevention of Blindness



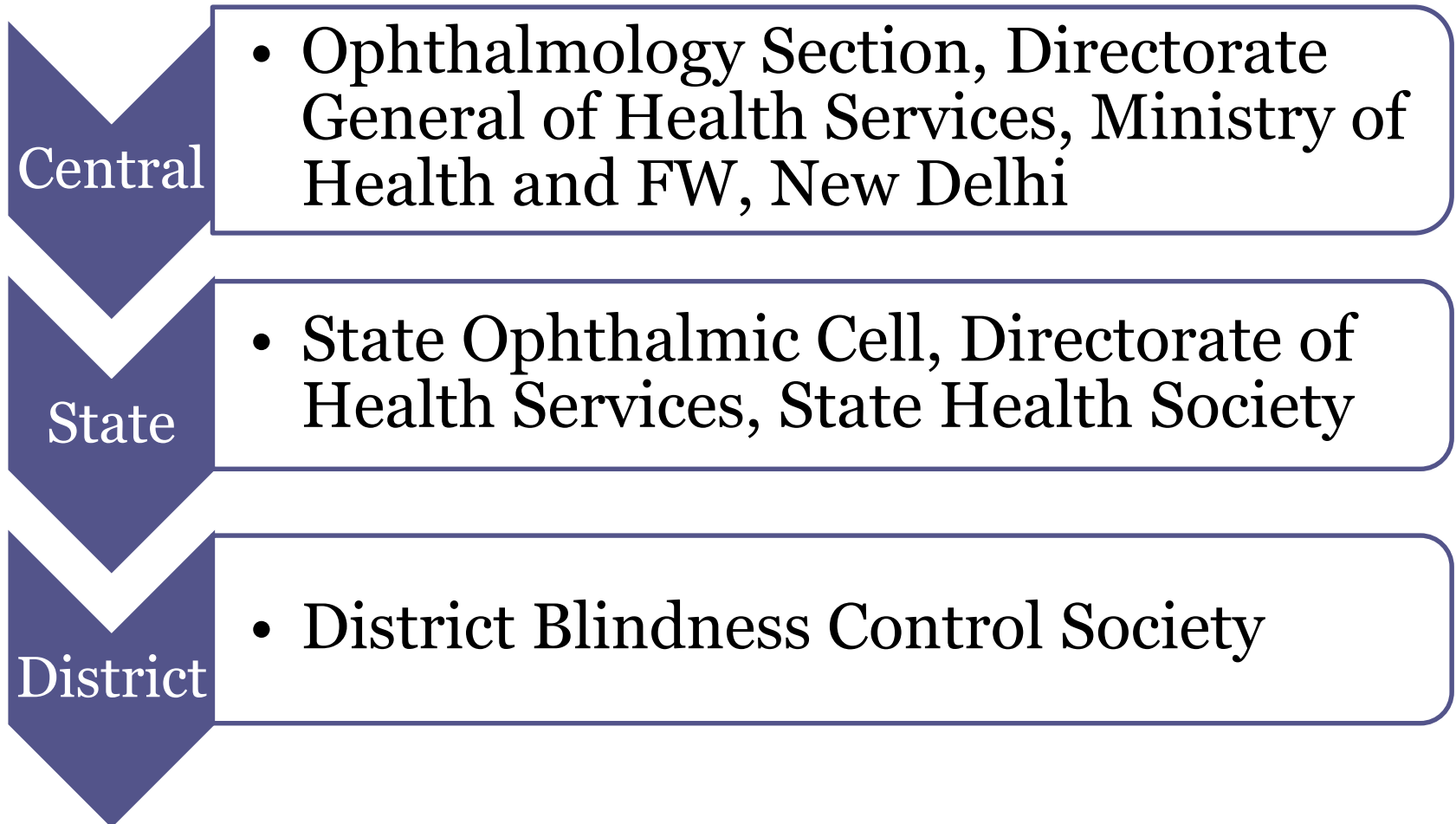


# NATIONAL PROGRAMME FOR THE CONTROL OF BLINDNESS

- Launched in 1976
- Goal- to reduce the prevalence of blindness from 1.4 to 0.3%
- Objectives-
  - To reduce the backlog of blindness through identification and treatment of the blind
  - To develop eye care facilities in every district
  - To develop human resources for providing eye care services
  - To improve quality of service delivery
  - To secure participation of voluntary organizations in eye care
  - To enhance community awareness on eye care

# Organizational Structure

- Administration





# • Service Delivery and Referral System



## Tertiary Level

- Regional Institutes of Ophthalmology & Centres of Excellence in Eye Care Medical Colleges



## Secondary level

- District Hospital and NGO Eye Hospital



## Primary Level

- Sub-district level hospitals/ CHCs Mobile Ophthalmic Units, Upgraded PHCs, Link workers/ Panchayats



- School eye screening programme

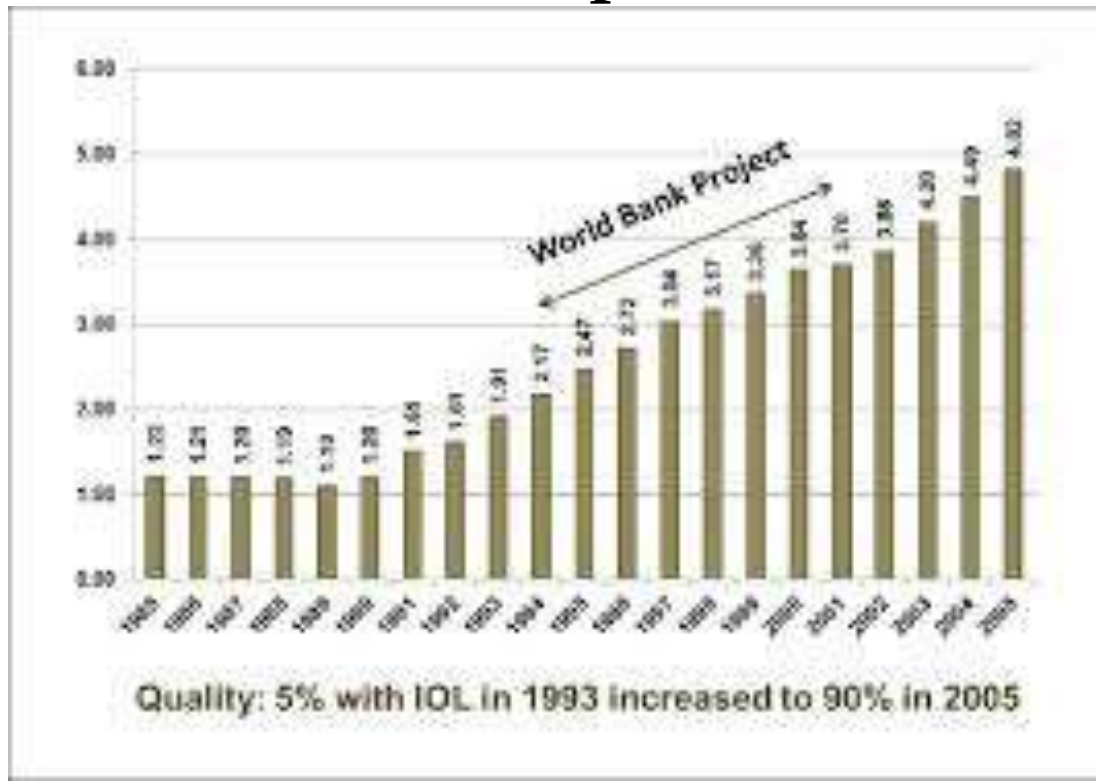
- Children are first screened by trained teachers
- Children suspected to have refractive error are seen by ophthalmic assistants and corrective spectacles are prescribed or given free for persons below poverty line



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- **Collection and Utilization of Donated eyes**
    - Eye donation fortnight is organized from 25th August to 8th September every year to promote eye donation/ eye banking.



- Externally aided projects
  - a. World Bank assisted cataract blindness control project
  - b. Danish assistance to NPCB
  - c. WHO assistance for prevention of blindness







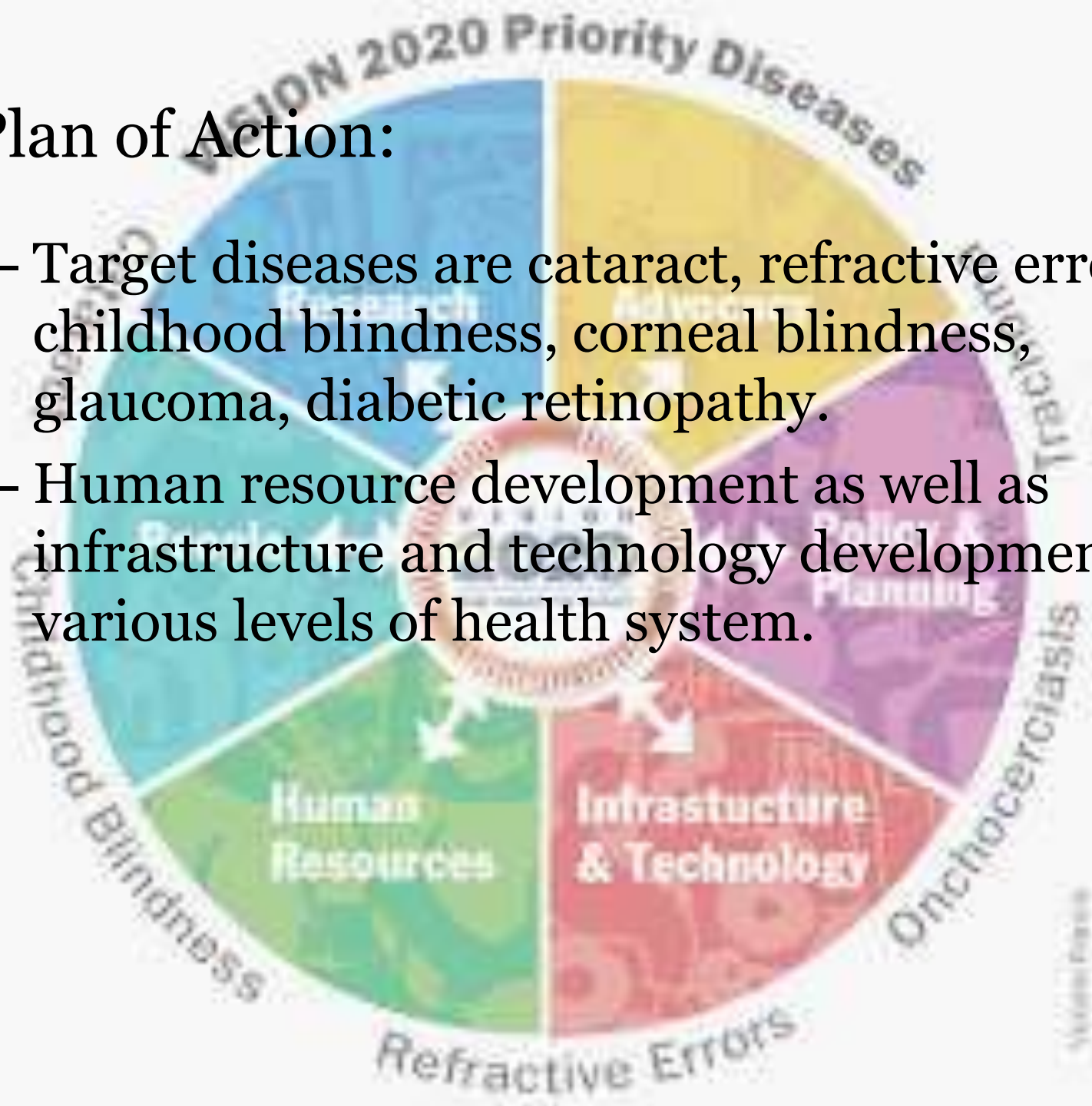
# VISION 2020

- Objective :

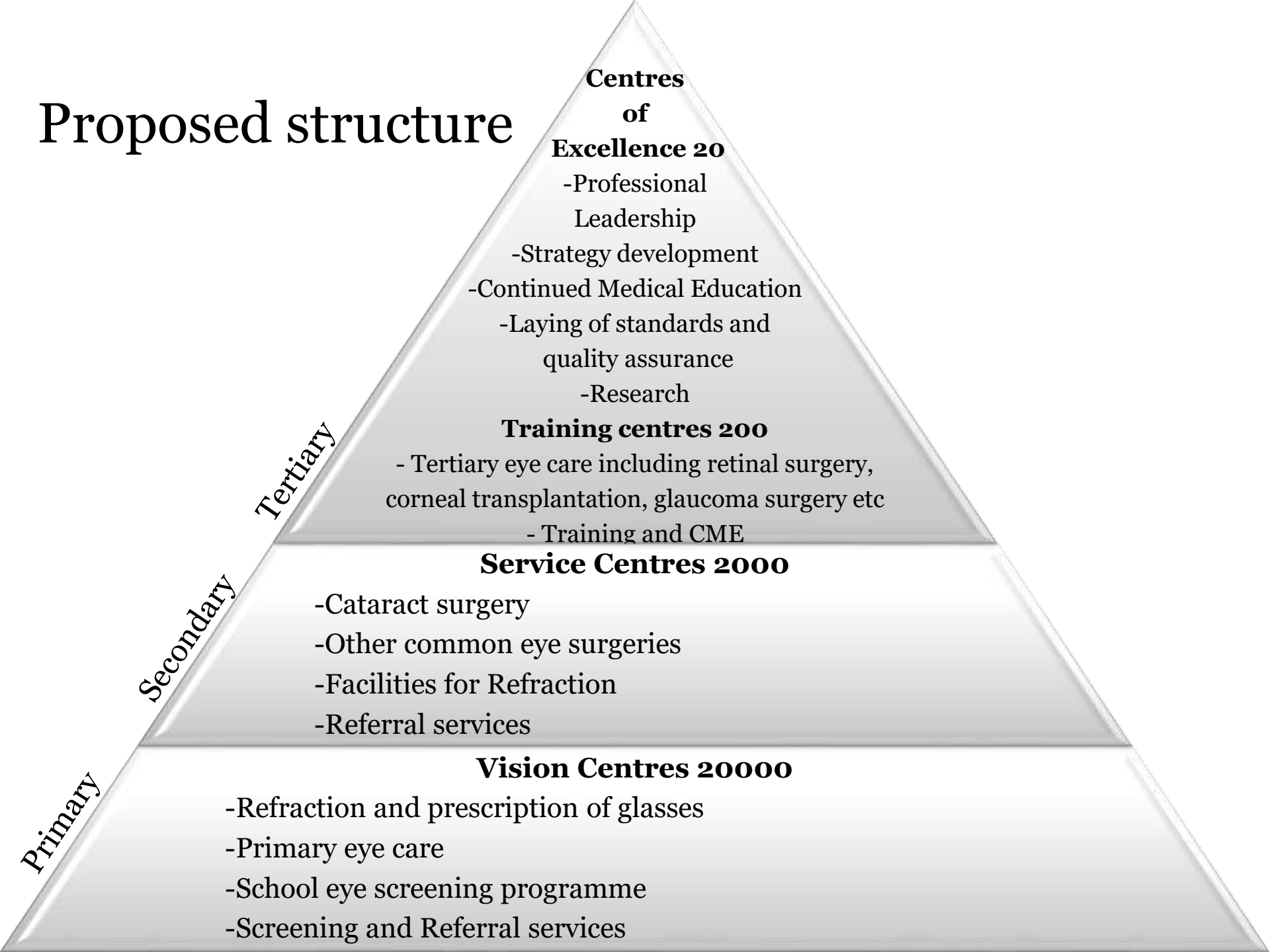
To assist member countries in developing sustainable systems which will enable them to eliminate avoidable blindness from major causes i.e cataract, xerophthalmia and other causes of childhood blindness, refractive error and low vision, trachoma and other causes of corneal blindness by the year 2020

- Plan of Action:

- Target diseases are cataract, refractive errors, childhood blindness, corneal blindness, glaucoma, diabetic retinopathy.
- Human resource development as well as infrastructure and technology development at various levels of health system.



# Proposed structure



**Centres  
of  
Excellence 20**

- Professional Leadership
- Strategy development
- Continued Medical Education
- Laying of standards and quality assurance
- Research

**Training centres 200**

- Tertiary eye care including retinal surgery, corneal transplantation, glaucoma surgery etc
- Training and CME

**Service Centres 2000**

- Cataract surgery
- Other common eye surgeries
- Facilities for Refraction
- Referral services

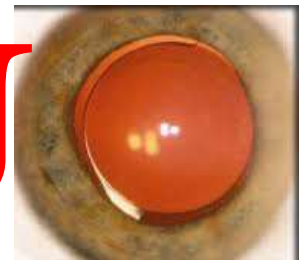
**Vision Centres 20000**

- Refraction and prescription of glasses
- Primary eye care
- School eye screening programme
- Screening and Referral services





# THANK YOU



*Alone we can do so little;  
together we can do so much.*  
Helen Keller

