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STAFF APPRAISAL REPORT

INDIA

CATARACT BLINDNESS CONTROL PROJECT

APRIL 21, 1994

MICROGRAPHICS

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**South Asia Country Department II (India)
Population and Human Resources Operations Division**

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CURRENCY EQUIVALENTS

(As of May 1, 1993)

Currency Unit	=	Rupee
Rupee 32.60	=	US\$ 1.00
Rupee 1.0	=	US\$ 0.0307

METRIC EQUIVALENTS

1 Meter (m)	=	3.28 Feet (ft)
1 Kilometer	=	0.62 Miles

FISCAL YEAR

April 1 - March 31

ABBREVIATIONS AND ACRONYMS

CHCs	-	Community Health Centers
CMU	-	Central Mobile Units
DANIDA	-	Danish International Development Agency
DBCS	-	District Blindness Control Societies
DMU	-	District Mobile Units
DALYs	-	Disability Adjusted Life Years
ECCE	-	Extracapsular Cataract Extraction
ICCE	-	Intracapsular Cataract Extraction
IOL	-	Intraocular Lens
MOHFW	-	Ministry of Health and Family Welfare
NPCB	-	National Program for the Control of Blindness
NICNET	-	National Informatics Center Nationwide Network
PHC	-	Primary Health Center
RIO	-	Regional Institute of Ophthalmology
SEC	-	State Empowered Committee
WDR	-	World Development Report

DEFINITIONS

Aphakia	Absence of the crystalline lens from the eye. Aphakia occurs if the lens has been surgically removed, as in cataract surgery, or if it has been destroyed by a penetrating object. Aphakia causes severe loss of focusing in the affected eye or eyes and requires correction by lens implants, contact lenses or glasses.
Blindness	Visual acuity \leq 6/60 in both eyes. (See para. 2.11).
Cataract	Partial or complete opacification in the crystalline lens of one or both eyes. Cataract leads to progressive vision impairment and is the main cause of blindness in the world. Cataract, common to old age, can be treated by removing the opacified lens and wearing special glasses. [Cataract is derived from the Greek word, Katarraktes, or waterfall, because it was thought that the whiteness behind the pupil was a kind of waterfall descending from the brain fluids].
Couching	Surgical displacement of the lens backward into the inner eye where it remains. This contrasts with cataract surgery where the lens is removed from the eye. Couching is often performed by traditional healers. Post-operative infection is the main risk associated with this surgical procedure.
Coverage	A measure of the extent to which the services rendered cover the potential need for these services in a community. It is expressed as a proportion in which the numerator is the number of services rendered, and the denominator is the number of instances in which the service should have been rendered.
DALYs	Disability Adjusted Life Years. DALYs represent the sum of the years lost both from premature death and from disability associated with disease and injury.

Epidemiology	The study of the distribution and determinants of health-related states and events in populations, and the application of this study to the control of health problems.
Extracapsular Cataract Extraction (ECCE)	Cataract surgery performed by extracting lens material in small pieces while leaving the posterior lens capsule in place. Together with implantation of an intraocular lens (IOL) behind the iris, ECCE affords a greater level of visual rehabilitation than that possible with conventional surgery (ICCE) and results in fewer complications. This procedure requires provision of operating microscopes and microsurgical instruments, and specialized training for surgeons.
Intracapsular Cataract Extraction (ICCE)	Cataract surgery performed by removing the entire lens, including its surrounding capsule. This method requires the use of aphakic spectacles after surgery. This operation is relatively simple to perform and is most commonly used in developing countries.
Intraocular Lens (IOL)	A clear plastic lens implanted in the eye during ECCE surgery, which serves as a substitute for the natural lens of the eye. Use of an IOL is indicated for unilateral cataract cases. IOLs also eliminate dependence of cataract patients on aphakic spectacles.
Incidence	Number of new cases of a disease or condition over a period of time as a proportion of the population at risk at midpoint. Incidence means "new" and is a direct indicator of risk.
Prevalence	Number of cases of a disease or condition at a given point in time as a proportion of the total population. Prevalence means "all" and is used by health planners to assess workload and service delivery needs.
Ultraviolet (UV)	Light beyond the range of human vision.

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This report is based on an appraisal mission that visited India in June 1993. The mission comprised Maria Donoso Clark (Senior Anthropologist and Mission Leader), Salim Habayeb (Senior Public Health Specialist), Kevin Casey (Senior Operations Officer), A. A. Contractor (Public Health Specialist), Kaniz Siddiqui, and V. J. Ravishankar (Economists). The mission was assisted by Dr. Carl Kupfer, (Director, National Eye Institute, NIH, Consultant); Dr. Leon Ellwein (Special Advisor to the Director, National Eye Institute, NIH, Consultant), Dr. Pararajasegaram (Ophthalmologist, WHO, Consultant), Girija Brilliant (IEC Consultant). The peer reviewers are Dr. C. Kupfer (NIH), Dr. R. Pararajasegaram (WHO, Geneva), Dr. J. Javitt, (Professor of Ophthalmology, Georgetown University), Dr. D. Jamison (LATAD), Y. Genevier (AFARB) and S. Davis (ENVSP). The Project is endorsed by Richard Skolnik, Chief, Population and Human Resources Operations Division, and Heinz Vergin, Director, India Country Department.

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CATARACT BLINDNESS CONTROL PROJECT

CREDIT AND PROJECT SUMMARY

<u>Borrower:</u>	India, acting by its President
<u>Beneficiaries:</u>	States of Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Rajasthan, Maharashtra, Tamil Nadu and Orissa
<u>Amount:</u>	SDR 85.3 million (US\$117.8 million equivalent)
<u>Terms:</u>	Standard, with 35 years maturity.
<u>On-Lending Terms:</u>	Government of India to the States of Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Rajasthan, Maharashtra, Tamil Nadu and Orissa in accordance with standard arrangements for development assistance to States.

Description: The objectives of the project are to upgrade the quality of cataract surgery, expand services to underprivileged sectors, and reduce the backlog of untreated cataracts. India's efforts to address the cataract problem has been stymied by inadequate treatment capacity and by increasing numbers of new cases each year. The National Program for Control of Blindness (NPCB) has been unable to prevent the build-up of 20 million untreated cases because of financial, managerial and technical constraints.

The proposed project would help improve 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 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 NGOs 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.

Benefits:

The project would help eliminate most of the cataract blindness backlog by bringing the blindness prevalence down by 50% in the seven project states. More than 11 million surgeries would be done over seven years. It is estimated that an effective cataract program in India would save about 2.4 million Disability Adjusted Life Years (DALYs) annually, and more than US\$357 million in lost wages and injury-related health care expenditures over the seven years of the project. The project would greatly improve the quality of eye care, build local capacity and promote private sector development. It would also reduce the burden of caring for the blind, increase the quality of life of the individual and give access to services to the most disadvantaged groups, namely rural women, and scheduled tribes and castes who tend to have higher prevalence than the rest of the population for lack of access to ophthalmic services. It is estimated that more than 50% of the beneficiaries and almost all care-givers of the blind are women.

Risks:

The project would entail several risks because of the major shifts required in program policies and strategies, the logistical requirements associated with reaching remote areas, the diverse administrative capacity of each of the seven states, the important role expected of the ophthalmic and NGO communities, the possibility of poor visual outcomes expected under any type of surgical intervention for a small percentage of treated patients, and the expansion of a technology that until now has been restricted to tertiary-level facilities or private practices and available mostly to those who can pay. These risks should be offset by the detailed and participatory process followed during preparation, the appropriate phasing of project inputs, the checks and balances introduced in the project design including the concept of "full disclosure" and "informed consent," and the up-front agreement by GOI and the concerned States to the policies, processes and norms developed with government and state officials, Indian ophthalmologists and NGOs. The project would create an enabling environment for greater private sector involvement and build institutional capacity, which should also help reduce these risks.

Estimated Program Cost: /a

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	----- US\$ Million -----		
Strengthening Service Delivery	98.7	20.0	118.7
Developing Human Resources for Eye Care	3.3	1.7	5.0
Promoting Outreach & Public Awareness	7.6	2.4	10.0
Developing Institutional Capacity	<u>7.3</u>	<u>0.7</u>	<u>8.0</u>
TOTAL BASE COST	117.0	24.8	141.7
Contingencies	-2.4	5.4	3.1
TOTAL PROGRAM COST	<u>114.6</u>	<u>30.2</u>	<u>144.8</u> /b

/a Including Taxes and Duties equivalent to US\$4.7 million.

/b Figures shown are the costs of the Enhanced NPCB in the seven states plus the national program costs and are used as the basis for calculating the incremental project cost of US\$ 135.7 million. See also table 4.3 in the SAR for explanation of this calculation.

Financing Plan:

	<u>Local</u>	<u>Foreign</u>	<u>Total</u>
	----- US\$ Million -----		
Government	17.9	-	17.9
IDA	<u>87.6</u>	<u>30.2</u>	<u>117.8</u>
TOTAL PROJECT COSTS	<u>105.4</u>	<u>30.2</u>	<u>135.7</u>

Estimated Disbursements:

<u>IDA FY</u>	<u>FY95</u>	<u>FY96</u>	<u>FY97</u>	<u>FY98</u>	<u>FY99</u>	<u>FY00</u>	<u>FY01</u>	<u>FY02</u>
Annual	7.7	13.2	18.3	18.0	18.7	17.8	18.1	6.0
Cumulative	7.7	20.9	39.2	57.2	75.9	93.7	111.8	117.8

Economic Rate of Return: Not Applicable

Poverty Category: Program of Targeted Intervention. One of the project's main objectives is to expand service delivery to poor and underserved areas and to improve access to cataract surgery for tribal populations and women. The project contains specific strategies for delivering services to these two groups.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

I. INTRODUCTION

National Health Policy

1.1 India's current National Health Policy gives high priority to fertility control, infectious and endemic diseases of public health significance, such as tuberculosis, malaria, and blindness; and preventable causes of maternal and child mortality and morbidity. The National Health Policy includes quantified targets for the 1990s and the year 2000 under a program called "Health for All by 2000," which aims at the elimination of leprosy as a public health problem and the reduction of blindness prevalence from 1.3 to 0.3 per 1000 by the year 2000. However, current achievements in all areas already lag behind these targets except for childhood immunization. In the case of blindness, the result has been an accumulated backlog of untreated cataracts that has raised the prevalence of blindness in India to one of the highest in the world. In an effort to strengthen the social sectors to mitigate the effects of adjustment, the Government of India (GOI), supported by IDA's Social Safety Net Sector Adjustment Project (Cr. 2448-IN) is giving emphasis to the endemic disease programs, including the National Program for Control of Blindness.

1.2 The proposed blindness control project would help advance India's health agenda and meet the long-term goal of providing eye care delivery at low cost. The project would be fully consistent with the Government's stated objectives of improving the delivery of health and family welfare services to rural communities and strengthening the health system's efficiency and effectiveness. It would also support GOI's policies and objectives for major disease control, which include use of appropriate technology, enforcement of appropriate standards of care, quality enhancement of service delivery through increased emphasis on training, retraining, and non-salary inputs, mobilizing NGOs and the private sector, and strengthening the role of the states and districts in program planning and implementation.

II. CATARACT BLINDNESS IN INDIA

A. The Dimension of the Blindness Problem

2.1 About 13 million Indians suffer from bilateral blindness; more than one-third of the world's total blind population of 35 million. Roughly 80%, or more than 10 million of India's blind population is the result of cataract, compared to 50% worldwide. Another 10 million Indians suffer from unilateral, or one eye cataract blindness. Other causes of blindness in India include uncorrected refractive errors, glaucoma, corneal opacity, trachoma, and vitamin A deficiency (Annex 1). Blindness prevalence varies by geographical location, gender and degree of urbanization. Prevalence is higher among women, 1.6% compared to 1.4% for men; and in rural areas, 1.5% compared to 1.01% in urban areas. Annex 2 shows the prevalence in the selected project states which are among the 10 States and Union Territories with the highest prevalence of blindness.

2.2 The economic and social costs associated with blindness are especially high in India because of its high prevalence and the early-age onset of cataract which affects economically active individuals. In 1990, it was estimated that 2.4 million Disability Adjusted Life Years (DALYs)¹ are lost annually to cataract blindness. Almost half of these lost years are to individuals who otherwise would be economically active. Forty-five percent (45%) of cataract cases are under the age of 60; globally, most individuals develop cataracts after the age of 60. A possible explanation for India's early onset of cataract may be an excessive exposure to ultraviolet rays and inadequate nutrition.

2.3 India's attempt to lower its prevalence of cataract blindness has been stymied by inadequate treatment capacity and by an increasing number of cases. With a backlog of 20 million people with cataracts, 10 million of them bilaterally blind, and with the ability to perform a maximum of 1.5 cataract operations annually, many of them with unsatisfactory results, India faces a major obstacle in its fight against blindness. Moreover, the backlog increases each year. Using World Health Organization (WHO) approximate estimates, India adds 1.4 million new bilateral cataract blind cases each year, and 2.5 million new unilateral cases. Between 1990 and 2025, with the over-65 population projected to grow from 37 million to 102 million, the annual incidence of cataract cases would almost triple.

2.4 The only way to stem this tide is to increase treatment capacity in the high prevalence states. Seven such states--Maharashtra, Rajasthan, Uttar Pradesh, Andhra Pradesh, Madhya Pradesh, Orissa, and Tamil Nadu--have been selected for the project; they account for 70% of cataract blindness in India. It is estimated that over 11 million surgeries will be needed in the project states over the next seven years to address the backlog problem, advance India's goal to reduce the prevalence to 0.3%, and prepare the country for the expanded demand of an aging population. A major factor in achieving these goals would be to expand coverage, and improve the quality of surgical outcomes to increase service demand.

B. Epidemiological and Technical Background

2.5 Cataract, an opacity in the normally clear, crystalline lens of the eye, is usually caused by chemical changes in the lens resulting in loss or reduction of vision. There are different types of cataract (congenital, juvenile, senile, cortical or nuclear), but only cataract blindness related to aging (senile cataract) is considered a public health problem.

2.6 About 90% of examined individuals over age 65 show signs of cataract. Senile cataract may show no symptoms and be discovered only on routine examination; however, a gradual, painless decrease in vision over a period of months or years, usually involving blurred vision and sensitivity to light, is a common symptom. When cataracts develop, they usually affect both eyes, but rarely at the same rate.

¹ DALYs (Disability-Adjusted Life Years) represent the sum of the years lost both from premature death and from disability associated with disease and injury.

2.7 The actual causes of cataract are still unknown; therefore no preventive treatment has yet been found. Studies point to several risk factors such as malnutrition or a diet poor in vitamins C and E, smoking, moderate to heavy alcohol consumption, severe attacks of diarrhoea, and excessive exposure to the sun's ultraviolet rays, but until now there are no conclusive findings. Cataract may also result from disorders during pregnancy, eye infections, medications, exposure to radiation, or eye injury and therefore affect children and young adults. Glaucoma, diabetes or metabolic disorders may also increase the risk of cataract.

2.8 Although cataract cannot be prevented, it can be cured. The clouded lens can be removed surgically in a procedure that takes five to twenty minutes depending on the technique used. Cataract surgery is highly successful and over 90% of patients in the developed world regain useful vision. Success rates are less encouraging in the developing world due to complications resulting from infection, operations on unhealthy eyes, lack of refraction glasses, and use of inappropriate surgical technique for unilateral cases.

2.9 Sight restoration in cataract cases involves two steps: a surgical removal of the lens, and the correction of the resulting refractive error. Two surgical techniques are used: Intracapsular Cataract Extraction (ICCE) and Extracapsular Cataract Extraction (ECCE). The standard ICCE technique involves removing the clouded lens including the entire capsular membrane that holds it (Annex 3). Sight in the aphakic eye (eye without the natural lens) is restored through spectacles to focus light on the retina. The safety, speed, and simplicity of ICCE under local anesthesia has been the preferred technique for mass intervention programs for senile cataracts; however, ICCE/spectacles surgery is suitable only for bilaterally blind cases. When individuals blinded by cataract in one eye undergo ICCE surgery, double vision results from the difference between the magnified image as seen by the operated eye with spectacles and the image seen by the normal eye.

2.10 Extracapsular cataract extraction (ECCE) accompanied by implantation of intraocular lens (IOL)—an artificial lens made of clear surgical plastic—has almost entirely replaced the ICCE procedure in the developed world. In this more sophisticated surgical procedure, the lens is removed leaving the capsule bag intact. The IOL is inserted in the cleaned-out capsule and connected by loops that are part of the IOL structure (Annex 4). This procedure, although technically and medically more desirable, is more time-consuming than ICCE, requires increased surgical skill, microsurgical medical instruments, intraocular lenses and other supplies. Although ICCE and ECCE may be appropriate interventions for bilateral cataract blindness, depending on the availability of resources and skills, only ECCE with IOL should be prescribed for unilateral cases to avoid double vision.

2.11 Depending on the level of visual impairment, individuals may be considered socially blind or economically blind. The socially blind (vision $\leq 3/60$) are individuals whose level of visual impairment requires that an object, which can be recognized at a distance of 60 meters by a normal eye, be brought to a distance of 3 meters. The economically blind (vision $\leq 6/60$) are those whose vision requires that an object be brought to a distance of 6 meters when a normal eye could see it at a 60 meter distance.

The latter is the definition used by India in reporting data on blindness. Functional blindness standards in the U.S. relating to eligibility for benefits generally define blindness also as less than or equal to 6/60. These distinctions are important for diagnostic purposes and because estimates of the number of blind vary depending on the definition used.

2.12 The Bank's study on Health Priorities and the 1993 World Development Report (WDR) identified cataract blindness as an important health priority for developing countries. If left untreated, cataract blindness results in a significant public health problem because it affects the economic productivity and the quality of life of the affected individual. It also imposes a burden on others as a blind person becomes increasingly dependent on family members for economic support and assistance in day to day activities and a burden on the health system for treatment of injuries associated with blindness.

C. The National Blindness Control Program

2.13 **Background.** The first organized national effort to control blindness in India was the National Program for Trachoma launched in 1963. Twelve years later, when the Indian Council of Medical Research Survey revealed that cataract was the major cause of blindness in India, the national program changed focus and was renamed the National Program for Prevention of Visual Impairment and Control of Blindness. The new strategy emphasized health education, mobile health care through eye camps, and development of permanent infrastructure for community-oriented eye care. In 1976, the National Program for Control of Blindness (NPCB) was formally launched and included in the Prime Minister's 20 Point Development Program.

2.14 **Program Objectives.** The NPCB aims to provide comprehensive eye care at the primary, secondary and tertiary levels including treatment for all eye diseases, such as cataracts, conjunctivitis, vitamin A deficiency, ocular injury, corneal diseases, and glaucoma, and correct refractive errors. It promotes eye health nationwide through health education activities in communities and through school visits where children are screened for eye diseases, provided with vitamin A supplements, and taught about proper eye care.

2.15 **Organizational Structure.** The NPCB is 100% centrally-sponsored. It is managed through two separate units at the Ministry of Health & Family Welfare (MOHFW), a Central Ophthalmic Cell under the Director General of Health Services and an Administrative Unit under a Joint Secretary. At the state level there is a State Coordination Committee and a State Ophthalmic Cell which oversee resource allocation and compliance with performance targets under the supervision of the Ministry of Health and Family Welfare. Until recently, there was no organizational structure at the district level. District Blindness Control Societies have been created within the past year to implement the program at the district level.

2.16 **Program Implementation.** Service delivery is offered at both fixed health facilities and through mobile units. At the district level, ophthalmologists are stationed at ophthalmic units of the district hospitals. At the local level, ophthalmic assistants

(OAs) are to be placed at Community Health Centers (CHCs) and Primary Health Centers (PHCs). Many of the posts approved, however, remain vacant.

2.17 In remote areas, the main service delivery strategy is through eye camps. Central mobile units (CMUs) attached to medical colleges and district mobile units (DMUs) located in district headquarters are expected to perform outreach activities and operations, and to provide general eye care in remote areas. However, only half of the DMUs needed have been allocated and many of them are in poor operating conditions.

2.18 Difficult cases are to be referred to the Medical Colleges' Departments of Ophthalmology which also train medical and paramedical personnel and conduct ophthalmic research. Thirty seven (37) training centers for ophthalmic assistants have been established and nine Regional Institutes of Ophthalmology (RIOs) have been created with the expectation of becoming regional centers of excellence. Technical guidance is provided to all institutions by the Rajendra Prasad Center for Ophthalmic Sciences (RPC) at the All India Institute of Medical Sciences in New Delhi.

2.19 Target figures for cataract operations to be performed in each state are established yearly to monitor program performance. These targets are set at the central level based on the state's estimated backlog, infrastructure facilities, and previous performance, but often target allocations are arbitrary for lack of adequate information. State performance in meeting these targets varies greatly. Target figures remained roughly constant in 1987-1989, increased slightly in 1989-91, and increased considerably in 1991-92. However, increases in target numbers have led to a decrease in the percentage of target achievements because capacity for service delivery and management has not been strengthened to correspond to target increases (Annex 5).

2.20 Despite NPCB's efforts to emphasize community-oriented eye care services and reduce the cataract backlog, the program is not meeting its objectives for a variety of reasons (see paras. 2.21 - 2.42). The program suffers from inadequate organizational structures, poor technical standards, lack of properly trained ophthalmologists, limited financial support, and poor resource allocation at the community level, with tertiary facilities and salaries absorbing over 75% of ophthalmic expenditures in the states. As a result, treatment capacity is inadequate, surgical outcomes are deficient and many cataract victims are unaware that cataract blindness can be cured.

D. Major Issues in Blindness Control in India

2.21 The following program constraints have curtailed the effectiveness of the NPCB and are expected to be addressed by the proposed intervention.

Policy and Strategy Issues

2.22 **Lack of Strategic Program Management.** 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.

2.23 Fragmented 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. Voluntary agencies--at times with government involvement--have carried out the bulk of cataract surgeries in some states, but this coverage is selective and inefficient, and cases continue to accumulate in rural areas.

2.24 The challenge for the NPCB is to create an enabling environment for the private, voluntary and public sectors to work in a complementary fashion; for example, the public sector would need to make infrastructure available in the rural and remote areas for use by voluntary and private practitioners. Such an approach would avoid redundancy of efforts, increase coverage, access and quality of services, and benefit from economies of scale. In areas where the voluntary sector plays a strong role, the public sector would play a more limited role in service delivery. Where the voluntary sector is weak or non-existent, the government would need to ensure adequate provision of services and encourage future involvement of the voluntary and private sector.

2.25 Emphasis on Quantity over 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, as noted earlier. In addition, by counting these unilateral cases, performance has been overstated because sight restoration is not achieved and blindness prevalence is not reduced. A study of eye camp surgeries conducted between 1980-89 showed that over 45% of treated cases had been operated on with traditional ICCE technique. To reach the project objectives of sight restoration, the NPCB will need to shift its emphasis from purely numerical targets to measuring outcomes as well.

Financial Constraints

2.26 From 1985 to 1992, total expenditure on blindness control in India as reported by NPCB, ranged from 85 to 100 million rupees (US\$3 million) each year. From 1985 to 1991, the Central Government's expenditure on blindness control decreased each year, declining from 85 million rupees in 1985 to 59 million rupees in 1991. During this period the states contributed an increasing amount of money from their own budgets to compensate for the lack of Central funding² and to be able to meet their targets. Annex 6 shows the 5-year average expenditure by the states in cataract blindness. In 1991-92, the amount released by the Government of India increased over

² As the states do not have separate accounting procedures for ophthalmic units, it is difficult to report precise state expenditures. The figures discussed here and presented in Annex 6 represent the best available estimates of state expenditures on the NPCB. These figures do not include additional state expenditures on various ophthalmic units located in the medical college hospitals, specialized hospitals, and district hospitals.

50 percent to 97 million rupees; this amount covered almost the entire nationwide expenditure as the states reduced substantially their contribution to the program allowing them to make reallocations to other health priorities (**Annex 7**).

2.27 Budgetary allocations for cataract treatment have been inadequate to make significant headway in reducing cataract blindness prevalence, particularly in the rural areas. The states have generally emphasized expanding infrastructure rather than improving effectiveness and efficiency of existing facilities. In addition, a gap exists each year between the amount sanctioned and the amount released to the states by the Center. In 1991-92, 124 million rupees were sanctioned by the Center, but only 97 million rupees were released. A delayed release of funds caused by bureaucratic inefficiencies leaves insufficient time for the states to incur expenditures from the NPCB; and once funds reach the state level, they are often diverted to other activities, particularly tertiary care, or are earmarked in such a way that the states are prevented from using funds for critical blindness control expenditures. To overcome these obstacles, a flow of funds directly to the district level would be needed to give some financial autonomy to the District Societies to facilitate implementation.

Technical Issues

2.28 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. As noted earlier, India continues to operate unilateral cases with traditional ICCE technique, mostly among the poor. While ICCE technique is perfectly suitable 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, limited availability of ECCE/IOL surgical skills, and inadequate post-surgical follow-up.

2.29 India's capacity to provide high quality care including ECCE/IOL surgery must be expanded through proper training of surgeons and ophthalmic personnel, adequate provision of materials, and higher standards of care. As the backlog of cataract blind patients decreases, a higher percentage of individuals requiring surgery will be unilaterally blind, making the expansion of ECCE/IOL capacity a critical factor in preparing India for the future.

2.30 Excessive reliance on camps in improvised facilities. India relies heavily on eye camps to reach rural populations. Improvised camps are widely used for several reasons. First, there is an inadequate availability of facilities in sub-district hospitals or Community Health Centers. Second, 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. Third, camp organizers gain social prestige and, for many, restoring eye sight has a religious value. Fourth, 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 fifth, surgeons are more readily available for sporadic camp services than for permanent assignments in rural areas.

2.31 There are good reasons for continuing with the camp approach and the traditional ICCE technique, particularly during the transition period; however, the

emphasis must be on camps in fixed medical facilities, rather than in improvised facilities such as schools. This would help maintain the positive features of the camp while ensuring quality control and follow up care. Because camps are organized in ad-hoc manner, patient follow-up depends largely on the willingness of the individual to return for a check up thus increasing the risk for poor visual outcomes.

2.32 To overcome these constraints, the NPCB will need to modify its service delivery strategy, adopt new technical standards, ensure adequate training of ophthalmic personnel, provide the required inputs, and educate the patients about eye care.

Organizational and Managerial Issues

2.33 Division of Authority at the Center. A limiting factor for the NPCB has been the lack of integration and cohesion in the organizational structure of the program. As indicated in para. 2.15, NPCB management has been split between two MOHFW units, one technical and one administrative, with different reporting relationships. The Assistant Director General (Ophthalmology) is responsible for the technical aspects of the program in the Directorate General of Health Services (DGHS) The Joint Secretary (Health Services) in MOHFW is in charge of the administrative functions, including policy, planning and project management. As a result of this organizational dichotomy at the center and the weak managerial set up in the states, communication at the different levels is fragmented and service delivery efforts are irregular. A consolidated organizational unit at the Center and State levels responsible for all aspects of project management, including appropriate technical support, would greatly increase efficiency and effectiveness.

2.34 Incomplete Organizational Structures. The program has made significant progress, despite its limited resources, in developing basic infrastructure and allocating staff. However, the NPCB's ultimate objective to provide eye care services in the periphery has been hampered, in part, by the lack of an organizational structure at the district level. Prior to the preparation of this project, only a few districts had established District Coordination Committees. As a result, decisions have been overly centralized and made on the basis of perceived needs with little infusion of information from the working level. Reporting relationships are tenuous and distant, and communication among the staff working on the program is limited. Allocation of staff and organization of camps are opportunistic, and bureaucratic bottlenecks make it difficult for inputs and equipment to reach health posts at the community level, leaving isolated and tribal areas severely underserved.

2.35 Establishing District organizations with a degree of financial autonomy, clear lines of accountability and reporting relationships under a common managerial and administrative framework would allow the program to improve effectiveness, expand coverage, increase reliability, and improve the quality of services.

2.36 Underutilization 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. When surgeons are available, they compete with surgeons in other specialties for use of operating theaters. The few

dedicated eye care beds are often used for other purposes and non-working mobile units keep the ophthalmic assistants and surgeons idle.

2.37 The NPCB will need to change its approach in allocating resources to ensure that "complete service delivery packages" for essential care are in place. Critical equipment must be placed under a strict schedule of preventive maintenance, and spare parts must be available to keep equipment functional.

Human Resources Issues

2.38 **Concentration of Ophthalmologists in Urban Areas.** 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 accommodations, lack of educational and professional opportunities and higher health risks are major disincentives. Many ophthalmologists in the government service are assigned non-ophthalmic functions, reducing the availability of trained personnel to work in rural areas. A strategy is needed to ensure that services are provided regularly by relying more heavily on Ophthalmic Assistants for non-surgical eye care, using ophthalmologists in an intermittent but systematic way, improving referral and patient transportation, and providing appropriate living accommodations for government surgeons and their families, when necessary.

2.39 **Limited Ophthalmic Training.** Indian ophthalmologists are trained primarily in conventional ICCE surgery techniques. While an increasing number of Medical Colleges offer training in ECCE/IOL, the quality of the training in both techniques is compromised by insufficient equipment for "hands-on" surgical training, lack of systematic and rigorous certification standards, and limited or non-existent practical training. Refresher courses and in-service training for ophthalmologists and other ophthalmic personnel are scarce. To improve the quality of service, the NPCB will need to support improvement of existing training facilities, the technical and teaching skills of the trainers, and the content, quality and frequency of training of ophthalmic personnel, including changes in the medical curriculum for ophthalmology.

Socio-cultural, Logistical and Financial Issues for Potential Beneficiaries

2.40 Among rural populations, folk beliefs and practices play an important role in decisions to seek treatment. A recent study found that about 40% of those suffering from cataract blindness 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 neighbors, 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.

2.41 The same study found that about 60% of those aware of surgical treatment did not seek surgery because of logistical and economic constraints. Geographical isolation limits access to facilities posing a serious problem for women without sons who often can not find an escort. Other major obstacles include: transportation costs, loss

of wages as a result of accompanying family members for surgery, unauthorized fees at service facilities and other related expenses.

2.42 A significant challenge for the NPCB will be to create the appropriate outreach and public awareness programs to help overcome these obstacles. It is necessary that outreach activities rely heavily on community participation and NGO involvement. Account must be taken of the difficulties of reaching isolated areas in planning and compensating NGOs for such services or providing transportation for the patients. Tailor made messages and approaches to reach tribal populations need to be developed.

E. External and Local Non-governmental Assistance to NPCB

2.43 Cataract blindness has been a priority of many local and foreign NGOs providing support to the NPCB through outreach activities and surgical eye services throughout India. A partial list of NGOs involved in blindness is included in Annex 8. The Danish Development Assistance Agency (DANIDA) is presently undertaking pilot projects in 5 districts in different states and assisting in the development of the NPCB, and WHO has provided technical assistance to the project. Additional assistance has come also through Indo-UK collaboration.

2.44 NGOs have substantially supplemented the Government's outreach and treatment efforts by developing and implementing a multi-pronged approach using printed materials or other media, public lectures and community-based education activities, and conducting surgical camps. Valuable operational experience has been acquired through the work of these international and local agencies, and innovative community-based approaches for outreach and service delivery have been developed. The project would tap into existing arrangements with NGOs and promote new ones to expand the coverage and intensify the output and quality of surgeries.

F. Lessons of Experience

2.45 Considerable experience with cataract blindness control has been accumulated through "Cataract-free-zone projects" throughout the developing world as well as from donors such as DANIDA, WHO and numerous NGOs. Following are the major findings from these experiences:

2.46 Benefit of ECCE/IOL operations. Experience in the developed world shows that the technique of ECCE surgery, with the implantation of an IOL behind the iris, affords a level of visual rehabilitation that surpasses that achieved with traditional ICCE technique and use of spectacles. As ECCE requires the provision of operating microscopes and microsurgical instruments as well as surgeons trained in this procedure, it is not always possible to provide ECCE operations in a camp setting or to all patients. Given these requirements, the use of ICCE for bilateral cataract cases is appropriate; however, for unilateral cases, for whom treatment with ICCE results in fusion problems, and for patients whose jobs require precise eyesight, ECCE/IOL operations must be performed.

2.47 Vision is not restored in a significant number of cases. Pre and postoperative visual acuity data from other developed countries show that a significant number of patients do not recover vision after surgery for a variety of reasons such as: (a) the presence of blinding conditions other than cataract that go undetected until after surgery, (b) many aphakics do not wear prescribed spectacles due to breakage, loss of glasses, and fusion problems in unilaterally blind cases, and (c) many of these cases, if not operated with ECCE/IOL may not be better off than prior to surgery; resulting in dissatisfied clients who often demotivate others in the community. To minimize these issues, patients must be properly screened for surgery to detect any other blinding conditions and recommend the appropriate surgical technique. For those undergoing ICCE surgery, adequate provisions are needed to facilitate access to spectacles.

2.48 Decision on cataract surgery must be based on the patients' functional needs. The high rate of cataract surgery, the normal risks involved with any surgical procedure and the associated medical costs in developed nations, especially the U.S., has prompted a recent comprehensive review of current practice in recommending cataract surgery. New guidelines issued in the U.S. advocate that cataract surgery should be delayed as much as possible unless vision is severely impaired. Surgeons should rely heavily on the subjective feeling of the individual in determining whether surgery is indicated in otherwise healthy people. It is generally agreed that a reduced visual function that interferes with the everyday activities of the patient must be paramount in determining whether cataract surgery is indicated.

2.49 Need to shorten postoperative stays. Reducing the length of the postoperative stay has been successful throughout the world, most notably in developed countries where cataract surgery is often an outpatient procedure. A shorter stay promotes cost containment, improves efficiency and encourages patients to seek surgical intervention. For the patient and the accompanying party, a shorter stay implies significant savings in food expenses and lost wages. Decreasing this economic burden is likely to increase the willingness of individuals to come forward for cataract surgery.

2.50 Patients are reluctant to seek cataract surgery. As noted in paras. 2.40 and 2.41, several financial, logistical and socio-cultural factors prevent individuals from seeking cataract surgery. A major deterrent for seeking surgery has been poor surgical results. In some cases, even repeated attempts to change the mind of refusers have been unsuccessful, especially if someone in the community has had a negative experience with eye surgery. Improved quality outcomes and appropriate outreach and communication activities must be made available to counteract these barriers.

2.51 Experience of Bank-assisted Projects. The Bank Group's only experience in financing blindness control has been with the Riverblindness Control Program (WPS No. 0740) which covered several African countries, with WHO as the executing agency. Given the differences in the nature of the disease (caused by a parasitic worm) and the organizational arrangement of the project, no particular lessons can be applied to the proposed project; however, several implementation-related issues have been learned from the Bank's investments in the PHR sector in India and have been taken into account in project design.

2.52 IDA's financing in the PHN sector in India includes eight population projects, one maternal and child health project, four nutrition projects, an AIDS control project and a Leprosy elimination project. Three of the population projects have closed. The first two³ met most of their objectives but had little impact on the overall Family Welfare Program. The Third⁴ achieved very good outcomes in backward districts of Kerala, but mixed results in Karnataka. The Fourth (Cr. 1623-IN) and Fifth Population (Cr. 1931-IN) projects have already shown positive results on morbidity, infant mortality and fertility. The Tamil Nadu Nutrition Project (Cr. 2158-IN) was very successful in meeting its nutrition outcomes. The AIDS control project (Cr. 2350-IN) is being successfully implemented and has been identified by WHO as a model of interagency collaboration. The other ongoing projects are fairly new and the experience with them has been mixed.

2.53 The most significant lessons learned from implementation of these projects include: (a) the need for a strong project management team at the Central and State levels and of staff continuity for at least the first three years of the project; (b) the importance of stakeholders' support and involvement in project preparation and implementation; (c) the need for better training on administrative procedures at the district and state levels; (d) the value of closer supervision and follow up of the allocation of project funds and of expenditures funds to ensure that they are timely and adequate; and (e) the need for attention to the qualitative aspects of projects through their implementation.

G. Country Assistance Strategy and Rationale for IDA Involvement

2.54 The Bank's Country Strategy is aimed at accelerating economic development and alleviating poverty through structural adjustment and selected investments. To address the major problem of low human capital development in India, a key feature of the strategy is to improve access of the poor to human resource development programs, and to improve the quality, efficiency and effectiveness of these programs. The Social Safety Net Sector Adjustment Credit (Cr. 2448-IN) has helped to provide an enhanced policy environment in the social sectors and is being complemented by specific investment projects. In health, the Bank's two-pronged strategy is to help India reduce as quickly as possible the burden of key endemic diseases such as leprosy, tuberculosis, blindness and malaria; and strengthen the states' health systems to provide efficient and effective primary health care over the medium term. The Blindness project is consistent with this strategy. It would address one of India's most extensive public health problems, and it would build institutional capacity at the Center and in the states and districts to develop and provide quality eye care.

2.55 IDA's involvement is justified on several grounds. First, the project would direct resources to one of the most cost-effective health interventions while preparing India technically and institutionally to address one of its high health priorities in a

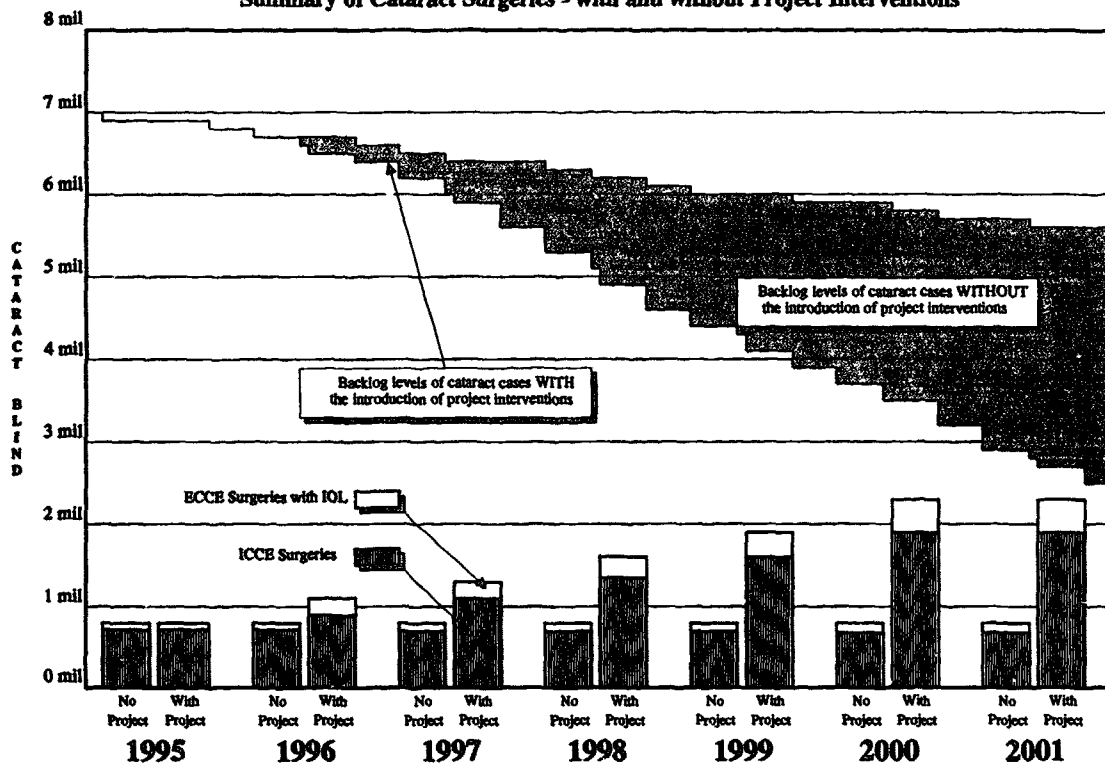
³ First Population Project, PPAR No. 3748 and Second Population Project, PPAR No. 8896.

⁴ Third Population Project, Kerala and Karnataka, Cr. 1426-IN.

sustainable fashion. Second, the proposed project is consistent with IDA's strategy of reducing inequalities by improving access to health care for the poor, particularly scheduled tribes and women. And third, IDA has a comparative advantage in serving as a catalyst to bring the changes needed for blindness control in India because of its access to high level international experts and its familiarity with issues from experiences worldwide.

2.56 With IDA involvement, India would be able to cover most of the backlog of more than 10 million cataract blind cases (of which 7.0 million are in the seven states),⁵ and be ready to deal with the increasing incidence of cataract resulting from changes in the age structure of the population. The chart below illustrates the future cataract situation in the seven project states with and without the project interventions, in quantitative terms. In addition to reducing the cataract backlog, the project would bring about significant qualitative changes through new technical and managerial standards, and a more equitable access to services.

Chart 1
Summary of Cataract Surgeries - with and without Project Interventions



⁵ More than 11 million cataract surgeries will be performed through the project including most of the 7.0 million cataract blind, patients seeking surgery in the second eye (having had one-eye ICCE surgery in the past) and an increasing number of unilateral cases.

2.57 Along with the obvious high private returns, regaining sight has significant social returns. It allows economically productive people to return to work at least in 40% of the cases and prevents additional medical expenses resulting from blindness-related injuries. Sight restoration improves quality of life, social standing and reduces dependency on family members. Without public sector intervention and external support, blindness would continue to increase among the poor, particularly women and rural populations.

III. THE PROJECT

A. Project Objectives

3.1 The objectives of the project would be to upgrade the quality of cataract surgery, expand NPCB coverage to underprivileged areas with special attention to women, tribal and isolated areas, and reduce the backlog of untreated cataracts to lower the prevalence of cataract blindness by more than 50% and bilateral blindness incidence by more than 30% in the seven participating states.⁶

B. Project Strategy

3.2 The project's strategy would involve: (a) improving the technical and institutional capacity at the Center and in the seven states to carry out high volume, high quality cataract surgery by strengthening existing institutions, introducing higher standards of care and upgrading the skills of ophthalmic personnel; (b) expanding service delivery to underserved areas and disadvantaged populations; and (c) facilitating the collaboration of the voluntary and private sectors in a systematic fashion with the view of taking care of the backlog and reducing the financial liability to the governments in the long term.

3.3 The project would be part of a larger NPCB strategy with short, medium and long-term goals. In the short term, the goal would be to reduce the backlog of cataract cases through improvement in service quality, increase in surgeon's productivity, and promotion of public awareness. In the medium term, it would be to develop appropriate physical and technical infrastructure and human resources for eye care in the periphery; and in the long-term, it would provide quality comprehensive eye care with extensive use of ECCE/IOL and extensive participation of the voluntary and private sectors.

C. Project Scope

3.4 As indicated earlier, the project would be implemented in the states of Madhya Pradesh (MP), Uttar Pradesh (UP), Andhra Pradesh (AP), Rajasthan, Tamil Nadu, Orissa and Maharashtra. The seven states would perform over 11 million cataract surgeries during the 7-year project (Annex 9). In addition, the changes in policies,

⁶ Bilateral blindness incidence is reduced by operating on cataract cases while they are still unilaterally blind from cataract, i.e., before they become bilaterally blind.

technical and managerial norms adopted by the NPCB through the project would have a broader national impact benefiting also non-project states.

3.5 This section describes the overall project framework and the aggregate costs of inputs for all seven states; however, the specific implementation strategies (e.g., combination of service delivery models), and the combination of inputs vary from state to state depending on their geographic characteristics, available facilities and manpower, social factors, and presence of NGOs, among others (see para. 3.10). Project preparation was carried out with the full involvement of each participating state, NGOs and private practitioners.

D. New Policies, Procedures and Standards

3.6 The issues discussed in paras. 2.21 - 2.42 would be addressed through the following changes introduced by the project:

- (a) The organizational restructuring of NPCB at the Center with delegation of authority and accountability for implementation to the district level through District Blindness Control Societies.
- (b) The adoption of new technical standards for patient screening, diagnosis, surgical procedures and follow-up.
- (c) The introduction of new policies for ophthalmologists training in Medical Colleges and new certification standards for ophthalmologists trained through NPCB.
- (d) The establishment of mechanisms for NGO/private sector collaboration in the project and new fee schedules for services by non-government providers.
- (e) The introduction of new policy guidelines for different service delivery models, i.e., medical colleges, district hospitals, camps in fixed facilities, camps in improved facilities.
- (f) The adoption of targeted strategies to facilitate access for disadvantaged groups, particularly women and scheduled tribes.
- (g) The introduction of cost-recovery schemes.
- (h) The adoption of new performance indicators based on surgeon's productivity and successful sight restoration, not only on numerical targets.
- (i) The agreement on a new approach to resource allocation based on "packages of inputs," i.e., combination of staffing, equipment and supplies needed for quality service delivery in a coordinated fashion.

- (j) The introduction of a "grievance" procedure for patients' claims in case of poor quality outcomes including those due to negligence.

3.7 At negotiations, GOI and the project states reconfirmed that these policies have been adopted by NPCB and would be implemented through the project.

E. Project Description

3.8 The project would include four components: a) strengthening and expanding service delivery, b) developing human resources for eye care, c) promoting outreach activities and public awareness and d) developing institutional capacity.

ENHANCING QUALITY OF EYE CARE AND EXPANDING SERVICE DELIVERY (US\$118.8 million: 84%)

3.9 The project would improve the physical, technical and managerial capabilities of different service delivery facilities including selected non-governmental organizations and private practitioners, to provide high quality cataract treatment in situ or through camps. The project would be implemented through a combination of service delivery models: medical colleges, base hospitals, camps in fixed facilities (i.e., CHCs and PHCs), camps in improvised facilities (in exceptional cases) and private practices, in collaboration among the Central government, the State governments, non-governmental organizations and the private sector (**Annex 10**).

3.10 The combination of service delivery models would depend on the geography, social composition, beneficiary assessment results, existing infrastructure, and presence of the private and non-governmental sectors in each state. In states such as Tamil Nadu, which has a well developed network of hospitals but limited capacity for eye care, the strategy would be to strengthen these hospitals with basic infrastructure to carry out camps in fixed facilities and intensive screening camps. These facilities would be used by the government, the NGO sector and the private sector. Madhya Pradesh, on the other hand, would provide similar services through Community Health Centers (CHCs) and Primary Health Centers (PHCs), particularly in tribal and other remote areas. In some instances, ophthalmic personnel would be permanently assigned to rural areas, while in others, services would be provided through itinerant personnel and mobile units based in hospitals or other medical facilities.

3.11 Improving Quality Control for Service Delivery. The project has been designed in a manner consistent with WHO's manifesto on eradication of disablement and with the goal that individuals served by the project would have their quality of life improved by the surgery. The new emphasis would be on visual improvement, with patient's satisfaction as the ultimate indicator of success. The project would introduce several measures for quality control, including a team approach to surgical treatment, new technical standards and protocols for surgical and pre and postoperative care, and new indicators of performance based on vision restoration and patient satisfaction. The skills enhancement and management systems introduced in the other project components would be major factors in quality enhancement.

- (a) **Team Approach.** All surgeries would be performed with the support of a surgical team consisting of one ophthalmologist, two nurses, and an operating theater assistant. The ophthalmic assistant (OA) would be part of the medical team responsible for diagnosis, screening, and follow-up of routine cases. The out-patient department staffing pattern in a district hospital would include two ophthalmic assistants for each ophthalmic surgeon. Selected CHCs and PHCs in tribal and remote areas would be staffed, at a minimum, with an ophthalmic assistant, and surgical services would be provided by teams in mobile units. Surgeries would not be performed unless the required medical staff, equipment and consumables are available to ensure the highest quality of outcomes (**Annex 11**).
- (b) **The new technical standards** described in **Annex 12** and developed with technical specialists from the Center, the states and the private sector would be adopted for all service delivery. The most salient features of these technical norms include: i) diagnostic guidelines and screening techniques, ii) minimum acceptable surgical standards, including number of stitches required, iii) treating unilateral cases only if ECCE with IOL can be done, iv) limiting ECCE/IOL surgeries to fixed facilities, and v) establishing operational guidelines for conducting camps. Selected Medical Colleges (30) and all district hospitals (220) would be equipped with the necessary additional inputs to perform ECCE/IOL as described in **Annex 13**.
- (c) **Quality Visual Outcomes.** The program's effectiveness would be assessed primarily in terms of visual outcomes, not only by the number of surgeries performed. Payments to NGOs and private surgeons would be based on records of quality outcomes and annual beneficiary assessments will be carried out to monitor patient satisfaction (see **para. 3.48**)
- (d) **Grievance Committees.** The states would require each DBCS to established a body to which any patient treated under the project may lodge any grievance relating to the treatment provided to that patient under the project. Each such body shall have adequate capacity to effectively assist such patients.

3.12 At negotiations, the Project States provided assurances that each DBCS would establish a body, consisting of members independent of the implementing authorities, which would be authorized to receive complaints from any patient receiving care under the Project and which would have adequate capacity to effectively assist such patients.

3.13 **Strengthening Service Capacity and Improving Efficiency.** Selected facilities would be strengthened based on a complete package of inputs required for essential high quality service delivery. This package would include: an operating theater, a ward with an average of 15 beds and related inputs, a medical "team," specified medical equipment and consumables, and a mobile unit (for district hospitals, subdistrict hospitals and CHCs). Selected PHCs would be equipped with a dark room and refraction equipment. Based on this "package approach" the following additional infrastructure and manpower

would be needed: approximately 480 operating theaters, 350 ophthalmic wards or permanent camp sites with 5880 beds (or cots) and related items⁷; and about 2200 dark rooms. Equipment would be installed and operational only after qualified staff have been placed, and training initiated, as needed. At negotiations, GOI provided assurances that it would allocate resources on the basis of a minimum "package of inputs" required for optimal service at each level of service delivery.

3.14 The following additional health personnel would be needed: about 364 ophthalmic surgeons, 1100 staff nurses, 283 operating-theater-nurses/technicians, and 260 operating theater assistants or camp coordinators. An important feature of the project would be the placement of middle level ophthalmic personnel to the periphery to facilitate outreach and patient identification. An ophthalmic assistant (OA) would be assigned to CHCs and selected PHCs in tribal areas. The ophthalmic assistants would play a major role at the primary health care level in diagnosing and screening patients, and providing basic eye care to the community. To facilitate transportation, about 350 OAs would receive loans to obtain their own means of transportation. A total of 1067 new OAs would be appointed.⁸

3.15 Manpower allocation would be done largely through retraining and redeployment of government ophthalmologists doing non-ophthalmological work, and itinerant services from ophthalmologists posted in fixed facilities or in the private sector, based on pre-established schedules. It is expected that with an increase in surgeon productivity, the additional personnel will be adequate to meet increasing demand in the long term. During appraisal, the mission reviewed the availability of trained ophthalmic assistants and nurses for future recruitment and found it satisfactory.

3.16 Regularizing the Organization of Camps. To improve the quality and availability of services, the states have proposed different modalities to regularize camp services such as a "fixed day" approach or a yearly camp schedule. Camp organization would be done by the districts in consultation with NGOs and other service providers to avoid service overlap. The camps would be governed by the norms established by NPCB and would include three sequential activities: (a) an outreach and screening camp to identify patients, (b) a surgical camp to operate on selected patients, and (c) a postoperative follow up camp or household visits. Equipment and manpower from the fixed facilities would be used for the camps, e.g., mobile units from the medical colleges and district hospitals, ophthalmic personnel, equipment and other inputs. About 170

⁷ Simple steel frame bed, mattress, storage cabinet, stool and linen set.

⁸ The additional inputs listed above have been estimated following a situational analysis of existing infrastructure and manpower availability, and on the basis of an expected average productivity norm of 700 annual surgeries per surgeon and 50 annual surgeries per bed (taking into account lower productivity during the first two years until the project takes off) and the estimated 11 million surgeries to be performed.

mobile units would be assigned to district hospitals and selected CHCs. Additional mobile units would be allocated to areas with large tribal or dispersed populations.

3.17 Creating an Enabling Environment for Non-Profit Organizations and Private Sector Participation. To ensure expansion of coverage, the government would work with NGOs and private ophthalmologists. The following mechanisms would be used for involvement of the private and voluntary sectors: (a) grants to selected non-profit institutions capable of expanding their services, based on pre-approved proposals to finance equipment or facilities; (b) seed money to private ophthalmic surgeons to establish practice in underserved towns with populations of less than 50,000; (c) service contracts with private physicians to offer services in underserved urban slums, and tribal and other remote areas on a pilot basis; and (d) payments to NGOs for outreach, screening and service delivery camps.

3.18 NGOs conducting camps would receive support from the government in three modalities: (a) full payment per surgery if no inputs in kind are provided by the government (Rs. 250 and Rs. 300 for remote areas); (b) partial payment if government inputs are involved (Rs. 175); and (c) payment for screening and outreach activities based on an "accessibility" norm. Payments per surgery to NGOs are well below the actual cost of cataract surgery which is estimated at an average of Rs. 500 for ICCE. It is expected that about 25 grants will be given for infrastructure and medical equipment to NGOs based on approved proposals.

3.19 A small number of private ophthalmologists (about 200) are expected to request "seed" money to start their own practice⁹. It is estimated that about half of the 11 million surgeries during the project period will be done by the private and voluntary sectors, some through service contracts and fee payments from the project. Criteria for selection of participating NGOs is described in Annex 14. Disbursement arrangements for grants, seed money and service contracts have been developed. At negotiations, the Project States provided assurances that they would select non-governmental organizations and private practitioners on the basis of the agreed criteria and procedures satisfactory to IDA.

3.20 Expansion of Coverage to Tribal and Remote Rural Areas. Special attention has been given in this project to the requirements of OD 4.20. Beneficiary assessments were conducted in selected tribal and non-tribal areas. The results show different epidemiological profiles for the two populations. Prevalence is higher among tribal populations (e.g. 2.4% vs. 2% for non-tribal populations) and the prevalence between the ages of 40-60 is considerably higher among tribal groups, as in Madhya Pradesh, for example. Patient satisfaction, access to facilities and access to spectacles are also lower

⁹ As a pilot scheme, a small number of private practitioners, selected based on established criteria and procedures, would receive "seed" money from the project to start their own private practice in poor, underserved areas. The surgeons would commit themselves to perform a certain number of surgeries per year for a specified period of time.

for tribal populations than for non-tribal. Lack of information, transportation or access to facilities, and lack of economic viability are the major reasons given for these discrepancies. The thrust of the project is to increase coverage and accessibility in these areas--including those isolated by water barriers--by strengthening peripheral facilities, intensifying outreach activities, and facilitating transportation and financial support to the potential beneficiaries. **Annex 15** summarizes the plan of action for tribal and isolated areas which is in compliance with OD 4.20. At negotiations, the Project States provided assurances that they would carry out the project activities among the tribal populations and other remote areas according to the agreed plan of action.

3.21 To assist in the implementation of this component the project would finance civil works, medical and other equipment, medical consumables (e.g. drugs, sutures, spectacles, IOLs), salaries, vehicles, office materials and equipment, and compensation to NGOs and private surgeons.

DEVELOPING HUMAN RESOURCES FOR EYE CARE (US\$5.0 Million: 4%)

3.22 Through this component the project would allow strengthening of about 40 training institutions; it would finance the training of ophthalmological and selected health personnel on cataract diagnosis, screening, surgery (ECCE/IOL and ICCE) and follow-up; and management training for Central and State project managers, District Society Members, Project Coordinators, and other project staff requiring managerial and administrative skills. The time-table for training is described in **Annex 16**. The training component was designed in consultation with key ophthalmological personnel from the Central government, the states, private and voluntary sectors and representatives of bilateral institutions involved in training and blindness control.

3.23 To be selected as an NPCB training institution under the project, the institutions, including medical colleges, would need to fulfill pre-established requirements and commit themselves to training a specified number of ophthalmologists as described in **Annex 17**. Each trainee would be evaluated following completion of the training. In addition, the Central Government is working with the appropriate authorities to modify the curriculum for the training of graduate students of ophthalmology in medical colleges based on the new technical norms of the project. At negotiations, the Project States gave assurances that government ophthalmologists trained through the project would be required to sign a bond committing them to remain with the Government for a minimum of three years after completion of training, or reimburse the Government for the cost of training according to established procedures.

3.24 Training of Ophthalmologists would consist primarily in developing or upgrading ECCE skills, offering refresher courses in ICCE, and familiarizing the ophthalmologists with the new technical norms of the program. It is expected that during the life of the project, about 70% of surgeries would be carried out with ICCE technique since most of the cataract victims are in rural areas where ECCE/IOL is not feasible. Therefore, the training would not only expand the use of ECCE/IOL, but would emphasize quality upgrade of ICCE surgery. The training would involve: (a) training of trainers, i.e., faculty from medical colleges and selected ophthalmologists from the voluntary and public sector in private and government institutions selected according to the selection procedures shown in **Annex 17**; (b) training of practicing ophthalmologists

(from the government and selected NGOs) in ECCE/IOL and high volume ICCE, including refresher training in ICCE; and (c) training of non-practicing government ophthalmologists who will re-enter practice. Training for private ophthalmologists¹⁰ would be offered only to those willing to set up private practices in underserved areas under the grants program.

3.25 **Standardized training modules for each category of staff are being developed.** A curriculum for the "train the trainers" program has been developed by a group of experts from key private and government institutions and has been discussed with the medical colleges of the participating states. Approximately 95 medical college faculty, 500 practicing ophthalmic surgeons, and 200 non-practicing ophthalmologists (currently performing other duties) would be trained. An additional 500 ophthalmologists would receive refresher courses on ICCE. The specifics for the training of each category of ophthalmologists are detailed in **Annex 18**. During negotiations, GOI gave assurances that it would (a) complete by July 31, 1994 the development of the standard curriculum for the "train the trainers" program and by August 31, 1994, the curriculum for the remaining categories of staff to IDA's satisfaction; and (b) make contractual arrangements with the training institutions selected according to agreed procedures (**Annex 17**) and approve the list of trainees for the "train the trainers" program by August 31, 1994.

3.26 **Training of Allied Personnel.** Training of operating theater personnel as a team would lead to increased productivity. Ophthalmic surgeons, surgical nurses and operating room assistants would be trained to work as a team in the management of tasks within the surgical theater. Selected personnel would receive 12 weeks of intensive training by ophthalmic surgeons, senior ophthalmic nursing staff and hospital administrators (**Annex 19**).

3.27 **Training of Ophthalmic Assistants and/or Health Assistants.** Ophthalmic assistants (OAs) and health assistants (HA) would be trained in groups at existing Training Centers for Ophthalmic Assistants. OAs' training is essential for quality service as they would be responsible for key functions in outreach, screening, diagnosis, referral and follow-up. About 60 groups of 50 OAs and HAs would be trained per year during the first four years of the project. Refresher workshops would be offered periodically.

3.28 **Management Training.** Different modules of management training would be offered to members of the District Blindness Control Societies, Program Coordinators, and other project administrators. The training would include: program management, interpersonal skills (patient-service provider relationship), inventory management, patient logistics, clinic operation, camp organization, utility management, and equipment maintenance. The objective would be to promote a common management approach. An estimated 250 district coordinators; about 25 program managers and 250 DBCS members would receive a one-week management training during the first two years of the project

¹⁰ A survey of ophthalmologists conducted during project preparation and interviews with several private practitioners revealed that many private ophthalmologists were trained overseas or learned the ECCE/IOL techniques through visiting foreign ophthalmologists.

and about 275 MIS personnel would be given a two-week training in management information systems (Annex 20).

3.29 The project would finance infrastructure, medical equipment and supplies for training centers, living and transportation expenses, training materials, and workshops.

PROMOTING OUTREACH ACTIVITIES & PUBLIC AWARENESS (US\$ 10.0 million: 7%)

3.30 Developing public awareness about the curability of cataract blindness would help reduce misconceptions about blindness and fear of cataract surgery. Beneficiary assessments carried out during project preparation uncovered a variety of factors deterring potential patients from seeking surgery. These assessments also revealed that outreach activities must focus primarily on reaching women and isolated tribal populations as these groups are least likely to seek treatment.

3.31 The objectives of the outreach and communication strategy would be to increase awareness in the general population about the availability and desirability of cataract surgery; to generate demand in underserved rural populations, particularly among women and tribal populations; to facilitate access to surgery; and to develop trust in the service delivery system.

3.32 Outreach activities would be programmed at the district level. To minimize transaction and financial costs for the patient and improve efficiency in service delivery outreach would be carried at times and places consistent with the community's activities during the different season and based on community gathering patterns such as market days or festivities. Outreach activities and service provision would be scheduled in sequence to ensure that the individuals identified receive adequate and timely treatment. A "cataract identification card" with the patient's information and the schedule for nearby camps printed in the back would be used. These have been successfully employed in a DANIDA-assisted project to facilitate outreach. Special campaigns would be conducted for "hard to reach" groups such as remote tribal groups. To ensure adequate outreach for women, a number of screening and surgical camps would be targeted to women only.

3.33 Outreach activities would include: (a) outreach and screening camps organized by NGOs and government ophthalmic teams with community participation; (b) screening routines carried out by ophthalmic and health assistants as part of their general duties; (c) involvement of "satisfied customers" and "temporary outreach workers" in outreach campaigns; (d) promotion of the program through schools by creating awareness among teachers and students; and (e) facilitating transportation and compensation to patients from remote areas to facilitate access to services.

3.34 Most outreach activities would rely on interpersonal communication which has proven to be an effective strategy for behavioral change. Traditionally, communities have participated actively in promotion of blindness control all over India and the project would continue to capitalize on this tradition.

3.35 Outreach efforts would be complemented by Information, Education and Communication (IEC) interventions. These would involve: (a) developing a recognizable identity for the NPCB through selective media exposure on TV, radio and newspapers, workshops and conferences, and by creating logos and messages that convey the mission of the program. The purpose would be to create a program identity associated with quality, reliability and access to services, and engender credibility among the public at the national and state levels; (b) developing community based messages through systematic gathering of "content material" meaningful to the target audience; and (c) designing media and communication packages and strategies to address deterrents to surgery in the different social contexts, e.g., mass media would be employed to reach urban areas, and appropriate folk and visual media to reach rural communities. Like outreach efforts, IEC activities would be more frequent in tribal and other remote areas, based on prevalence.

3.36 Production of IEC materials would be managed partly at the Center based on information and research done in selected areas of each state. Local IEC materials would be managed by the DBCS to ensure that they respond to the characteristics of the various communities. In tribal areas, NGOs or private organizations with experience in tribal areas would be engaged to develop culturally appropriate messages. Messages would be developed through focus groups and other social marketing techniques in different communities, and materials would be produced in the languages of the target communities. The proposed ethnographic study of blindness under operational research would provide further information for these materials. Annex 21 describes the general framework for outreach and IEC activities.

3.37 To expand outreach and communication, the project would finance services for communication needs assessment, social marketing activities, and testing of materials, media services, media equipment, IEC materials, transportation expenses, workshops, compensation to NGOs for outreach and IEC activities based on a time-distance norm, and compensation to "community" workers.

BUILDING INSTITUTIONAL CAPACITY (US\$8.0 million: 6%)

3.38 This component of the project would include four main features: (a) developing institutional capability for eye care management at the Central, State and District levels; (b) developing collaborative mechanisms for cooperation between the government and the private/voluntary sector; (c) introducing monitoring and feedback mechanisms to facilitate implementation and maintain quality control; and (d) building institutional capacity for human resources development.

3.39 **Developing Institutional Capacity for NPCB Management**. Organization and management of the NPCB would be improved at the Central, State and District levels by consolidating authority at the Center under one unit, strengthening the State Ophthalmic Cells, decentralizing authority and granting operational and some financial autonomy to the districts through the DBCS. The organizational structure of the NPCB is shown on p.25 and the details of its composition and functions are described in Annex 22.

3.40 The National Program Management Unit at the Ministry of Health and Family Welfare would be responsible for designing and communicating program strategies and for the overall implementation of the program at the national level. It would be headed by a Program/Project Manager at the level of Joint Secretary (JS). The unit would include an Administrative Division and a Technical Division, each headed by an Additional Director. At negotiations, GOI gave assurances that the National Program Management Unit would be maintained over the life of the project, that designated staff would be appointed by September 30, 1994 and the key staff would be retained in their positions for a minimum of three years. To strengthen the linkages with the states and advise them on project implementation, 8 state advisers would be hired intermittently by the Unit to advise the states and districts on program implementation.

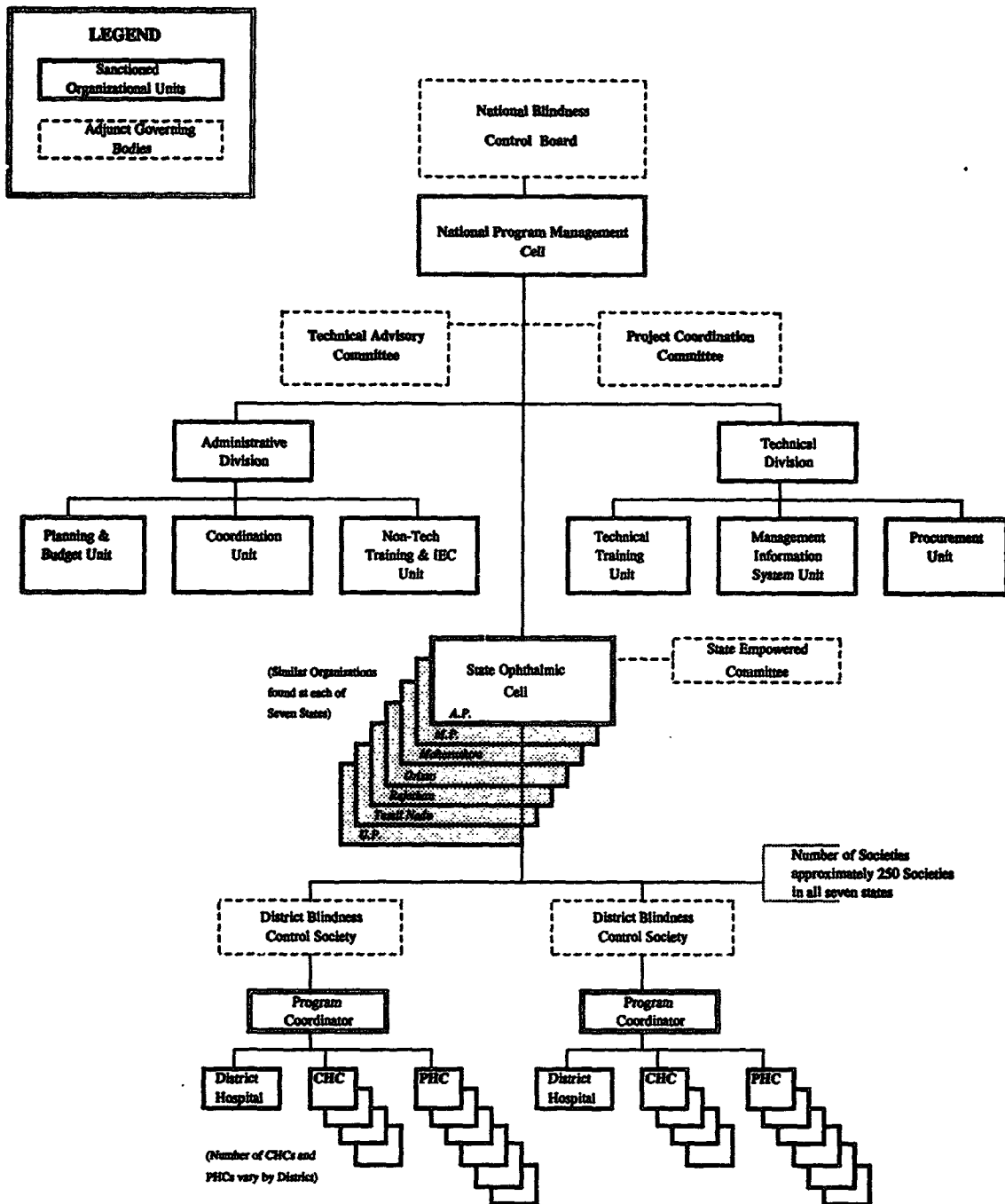
3.41 The program policies would be sanctioned by a National Blindness Control Board chaired by the Union Secretary of Health. A Technical Advisory Committee (TAC) headed by DGHS would provide technical advice to the Central Management Unit and a Project Coordination Committee (PCC) would coordinate the various sectors involved in NPCB.

3.42 A State Ophthalmic Cell (State Project Management Unit) headed by a State Project Officer would oversee the implementation of the project at the state level and would be responsible for state-wide activities such as program monitoring, training coordination, vehicle and equipment maintenance, and periodic audit accounts. During negotiations, the Project States gave assurances that the State Project Management Unit would be maintained over the life of the project and that the key staff would be appointed by July 31, 1994 and retained in their positions for a minimum of three years. A State Empowered Committee chaired by the Chief Secretary would be established to facilitate program implementation. This body would act as a link between the district and the national units.

3.43 A major institution building aspect of the project would be the partial decentralization of the blindness program through the newly created District Blindness Control Societies. The DBCS would have the authority and accountability for project implementation at the district level and would be largely responsible for ensuring that the project objectives are met. The societies would be registered under the Societies Registration Act, 1860, and would have full powers to make financial and administrative decisions under the program. Two hundred and four (204) DBCS have already been registered in the Societies Act. At negotiations, the Project States provided assurances that they would establish the remaining DBCS by July 31, 1994, enter into an implementation agreement with each DBCS on terms satisfactory to IDA, appoint the District Program Coordinators by July 31, 1994, and maintain the DBCS during the life of the project. Establishment of the DBCS would be a requirement for project investment in each district. The District Program Coordinator would be the Secretary of the Society and would be accountable for the day to day management of the project in the district. The District Ophthalmic Surgeon would be responsible for the technical quality of the project. Experience from DANIDA's pilot projects have demonstrated the critical role of the Program Coordinator in ensuring project success.

Organizational Structure

for the National Program for Control of Blindness



3.44 Linkages would be strengthened through a system of communications supported by the project. Project implementation would be facilitated by channeling most funds and inputs directly from the Center to the District level and by centralizing most procurement activities at the National level. Institution building would be reinforced by systematic management training of all project managers and coordinators. Reward schemes for project personnel at all levels would be linked to quality performance. A staff recognition plan is under preparation.

3.45 Developing Collaborative Mechanisms for Cooperation between the Government and the Private and Voluntary Sectors. To ensure full participation of the voluntary and private sector in the Program, a consortium of NGOs would be formed to provide advice to the Program. In addition, representatives of NGOs (selected by the NGOs) would be included as full members of the decision-making bodies at the Center, State and District levels. NGOs would be represented in the National Blindness Control Board and the Project Coordination Committee (on a rotating basis), in the State Empowered Committees and in the District Blindness Societies. In those districts where NGOs have performed at least 50% of cataract operations, the NGO representative would be the Vice Chairman of the Society.

3.46 Private sector ophthalmologists would be represented in the Technical Advisory Committee and would be involved in monitoring and evaluation of technical outcomes. Service contracts would be signed with private ophthalmologists for service delivery in specified areas.

3.47 Introducing Monitoring and Feedback Mechanisms to Facilitate Implementation and Maintain Quality Control. A Management Information System linked to NICNET (National Informatics Network), the existing network at MOHFW, is being developed within the framework described in Annex 23 to capture essential information for project management and monitoring.

3.48 Quality control would also be monitored in several ways: (a) through close supervision of service delivery, (b) through spot checks of records and surprise visits to camps, patients and hospitals by the Program Coordinator or the District Ophthalmic Surgeon; (c) through beneficiary assessments (Rapid Assessment methods) conducted by independent organizations satisfactory to IDA to measure patient satisfaction, and (d) through periodic evaluations by expert ophthalmologists to assess quality outcomes. Such assessments would be done in every tribal district and in selected non-tribal districts, particularly those with the most disadvantaged populations and high prevalence. Results of such findings would be retrofitted into program implementation. Annex 24 illustrates the activities where quality control would be measured. At negotiations, GOI and the Project States gave assurances that annual beneficiary assessments by independent organizations with staff trained in rapid assessment methods would be conducted to measure patient satisfaction and effectiveness of program implementation.

3.49 Building Institutional Capacity for Human Resources Development. Selected Medical Colleges and training centers for ophthalmological personnel would receive technical assistance (and other inputs described previously) to ensure that human resources capabilities are developed to provide ECCE/IOL and comprehensive eye care

in the future. Managerial capacity would be developed through workshops with Program Managers at the National, State and District levels.

3.50 Operations Research. Operations research activities would be carried out to provide feedback to the program in the following areas: comparative analysis of program implementation effectiveness between the medical colleges, district hospitals, and camps; ethnographic studies of blindness among selected populations, particularly among women, tribal and other isolated populations; effectiveness of public information campaigns, evaluating the role of aphakic motivators and outreach programs (government and NGOs), and assessing post-graduate residents with respect to change in training experience and skills (**Annex 25**). In addition, technical assistance would be provided to develop in-country capacity with rapid assessment methods for beneficiary assessment. GOI has agreed that it would carry out at least one study per year beginning with the second year of the program.

3.51 To support the implementation of this component, IDA's financing would be used for contractual services of consultants including trainers, health personnel, and applied social scientists, travel expenses, training tuition, workshops, office equipment, staff salaries and honoraria, vehicles and operating and maintenance costs.

IV. PROJECT COSTS, FINANCING AND IMPLEMENTATION

A. Costs

4.1 Summary of Costs. Over a seven-year period, the total cost of the enhanced cataract blindness activities in the seven project states, including current NPCB expenditures, import duties and taxes, is estimated at about Rs. 5,833.6 million or US\$144.8 million equivalent. Present annual NPCB funding from the Center and the seven states amounts to Rs. 41.4 million (US\$1.27 million) and would be expected to continue at this level during the seven-year period. Taxes and duties are estimated at Rs. 187.2 million or US\$ 4.7 million equivalent. The incremental cost of the project (above GOI's past financing level in the seven states) is therefore estimated to be Rs. 5,543.6 million (US\$135.7 million) of which US\$4.7 million equals taxes and of which IDA would finance US\$117.8 million. The costs breakdown of the proposed project is summarized in Tables 4.1 and 4.2. Detailed costs of the project by component, categories of expenditure, and year are given in Annex 26.

Table 4.1 - Cost by Component

Component	(Rupee Million)			(\$US Million)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
Strengthening Service Delivery	3,219.7	651.8	3,871.4	98.8	20.0	118.8	17%	84%
Developing Human Resources for Eye Care	108.2	54.3	162.5	3.3	1.7	5.0	33%	4%
Promoting Outreach & Public Awareness	246.7	79.2	325.9	7.6	2.4	10.0	24%	7%
Developing Institutional Capacity	238.1	21.7	259.8	7.3	0.7	8.0	8%	6%
Total BASELINE COSTS	3,812.7	807.0	4,619.7	117.0	24.8	141.7	17%	100%
Physical Contingencies	150.1	79.5	229.6	4.6	2.4	7.0	35%	5%
Price Contingencies	650.43	333.9	984.4	-7.0	3.0	-4.0	-77%	-3%
Total PROGRAM COSTS	4,613.2	1,220.4	5,833.6	114.5	30.2	144.8	21%	102%

4.2 Contingency Allowances. Costs include physical contingencies (US\$7.16 million) estimated at 10% of physical expenditures for civil works, equipment and supplies, drugs, vehicles, IOL and spectacles, I.E.C. and contractual services, and 5% for maintenance activities, surveys and studies and operational research. Price contingencies have been included at the following rates: foreign costs 2.8% from Calendar Year (CY) 94 through CY2001; and local costs 6.5% in CY94, 6.0% in CY95, 5.5% in CY96, 5.0% in CY97 to CY2001.

4.3 Foreign Exchange Component. The estimated foreign exchange component of US\$30.78 million is calculated on the basis of estimated foreign exchange proportions as follows: civil works: 15%; medical equipment: 50%; vehicles: 75%; Intra Ocular Lenses (IOL): 75%; drugs and medical consumables: 50%; vehicle operation and maintenance: 5%.

Table 4.2 - Costs by Category of Expenditure /a

	(Rupee Million)			(\$US Million)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
Investment Costs								
Civil Works	369.62	65.23	434.85	11/34	2.00	13.34	15%	9%
Equipment & Supplies	163.54	163.54	327.08	5.02	5.02	10.03	50%	7%
Vehicles	28.55	85.64	114.19	0.88	2.63	3.50	75%	2%
Spectacles	155.72	-	155.72	4.78	-	4.78	-	3%
I.O.L.s	50.18	150.55	200.73	1.54	4.62	6.16	75%	4%
Training & Workshops	74.79	-	74.79	2.29	-	2.29	-	2%
Medical Supplies for Surgeon Training	53.80	53.80	107.61	1.65	1.65	3.30	50%	2%
Publicity Services	166.87	-	166.87	5.12	-	5.12	-	4%
Support to NGOs & Private Sector	1,203.43	-	1,203.43	36.91	-	36.91	-	27%
Studies & Operational Research	41.00	-	41.00	1.26	-	1.26	-	1%
Contractual Services	78.02	-	78.02	2.39	-	2.39	-	2%
Total Investment Cost	2,385.53	518.76	2,904.29	73.18	15.91	89.09	18%	63%
Recurrent Costs								
Drugs/Sutures	274.38	274.38	548.76	8.42	8.42	16.83	50%	12%
Civil Works Maintenance	23.32	-	23.32	0.72	-	0.72	-	1%
Equipment Maintenance	76.23	4.01	80.25	2.34	0.12	2.46	5%	2%
Vehicle Operations & Maintenance	57.84	3.04	60.88	1.77	0.09	1.87	5%	1%
Salaries of Additional Staff	866.51	-	866.51	26.58	-	26.58	-	19%
Misc Office Operation Costs	128.89	6.78	135.68	3.95	0.21	4.16	5%	3%
Total Recurrent Costs	1,427.17	288.22	1,715.38	43.78	8.84	52.62	17%	37%
Total BASELINE COSTS	3,812.70	806.98	4,619.68	116.95	24.75	141.71	17%	100%
Physical Contingencies	150.08	79.49	229.57	4.60	2.44	7.04	35%	5%
Price Contingencies	650.43	333.92	984.35	-7.01	3.04	-3.97	-77%	-3%
Total PROGRAM COSTS	4,613.21	1,220.39	5,833.60	114.54	30.23	144.78	21%	102%

/a Figures shown are the costs of the Enhanced NPCB in the seven states plus the national program costs and are used as the basis for calculating the incremental project cost of US\$ 135.7 million. See also table 4.3 for explanation of this calculation.

B. Financing Plan

4.4 The project would be centrally sponsored. The proposed IDA Credit of US\$117.8 million equivalent would cover 89.7% of the incremental net cost of the program, above the level of GOI's past financing of the National Program for the Control of Blindness. This is shown in Table 4.3 on p.29. This represents 100% of the estimated foreign exchange component (US\$30.2) and 80% of local cost net of taxes (US\$109.8). A summary of this breakdown is shown in Annex 26, p.2. IDA's share of the total cost of the enhanced NPCB program amounts to 81.4% and the Government of India would finance the remaining 18.6% of the total program cost or US\$27.0 million equivalent. This would include all taxes, estimated at US\$4.7 million equivalent.

Table 4.3 - NPCB Expenditures in the 7 Project States

	IDA ASSISTED ENHANCED PROGRAM (Rs. Million)	EXISTING GOI BLINDNESS PREVENTION PROGRAM FUNDING LEVELS	
		ANNUAL PLAN COSTS	SEVEN YEAR COSTS
Investment Cost	2,904.3		
Recurrent Costs	1,715.4	41.4	290.0
Physical Contingencies	229.6		
Price Contingencies	984.4		
TOTAL	Rs. 5,833.6		Rs. 290.0
	US\$ 144.8		US\$ 9.1
		← less existing GOI funding level	
Incremental Requirement of Enhanced Program	Rs. 5,543.6		
Incremental Requirement (US\$ Million Equivalent)	\$135.7		
Incremental Requirements Net of Taxes	\$131.3		
Proposed IDA Credit	\$117.8		
IDA Credit as Percentage of Project Increment	89.7%		

C. Sustainability

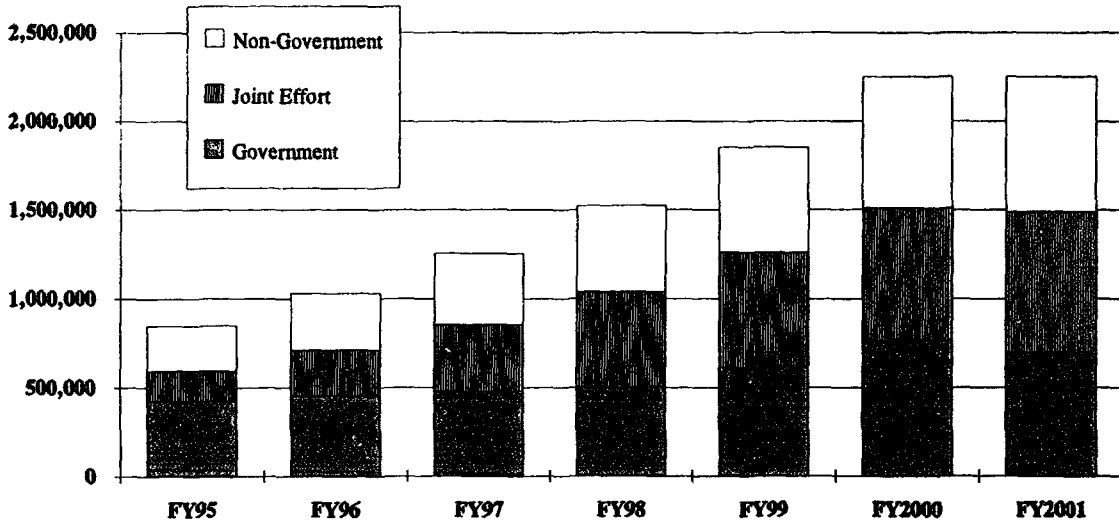
4.5 Several measures have been taken to ensure managerial, technical and financial sustainability.

4.6 Project Design. The project has been designed to promote higher productivity and optimal utilization of existing capacity; upgrade the skills of eye care personnel for long term purposes; reduce the risk of recurrent costs by limiting the numbers of costly staff and using contractual appointment in some cases; carry out a selective expansion of coverage; facilitate and encourage the involvement of the non-government sector; and introduce cost recovery schemes. The main factors that would facilitate sustainability are discussed below.

4.7 Managerial Sustainability. This would be achieved by increasing the role of the private and voluntary sector in a systematic way, and by decentralizing implementation responsibility to the district level while maintaining appropriate monitoring mechanisms at the Center and the State levels.

4.8 It is expected that in the long term, the majority of surgeries would be performed by NGOs and private practitioners either independently or in cooperation with the government. While during the project period, the average workload (aggregated for the seven states) is distributed evenly between the public and the non-government sector (50%); the chart on p.31 shows the shift that is expected to take place towards the last years of the project.

**Cataract Surgeries Each Year -
by Government & Non-Government Providers**



4.9 The availability of infrastructure and equipment in rural areas would facilitate NGO and private sector involvement, which has been limited largely to urban and surrounding areas mostly for lack of coordination, mobility and infrastructure. There has been receptivity on the part of some of the state governments, to the idea of turning over the management of certain facilities to the private or NGO sectors towards the end of the project. This would be explored during the biennial technical and operational reviews.

4.10 The decentralization of project implementation to the District level and the operational flexibility granted to the DBCS would greatly facilitate program sustainability. DBCS would be able to involve NGOs, communities and volunteers to carry out the program at a reduced cost to the government. In several districts, the government has been successful in obtaining support from industries and private citizens. With the introduction of better coordination mechanisms, these initiatives should be easier to implement.

4.11 Technical Sustainability. The project would strengthen the technical capabilities of a large number of eye care practitioners at all levels promoting a long-term capacity building to meet India's needs for eye care. In addition, the project is expected to have a major impact on the curriculum of ophthalmic departments of medical colleges thus producing a significant technological shift.

4.12 Financial Sustainability. Several measures would be taken to minimize the financial burden on GOI and the states after project completion. These include: introducing cost recovery schemes, keeping recurrent costs to the minimum, introducing

mechanisms for reallocation of expenditures in ophthalmology, and systematically taking advantage of community-based support through NGOs and private donors.

4.13 The states have agreed to introduce several modalities for cost recovery such as creating paid wards in medical colleges to cross-subsidize free wards; charging for IOLs to about 60% of the patients based on agreed criteria; introducing charges for specialized tests in other areas of ophthalmology; and promoting cost recovery among NGOs to reduce government subsidies. These mechanisms would be introduced gradually and will be assessed during the first project review. It is expected that by raising the quality of service delivery and creating awareness, the project would generate confidence and patients will be willing to pay for surgery. Moreover, the availability of ECCE/IOL would allow for treatment of unilateral cases among economically productive people who would be able to pay. Operations research would be conducted on the different cost recovery models.

4.14 Upon project completion, the intensive phase needed to address the backlog, build institutional capacity and expand the role of the non-government sector in cataract treatment would be concluded, and the NPCB would enter a sustainable maintenance phase in the seven states. At that time, the states would be expected to absorb all recurrent costs; however, the anticipated financial burden on the health state budgets would be within their financial capabilities.

4.15 The recurrent costs for the states of their blindness programs at the end of the project would average 1.2% of their current health budgets. With the exception of Orissa, whose estimated recurrent costs constitute 3%, the remaining states would have recurrent costs of 2% or less. This is the most liberal estimate as it does not take into account any revenues from cost recovery or increased non-subsidized voluntary sector participation. These potential revenues are excluded from the calculations because at this time, there is no mechanism to ensure that costs recovered through the NPCB would be reinvested in the program, and there is insufficient experience to know how much the non-government sector would absorb in terms of costs.

4.16 The relatively small size of the recurrent costs is also related to the fact that the expenditures incurred by the states on cataract activities, based on NPCB allocations, constitute a small proportion of the total amounts spent under the budget category of "ophthalmology." Total state ophthalmic expenditures range between 5 to 10 times the NPCB-based expenditures, with a substantive proportion of the money going to tertiary care, highly specialized training and expansion of physical infrastructure.

4.17 Furthermore, current state expenditures for ophthalmology in the seven states show that an average of 76% of the total is under the non-plan budget which provides sufficient flexibility for resource reallocation. With further rationalization of expenditures in ophthalmic care, the recurrent costs needed to sustain cataract services would be virtually inconsequential. In the present situation of adjustment, agencies are beginning to move towards greater efficiency and show greater receptivity to shifting expenditure priorities if needed. During negotiations, the Project States provided assurances that they would develop criteria for IOL and other ophthalmic related charges by December 31, 1994 and introduce all models of cost recovery schemes by December 31, 1995.

4.18 Financial sustainability will be further facilitated by a likely reduction in the price of consumables such as IOLs which may go down as India purchases large quantities and improves its own manufacturing. Indian-made IOLs are about a third of the price of imported ones. As ECCE/IOL becomes more widely available to treat unilateral cases, eventual blindness would be prevented, thus reducing blindness prevalence and the associated costs.

4.19 Finally, the seven project states advised IDA of their intention to absorb all recurrent costs after project completion. In order to achieve this, they would progressively phase recurrent costs for non-salary consumables and new salaries into the state's budgets during the project period.

D. Cost Effectiveness

4.20 The 1993 WDR has identified cataract treatment as one of the first priorities for clinical services because of its favorable cost effectiveness. It is estimated that cataract removal can save a Disability Adjusted Life Year for less than \$40. Compared with 40 other interventions, cataract surgery is among the 15 most cost-effective overall, and the most cost-effective clinical intervention to reduce the disease burden among the elderly. In addition, studies done in India (Drummond 1986; and Javitt, 1991) indicate that the returns in terms of increased economic productivity following cataract surgery is several times the cost of surgery in the first year.

4.21 The following profile of the economic and social benefits of the proposed project was the result of a survey conducted on three of the seven project states. The survey shows that 24% of the cataract blind persons surveyed were in the 50-60 year cohort and another 16% in the 30-50 year group. Given that the average life expectancy in India is 60 years, about 40% of those receiving surgery were in their productive years. Moreover, about 40% of those surveyed reported experiencing total or some loss of income due to their condition (19% and 21% respectively). The average loss of income reported was between 35-60% of earning potential.

4.22 Extrapolating on the basis of sample characteristics for the entire blind population of the seven states, it is possible to obtain an estimate of the expected loss of income without the project. The following assumptions are made to arrive at a rough estimate: (a) 40% of the 7.0 million cataract blind persons in the seven states are still in their productive years of life; (b) 30% of these will not receive surgery without the project; (c) the average annual income is Rs. 4,000 (Rs. 15 a day for 260 days); (d) the average loss of income for that 30% who lose total or partial income is 45%; and (e) average productive years of life for those who are in their productive years is 6 years. Based on these assumptions, it is estimated that Rs. 9.0 billion (US\$276 million) in wage income would be lost without the project, and the aggregate average annual wage loss to all these untreated individuals would be roughly US\$46 million.

4.23 In addition, the project would provide indirect benefits: It would reduce the dependency of cataract blind persons on their care-givers enabling the family members to pursue other activities. Of the 140 cataract patients surveyed, about 60 people (42%) reported complete or partial dependency on a family member prior to surgery. Although

this dependency was not entirely due to blindness, almost three-fifths of those who had undergone surgery, reported no dependency on their families after they were treated, since they could now take care of themselves. Restored vision, in this particular survey sample meant not only improvement in the earning ability of the cataract blind person, but also release, on the part of the family members, from the strain on their time and workload in caring for the blind person.

4.24 In addition, indirect benefits can also be attributed to the reduction of blindness-related injuries which impose an additional burden in the health system. Based on discussions with medical practitioners in the field, a totally blind person is likely to suffer 2 to 5 additional injuries in his/her life compared to a non-blind person. The estimated average hospital stay per injury is 3 days. According to a study by the National Council of Applied Economics Research (NCAER), the treatment cost per injury is about US\$8.00 and the cost of a one-day hospital stay is between US\$25 and US\$30. Assuming that: (a) 20% of the blind in the seven states seek hospitalization for one injury in their life time; and (b) they remain in the hospital for two days at US\$25 per day including treatment. The savings to the health system for GOI and the seven states could reach US\$81 million.

4.25 In summary, the proposed project would reduce, in a cost-effective way, the burden of cataract blindness and it would restore the individual's independence and social standing; it would result in considerable public savings through reduced health care costs; it would greatly benefit the cataract patients of economic productive age in terms of restored income; and it would alleviate the workload and time requirements imposed on the care-givers of the blind.

E. Implementation

4.26 Project implementation would be coordinated by the Office of the National Program Manager at MOHFW Delhi through the existing eye care health structure at the state level, and by the District Blindness Control Society at the district level, as described in paras. 3.40 - 3.44. Adjunct bodies such as the National Blindness Control Board, the Program Coordination Committee, the Technical Advisory Committee and the State Empowered Committees would provide policy guidance and facilitate project implementation. The implementation time-table is detailed in Annex 27.

4.27 Role of the Union Government.

- (a) **The National Blindness Control Board** chaired by the Union Health Secretary would act as an apex body and would be responsible for policy formulation, approval of annual implementation plans, approval of budgets and allocation of resources, coordination with other GOI departments, and evaluation of program objectives and achievements.

- (b) The National Program Manager's Office¹¹ (see paras. 3.40 and 3.41) would coordinate the program with the states, ensure flow of funds to the states and District Societies, and oversee the implementation of technical and operational policies and procedures. It would procure and distribute vehicles and equipment, and review media services and program evaluation proposals. It would also manage the human resources development component of the project in coordination with the states (training and staff performance and rewards) and would oversee program progress and evaluation activities. MOHFW would ensure delivery to the states of the goods procured and would bear the entire program costs borne by the states. It would conduct orientation workshops for new District Societies, hold periodic meetings with state ophthalmic and other health authorities and with Program Coordinators as part of its role in institutional development.
- (c) The Project Coordination Committee would consist of representatives, from national NGOs, multilateral and bilateral donors involved in blindness control (e.g., WHO, DANIDA), an IDA representative and senior project managers. The Committee's main purpose would be to coordinate the efforts of the different institutions involved in blindness control to ensure a cohesive program strategy and avoid redundancies
- (d) The Technical Advisory Committee. In addition to the Senior MOHFW and state officials involved in health, the committee would include renowned Indian Ophthalmologists and project advisors. The main role of the committee would be to advise on issues related to the upgrading of ophthalmic technology and training of ophthalmic personnel.

4.28 At negotiations, GOI agreed to maintain, in conjunction with the NPCB Management Unit, the Project Coordination Committee and the Technical Advisory Committee on terms agreeable to IDA.

4.29 Role of the State Government

- (a) The State Ophthalmic Cell comprised of a Project Manager at the Director or Joint Director level and two other officials with experience in public health or ophthalmology, and public administration, would be responsible for monitoring the program at the state level, consolidating and reviewing performance and evaluation reports, and ensuring efficiency and quality control. It would coordinate training programs for ophthalmologists, Program Coordinators and DBCS members. It would enter into an implementation agreement with each DBCS on terms and conditions satisfactory to IDA. The State Cell would also ensure proper allocation of resources, where necessary, maintenance of vehicles and equipment and would identify, along with the DBCS, the voluntary agencies and private

¹¹ This is the only permanent organizational structure at the Center.

hospitals to participate in the project. It would conduct periodic audit of accounts and submit reports to the state review committee.

- (b) The State Empowered Committees would serve as a link between district and national units and would expedite the release of funds and decision making at the state level. The Chief Secretary would be the Chairman of the Committee. Other members would include the Secretaries of Planning and Finance, Welfare, Education, and Local Bodies, the Director of Health Services, two NGO Representatives, two ophthalmologists, and a Deputy Director (statistics). The Project Manager of the Ophthalmic Cell would be the Member-Secretary. The Committee would meet every quarter to review operational plans, assess strengths and weaknesses of each district unit, coordinate interdepartmental activities, monitor progress, and advise district units on resource utilization and quality measures.

4.30 Role of the District Blindness Control Society (DBCS). As noted in para. 3.43, District Blindness Control Societies registered under the Societies Registration Act are being established in the participating states to decentralize project implementation. The society would be chaired by the District Collector. The Program Coordinator, responsible for the program's day-to-day activities would act as the Secretary. Other members would include: the District Ophthalmic Surgeon, a community representative, the Chief Medical Officer, NGO representatives, and other government officers to facilitate coordination with other departments and entities. The DBCS coordinator would be appointed strictly on a contractual basis or through reassignment of qualified staff.

4.31 The main functions of the Society would be to manage, largely through the Program Coordinator, the implementation of the program at the district level. The DBCS would allocate resources according to agreed norms, employ staff and consulting services, set up rules and regulations for day-to-day project execution, prepare operational plans, engage voluntary and private practitioners based on pre-approved guidelines, oversee prevalence surveys, ensure compliance of NPCB norms including training, outreach, IEC campaigns; and monitor project implementation at the district level.

4.32 Participation in Project Preparation. Project preparation has been fully participatory with the involvement of the states, NGOs and private ophthalmologists, other agencies involved in blindness control, and past and potential beneficiaries. During several meetings and workshops, the states and NGOs were able to express their needs which were taken into account in the project design. The project's policies, technical guidelines, and administrative procedures were developed in conjunction with the participating states, NGOs and the ophthalmic community through a series of workshops financed with Japan Grant Facility funds. Annex 28 shows the methods of participation used and expected at the different stages of the project. The Ministry of Health and Family Welfare assembled a project preparation team led by the Joint Secretary for Health Services with the support of the Deputy Director General (DGHS), a Deputy Secretary and two public health consultants. The team has worked closely with the state officials and NGO representatives.

4.33 Status of Preparation. Preparation plans are well advanced. Implementation activities have started in all seven states with the establishment of 204 DBCS and direct transfer of funds from the Center to 100 societies.

4.34 Technical and training workshops were conducted with the technical advice from the National Eye Institute of the National Institutes of Health (NIH). WHO and DANIDA provided technical assistance in the preparation of the Center's project proposal based on their extensive experience with Blindness Control in India. In addition, a review of the NPCB with state program officers was held on March 5, 1993 where agreements were reached on the changes to be introduced by the project. A workshop on the "Efficient Functioning of DBCS" for 50 District Collectors was held on March 12, 1993. A meeting of the seven states' Health Secretaries with the Union Health Secretary took place on October 8th to review the status of preparation.

4.35 Japan Grant funds were also used for beneficiary assessments, health facilities surveys and a survey of ophthalmologists to determine availability of skills. Terms of Reference for evaluating existing IEC materials, and "content analysis" for future health education materials have been completed.

4.36 Preparation has also been completed for technical norms, organizational structures and functions, training requirements, number of staff to be trained and other training-related items including a list of institutions to provide training; norms for different service delivery models and strategies; lists of equipment and supplies and technical specifications for most equipment; designs for operating theaters and wards; position descriptions, recruitment and redeployment plans; equipment and vehicle maintenance plans; partial list of NGOs and private hospitals participating in the program; norms for engagement of NGOs and private surgeons; and a plan of action for reaching tribal and isolated populations.

4.37 On December 8, 1993, the Expenditure Finance Committee (EFC) of the Department of Economic Affairs (DEA) approved the necessary funds (Rs. 5,543.6) for the seven-year project as an additionality to current allocations to the NPCB. It also endorsed the creation of the core positions for the Project Management Unit at the Ministry of Health and Family Welfare. The remaining positions for the Project Management Office would be redeployed within the Ministry.

F. Monitoring

4.38 Program Monitoring. Measurable indicators for quality control, clinical outcomes, and operational effectiveness have been agreed with the Government. Epidemiological indicators would be agreed once the epidemiological baseline data have been completed at the district level. The essential monitoring benchmarks described in **Annex 29** include rates of ECCE/IOL use in the government and NGO sector, rate of case detection and diagnosis, rate of cases treated, unilateral cases treated with ECCE/IOL, rate of patient satisfaction by treatment type, complication rates, workload distribution between the government and NGO sector, and utilization of facilities in tribal and remote areas. **Annex 30** describes the data collection methods and measurable inputs.

4.39 Project monitoring at the national level would be done through a review of performance information collected from the DBCS, and State Ophthalmic Cells, regular supervisory visits and spot checks by NPCB state consultants, annual beneficiary assessment to determine patient satisfaction, and annual evaluations. Evaluations would be conducted by independent management organizations and technical experts to assess quality of service delivery and management systems, and conduct resource analysis in clusters of districts at a time. A total of four epidemiological surveys, including baseline and endline surveys would be conducted to determine prevalence and performance achievements and outcomes.

4.40 At the state level, monitoring would include monthly meetings with district program coordinators followed by immediate feedback to the service providers. Program coordinators and District Ophthalmic surgeons would supervise district activities according to pre-established schedules and indicators.

4.41 The program would finance annual review workshops with State and District project officers. Operational research findings would help evaluate and improve program activities. At negotiations, GOI and the Project States gave assurances that they would (a) follow the agreed monitoring and evaluation procedures described above; (b) review with IDA, by April 30 of each project year, the progress of project implementation during the previous 12 months; and (c) prepare an annual work plan for the following year based on the results of the review.

4.42 Operational and technical reviews would be carried out every two years to assess project implementation and make the necessary adjustments. WHO, the NIH and principal donor agencies would be invited to participate in reviewing strategic, operational and technical aspects of the program. GOI and IDA would also review managerial and financial aspects of the program including progress on cost recovery and mobilization of non-budgetary resources. An evaluation protocol would be developed six months prior to the reviews. During negotiations, GOI and the Project States gave assurances that it would review with IDA every two years the operational and technical aspects of the project including progress on cost recovery mechanisms and would thereafter take these reviews into account during further implementation of the project.

4.43 IDA Supervision Plan. In addition to the standard supervision task, the main strategy for field supervision would be to utilize rapid assessment techniques (structured interviews, focus groups and participant observation) with different groups of program participants (state, district, health workers, beneficiaries, NGOs) to assess the performance of the program. Emphasis would be given on service delivery for tribal districts. IDA supervision teams would collaborate with WHO, DANIDA and resident technical experts, and would liaise with major NPCB participants, who would be invited to participate in the biennial reviews. IDA would also continue to call on senior professional experts to assist it in project supervision. The World Bank Resident Mission would participate in (a) liaising with the Government and providing operational support; and (b) advising on procurement, disbursements and auditing matters and follow-up. The planned schedule and skills required for project supervision are listed in Annex 31.

G. Disbursements

4.44 **Disbursement Percentages.** The disbursement plan has taken into account the fact that purchases will be made to support the entire cataract blindness activities in the seven states, including those that would have been funded by GOI in any case. Accordingly, disbursement percentages have been set at levels necessary to insure that the IDA credit provides funds amounting to 90% of the incremental cost only. Thus, the IDA Credit would be disbursed against 100% of foreign CIF and local ex-factory costs and 80% of other local costs (net of taxes) of equipment and supplies, equipment maintenance, vehicles, drugs and sutures, spectacles and IOLs; 80% of civil works; 75% of support to NGOs and private sector, vehicle operation and maintenance, publicity services, miscellaneous office expenses; 80% of training and contractual services; and salaries of additional staff on a declining basis at 90% for the first three years of the project, 75% for the fourth and fifth years and 60% for the sixth and seventh years.

4.45 **Disbursement Profile.** The proposed credit would be disbursed over seven years, closely approximating the standard profile of IDA-assisted population, health and nutrition projects in India. The maximum divergence from the standard profiles amounts to 10% above normal levels in years 4 and 5 of the project as the initial training phases are completed and substantial quantities of medical consumables are positioned to support the surgeons who will be doing high volume surgery. The IDA-assisted interventions are expected to be completed on June 30, 2001, and the Credit closed on December 21, 2001. Annex 32 shows forecasts of expenditures and disbursements.

4.46 **Required Documentation.** Disbursements for contractual services, training, vehicle operation and maintenance, miscellaneous office expenses, salaries of additional staff, publicity services and goods under contracts valued less than US\$100,000 equivalent would be made against statements of expenditure (SOEs). Documentation in support of SOEs would be retained by the states and the DBCS for expenditures incurred by the states and by the Union MOHFW for expenditures incurred by the Center. This documentation would be subject to annual audit and made available for review by IDA supervision missions. All other disbursements would be made against fully documented withdrawal applications.

4.47 **Special Account.** In order to accelerate disbursements and to provide for direct payment of eligible expenditures, a Special Account would be maintained in the Reserve Bank of India with an authorized allocation of US\$5.0 million, equivalent to four months of estimated disbursements.

4.48 **Flow of Funds.** The proposed flow of funds is described in Annex 33. The direct disbursement of funds to the Societies for operating expenses has been tested and works. Funds for salaries, civil works and selected medical materials would be disbursed to the states. GOI would monitor closely the use of funds by the states. No other funds would be disbursed as GOI would be responsible for procurement of most equipment and materials.

4.49 **Retroactive Financing** of up to US\$5.0 million equivalent, or 4% of the proposed credit, would be provided to cover eligible expenditures incurred after March

1, 1993 for several purposes found appropriate, e.g. to provide orientation for new district societies, begin strengthening training institutions, develop training and IEC materials and initiate civil works. Procurement arrangements, as well as the purposes for which the items would be used, were reviewed and found appropriate.

H. Procurement

4.50 Procurement arrangements are shown in **Table 4.4** which summarizes the program elements and their estimated costs and proposed methods of procurement. Procurement would be carried out centrally for the majority of the goods required for the project, but smaller purchases would also be carried out in the 7 states and 240 districts involved in the project activity. Major contracts for medical equipment (US\$10.2 million), suture material and bulk medicines with long-shelf life (\$17.6 million), intra-ocular lens (US\$6.5 million), and vehicles (US\$4.0 million) would be procured through a Procurement Agency¹² using ICB procedures. Because of the dispersed nature of project activity throughout the 240 districts, provision is also made for the purchases of medical consumables and supportive drugs with short-shelf life using existing LCB procedures acceptable to IDA at the district levels in packages valued below US\$10,000 each up to the following aggregate amounts over the seven-year project period: drugs and sutures (US\$4.4 million), equipment and miscellaneous supplies (US\$2.5 million), intraocular lens (US\$1.6 million). ICB and LCB bidding documents, including technical specifications, were reviewed and approved prior to negotiations.

4.51 Spectacles (US\$5.3 million) would be purchased using existing LCB procedures acceptable to IDA resulting in service contracts arrangements with selected optometrists in each of the 240 districts involved in the project.

4.52 Publicity services (US\$0.7 million) for mass media would be procured by GOI and the States directly from the Ministry of Information's radio and television stations. The rates that would be used would not exceed the standard rate of charges to other advertisers. Because of the dispersed nature of project activity throughout the 240 districts, provision is also made for folk media and community awareness and orientation camps to be procured by the District Blindness Societies through direct contracting from local artists. Similarly, advertising through cinema slides slots, billboards and newspapers would be procured through direct contracting at existing commercial rates. (Combined total of direct contracting for publicity services by the 240 Societies is estimated to be US\$4.9 million over the 7 year project life).

4.53 Civil works (US\$15.4 million) will be procured at the state levels using LCB procedures acceptable to IDA, except for small works where use of Force Account is considered more appropriate (estimated to total US\$3.8 million in the 240 districts).

4.54 Payments to NGOs for service delivery, as well as outreach and IEC activities, would be procured by the District Blindness Societies under agreements with designated NGOs selected for their suitability to perform such services. Provision has

¹² Procurement would be carried out by DGS&D or another agency approved by IDA.

**Table 4.4 - Procurement Arrangements
(Total Costs in US\$ Million)**

	Procurement Method				Total
	International Competitive Bidding	Local Competitive Bidding	Other	N.B.F.	
Drugs/Sutures	17.64 (15.88)	4.41 (3.97)	-	-	22.05 (19.85)
Equipment & Supplies	10.18 (9.16)	2.54 (2.29)	-	-	12.72 (11.45)
I.O.L.s	6.49 (5.84)	1.62 (1.46)	-	-	8.11 (7.30)
Vehicles	4.05 (3.64)	-	-	-	4.05 (3.64)
Spectacles	-	5.31 (4.78)	-	-	5.31 (4.78)
Civil Works	-	11.52 (9.22)	3.84 (3.07)	-	15.36 (12.29)
Vehicle Operation & Maintenance	-	-	1.99 (1.50)	-	1.99 (1.50)
Misc Offices Expenses	-	-	4.18 (3.14)	-	4.18 (3.14)
Surgical Services by NGOs & Private Sector	-	-	29.38 22.04	-	29.63 22.04
Equipment Maintenance	-	-	2.65 (2.38)	-	2.65 (2.38)
Publicity Services	-	-	5.61 (4.20)	-	5.61 (4.20)
Contractual Services	-	-	2.64 (2.11)	-	2.64 (2.11)
Training Workshop Support	-	-	2.48 (1.98)	-	2.48 (1.98)
Salaries of Additional Staff	-	-	26.67 (20.07)	-	26.67 (20.07)
Studies & Operational Research	-	-	1.32 (1.06)	-	1.32 (1.06)
Total	38.36 (34.52)	25.41 (21.71)	80.76 (61.54)	0.25	144.78 (117.78)

Note: Figures in parenthesis are the respective amounts financed by IDA

been made for payment to NGOs and private surgeon based on the following rate schedule per surgery: (a) payment of Rs. 250 per surgery if no inputs are provided by the government (except for the use of government infrastructure); Rs. 300 per surgery for services provided in remote areas; and Rs. 175, if government inputs are involved. In all cases, Rs. 150 must be used for consumables. NGOs will also receive payment for outreach activities, and patient screening and transportation based on specified "accessibility norms" as agreed with each state.

4.55 For comparing foreign and local bids in ICB, qualifying domestic suppliers would be allowed a margin of preference equal to the existing rate of customs duty applicable to competing imports or 15% of CIF price, whichever is lower. Items procured under ICB procedures, as well as the first three LCB contracts in each state would be subject to IDA's prior review.

4.56 All items procured under ICB procedures, all civil works contracts valued at US\$200,000 and above, as well as the first four LCB contracts for equipment, medical supplies, drugs, spectacles, etc., would be subject to IDA's prior review. Approximately 50% of the value of contracts covered by the IDA credit would be thus subject to prior review.

I. Accounting and Auditing

4.57 Expenditures incurred by the Center and by each participating state would be subject to the normal GOI and the states' accounting and auditing procedures, with the added requirement that MOH would maintain a separate account for the IDA-assisted Program. At the Center, State, and District levels, a record of program transactions would be maintained with appropriate supporting documentation for the transactions. A consolidated audit report would be undertaken by the Center from standard state audits. In addition, annual auditing by an independent charter accountant would be conducted at the DBCS level. At negotiations GOI and the States gave assurances that the proposed auditing procedures would be followed.

V. Benefits and Risks

A. Benefits

5.1 **Reducing the Backlog of Cataract Blindness.** The project would allow the seven states to eliminate most of the cataract blindness backlog which imposes a heavy social and economic burden on the country's poor and make considerable progress in India's goal to reduce blindness prevalence from 1.3% to 0.3% by the year 2000. With the project inputs, more than 11 million people will undergo cataract surgery.

5.2 **Developing Indigenous Capacity.** The project would prepare India for the increasing demands of an aging population by developing indigenous eye care capacity with modern technology; creating an enabling environment for cooperation with the voluntary and private sector which may serve as a model for other health programs; and establishing the necessary human and physical infrastructure for long-term, comprehensive eye care.

5.3 Improving the Quality of Life and Reducing Costs. On the economic, social, and individual level the project would reduce the burden of the blind on family members, improve the quality of life and social standing of the individual. The treatment of unilateral cases with IOL would allow for early intervention among the economically productive individuals. This would help prevent increases in blindness prevalence and avoid employment and wage loss. It is estimated that 2.4 million Disability Adjusted Life Years (DALYs) could be saved annually in India with an effective cataract intervention program.

5.4 Reaching the Most Disadvantaged Groups. The project would reach the poorest areas of the country where prevalence is highest and it would focus on the most vulnerable groups such as women, scheduled castes and scheduled tribes.

5.5 Improving Surgical Outcomes. The project investments would help India move into the twenty-first century with the appropriate technology and quality standards to provide high quality eye care for the majority of the population.

5.6 Use of Facilities for Other Health Care Needs. Given the intermittent nature of service delivery for cataract treatment in rural areas, an indirect benefit of the project would be the availability of infrastructure from this investment for use for other medical care (e.g., permanent camp sites at CHCs).

5.7 Value Added of the Project. The chart on p.13 shows the significant difference the project would make in taking care of the existing cataract backlog. Without the project, the seven states would be able to perform only about half of the number of surgeries required and without significant qualitative improvements. A successful reduction in the number of blind cases requires major qualitative changes in technology, skills and standards of care to ensure sight restoration, not just cataract extraction. This would be virtually unattainable without an intervention of the magnitude and approach like the one proposed in the project. In addition, the project would help rationalize the distribution of resources in a way that would be consistent with the public health needs for eye care in India.

5.8 Most project inputs would complement existing capacity which is limited largely to extensive infrastructure and manpower. The project would provide mostly non-salary inputs which would make a major difference in quality and availability of services and capacity building. These would include training, equipment, materials, supplies, vehicles and maintenance.

5.9 Program Objective Categories. Poverty Aspects. As indicated above, the project would reach the poorest areas of the country. Sight restoration is accessible mostly to urban middle and upper classes; however, the poor have limited or no access to eye care and will continue to be marginalized without the systematic and intensive efforts proposed by the project. WID Aspects. Over 50% of the beneficiaries are expected to be women as the prevalence among them is higher than among men. Furthermore, care givers of the blind are mostly girls who would be freed from such burden. Indigenous Populations. As noted earlier (Para. 3.20) beneficiary assessments showed higher prevalence of cataracts among tribal than non-tribal populations. Patient satisfaction, access to facilities and spectacles were also lower among tribal groups. The

project would expand and intensify coverage of all tribal areas and those areas isolated by water barriers. It would facilitate transportation and financial support to them through the DBCS. Every component of the project has been designed taking into account tribal and remote area populations. Private Sector aspects. About 50% of the cataract workload would be carried out through NGOs and the private sector through direct or indirect support from the project, and private practitioners would be engaged through service contracts to provide services in rural areas.

B. Risks

5.10 The project would entail several risks. First, the risk that entrenched practices would delay the transition to the new approach. This would be addressed by an upfront endorsement by the project states of the new policies, with clearly phased implementation. A state by state implementation plan is being developed identifying the location and timing of investments and processes based on established criteria. In addition, the progress made during preparation and the participatory nature of the process have laid the ground for a steady and orderly transition.

5.11 Second, the risk that the more powerful stakeholders may either obstruct implementation or exercise pressure for favorable treatment which would threaten the main objectives and design of the project. Although this is one of the most difficult risks to pre-empt, the checks and balances introduced in the project design would help monitor the role of the different stakeholders. Furthermore, the Ministry of Health has conducted a series of workshops and meetings with the different stakeholders to promote and seek support for the changes being introduced and listen to their recommendations to guarantee project success.

5.12 Third, the risk that the logistical requirements of the project which demand strong managerial capabilities, clear lines of authority and accountability may not be met since these are often weak in India. This would be addressed by: (a) a well defined organizational structure and a common understanding among program managers at all levels of the objectives, policies and procedures of the program; (b) timely appointments of Program Coordinators with the necessary management training; and (c) a checks-and-balances system to be used throughout the process (e.g., involving the NGOs and the private sector, conducting beneficiary assessments by outside organizations, linking success in quality outcomes with performance rewards and resource allocation and having a grievance committee).

5.13 Fourth, the risk that attention would focus too heavily on tertiary and secondary level facilities because of the emphasis on ECCE/IOL training, at the expense of the peripheral areas. This would be addressed by strengthening service delivery and enforcing quality outcomes in the rural and remote areas as a first line of action, and tying allocation of resources to performance. Emphasis would be given to operations research and monitoring for patient satisfaction in rural areas and urban slums.

5.14 Fifth, the risk that the increasing interest in ECCE/IOL may reduce the availability of ophthalmologists capable and willing to continue doing ICCE in the remote camp areas. As a preventive measure, training would include both ECCE and ICCE

techniques, selection for ECCE training would be linked to performance with ICCE, and staff recognition schemes would emphasize work in rural and difficult areas.

5.15 Sixth, the possibility of poor visual outcomes expected under any type of surgical intervention for a small percentage of all patients treated, even under the most rigorous standards of care as well as injury due to negligence. This risk would be addressed by introducing the practices of "full disclosure" and "informed consent" as well as through possible remedies provided by the grievance committee.

5.16 Seventh, the usual risks of poor implementation of project investments based on prior experience with the Borrower and given the diversity among the seven states in terms of the administrative approaches, quality of services and NGO participation. These are being addressed by careful preparation of the project with the participating states, a plan of regular supervision activities with the strategies described earlier, and technical and operational reviews every two years, instead of single mid-term review.

VI. AGREEMENTS REACHED AND RECOMMENDATIONS

6.1 During negotiations the following assurances were given either jointly or separately by GOI and the seven project states:

6.2 Joint Assurances. The Government of India and the Project States provided assurances that they would:

- (a) implement the project in accordance with the technical, managerial and institutional policies, norms and procedures of service delivery developed during project preparation and agreed to at negotiations (paras. 3.6 and 3.7);
- (b) conduct annual beneficiary assessments through independent organizations with staff trained in rapid assessment methods to measure patient satisfaction and effectiveness of program implementation (paras. 3.48);
- (c) follow the agreed monitoring, evaluation and auditing procedures; review with IDA, by April 30 of each project year, the progress of project implementation over the previous 12 months; and prepare an annual work plan for the following year based on the results of the review (para. 4.41 and 4.57);
- (d) review with IDA, every two years, the technical and operational aspects of the project including progress on cost recovery mechanisms and expenditure priorities in ophthalmology; and would thereafter take the findings of these reviews into account during further implementation of the project (para. 4.42).

6.3 Assurances from GOI. During negotiations, GOI provided assurances that it would:

- (a) strengthen selected facilities by providing them with a complete "package of inputs" required for quality service at each level of service delivery (para. 3.13);
- (b) complete by July 31, 1994 the development of the standard curriculum for the "train the trainers" program, and by August 31, 1994, the curriculum for the remaining categories of staff; make contractual arrangements with the training institutions selected according to the agreed selection procedures; and approve the list of trainees for the "train the trainers" program by August 31, 1994 (para. 3.25);
- (c) maintain the NPCB Central Project Management Unit, a Project Coordination Committee and a Technical Advisory Committee each with staff and terms of reference satisfactory to IDA, appoint all key staff of the Central Project Management Unit by September 30, 1994, and retain key Project Management Unit staff in their positions for at least the first three years of the project (paras. 3.40 and para 4.28).

6.4 Assurances from the States. The Project States provided assurances that they would:

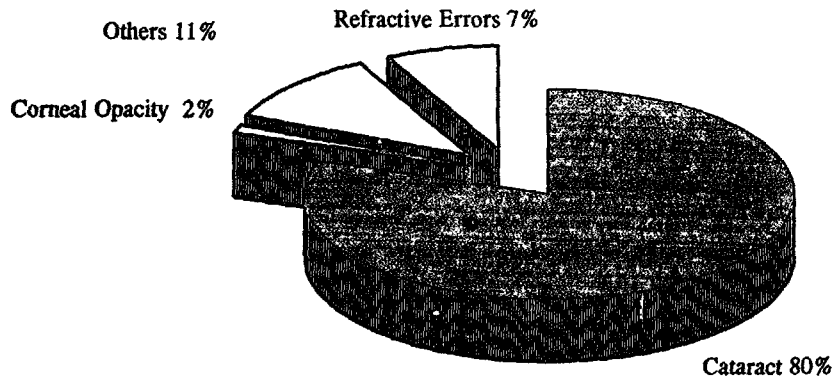
- (a) cause each DBCS to establish a body to which patients treated under the Project may lodge any grievance relating to the treatment provided. Each body shall have adequate capacity to effectively assist such patients (para. 3.12);
- (b) select non-governmental organizations and private practitioners on the basis of procedures and criteria satisfactory to IDA (para. 3.19);
- (c) implement the project activities among the tribal and isolated populations according to the agreed plan of action summarized in Annex 15 (para. 3.20);
- (d) require government ophthalmologists participating in the training program to sign a bond to serve with the government for a minimum of three years following ECCE training (para. 3.23);
- (e) maintain the State Project Management Unit with the agreed staff and other resources, in accordance with terms of reference satisfactory to IDA, and appoint all designated staff by July 31, 1994 (para. 3.42);
- (f) complete the establishment of the remaining DBCSs, and appoint all the District Program Coordinators, under the terms agreed with IDA, by July 31, 1994; and enter into an implementation agreement with each DBCS on

terms and conditions satisfactory to IDA. Establishment of the **DBCS** would be a requirement for project investment in any district (**para. 3.43**);

- (g) develop criteria for IOL and other ophthalmic-related charges by **December 31, 1994** and introduce all models of cost recovery schemes by **December 31, 1995** (**para. 4.17**).

6.5 Subject to the above conditions, the proposed project constitutes a suitable basis for a credit of **SDR 85.0 million (US\$117.8 million equivalent)** to India at standard IDA terms with 35 year maturity.

Causes of Blindness in India



Note: "Others" include 4.69% aphakic blind, 1.70% glaucoma, 0.39% trachoma and 4.25% other cases

Source: MOHFW, Government of India

ANNEX 2

INDIA

CATARACT BLINDNESS CONTROL PROJECT

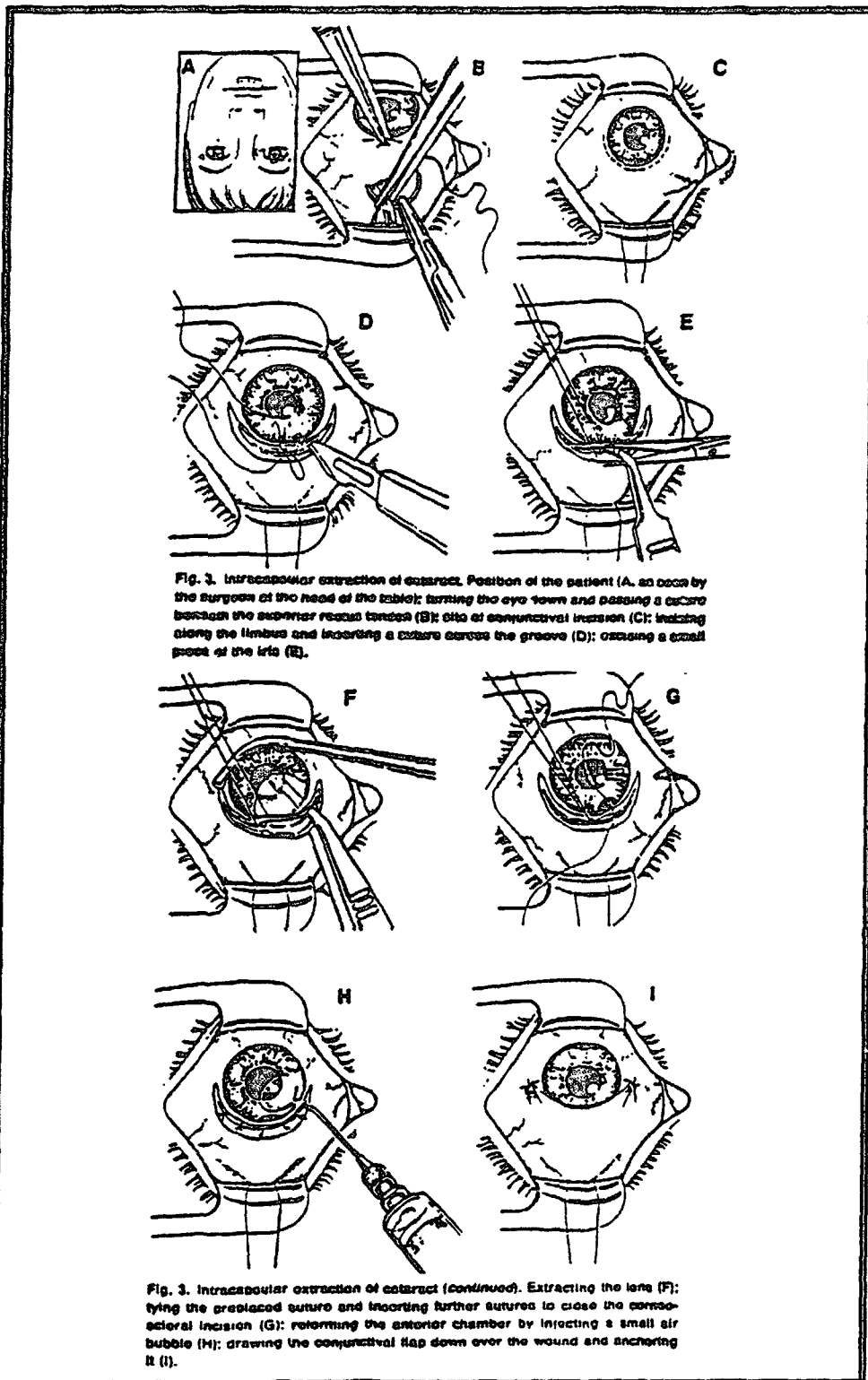
PREVALENCE OF BLINDNESS IN THE SEVEN PROJECT STATES¹

State	Population in Thousands	Total Blind in Thousands	Prevalence
Tamil Nadu	55,638	1,474	2.65
Rajasthan	43,880	983	2.24
Madhya Pradesh	66,135	1,392	2.01
Orissa	31,512	542	1.72
Maharashtra	78,706	1,291	1.64
Uttar Pradesh	138,982	2,192	1.58
Andhra Pradesh	66,304	995	1.50

Source: Ministry of Health and Family Welfare, Government of India,
New Delhi.

^{1/} India's overall prevalence is estimated at 1.3% (Source: Ministry of Health and Family Welfare, Government of India, New Delhi).

ICCE: INTRACAPSULAR CATARACT EXTRACTION

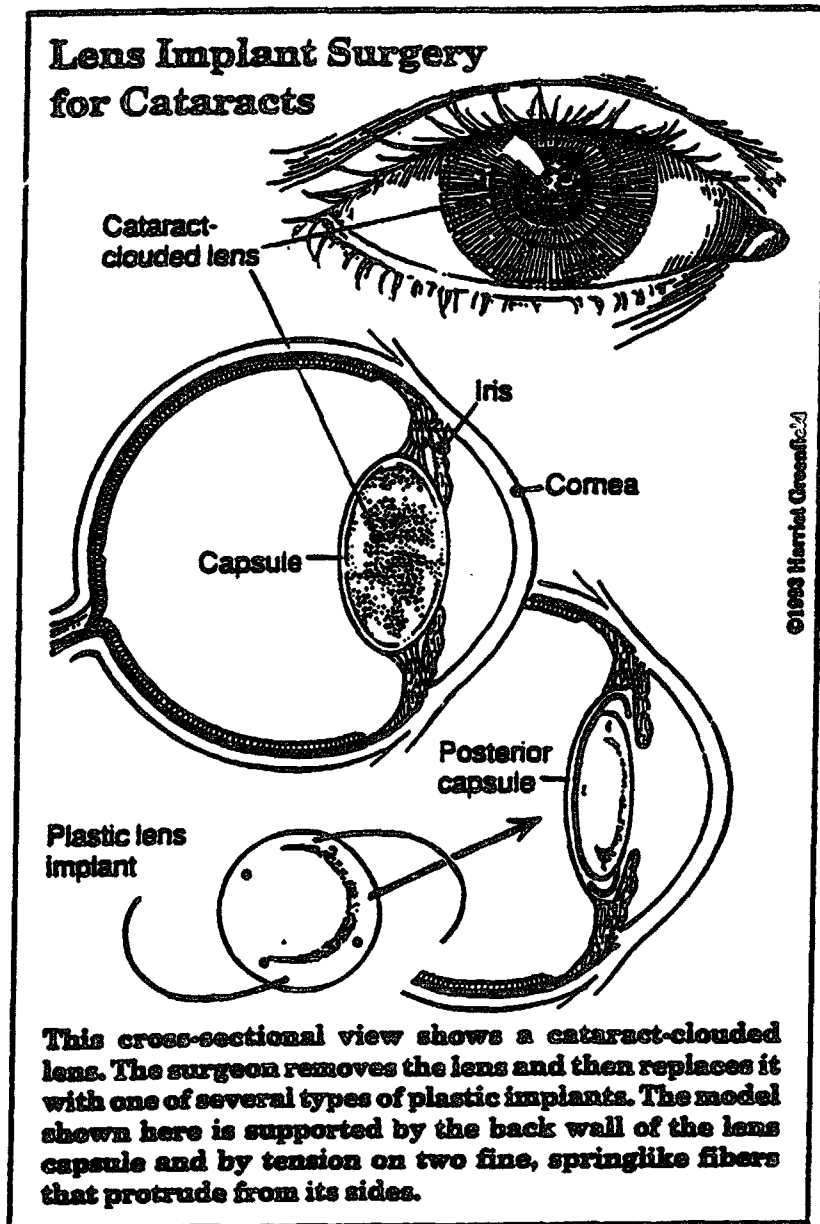


Source: Management of Cataract, WHO, 1990, pp. 38-39.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

ECCE/IOL: Extracapsular Cataract Extraction/Intraocular Lens



INDIA

CATARACT BLINDNESS CONTROL PROJECT

CATARACT SURGERY - TARGET AND PERFORMANCE¹

State	1987-88		1988-89		1989-90		1990-91		1991-92	
	T	A	T	A	T	A	T	A	T	A
Andhra Pradesh	125	76%	125	87%	136	83%	136	97%	200	65%
Mayhya Pradesh	100	79%	100	80%	108	52%	108	78%	150	68%
Maharashtra	100	152%	100	147%	100	140%	110	145%	180	105%
Orissa	35	58%	35	60%	35	91%	35	58%	70	27%
Rajasthan	80	100%	80	100%	86	87%	86	99%	130	62%
Tamil Nadu	100	105%	100	111%	108	103%	108	82%	160	95%
Uttar Pradesh	200	108%	200	107%	216	66%	216	91%	320	77%
Total	740	97%	740	99%	789	89%	799	93%	1210	71%

T = Targets in thousands A = Achievements

¹ Average annual workload for the 5 years is 750,674 cataract surgeries. Assuming that the seven states can increase this average to 850,000 per year without the project inputs, they could do a maximum of 5,950,000 surgeries in the seven years of the project. With the project, the States would double the output and increase the quality of outcomes.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

PATTERN OF EXPENDITURES BY STATES
ON THE NATIONAL PROGRAM FOR CONTROL OF BLINDNESS
1988-1993

SEVEN PROJECT STATES

STATES	FIVE YEAR AVERAGE EXPENDITURE (in Rs. million)
Andhra Pradesh	4.0
Madhya Pradesh	16.4
Maharashtra	6.2
Orissa	2.8
Rajasthan	3.1
Tamil Nadu	2.2
Uttar Pradesh	6.8

**Five Year Average Expenditure
in the Seven Project States:**

Rs. 41.4 million

TWENTY FIVE NON-PROJECT STATES AND UNION TERRITORIES

STATES	FIVE YEAR AVERAGE EXPENDITURE (in Rs. million)
Arunachal Pradesh	1.0
Assam	3.5
Bihar	1.3
Goa	0.3
Gujarat	17.6
Haryana	0.9
Himachal Pradesh	0.8
Jammu & Kashmir	0.9
Karnataka	3.9
Kerala	2.4
Manipur	0.5
Meghalaya	0.5
Mizoram	0.1
Nagaland	0.3
Punjab	1.5
Sikkim	0.4
Tripura	0.9
West Bengal	3.4
Andaman & Nicobar	0.07
Chandigarh	0.04
Dadra Nagar Haveli	0.01
Daman & Diu	0.03
Delhi	0.00
Lakshweep	0.06
Pondicherry	0.12

Five Year Average Expenditure in the Twenty Five
Non-Project States and Union Territories: Rs. 39.0 million

(Average release to the Non-Project States & UTs: Rs. 36.7 million)

INDIA

CATARACT BLINDNESS CONTROL PROJECT

EXPENDITURES SINCE 1985-86 ON
THE NATIONAL PROGRAM FOR CONTROL OF BLINDNESS
IN CONSTANT 1992 RS. (MILLIONS)

<u>Year</u>	<u>GOI Expenditure</u>	<u>State Expenditure</u>	<u>Total</u>
1985-86	81.21	07.89	89.10
1986-87	67.97	15.73	83.70
1987-88	67.66	27.41	95.07
1988-89	61.27	24.96	86.23
1989-90	60.77	43.84	104.61
1990-91	59.29	25.52	84.81
1991-92	97.03	00.05	97.08

Source: Ministry of Health & Family Welfare, Government of India, and the seven participating States.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

PARTIAL LIST OF NON-GOVERNMENT ORGANIZATIONS (NGOs)
INVOLVED IN BLINDNESS CONTROL

<u>Non-Government Organization</u>	<u>State</u>
Sight Savers	All India
Christoffel Blinden Mission (CBM)	All India
Seva Foundation	All India
Lions Club	All India
Rotary Club	All India
Royal Commonwealth Society for the Prevention of Blindness	All India
National Society for the Prevention of Blindness	All India
The Indian Red Cross Society	All India
The National Association for the Blind	All India
Shivanananda Mission	All India
Aravinđ Eye Hospital	Tamil Nadu
O.E.U. Hospital	Andhra Pradesh
Pune Blind Men's Association	Maharashtra
Veda Vyas Eye Hospital	Orissa
Serangi Hospital	Orissa
Guru Nanak Eye Hospital	Madhya Pradesh
Sitapur Group of Eye Hospitals	Uttar Pradesh
Khairabad Eye Hospital	Uttar Pradesh
The Ghandi Eye Hospital	Uttar Pradesh
Bharat Vikas Rishad	Rajasthan
Vishawa Hindu Parishad	Rajasthan
Bhartiya Sewa Samaj	Rajasthan

INDIA

CATARACT BLINDNESS CONTROL PROJECT

PROJECTED CATARACT WORKLOAD IN THE SEVEN STATES

<u>STATE</u>	<u>SEVEN-YEAR WORKLOAD</u>
Andhra Pradesh	1,320,000
Madhya Pradesh	1,800,000
Maharashtra	1,380,000
Orissa	730,000
Rajasthan	1,380,000
Tamil Nadu	1,550,000
Uttar Pradesh	<u>2,870,000</u>
<u>TOTAL</u>	<u>11,030,000</u>

Source: National Institutes of Health. Model-Based Workload Projections for the Seven Project States. (Report submitted during pre-appraisal mission, February 1993).

INDIA

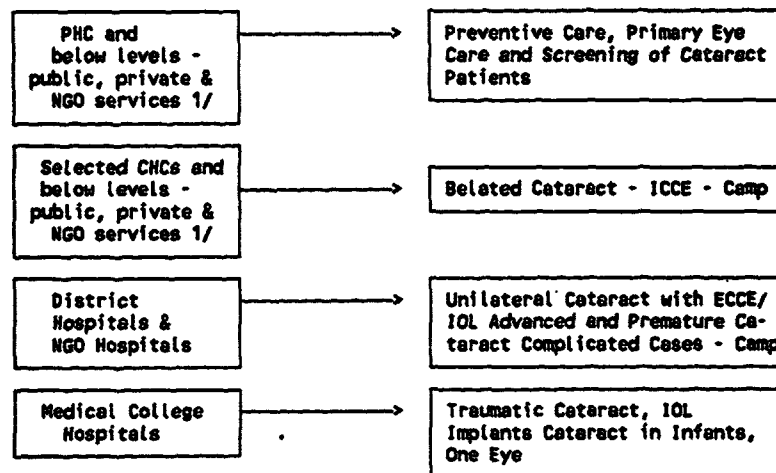
CATARACT BLINDNESS CONTROL PROJECT

SERVICE DELIVERY MODELS

1. Service delivery models work accordingly to three tiers for diagnosis and treatment of patients:

- 1) Primary care at block and village levels by Medical Officers, Ophthalmic Assistants, multipurpose health assistants and health workers;
- 2) Secondary care -- cataract operations -- at District Hospitals and Community Health Centers and through mobile camps; and
- 3) Tertiary care in regional eye hospitals and medical college hospitals.

2. Primary health care involves preventive care such as distribution of vitamin A tablets, treatment of minor ailments such as local infections and screening of cataract where Para-Meical Ophthalmic Assistants are posted. For bilateral cases, operations can be performed in camps in fixed facilities at the Primary Health Center or the Community Health Center levels. Those with premature cataract, unilateral cataract (ECCE/IOL), advanced cataract problems or complicated cases suffering from other major ailments, such as diabetes, are operated and treated at the district hospitals. Cases with traumatic cataract problems, infants with cataracts, and unilateral cases (ECCE/IOL) are treated by specialists in regional eye hospitals and medical college hospitals.



^{1/} Refers to use of Government facilities by private and NGO practitioners

INDIA

CATARACT BLINDNESS CONTROL PROJECT

LIST OF STAFF AND EQUIPMENT NEEDED BY SERVICE DELIVERY FACILITIES

FACILITIES	STAFF	EQUIPMENT
Primary Health Centers	Surgical Teams ¹	Trial lens set and frames for children and adults; retinoscope (mirror); snellen charts and near vision charts; tonometer (shiotz) with manual; dust-tight ophthalmoscope with battery handle; torch; corneal loupes (uniocular); binomags; lidretractors (desmarre); fluoresceinstrips for corneal abrasions; xylocaine eye drops for tonometry; homatropine eye drops for pupil dilatation, foreign body spud and needles; lacrimal cannula and punctum dilator; and bag for carrying equipments.
District Mobile Units ²	Surgical Teams	In addition to Primary Health Care equipment, lacrimal probe set; slit lamp; gonioscope; surgical set for cataract and glaucoma; cryo unit; ambulance emergency kit with oxygen cylinder; power generator; operating theater equipments (tables, lights, sterilizers); and surgical trays, etc.
District Hospitals/ Fixed Facilities ³	Surgical Teams	In addition to District Mobile Unit equipment, perimeter, indirect ophthalmoscope; <i>bjerrum screen</i> ⁴ ; rotating test drum; <i>prism bar</i> ; <i>instruments for DCR and squint</i> ; <i>instruments for entropion and other lid operations</i> ; instruments for enucleations; and instruments for ocular trauma.
Selected Medical Colleges	Surgical Teams	Ophthalmoscopes; retinoscope streak; indirect ophthalmoscope; keratometer; lensometer (focimeter); Goldman tonometer; <i>Goldman perimeter</i> ; <i>bjerrum screen</i> ; trial set; v.a. drums; biomags; <i>slit lamp of any standard variety</i> ; low visual aid testing set; gonioscope; 3 mirror c lens; pseudo isochromatic charts (ishihara or a.u. type); <i>maddox wing</i> ; <i>tangent scale</i> ; <i>livingston binocular gauge</i> ; <i>foster's near point rule</i> ; treatment rack sterilizer; operating microscope (opmi-9 type); <i>camera for clinical photography</i> ; <i>camera for fundus (wide angle)</i> ; <i>miami magnet</i> ; <i>major diathermy (keeler)</i> ; cryo unit (keeler's type); <i>bray applicator</i> ; <i>rust ring remove</i> ; <i>suction apparatus</i> ; yag laser; ultrasonograph A scan (austrian); and <i>argon laser</i> .
Selected Regional Institutes of Ophthalmology	Surgical Teams	In addition to Medical College equipment, <i>prism bar set</i> ; operating microscope (opmi-7 type); ultrasonograph B scan (austrian); <i>fundus camera for fluorescein angiography</i> ; <i>boyle's apparatus</i> ; and <i>VISC apparatus</i> .

^{1/} A surgical team would consist of one ophthalmologist or ophthalmic surgeon (OS), two nurses and an operating theater assistant or para-medical ophthalmic assistant (PMOA) who would be responsible for diagnosis, screening and follow-up of routine cases. In District Hospitals, the out-patient department staff would include two PMOAs for each OS. Selected Community Health Centers (CHCs) and Primary Health Centers (PHCs) would be staffed with one PMOA, and the surgical services would be provided by surgical teams in mobile units.

^{2/} District Mobile Units (DMUs) are attached to Medical Colleges or District Hospitals and would travel to other fixed facilities.

^{3/} e.g., CHCs and PHCs equipped with Operating Theaters.

^{4/} Equipment in *italics* is appropriate for general eye care services, but not necessary for cataract treatment.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

TECHNICAL GUIDELINES

Guidelines for the optimal use of ECCE with IOL or the use of ICCE.

1. ICCE with spectacles is the predominant approach to sight restoration among the cataract blind in India. Compared to the ECCE surgical technique, ICCE is relatively straightforward and suitable under appropriate sanitary conditions for eye camp settings; the technical training and equipment demands are less, e.g., the use of an operating microscope is not required. ECCE with and without an IOL should only be done at an appropriately equipped facility.

2. An important limitation exists with ICCE surgery and aphakic spectacles: it is suitable only for the bilaterally blind patient (the blindness backlog patient where sight has been lost in both eyes and where significant economic and social deprivation is likely to have already taken place). If the cataract operation takes place before the second eye is also blind (the unilateral or blindness incidence case), the patient with aphakic spectacles will see two images, one noticeably larger than the other, producing an untenable situation in most circumstances. In general, the unilateral blind patient is helped only if ECCE surgery is performed and an IOL is implanted. (The unilaterally blind case is important because of the potential to intervene, i.e., to prevent blindness, before adverse socio-economic impact has been experienced.) Thus, as utilization of the newer ECCE technology expands in India, the existing ICCE technology, which has been the mainstay of cataract surgery for decades, should be reserved for the bilaterally blind and for those where one eye has already been operated with ICCE and the patient is using aphakic spectacles. The surgeon must be willing to recommend against cataract surgery when ECCE/IOL is indicated but not available, or arrange referral to a base hospital with ECCE capability.

3. Surgical management for the following patient categories is given in order of preference. The final decision will be taken by the Ophthalmic Surgeon on the basis of sight restoration potential, patient's condition and feasibility. The choices given are in order of preference.

Unilateral Blindness (better eye \geq 6/24)

1. ECCE/IOL
2. Do not operate.
3. (ICCE only when medically indicated, e.g., hypermature, and referral to appropriate facility is not possible).

<u>Unilateral Blindness</u> (better eye 6/36)	1. ECCE/IOL. 2. ICCE (if facilities are not available or referral is not possible).
<u>Unilateral Blindness</u> (better eye \geq 6/36 + aphakia and good vision with glasses)	1. ICCE. 2. Do not operate. 3. ECCE/IOL.
<u>Unilateral Blindness</u> (better eye \geq 6/36 + pseudoaphakia IOL)	1. ECCE. 2. Do not operate.
<u>One-eyed patient</u> (permanently blind in one eye)	1. ECCE/IOL. 2. ICCE.
<u>Bilateral Blindness</u> (better eye \geq 3/60 to \leq 6/60)	1. ECCE/IOL . 2. ICCE.
<u>Bilateral Blindness</u> (better eye $<$ 3/60)	1. ECCE/IOL or ICCE.

The outcome to be achieved relates to both patient satisfaction and the degree of sight restoration. These two considerations are key in determining the indications for surgical intervention.

Guidelines for Pre-Operative, Operative and Post-Operative Care

Pre-operative Evaluation

4. The pre-operative evaluation should include the following:

- Code 1. Visual acuity with pinhole.
Light perception and projection in both eyes.
- Code 2. Pupillary reaction.
- Code 3. Lacrimal passage (Syrringing and examination).
- Code 4. Deviation of eye (desirable).
- Code 5. Intra-Ocular pressure.
- Code 6. Manifest refraction (desirable).
- Code 7. Retina examination with direct ophthal and indirect ophthalmoscope (desirable).
- Code 8. Optic disc cup and color.
- Code 9. Pathology of other eye, if any.
- Code 10. Systemic examination:

- A. Blood pressure
 - B. Urine analysis
 - C. Cardiovascular, respiratory or allergic disorders.
- Code 11. Conjunctival Sac infection/discharge.
- Code 12. Slit lamp examination wherever possible.

Checklist for Operative Procedure

- Code 1. Ensure strict asepsis.
- Code 2. Availability of sets of instruments (2 sets/table).
- Code 3. Cryo surgical instrument is working.
- Code 4. Ensure effective anaesthesia and hypotony.
- Code 5. Decision about ICCE or ECCE with IOL.
- Code 6. Availability of life saving drugs in Operating Theater (OT).
- Code 7. Not less than five (5) corneoscleral stitches are applied.

Operative Checklist (to be notified)

- Code 1. Retrobulbar hemorrhage.
- Code 2. Dislocation of lens into vitreous on table.
- Code 3. Rupture of capsule (unplanned - anterior/posterior).
- Code 4. Vitreous loss.
- Code 5. Expulsive hemorrhage.
- Code 6. Posterior Capsular (PC) rupture (ECCE).
- Code 7. Endophthalmitis.
- Code 8. Iris prolapse and abscission.
- Code 9. Persistent flat anterior chamber (48 - 72 hours).
- Code 10. Resuturing of wound.
- Code 11. Visual acuity with pinhole at discharge.
- Code 12. Direct Ophthalmoscopic examination (Oedema/any other abnormalities/absence or displacement of IOL).
- Code 13. Corneal abnormality.
- Code 14. Displacement of IOL.
- Code 15. Elevated IOP requiring treatment.
- Code 16. Severe iritis and hyphema.

For all cases in which VISUAL OUTCOME IS NOT SATISFACTORY (ECCE/IOL < 6/16; ICCE < 6/60), possible causes shall be assigned after detailed examination.

A DATA CARD FOR USE WITH CODE NOS. OF THE SIZE 4" x 6" shall be prepared for all cases undergoing camp surgery.

Evaluation and Follow-up Proforma (at six weeks Post-operative)

1. Is the eye congested/tender/irritable?

- 2. Corrected visual acuity:
 - Code 1. $\geq 6/9$
 - Code 2. $\geq 6/18$
 - Code 3. $\geq 6/36$
 - Code 4. $\leq 6/60$

Retinal examination and slit lamp examination of Codes 3 and 4 and assign the reason.

- 3. Beneficiary Satisfaction (vision restoration):

- Code 1. Good
- Code 2-3. Fair
- Code 4. Poor

The beneficiary should be queried as to satisfaction with the visual outcome.

Guidelines for Quality Control Measures

5. Triage of all patients seeking cataract surgery under this project ideally would take place before the patient arrives at an eye surgical camp, a surgical fixed camp, district hospital or base facility (where patients appear directly and seek facilities, the triage function must be the first step in the process). The triage must be performed by a competent person able to determine the presence of a cataract and measure the visual acuity of each eye. The triage information to be recorded, in addition to the usual age, sex, address, etc., is the visual acuity in each eye, classified in one of the three categories: $< 3/60$, $\geq 3/60 - < 6/60$, $\geq 6/60 - < 6/24$ and $\geq 6/24$. If the better vision is $\geq 6/24$, the patient must be referred to a distinct hospital or other facility where ECCE/IOL Surgery is available.

- 6. The triage form will appear thus:

Vision	RE.	LE.
$< 3/60$		
$\geq 3/60 - < 6/60$		
$\geq 6/60 - < 6/24$		
$\geq 6/24$		

Disposition of the patient will be determined as shown below.

Vision Better Eye	Disposition¹
< 3/60 - BILATERAL BLINDNESS	ECCE/IOL or ICCE
≥ 3/60 to ≤ 6/60 - BILATERAL BLINDNESS	ECCE/IOL or ICCE
≥ 6/36 - AND APHAKIA	ICCE/NO TREATMENT/ECCE/IOL
≥ 6/36 - and PSEUDOAPHAKIA IOL	ECCE/IOL/NO TREATMENT
6/36 UNILATERAL BLINDNESS	ECCE/IOL or ICCE
≥ 6/24² UNILATERAL BLINDNESS	ECCE/IOL/NO TREATMENT/ICCE
ONE - EYED PATIENT	ECCE/IOL or ICCE

1/ Under unusual circumstances, if patient has a special need for ECCE/IOL, refer to appropriate facility.

2/ ICCE only when surgery is medically indicated, e.g., hypermature cataract (anterior lens bulging, nucleus floating in liquid cortex), and ECCE/IOL is not available.

7. The recording of patient pre-operative examination surgery and post operative outcome are shown below. The : minimal data requirements must be available for every patient.

PATIENT EXAMINATION, SURGERY AND FOLLOW-UP OUTCOMES
(Minimum Data Requirements for each Patient examined)

Patient Name:

Age:

Gender:

Village:

Examination Outcomes

Exam Facility/location:

Exam date:

Title of Examiner (e.g., Ophthalmologist Assistant, Health Assistant, Other - Please specify)

Affiliation (Please check one): NGO ___ Government ___ Private ___

Visual acuity: Right eye, left eye (with best correction)

Aphakia/pseudoaphakia: RE: yes, no; LE: yes, no

Cataract diagnosed: RE: yes, no; LE: yes, no

Surgery indicated: RE: yes, no; LE: yes, no

If no, reason (e.g., other medical conditions, other blinding conditions)

Surgery

Surgery, performance: yes, no

If no, reason (e.g., patient refused)

Surgery Facility/location:

Surgery date:

Surgery procedure: ICCE, ECCE/IOL, Other (Please specify):

INDIA

CATARACT BLINDNESS CONTROL PROJECT

REQUIRED EQUIPMENT FOR CONDUCTING ECCE/IOL SURGERIES

1. The following equipment should be available at selected medical colleges and district hospitals (or other facilities expected to provide ECCE/IOL) to allow for a thorough ophthalmic examination.

Operating microscope
Slit lamp with applanation tonometry
Indirect binocular ophthalmoscope
Bjerrum screen with targets
Direct Ophthalmoscopes
Schiotz tonometer
Anterior vitrectomy unit with probes
Keratometer
High speed autoclave
Micro-surgical sets (10)

2. The rationale underpinning this equipment list is, first, concern for the quality of the surgical outcome, and secondarily, system output. For teaching purposes, a medical college should have the above, plus the following:

Ultrasound (A&B scan)
YAG laser

3. Proper and systematic preventive maintenance of all critical equipment items is necessary to ensure maximum availability throughout the year.

4. When additional bed capacity is the limiting factor at a fixed facility, consideration should be given to temporary beds. It is expected that a high-production district hospital would have a minimum of 30 beds dedicated to ophthalmic patients, 10 beds should be available in a subdivision hospital, and a minimum of 6 beds should be available in a CHC, unless they are used as permanent camp sites. Bed requirements should be based on providing a 3-4 day operative stay for patients distant from the facility (utilizing 507 corneo-scleral sutures) and 1-2 days stay for local patients.

Package for IOL Surgery

5. In addition to the requirement for ECCE, the following consumable are required:
- (a) IOL implant¹
 - (b) Balanced salt solution
 - (c) Visco-elastic substance (methyl cellulose)
 - (d) Gentamycin injection
 - (e) 10'0" nylon suture²

Refractive Services of Aphakic Cases

6. In view of the practical difficulties inherent in providing refractive services for operated patients (ICCE) in remote outreach areas, a range of aphakic spectacles, e.g., +9.0D +10.0D +11.0D should be available for testing purposes and dispensing to patients. Wherever possible, refraction and prescription of the required power of aphakic spectacles are desirable. This should generally be possible whenever ICCE surgery is carried out in a fixed facility.

7. The instruments used in ICCE surgery are:

Sterile syringe
Light wire lid speculum
Toothed forceps (2 pairs)
Conjunctival scissors
Hot point cautery
No. 11 blade or keratome
Corneal scissors
Iris forceps
Iris scissors
Closed intracapsular forceps
Cryoextractor (if available, is preferred to a closed intracapsular forceps).
Muscle hook or lens extractor
Iris repositor

^{1/} The powers of IOL recommended to be stocked are +18 +19 +20, and +21.

^{2/} Instead of the 8'0 virgin silk suture.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

GUIDELINES FOR SELECTION OF NGOs AND
PRIVATE PRACTITIONERS

1. The participation of NGOs is to be limited to organizations incorporated under the Societies Registration Act, charitable institutions, public trusts, statutory bodies and cooperative professional bodies. Entities with government ownership or control would not be eligible. GOI would consider whether and to what extent groups of individuals who, at the time of applying to participate in the Project, may not have fulfilled the requirements of legal incorporation as defined (such as community-based groups), could usefully participate in the Project. Whereas as a general matter, participation may be limited to entities that are already incorporated legally, such groups of individuals could, for example, be permitted to participate under appropriate terms and conditions (including a stipulation that they would acquire legal personality before receiving assistance under the Project).
2. Criteria for selection are:
 - (a) Track record of having performed well in providing eye care services.
 - (b) Experience in coordinating and supporting high-quality cataract operations in terms of vision restoration.
 - (c) Having available well-trained staff.
 - (d) Having available the requisite managerial expertise to organize and carry out cataract control programs.
 - (e) Having standing or experience in the community where they would be involved.
 - (f) Agreeing to abide by the essential norms of the program.
3. Every effort should be made to assign geographic areas to NGOs and provide them with adequate funding to carry out such assignments.
4. Funding can be provided through the general grants in aid or on a per case basis. If the latter is the case, norms established at the center would be used as the basis for compensation. These norms would adequately reflect the cost of performing these services whether it is simply for eye care education of screening and case processing, identification activities or the full range of services including the operation itself. Additionally, adequate provision would be made to ensure that Nodal NGOs are provided support for other non-recurring and recurring costs that are necessary to support the conduct of these operations.

5. To guarantee quality control (sight restoration), NGOs doing surgical work should receive only a portion (half) of the cost of cataract operations prior to surgery services and the balance upon verification that sight has been restored, as testified in writing by a family member.
6. Payment to NGOs would be done according to costing norms established by the Central Government.
7. Procedures for provision of services (contracting arrangements or legal agreements) would be in place prior to any work assignment.
8. Resolution of disputes regarding selection procedures would be handled by the Project Coordination Committee.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

SUMMARY

PLAN OF ACTION FOR TRIBAL AND OTHER ISOLATED AREAS

OBJECTIVE	ACTION	IMPLEMENTATION RESPONSIBILITY
<p>Improve Service Delivery</p>	<p>Carry out epidemiological and rapid ethnographic studies of blindness in tribal and remote areas during the first year of the project.</p>	<p>State DBCS</p>
	<p>Establish DBCS in all Tribal Districts on a priority basis.</p>	<p>State DBCS</p>
	<p>Establish infrastructure (fixed facilities) in tribal districts with close proximity to tribal populations.</p>	<p>State DBCS</p>
	<p>Redeploy existing ophthalmological personnel (surgeons, PMOAs, etc.) from non-tribal to tribal areas on a selective basis by providing them with appropriate living accommodations and non-monetary incentives.</p>	<p>State</p>
	<p>Develop an annual calendar or fixed day approach for Eye Camps to be held in tribal areas.</p>	<p>DBCS</p>
	<p>Assign an additional DMU in tribal and remote areas.</p>	<p>State</p>
	<p>Pay higher rates to NGOs and private surgeons for services in tribal areas.</p>	<p>DBCS</p>
	<p>Assign additional ophthalmic assistants in tribal areas to facilitate coverage.</p>	<p>State</p>
	<p>Establish service contracts with private ophthalmologists and letters of agreement with NGOs to cover specified tribal areas.</p>	<p>State DBCS</p>
<p>Provide incentives to private ophthalmologists to set up practice and cover specific tribal districts, on a pilot basis.</p>	<p>State DBCS</p>	

OBJECTIVE	ACTION	AGENT
Inform and Motivate Patients	<p>Engage a private organization or NGO to prepare and carry out a plan of action for IEC with the involvement of beneficiary tribal communities.</p> <p>Carry out screening camps in community gathering places and inform about cataracts.</p>	<p>DBCS</p> <p>DBCS NGOs</p>
Facilitate Access to Services	<p>Establish Special Eye Camps for women only in tribal and hard to reach areas.</p> <p>Use DBCS contingency funds to reimburse patients for the cost of transportation and lost wages.</p> <p>Provide transportation for patients who have been screened for surgery but are unable to reach the facilities, e.g., district hospital or a distant CHC.</p>	<p>State DBCS NGOs</p> <p>DBCS</p> <p>State DBCS NGOs</p>
Monitoring	<p>Conduct periodic meetings with tribal community members to obtain feedback on program effectiveness.</p> <p>Conduct annual beneficiary assessment to measure patients' satisfaction with results and services in all tribal areas.</p> <p>Schedule frequent tours and spot checks of facilities and services in tribal and remote areas.</p> <p>Carry out bi-annual review of tribal implementation plan by the DBCS and State cells.</p>	<p>DBCS NGOs</p> <p>State DBCS</p> <p>State DBCS NGOs</p> <p>State DBCS</p>

INDIA

CATARACT BLINDNESS CONTROL PROJECT

TIME-TABLE FOR TRAINING

Courses to be trained	Duration (weeks/days)	Total Number of Trainees	Number of Trainees Per Batch	Numbers To Be Trained In 7 Years							
				1	2	3	4	5	6	7	
Faculty Medical Colleges/I	16	96	16	32	64						
Ophthalmic Surgeons (high volume ICCE and ICCCE/MDLJ)	16	500	48		100	100	150	150			
Ophthalmic Surgeons in Non-Surgical Units	12	200	16	60	70	70					
Refresher Course in ICCE/IC	1	500	25			100	100	150	150		
Medical Officers of Primary Health Centers/Community Allied Personnel/Ophthalmic Assistant/Health Assistants	3	3,500	50	1,000	1,500	1,000					
District Coordinators and State Program Officers/ MIS Personnel	2	275	5		200						
DBCS Members	1	350	50	250							

1/ Venues for Training: Seven Selected Training Institutions.

2/ Medical Colleges and Seven Selected Training Institutions.

3/ Medical Colleges and District Hospitals.

4/ District Hospitals.

5/ Designated Training Centers.

6/ District Hospitals and Designated Training Centers.

7/ Ophthalmic Assistant Training Centers (for ophthalmic assistants and health assistants).

8/ Different Sites (for district coordinators, state program officers, MIS personnel and DBCS members).

INDIA

CATARACT BLINDNESS CONTROL PROJECT

SELECTION OF MEDICAL COLLEGES AND INSTITUTIONS
FOR TRAINER TRAINING ¹

1. The following institutional criteria have to be satisfied by the medical college department before its faculty are recruited for training as trainers.
 - (a) The Head of the department should make an unambiguous written commitment to facilitate and provide the necessary support for a major training effort. This includes the planned retention of the trained faculty members in the same institution for a minimum of three years (including a commitment from the State Government for the same).
 - (b) There should be evidence to show that an adequate number of patients are available to provide adequate surgical training experience for resident trainees. If the volume of patients is inadequate, the department should demonstrate that it will be able to increase this volume.
 - (c) Infrastructural facilities such as equipment for patient evaluation, A-Scan ultrasonography, operating microscope with assistant scope, and other necessary microsurgical instruments should be available. Information should be provided on year of purchase and working order. Other infrastructural facilities that should be available are: library facilities, accommodation facilities for trainees, lecture halls, audio-visual equipment, etc.
 - (d) Deficiencies in infrastructure must be rectified by the current program, preferably by the time the trained faculty returns to the department.
 - (e) At least two, preferably three, members of the faculty will be trained from each department. It is recommended that each of these will be trained in a different training center to encourage some degree of diversity in thinking and exposure.

¹/Training Guidelines developed during the Training Workshop with Indian Ophthalmologists, NGOs, Medical College Directors and NIH Consultants.

- (f) There should be evidence of the following: (i) track record of training in cataract surgery; (ii) well developed curriculum already available; (iii) commitment to one on one supervised training; (iv) competence in making any diagnosis and appropriate treatment of complications, and the methodology of training others in the management of such problems; and availability of training program materials.

Evaluation of Existing Post-Graduate Training Program

2. Through an on-site visit before selection as a site for faculty upgrading, the following factors should be assessed:

- (a) Faculty members in department:
- total number involved in teaching
 - general and specialty areas covered
 - time devoted to supervised teaching (scrub with operating surgeon)
- (b) Training program methods and materials.
- (c) Number of resident doctors in department.
- (d) Practice of cataract surgery:
- total number of cataract surgeries performed during the past 12 months; and
 - number of supervised cataract surgeries performed by junior residents/post graduates: ICCE, ECCE, ECCE with Posterior Chamber IOL, ICCE with Anterior Chamber IOL (Supervised cataract surgeries implies that the training surgeon is scrubbed and present with the trainee during the entire procedures).
- (e) Equipment availability (year of purchase and working order):
- slit lamp
 - operating microscope
 - keratometer
 - A-Scan
 - Yag laser
 - other

- (f) Patient care techniques and follow-up care system.
- (g) Resident training documentation system.

3. In addition, the institutional training program can be assessed through interviews with trainees, both current and past. Information on cataract surgical experience from representative trainees is especially important:

<u>Cases Assisted</u>	<u>Supervised Cases Operated</u>	<u>Independent Cases Operated</u>
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ICCE:

ECCE:

ECCE with PC IOL:

ICCE with AC IOL:

EVALUATION OF TRAINING EXPERIENCE

Name of training institution:

Please indicate using numerical values, your evaluation of the training program.

	5. Outstanding	4. Very Good	3. Average	2. Fair	1. Poor
1. Quality of preoperative assessment					[]
a. Use of modern techniques					[]
b. Diagnostic methodology					[]
c. Teaching/discussion					[]
d. Demonstration of findings					[]
2. Surgery					
a. Surgical skills of supervisor					[]
b. Judgment of supervisor					[]
c. Handling of complications					[]
d. Discussion of procedure					[]
3. Post-operative Care					
a. Early diagnosis of problem					[]
b. Management of problem					[]
c. Discussion of post-operative care					[]
4. Didactic					
a. Content of lectures					[]
b. Quality of presentations					[]
c. Interaction with trainees					[]
d. Quality of audio-visual material					[]
5. Surgical Equipments					
a. Access					[]
b. Quality					[]
c. Functionability					[]
6. Library					
a. Access					[]
b. Materials					
(i) Quantity					[]
(ii) Quality					[]
7. Accommodation					[]
8. Interaction with other aspects of organization					[]
9. Overall rating					[]

Comments: _____

INDIA

CATARACT BLINDNESS CONTROL PROJECT

TRAINING PROGRAM FOR OPHTHALMOLOGISTS ¹

A. "Train the Trainers Program"

1. Approximately 96 faculty members from 39 medical colleges in the 7 States and an additional 20 ophthalmologists, 10 from other government hospitals, and 10 from NGOs affiliated with the program, would be trained as trainers in the selected institutions each year. The four-month program would involve surgical techniques (ECCE/IOL and ICCE), methods of operational efficiency, and teaching methodologies. Formal commitments will be obtained from the state government and medical colleges to release faculty and staff for the period required. The training would include hands-on clinical practice.
2. A minimum of 75 cataract surgery cases should be allocated to each candidate as follows:
 - (a) 25 cases where the candidate scrubs with the training surgeon (assists with the case);
 - (b) 25 cases where the candidate operates under close supervision (training surgeon scrubbing and present during the entire period);
 - (c) 20 cases of independent surgery; and
 - (d) 5 cases of training a new resident/fellow.
3. The content of the curriculum are as follows:
 - (a) Surgical consideration suitability and pre-op. preparation of ECCE and IOL.
 - (b) Pre-anesthesia and ocular anesthesia
 - (c) Drugs, solutions, viscoelastic substances and suture material.
 - (d) Microsurgical and optical instruments.
 - (e) Calculation of power of IOL.
 - (f) Materials and design of IOL.
 - (g) Handling and care of microsurgical instruments.
 - (h) State of the Art of ECCE - Part I (Incision and Capsulectomy).

¹/Training Guidelines developed during the Training Workshop with Indian Ophthalmologists, NGOs, Medical College Directors and NIH Consultants.

- (i) State of the Art of ECCE - Part II (Nuclear Delivery Aspiration).
- (j) State of the Art of IOL Implantation (Anterior Chamber and Posterior Chamber).
- (k) Complications and Management of IOL Surgery - Part I (Intra Operative).
- (l) Complications and Management of IOL Surgery - Part II (Post Operative, including Yag Laser application).
- (m) Pedagogical Principles.

4. The suggested program is as follows:

- (a) 96 hours for hands on animal eyes and enucleated eyes for Development of Hand-Eye Coordination and Working Experience With Operating Microscope.
- (b) 24 hours for Ultrasound Biometry.
- (c) 24 hours for Keratometry.
- (d) 128 hours for O.P.D. Diagnosis and Detection.
- (e) 128 hours for Ward - Pre and Post Operative Assessment.
- (f) 18 hours for Observation and Familiarization with Ophthalmic Theater Procedures (scrubbing, sterilization and Asepsis).
- (g) 25 hours assisting 25 cases.
- (h) 25 hours operating under supervision.
- (i) 25 hours operating 20 cases independently and 5 cases training others.
- (j) 64 hours Observation in the Ophthalmic Theater (other surgeons).
- (k) 27 hours of Lectures and Demonstrations.
- (l) 180 hours of Library Work.
- (m) 20 hours of Preparation of Work Report.

5. Some important suggestions are as follows:

- (a) The Trainer to Trainee Ratio should be 1 : 1.
- (b) The training scheme should include (i) orientation to operating microscope by practicing on animal eyes and use donor eyes after 25 cases and (ii) performing extraocular procedures under microscope, e.g., Pterygium excision, conjunctival suturing (25 cases).
- (c) For ECCE/IOL, the trainee should observe, assist and perform, under supervision or independently, 25 cases each.
- (d) Training in Laser technology, including investigative procedures, may be of 4 weeks duration.
- (e) A team, comprising of experts, would visit Institutions to be certified as Training Institutions for IOL Technology.
- (f) The Training Institutions so identified and certified should be fully equipped for training by providing extra faculty, equipments and material. IOL and viscosity material could be provided as training material if there is scope of increasing surgery by ECCE/IOL technique.

6. Each trainer candidate will be evaluated on surgical and patient care skills by the faculty of the training center upon completion of the four-month course. The candidate will also be reviewed for competence in teaching and evaluation skills. After newly trained trainers return to their home institution, an upward feedback mechanism shall be established whereby these trainers, who have now worked in the field, shall communicate to their training institutions their confirmation, suggested revisions and additions concerning the training curriculum they had undertaken to keep it up to date for the benefit of future trainers

B. Training of Practicing Ophthalmologists in ECCE with IOL Implants

7. Following a training needs assessment, other surgeons (not trained as trainers) from medical colleges, regional eye institutes, and selected district hospitals with considerable experience in conducting ICCE would be given preference for training in ECCE with IOL implants. This training will be conducted at selected medical colleges and training centers that meet the required institutional criteria (Annex 17). Approximately 500 of these surgeons would be trained both in ECCE with IOL implants and in high volume cataract surgery using the ICCE technique. These practicing ophthalmologists would be attached to one of the designated medical colleges/hospitals where "trainers" are available to work as a member of the surgical team for a period of 16 weeks. In addition, during the project, another estimated 500 active surgeons would be given further training in high volume ICCE surgery through one-week technical workshops.

C. Training for Surgically Non-active Surgeons in ICCE

8. Many government ophthalmologists currently assigned to non-ophthalmic duties would be selectively trained and redeployed. Approximately 200 such ophthalmologists would be deputed to ophthalmology departments of the designated medical colleges or to district hospitals for a period of 12 weeks to undergo training in high volume cataract surgery using the ICCE technique.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

TRAINING OF ALLIED PERSONNEL AND OTHERS
IN OPHTHALMOLOGY¹

1. The availability of ophthalmic assistants and ophthalmic nursing care constitutes an essential ingredient in the cost-effective delivery of cataract surgery. Specialized training to enhance the ophthalmic and community health skills of paramedical and nursing personnel is needed to make efficient use of the ophthalmologists. A team effort is necessary.

A. Trainee Candidates:

- (a) Government trained nurses with ophthalmic knowledge.
- (b) Government trained nurses with the desire and ability to undergo ophthalmic training.
- (c) Health Assistants.
- (d) Ophthalmic technicians/assistants and Medical Officers.
- (e) Nurses trained in private sector with ophthalmic knowledge.
- (f) General private nurses interested in ophthalmic training.

B. Duration of Course:

Twelve weeks of intensive disciplined training by ophthalmic surgeons, senior ophthalmic nursing staff and hospital administrators will be provided to Allied Personnel such as Nurses (500) and to Health Assistants (250). Because of their previous technical training (2 years in Training Institutes), Para-Medical Ophthalmic Assistants (3,000) will be given a one week refresher course and additional training in Community Outreach. Medical Officers (3,500) of Primary Health Centers will be given a three-day training program to inform them about the National Program for the Control of Blindness.

¹Training Guidelines developed during the Training Workshop with Indian Ophthalmologists, NGOs, Medical College Directors and NIH Consultants.

C. Learning Objectives:

- (a) Pre-operative assessment and preparation of patients.
- (b) Retro-bulbar and facial block under supervision of medical person.
- (c) Assisting in ICCE, ECCE and intraocular operations (minimum 50 per trainee: 25 as second assistant with senior nurse and 25 as first assistant).
- (d) Care and maintenance of instruments and equipment.
- (e) Sterilization of sharp and blunt instruments.
- (f) Packing of bins and autoclaving.
- (g) Post-operative care.

D. Training Program:

Knowledge (Didactic Lectures)

- 1. Anatomy, physiology and function of the eye.
- 2. Familiarity with external eye disease.
- 3. Familiarity with different stages of cataract - to diagnose cases.
- 4. ICCE, ECCE and IOL - advantages/disadvantages.
- 5. General pre-operative procedures.
 - Visual acuity
 - Pupillary reaction
 - Lacrimal passage testing
 - Shiotz tonometry
 - B.P.
 - Urinalysis
- 6. Preliminary knowledge of anesthesia, including techniques and complications.
- 7. Knowledge about instruments and equipment in relation to their use, maintenance and sterilization.
- 8. Sterilization and autoclaving - instrument, theater, etc.

9. Pharmacology - antibiotics, mydriatics, miotics and steroids.
10. Normal cataract surgery (videos).

Skills (Hands-on Practice)

11. Preoperative procedures (as in 5 above).
12. Preparing the eye for surgery.
13. Giving nerve blocks.
14. Management of emergencies while giving the block.
15. Dilating the eye.
16. Lacrimal massage.
17. Theater discipline.
18. Trolley setup.
19. Draping procedure.
20. Assisting the surgeon during all steps.
21. Anticipating ocular complications and developing reflexes to manage these.
22. Sending instruments back for sterilization.
23. Post-operative care.
 - general dressing procedures
 - dealing with complaints of the patient
 - ability to identify infection, hyphema, hyphopyon, iris prolapse, etc.
 - post-operative instructions to patients
24. Community Health.
 - Patient-Service Provider interaction
 - Motivation Techniques
 - Cultural Awareness

Assessment

Knowledge and skills assessment is to be documented by the student through the maintenance of a record in a prescribed uniform manner.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

MANAGEMENT TRAINING

1. The main components of the Management Training are as follows:
 - a) Team Building -- emphasize on the teaching of teams, not merely individuals.
 - b) A need-driven curriculum based on job requirements -- tailor the training to job requirements and performance.
 - c) Case-based training built upon field experience.
2. Short courses for program orientation and appreciation of the cataract blindness problem will be appropriate for senior officers, while more in-depth material on management functions and processes will be required for implementation staff. Management training as an adjunct to ophthalmology training for medical staff should be viewed as a necessary component.
3. It is expected that 250 DBCS members and District Program Coordinators would receive a one-week intensive managerial training course. The leadership course would include both the "soft" aspects of management (e.g., team building and partnership) and the "hard" aspects (e.g., finance, operations analysis, etc.). It is likewise expected that 20 Program Officers on the State and National levels would be given a similar one-week intensive managerial training course.
4. Finally, it is proposed that 275 staff, who will be handling the Management Information System (MIS) aspect of the proposed project, be given a two-week intensive training course on MIS (For more on the MIS, see Annex 23).
5. A detailed management curriculum will be developed for each category of staff.

ONE WEEK TRAINING OF STATE PROGRAM OFFICERS
AND DISTRICT COORDINATORS BY STATE

DAY 1

- Module 1. New Approach for Control of Blindness, Problem of Blindness in India, History of the National Program for the Control of Blindness (Strategies, Inputs, Achievements, Strengths and Constraints), Highlights of New Approach.
- Module 2. Introducing the District Blindness Control Society, the Need for a Decentralized Approach and Philosophy of the DBCS, Composition, Strengths and Workings of the DBCS, Case Studies.
- Module 3. Role of the DBCS.

DAY 2

- Module 4. Needs Assessment, Estimating the Load, Current Achievements, Target Setting and Target Estimation for Individual Districts, Logistics.
- Module 5. Service Delivery, Case Finding, Case Studies from Videos/Slides/Audios, Different Forms of Service Delivery, Information, Education and Communication for Case Finding.

DAY 3

- Module 6. Visit To An Eye Camp.

DAY 4

- Module 7. Resource Analysis, Situational Assessment, Infrastructure and Physical Facilities, Manpower, Financial and Latent Resources, Priorities and Strategies.

DAY 5

- Module 8. District Plan of Action, Experience from Pilot District on Developing a Plan of Action.
- Module 9. Monitoring and Management Information System, MIS at the District Level, Monitoring Implementation of the Program.

DAY 6

- Module 10.
Job Description of the State Program Officer and the District Blindness Control Coordinator, Course Evaluation.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

OUTREACH AND
INFORMATION, EDUCATION AND COMMUNICATION (IEC) STRATEGY

STRATEGY	TARGET AUDIENCE	OBJECTIVES	MEDIA/MEAN	IMPLEMENTATION RESPONSIBILITY	INPUT NEEDED
Image Building	General Public Ophthalmic Community NGOs	Inform about the Cataract Problem (Urban/Rural, Tribal, Women) Gather support from Ophthalmic Community, NGOs and other health providers	T.V., radio, and print media Workshops, Conferences with Ophthalmic surgeons Workshops with NGOs	GOI GOI/States	Publicity Services Workshop/Conference Costs
Outreach, Demand Generation and Communication	Future patients and their families with special focus on women and tribal/remote areas Teachers and School Children Multi-Sectoral parties, e.g., education and tribal sub-plan Panchayats, tribal representatives	Inform about: cataract problems and curability calendar and places to receive services bases for deciding on surgery places to go for grievance Screening routines through house to house visits	Eye Care Campaigns Media presentation in community gathering places Folk Media Temporary outreach workers NGO outreach camps Ophthalmic and Health Assistants	State Ophthalmic Cells DBCS NGOs	Mobile Units. Video Tapes and slides. Messages based on content analysis and culture and language of groups. Contractual Service with local groups. Stipends to village workers. Illustration cards. Fees to NGOs on a time-distance norm.
Health Education	Para-Medical Ophthalmic Assistants (PMOAs) Multi-purpose Worker Medical Officers (MOs)	Familiarize them with new program, approach and standards Raise consciousness about Community outreach	Workshops	GOI States DBCS	Education materials: Videos, Prints, Cards, Etc. Trainers

INDIA

CATARACT BLINDNESS CONTROL PROJECT

THE ORGANIZATIONAL STRUCTURE OF
THE NATIONAL PROGRAM FOR THE CONTROL OF BLINDNESS

The National Blindness Control Board

1. At the National level is the National Blindness Control Board. All major decisions concerned with the project will be taken up by the Board. Its major functions are as follows:

- a) To initiate and formulate policies for the Control of Blindness.
- b) To prepare the annual plans for the implementation of the National Program for the Control of Blindness (NPCB).
- c) To approve budgets and allocate resources to various units involved in program implementation.
- d) Coordinate with the Departments concerned with Social Services and Economic Development at the National level.
- e) Advise State governments on program implementation.
- f) Evaluate program objectives and achievements.

2. The Board will consist of the following members:

- | | | |
|--|---|------------------|
| a) The Union Health Secretary | - | Chairman |
| b) Expenditure Secretary or his nominee | - | Member |
| c) Director General of Health Services | - | Member |
| d) National Project Director (NPCB) | - | Member-Secretary |
| e) Advisor Ophthalmology (GOI) | - | Member |
| f) Joint Secretary (FA) | - | Member |
| g) Advisor (Health)-Planning Commission | - | Member |
| h) Additional Project Director (DDG) | - | Member |
| i) Representatives of Donor Agencies | - | Members |
| j) Chairman of 3 leading NGOs in the Control of Blindness Sector | - | Member |

The National Project Director

3. Under the overall guidance and direction of the National Blindness Control Board, the National Project Director would perform the following duties:

- a) Responsible for the overall implementation of the National Program for the Control of the Blindness (NPCB).
- b) Coordinate the work of the Five Units involved in the National Project Management Unit, namely:
 - i) The Technical and Training Unit;
 - ii) The Management Information System (MIS) Unit;
 - iii) The Procurement Unit;
 - iv) General Administration and Finance Unit; and
 - v) Non-Technical Training and IEC Unit.
- c) Coordinate and supervise the following functions:
 - i) Administration and finance including procurement, through ICB and LCB procedures of the World Bank, and distribution of vehicles, supplies, consumables, furniture, equipment and maintenance of equipment.
 - ii) Actively coordinate with NGOs at a national level and serve as a co-chairperson of the NGO consortium, and prepare the mechanisms for involving both International and National NGOs.
 - iii) The Management Information System.
 - iv) Training and conducting workshops, preparing operational guidelines and training materials.
- d) Organize and coordinate demand generation through different media activities from a National and State perspective, drawing up a campaign capable of decentralized implementation and covering the different stages of the NPCB.
- e) Act as Member Secretary of the National Blindness Control Board.

- f) Be responsible for coordination of activities with the concerned State Governments.
- g) Coordinate the training of Faculty members of Medical Colleges, Ophthalmic Surgeons, Medical Officers of PHCs, Allied Personnel and Para-Medical Ophthalmic Assistants expected to be trained under the program.
- h) Coordinate and monitor the numbers involved in IOL surgery considering that it will be introduced for the first time in most medical colleges and district hospitals.
- i) Modify the curriculum for Post Graduates in Ophthalmology in Medical Colleges in consultation with MCI.
- j) Monitor and concurrently evaluate the Quality of Services of the NPCB.
- k) Monitor the performance of the Regional Institute of Ophthalmology, the Medical Colleges (56), the District Hospitals (250) and the District Blindness Control Societies (250).
- l) Organize the construction program for the creation and upgrading of permanent facilities.

The Technical Advisory Committee

4. To strengthen the technical aspects of the program, there will be a Technical Advisory Committee (TAC). The main functions of the TAC are:

- a) To evolve policy issues on the technical aspects of the project.
- b) To frame technical norms and standards to be followed during the implementation of the project.
- c) To develop mechanisms for ensuring the quality of the services provided.
- d) To approve specifications of equipments and consumables to be procured during the project.
- e) To approve the training curriculum of various courses for ophthalmic and technical personnel.

- f) To approve mechanisms of monitoring and evaluation of the technical aspects of the project and give direction when changes appear called for on the basis of information supplied.

5. The members of the Technical Advisory Committee will include:

- a) Director General of Health Services - Chairperson
- b) Advisor Ophthalmology (GOI) - Member
- c) Renowned Ophthalmologists (3-4) - Members
- d) Joint Directors (Project States) - Members
- e) Additional Project Director - Member Secretary

The Project Coordination Committee

6. To coordinate the various sectors (Private, NGOs, Government, Health, Social Welfare, Education, Rural Development, Information and Broadcasting and Financial Institutions, DANIDA, WHO, World Bank) involved in the National Program for the Control of Blindness, there will be a Project Coordination Committee (PCC). The main functions of the PCC are:

- a) To formulate the mechanisms for involvement of NGOs in the project.
- b) To examine the proposals for assistance to NGOs to expand their coverage and approval thereof.
- c) To evolve the mechanisms for involvement of Private Ophthalmologists in the project in specified areas.
- d) To approve the proposals by private ophthalmologists for grants-in-aid and seed money to establish services in specified areas.
- e) To approve proposals for operational research.

7. The members of the Project Coordination Committee will include:

- a) Project Director - Chairman
- b) NGO Nominee - Vice Chairman
- c) World Bank Representative - Member
- d) NGO Representative (2-3) - Members
- e) DANIDA Representative - Member
- f) WHO Representative - Member
- g) General Secretary (AIOS) - Member

- | | | | |
|----|-------------------------------|---|------------------|
| h) | Additional Project Director | - | Member |
| i) | Deputy Project Director (ADG) | - | Member |
| j) | Deputy Project Director (DS) | - | Member Secretary |

The State Project Management Unit

8. Supervising the project at the State level would be the State Project Management Unit. It would consist of the State Project Officer, who will be the Project Manager and two other officials, preferably with experience in public health, ophthalmology and public administration, one of whom will be designated as the Assistant Director or Assistant Project Manager. It would be responsible for monitoring the program at the state level, consolidating and reviewing performance and evaluation reports and ensuring efficiency and quality control. It will coordinate training programs for ophthalmologists, Program Coordinators and DBCS members. It will ensure proper maintenance of vehicles and equipment and will identify the voluntary agencies and private hospitals to participate in the project. It will conduct periodic audit of accounts and submit reports to State Review Committee.

The State Empowered Committee

9. Serving as the link between District and National units is the State Empowered committee which would expedite the release of funds and decision-making at the State level. The main functions of the committee are:

- a) To review the implementation of the operational plans prepared by the district units.
- b) To assess the strengths and weaknesses of each district unit and to take measures so that the units become more effective.
- c) To consider proposals at the State level for NGO taking up the responsibility on a location specific basis and setting the conditions to foster this.
- d) To consider and pass all schemes and projects assessed as viable by the State Financial Committee, and to introduce mechanisms to enable the flow of funds.
- e) To coordinate the activities of the different government agencies who support the program.
- f) To monitor the extent of achievements against the targets set.

- g) To advise the district units on resource utilization and quality measures to approve innovative schemes.
- h) To order and have conducted the internal audit of district units and to forward the reports to the National Project Director.

10. The Health Secretary will be the Chairman and the State Program Officer will be the Member Secretary of the State Empowered Committee. The Committee will meet quarterly (once every three months). The minutes of the meeting will be circulated to the National Project Director and the District Health and Medical Officers, and others directly involved in the program.

11. The State Empowered Committee will consist of the following members:

- a) Secretary of Health - Chairman
- b) Secretary of Planning and Finance - Member
- c) Chairman/MD of the State Financial Corporation - Member
- d) Director of Health Services - Member
- e) Director of Medical Education - Member
- f) NGO Representatives (2) - Members
- g) Ophthalmologists (2) - Members
- h) Deputy Director of Statistics - Member
- i) Selected Chairman/Coordinators of the DBCS - Members
- j) State Program Officer (Blindness Control) - Member Secretary

District Blindness Control Society

12. District Blindness Control Societies will be established in all Districts. The main responsibilities of the DBCS are:

- a) Assess the magnitude of the blindness problem of the District, its beneficiaries, infrastructures, resources, and develop and prepare operational plans for the District.
- b) Implement the blindness control program in the District through logistics management.
- c) Monitor and report on inputs, processes and outputs, on quality assurance and evaluation of outcomes on a quarterly basis to state ophthalmic cell using the Management Information System.

- d) Prepare a list of voluntary agencies and private hospitals to involve them in program activities.
- e) Coordinate activities between various departments and among the varied sectors (Government/Private/NGOs).
- f) Undertake health education activities by using audio-visual and print material.
- g) Raise funds from voluntary organizations, philanthropists, and other donors.
- h) Monitor, control and account for proper funds, material, equipments received from the Government and other sources.
- i) Frame rules and regulations for day-to-day execution of the society's activities
- j) Appoint and employ temporarily or permanently staff needed for Blindness Control activities.

13. DBCS will have the following members:

- a) District Collector - Chairman
- b) Chairman of Zilla Parishad - Co-Chairman
- c) Chief District Medical Officer
- d) Superintendent of District Hospital
- e) District Ophthalmic Surgeon
- f) District Blindness Control Coordinator - Member Secretary, who will be appointed strictly on a contractual basis.
- g) NGO Representative. In those districts where NGOs have performed more than 50% of cataract operations, an NGO representative will be designated as Vice Chairman of the Society.
- h) Two prominent citizens of the District, one of whom could be Chairman of IMA.
- i) District Education Officer
- j) Representatives of the people (MPS/Members of Legislative Assemblies - MLAs).
- k) Integrated Child Development Services (ICDS) Officer.

The District Program Coordinator

14. Under the overall direction and supervision of the District Blindness Control Society, the District Program Coordinator will carry out the following duties:

- a) **Function as Member Secretary of the DBCS.**
- b) **Help plan, implement and monitor the program at the District level.**
- c) **Assist the Chairman DBCS in the receipt, disbursement, monitoring and accounting of the funds, and maintain the accounts of the DBCS which will be subject to external audit periodically.**
- d) **Be responsible for the preparation of detailed district level plans of action, their implementation, monitoring and evaluation.**
- e) **Coordinate with governmental, non-governmental and private sectors as appropriate in the organization of outreach activities, including their monitoring, reporting and accounting.**
- f) **Organize and maintain a management information system with regard to the program at the district level with flow of information to the State and peripheral levels with regard to inputs, outputs and outcomes of surgical and other services.**
- g) **Participate actively in IEC activity related to the District Program, and develop IEC materials based on local needs.**
- h) **Coordinate and facilitate the appropriate training programs for District level staff.**
- i) **Assist in evaluation activities as necessary.**
- j) **Identify areas for operation research surveys and field studies and assist in these activities.**
- k) **Be responsible for the logistical and supply support to the program ---- vehicles, supplies, equipment and maintenance.**
- l) **Participate in resource justification.**
- m) **Supervise district operations and the district staff.**
- n) **Provide and distribute the needed drugs, spectacles, laboratory and office equipment and supplies, and health education materials.**
- o) **Submit periodical reports to the Central and State authorities.**
- p) **Carry out any other function as determined by the DBCS.**

INDIA

CATARACT BLINDNESS CONTROL PROJECT

MANAGEMENT INFORMATION SYSTEMS

Below are the three layers envisioned for the Management Information System (MIS) reporting levels:

a) At the top layer of reporting (MIS Level 3), it is proposed that the "blindness module" of the existing Health Management Information System (HMIS) be enhanced to provide additional data fields for reporting of the statistics necessary to monitor and evaluate the overall progress toward the achievement of the project objectives. The HMIS was developed for MOHFW and is maintained by the National Informatics Center (NIC) in New Delhi. Using the HMIS, information on various health programs are currently being reported from District level statistics cells via the NIC nationwide network (NICNET) to State health authorities and the MOH Center. Utilization of this existing reporting network is expected to be a more economical and efficient approach than creating a unique MIS network to satisfy the summary level reporting requirements at the State Ophthalmic Cells and Center level on the progress of the Blindness Control Project.

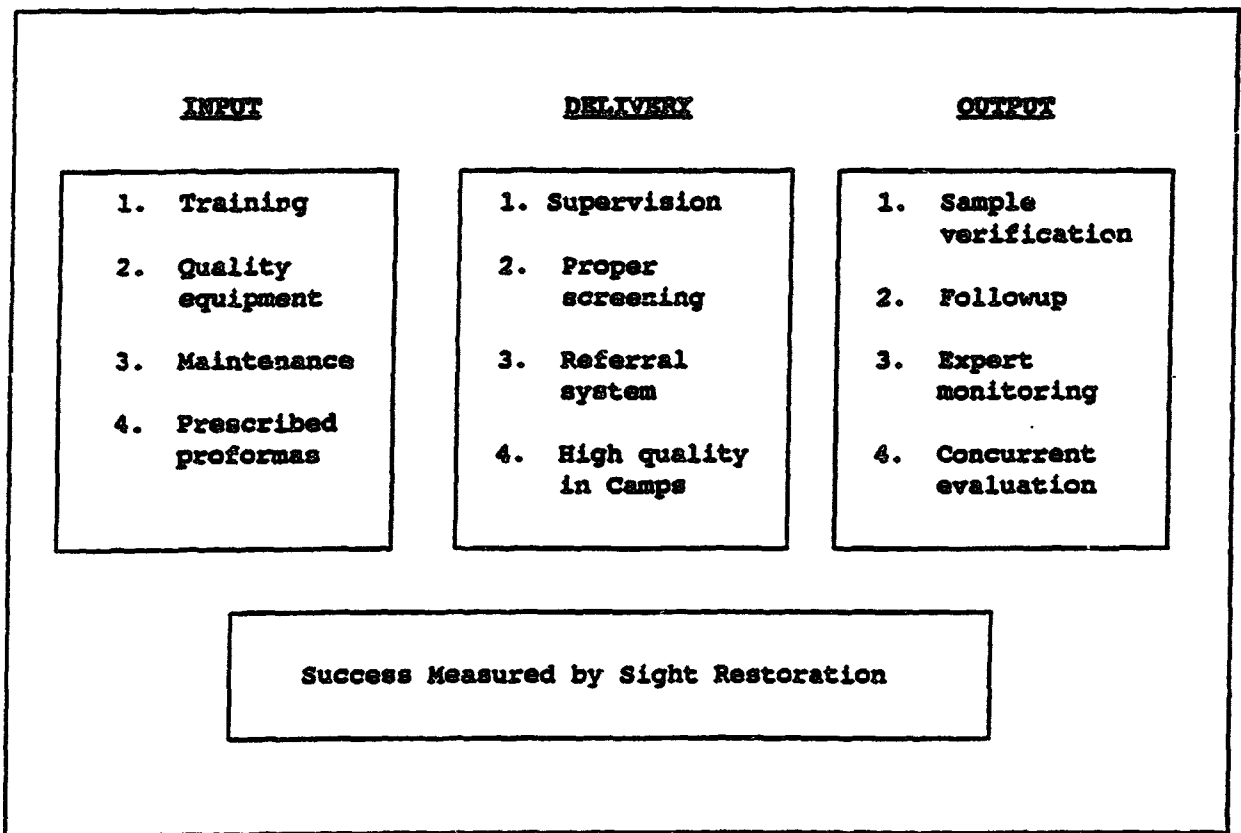
b) At the mid-layer of reporting (MIS Level 2), the emphasis for support will be for the Program Coordinator position which spans the visibility of the project implementation across an entire District. At this level, it is anticipated that a PC based computer system will be installed (with funds provided by the project) to capture and process the information being fed upwards from the PHCs, CHCs and District Hospitals. Aggregation of patient data and logistic information at the District Program Coordinator's office will permit a focusing of attention and resources within the District to optimize patient concentrations for effective high volume cataract surgery operations. The Program Coordinator's office will also channel the aggregated data and statistics from the PHCs, CHCs and District Hospitals for reporting upward to the State Ophthalmic Cells.

c) At the lowest level reporting (MIS Level 1), the capture and maintenance of records relating the Blindness Control Project is expected to be largely a "paper-based" system. At the PHC levels (and possibly at CHC and District Hospitals where computer systems are not readily accessible), patient data would be maintained on simple, standardized registers and "patient cards" maintained at these health centers for all identified cataract cases. At this lowest level of the MIS, a paper-based record keeping system is perfectly adequate, in fact, even preferable to a computerized system since it obviates the need for computer training and equipment at PHC level for maintaining a relatively small number of records at any given time. Individual "patient cards" would be created when a cataract case is identified, maintained until surgery can be arranged, kept active until follow up is completed, and retired to the Program Coordinators office as a part of the project's permanent records. On a predetermined periodic basis, a register of information will be compiled from the patient cards and reported to the Program Coordinator's office.

INDIA

CATARACT BLINDNESS CONTROL PROJECT

MECHANISM OF QUALITY CONTROL



INDIA

CATARACT BLINDNESS CONTROL PROJECT

PLANNED OPERATIONS RESEARCH

1. **Impact of upgrading District Hospital (DH), Primary Health Center (PHC) and Community Health Center (CHC) on operations and productivity. Random selection of hospitals, PHCs and CHCs for evaluation of results of project interventions (prior to mid-term review).**
 - a. **surgery volume (ICCE, ECCE/IOL)**
 - b. **volume per ophthalmologist and per bed**
 - c. **service quality as represented by vision restoration**
 - d. **equipment status (types and in-service availability)**
 - e. **influence of over-all hospital, PHC and CHC policies, procedures and performance on ophthalmic unit operations and productivity**
 - f. **assessment of effectiveness of referral system**

2. **Assessment of Training Impact:**
 - a. **Assessment of post-training skills competencies of NPCB-trained ophthalmologists.**
 - b. **Survey of ophthalmology post-graduates to evaluate the type and quality of training received at medical schools.**
 - b. **Compare Health Assistants (Has) and Para-Medical Ophthalmic Assistants (PMOAs) measurement of visual acuity for patient triage with that of ophthalmologist.**
 - c. **Assess triage and surgery quality through evaluation of vision restoration and beneficiary satisfaction among eye patients.**

3. **Assessment and evaluation of Information, Education and Communication (IEC) strategies to overcome barriers to cataract surgery among female, rural and tribal populations:**
 - a. **Assessment of public education (messages, techniques, campaigns)**
 - b. **Role of aphakic motivators**
 - c. **Assessment of hospital outreach activities (DHs and NGOs)**
4. **Assessment of Government/NGO/Private Sector Collaboration**
 - a. **Workload distribution among Government, NGOs and the Private Sector**
 - b. **NGO/Private Sector patient volume**
 - c. **NGO/Private Sector view of cooperation between them and Government**
5. **Assessment of benefits of operating earlier with ECCE/IOL while patient is in unilateral status.**
6. **Assessment of effectiveness of cost recovery schemes.**
7. **Assessment of effectiveness of pilot program of providing seed money and financial intermediation to private practitioners to set up practice in underserved areas.**
8. **Epidemiological and Rapid Ethnographic Studies of Blindness.**

**Expenditure Accounts by Years - Base Costs
(Costs in Rs. Millions)**

	Base Cost in Calendar Year							Total	Foreign Exchange	
	1994	1995	1996	1997	1998	1999	2000		%	Amount
Investment Costs										
Civil Works	31.6	89.4	147.3	108.7	57.9	-	-	434.9	15%	65.2
Equipment & Supplies	27.0	43.1	41.8	44.2	53.1	59.0	59.0	327.1	50%	163.5
Vehicles	12.0	22.7	45.4	34.0	-	-	-	114.2	75%	85.6
Spectacles	7.8	15.6	18.7	23.4	28.0	31.1	31.1	155.7	-	-
I.O.L.s	10.0	20.1	24.1	30.1	36.1	40.1	40.1	200.7	75%	150.5
Training & Workshops	6.3	10.2	17.0	12.6	10.3	10.3	8.1	74.8	-	-
Medical Supplies for Surgeon Training	9.6	19.3	15.2	17.6	14.3	15.8	15.8	107.6	50%	53.8
Publicity Services	10.7	33.5	41.8	20.2	20.2	20.2	20.2	166.9	-	-
Support to NGOs & Private Sector	42.7	120.3	170.0	212.3	219.3	219.3	219.3	1,203.4	-	-
Studies & Operational Research	2.8	5.6	7.0	9.8	3.9	6.2	5.6	41.0	-	-
Contractual Services	7.8	11.7	11.7	11.7	11.7	11.7	11.7	78.0	-	-
Total Investment Costs	168.4	391.6	540.1	524.6	454.2	413.8	411.0	2,904.3	18%	518.8
Recurrent Costs										
Drugs/Sutures	27.4	54.9	65.9	82.3	98.8	109.8	109.8	548.8	50%	274.4
Civil Works Maintenance	0.2	1.2	2.9	4.2	4.9	4.9	4.9	23.3	-	-
Equipment Maintenance	1.7	5.2	8.3	11.3	14.4	18.0	21.5	80.2	5%	4.0
Vehicle Operation & Maintenance	1.6	3.8	8.4	11.8	11.8	11.8	11.8	60.9	5%	3.0
Salaries of Additional Staff	70.3	104.3	138.4	138.4	138.4	138.4	138.4	866.5	-	-
Misc Office Operation Costs	19.4	19.4	19.4	19.4	19.4	19.4	19.4	135.7	5%	6.8
Total Recurrent Costs	120.5	188.8	243.2	267.3	287.7	302.2	305.7	1,715.4	17%	288.2
Total BASELINE COSTS	289.0	580.4	783.3	791.9	742.4	716.0	716.6	4,619.7	18%	807.0
Physical Contingencies	15.0	32.5	44.0	40.2	34.6	31.7	31.6	229.6	35%	79.5
Price Contingencies	11.6	57.8	124.5	159.3	179.8	207.2	244.2	984.4	34%	333.9
Total PROJECT COSTS	315.6	670.7	951.8	991.4	956.9	954.9	992.4	5,833.6	21%	1,220.4
Taxes	10.3	23.0	33.6	34.0	29.7	27.8	29.4	187.8	-	-
Foreign Exchange	64.6	136.6	193.4	207.2	192.1	208.0	18.6	1,220.4	-	-

**Disbursement Accounts by Financiers
(Total Costs in US\$ Million)**

	IBRD		GOI		TOTAL		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%			
Civil Works	12.29	80.0%	3.07	20.0%	15.36	10.6%	2.37	11.92	1.07
Equipment Maintenance	2.38	90.0%	0.26	10.0%	2.65	1.8%	0.15	2.37	0.13
Equipment & Supplies	11.45	90.0%	1.27	10.0%	12.72	8.8%	6.66	5.17	0.89
Vehicles	3.64	90.0%	0.40	10.0%	4.05	2.8%	3.09	0.68	0.28
Support to NGOs & Private Sector	22.04	75.0%	7.60	25.0%	29.63	20.4%	-	29.63	-
Training Workshop Support	1.98	80.0%	0.50	20.0%	2.48	1.7%	-	2.48	-
Training, Workshops, Consultant Servi	0.84	80.0%	0.21	20.0%	1.05	0.7%	-	0.97	0.07
Contractual Services	2.33	80.0%	0.58	20.0%	2.91	2.0%	-	2.89	0.02
Drugs/Sutures	19.85	90.0%	2.21	10.0%	22.05	15.2%	11.57	8.94	1.54
I.O.L.s	7.30	90.0%	0.81	10.0%	8.11	5.6%	6.06	1.64	0.42
Spectacles	4.78	90.0%	0.53	10.0%	5.31	3.7%	-	5.20	0.11
Vehicle Operation & Maintenace	1.50	75.0%	0.50	25.0%	1.99	1.4%	0.11	1.78	0.10
Publicity Services	4.20	75.0%	1.40	25.0%	5.61	3.9%	-	5.61	-
Misc Office Expenses	3.14	75.0%	1.05	25.0%	4.18	2.9%	0.23	3.87	0.08
Salaries of Additional Staff	20.07	75.2%	6.61	24.8%	26.67	18.4%	-	26.67	-
Total	117.78	81.4%	27.00	18.6%	144.78	100.0%	30.23	109.82	4.72

**Project Components by Year
(Base Costs in Rs. Million)**

Components	Base Cost in Calendar Year							Total
	1994	1995	1996	1997	1998	1999	2000	
Quality Enhancement & Expansion of Service Delivery	217.58	450.14	622.33	665.14	657.78	627.46	630.99	3,871.42
Human Resources Development	12.25	24.84	27.89	28.34	22.77	24.35	22.08	162.52
Promotion of Outreach Activities & Public Awareness	22.47	59.18	92.01	61.04	30.40	30.40	30.40	325.90
Institutional Development	36.70	46.23	41.03	37.42	31.49	33.79	33.17	259.84
Total BASELINE COSTS	288.99	580.39	783.26	791.94	742.45	716.00	716.65	4,619.68
Physical Contingencies	14.99	32.52	44.04	40.16	34.61	31.67	31.59	229.57
Price Contingencies	11.54	57.81	124.48	159.26	179.85	207.21	244.15	984.35
Total PROJECT COSTS	315.57	670.72	951.77	991.35	956.91	954.89	992.39	5,833.60
Taxes	10.30	23.04	33.63	33.99	29.67	27.84	29.37	187.84
Foreign Exchange	64.55	136.62	193.39	207.19	192.09	207.96	218.60	1,220.39

**Expenditure Accounts by Project Components
(Costs in US\$ Million)**

Categories	Quality Enhancement & Expansion of Service Delivery	Promotion of Outreach Activities & Public Awareness	Human Resources Development	Institutional Development	Total	Physical Contingencies	
						%	Amount
Investment Costs							
Civil Works	13.34	-	-	-	13.34	10.0%	1.33
Equipment & Supplies	9.20	-	-	0.84	10.03	9.9%	0.99
Vehicles	0.35	3.13	-	0.02	3.50	10.0%	0.35
Spectacles	4.78	-	-	-	4.78	10.0%	0.48
I.O.L.s	6.16	-	-	-	6.16	10.0%	0.62
Training & Workshops	-	0.15	1.39	0.76	2.29	8.4%	0.19
Medical Supplies for Surgeon Training	-	-	3.30	-	3.30	10.0%	0.33
Publicity Services	-	5.12	-	-	5.12	10.0%	0.51
Support to NGOs & Private Sector	36.91	-	-	-	36.91	-	-
Studies & Operational Research	-	-	-	1.26	1.26	5.0%	0.06
Contractual Services	2.39	-	-	-	2.39	10.0%	0.24
Total Investment Costs	73.13	8.40	4.69	2.87	89.09	5.7%	5.11
Recurrent Costs							
Drugs/Sutures	16.83	-	-	-	16.83	10.0%	1.68
Civil Works Maintenance	0.72	-	-	-	0.72	5.0%	0.04
Equipment Maintenance	1.78	-	0.29	0.33	2.46	5.0%	0.12
Vehicle Operation & Maintenance	0.18	1.60	-	0.09	1.87	5.0%	0.09
Salaries of Additional Staff	26.12	-	-	0.46	26.58	-	-
Misc Office Operation Costs	-	-	-	4.16	4.16	-	-
Total Recurrent Costs	45.63	1.60	0.29	5.10	52.62	3.7%	1.94
Total BASELINE COSTS	118.76	10.00	4.99	7.97	141.71	5.0%	7.04
Physical Contingencies	5.44	0.92	0.48	0.20	7.04	-	-
Price Contingencies	-4.39	0.17	0.21	0.03	-3.97	(7.2%)	0.29
Total PROJECT COSTS	119.80	11.09	5.68	8.20	144.78	5.1%	7.33
Taxes	3.83	0.34	0.28	0.27	4.72	8.6%	0.40
Foreign Exchange	24.60	2.86	2.03	0.75	30.23	9.0%	2.71

**Project Components by Financiers
(Total Costs in US\$ Million)**

	IDA		GOI		TOTAL		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%			
Quality Enhancement & Expansion of Service Delivery	97.48	81%	22.32	19%	119.80	83%	24.60	91.37	3.83
Human Resources Development	4.96	87%	0.72	13%	5.68	4%	2.03	3.37	0.28
Promotion of Outreach Activities & Public Awareness	8.87	80%	2.22	20%	11.09	8%	2.86	7.89	0.34
Institutional Development	6.47	79%	1.73	21%	8.20	6%	0.75	7.19	0.27
Total Disbursement	117.78	81%	27.00	19%	144.78	100%	30.23	109.82	4.72

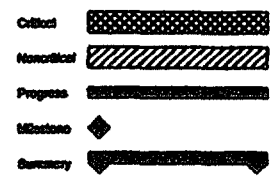
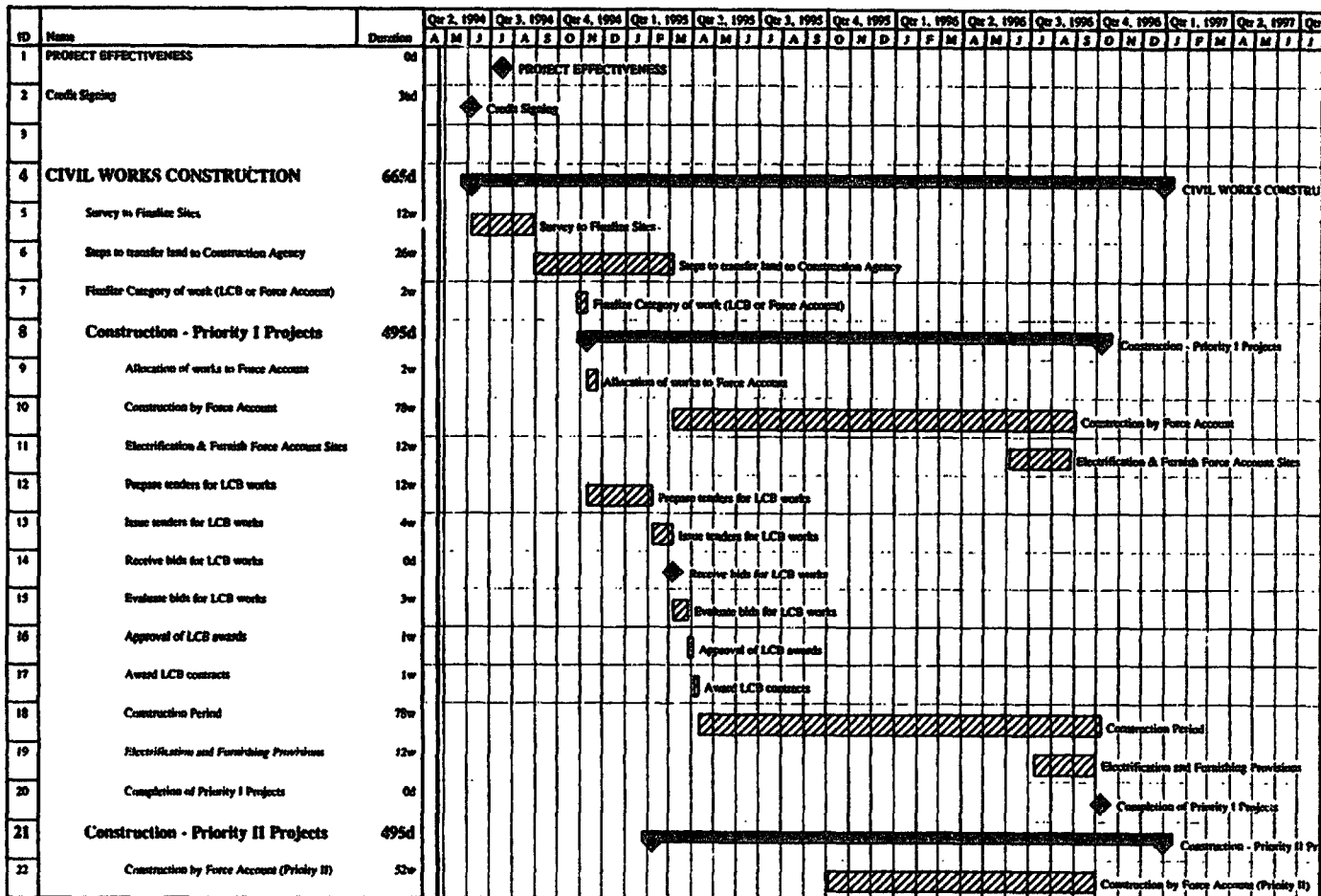
**Procurement Arrangments
(Total Costs in US\$ Million)**

	Procurement Method							N.B.F.	Total
	International Competitive Bidding	Local Competitive Bidding	Local Shopping	Direct Contracting	Force Account	Consulting Services	Other		
Drugs/Sutures	17.64 (15.88)	4.41 (3.97)	-	-	-	-	-	-	22.05 (19.85)
Equipment & Supplies	10.18 (9.16)	2.54 (2.29)	-	-	-	-	-	-	12.72 (11.45)
I.O.L.s	6.49 (5.84)	1.62 (1.46)	-	-	-	-	-	-	8.11 (7.30)
Vehicles	4.05 (3.64)	-	-	-	-	-	-	-	4.05 (3.64)
Spectacles	-	5.31 (4.78)	-	-	-	-	-	-	5.31 (4.78)
Civil Works	-	11.52 (9.22)	-	-	3.84 (3.07)	-	-	-	15.36 (12.29)
Vehicle Operation & Maintenance	-	-	1.00 (0.75)	1.00 (0.75)	-	-	-	-	1.99 (1.50)
Misc Offices Expenses	-	-	2.09 (1.57)	-	-	-	2.09 (1.57)	-	4.18 (3.14)
Surgical Services by NGOs & Private Sector	-	-	-	4.85 (3.64)	-	-	24.53 (18.40)	0.25	29.63 (22.04)
Equipment Maintenance	-	-	-	2.65 (2.38)	-	-	-	-	2.65 (2.38)
Publicity Services	-	-	-	5.61 (4.20)	-	-	-	-	5.61 (4.20)
Contractual Services	-	-	-	2.64 (2.11)	-	-	-	-	2.64 (2.11)
Training Workshop Support	-	-	-	-	-	2.48 (1.98)	-	-	2.48 (1.98)
Salaries of Additional Staff	-	-	-	-	-	-	26.67 (20.07)	-	26.67 (20.07)
Studies & Operational Research	-	-	-	-	-	-	1.32 (1.06)	-	1.32 (1.06)
Total	38.36 (34.52)	25.41 (21.71)	3.09 (2.32)	16.74 (13.08)	3.84 (3.07)	2.48 (1.98)	54.62 (41.09)	0.25	144.78 (117.78)

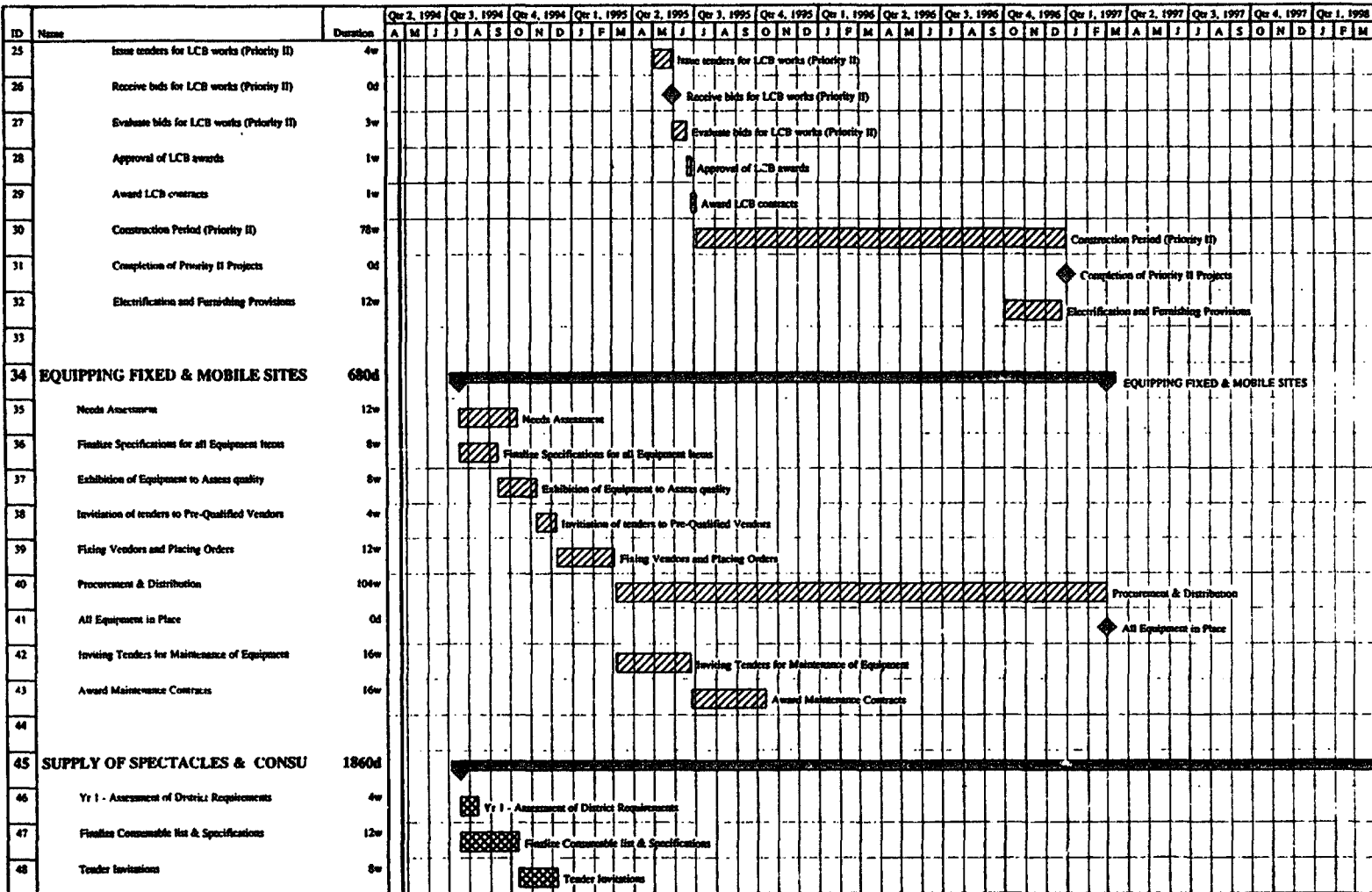
Note: Figures in parenthesis are the respective amounts financed by IDA

**CATARACT BLINDNESS CONTROL PROJECT
IMPLEMENTATION TIMETABLE**

INDIA

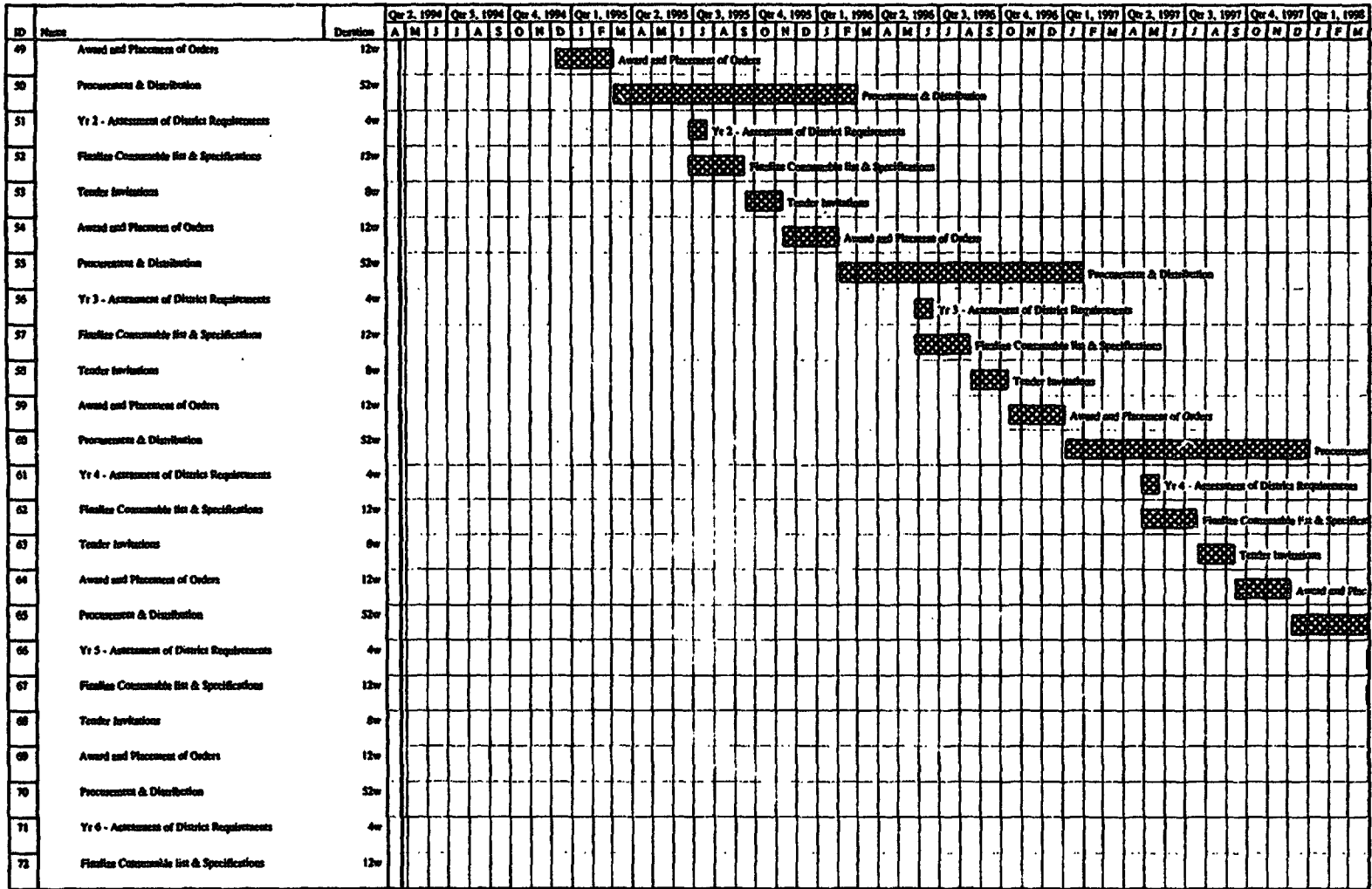


Project: INDA - Blindness Control
Date: 4/21/94



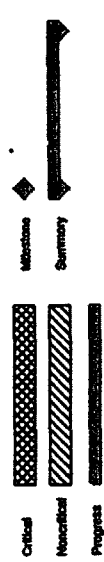
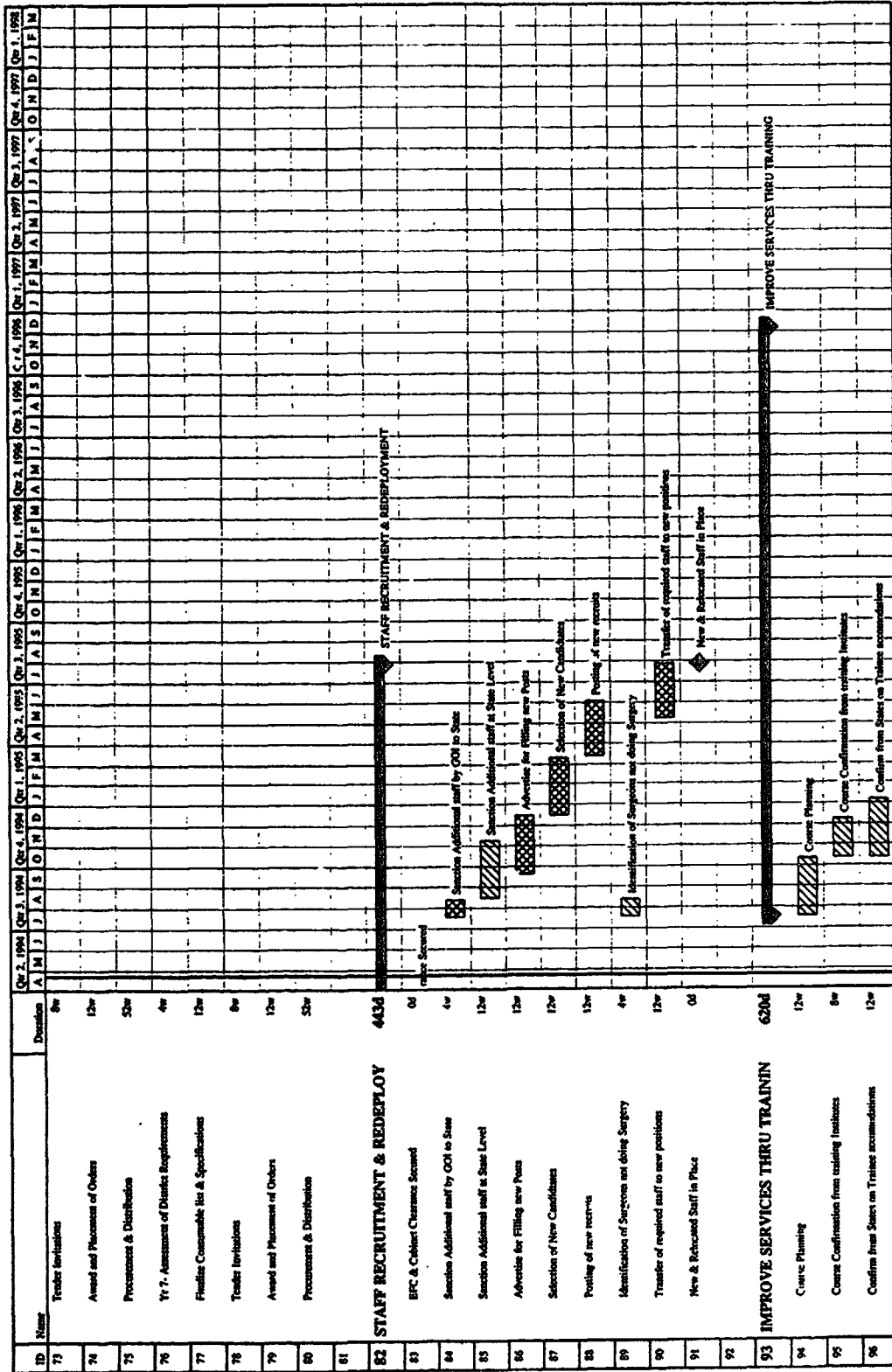
Project: DNDM - Business Control
Date: 4/21/94





Project: BMDA - Business Control
Date: 4/21/04





ID	Name	Duration	Qtr 2, 1994		Qtr 3, 1994		Qtr 4, 1994		Qtr 1, 1995		Qtr 2, 1995		Qtr 3, 1995		Qtr 4, 1995		Qtr 1, 1996		Qtr 2, 1996		Qtr 3, 1996		Qtr 4, 1996		Qtr 1, 1997		Qtr 2, 1997		Qtr 3, 1997		Qtr 4, 1997		Qtr 1, 1998					
			A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
97	Develop Curriculum & Training Material	32w																																				
98	Select & Notify Trainers for Trng Cycle I	4w																																				
99	Conduct Training Cycle I	52w																																				

Project: INDA - Blindness Control
Date: 4/21/94



INDIA - Blindness Control

ID	Name	Duration	Scheduled Start	Scheduled Finis	Predecessors	Resource Names
1	PROJECT EFFECTIVENESS	0d	7/17/94	7/17/94		State Govts
2	Credit Signing	36d	4/14/94	6/5/94	1	
3						
4	CIVIL WORKS CONSTRUCTION	665d	6/6/94	12/30/96	2	State Govts
5	Survey to Finalize Sites	12w	6/6/94	8/29/94		State Govts
6	Steps to transfer land to Construction Agency	26w	8/30/94	3/6/95	5	State Govts
7	Finalize Category of work (LCB or Force Account)	2w	10/27/94	11/9/94	5FS +8w	State Govts
8	Construction - Priority I Projects	495d	11/10/94	10/7/96	7	
9	Allocation of works to Force Account	2w	11/10/94	11/23/94	7	State Govts
10	Construction by Force Account	78w	3/7/95	9/2/96	9,6	PWD
11	Electrification & Furnish Force Account Sites	12w	6/4/96	8/26/96	10FF-1w	PWD
12	Prepare tenders for LCB works	12w	11/10/94	2/6/95		State Govts
13	Issue tenders for LCB works	4w	2/7/95	3/6/95	12	State Govts
14	Receive bids for LCB works	0d	3/6/95	3/6/95	13	State Govts
15	Evaluate bids for LCB works	3w	3/7/95	3/27/95	14	State Govts
16	Approval of LCB awards	1w	3/28/95	4/3/95	15	WBank
17	Award LCB contracts	1w	4/4/95	4/10/95	16	State Govts
18	Construction Period	78w	4/11/95	10/7/96	17,6	Contractors
19	Electrification and Furnishing Provisions	12w	7/9/96	9/30/96	18FF-1w	Contractors
20	Completion of Priority I Projects	0d	10/7/96	10/7/96	10,18	
21	Construction - Priority II Projects	495d	2/7/95	12/30/96		
22	Construction by Force Account (Priority II)	52w	10/3/95	9/30/96	10SS +30ew	PWD
23	Electrification & Furnish Force Account Sites	12w	7/2/96	9/23/96	22FF-1w	PWD
24	Prepare tenders for LCB works (Priority II)	12w	2/7/95	5/1/95	12	State Govts
25	Issue tenders for LCB works (Priority II)	4w	5/2/95	5/29/95	24	State Govts
26	Receive bids for LCB works (Priority II)	0d	5/29/95	5/29/95	25	
27	Evaluate bids for LCB works (Priority II)	3w	5/30/95	6/19/95	26	State Govts
28	Approval of LCB awards	1w	6/20/95	6/26/95	27	WBank
29	Award LCB contracts	1w	6/27/95	7/3/95	28	State Govts
30	Construction Period (Priority II)	78w	7/4/95	12/30/96	29,6	Contractors
31	Completion of Priority II Projects	0d	12/30/96	12/30/96	22,30	
32	Electrification and Furnishing Provisions	12w	10/1/96	12/23/96	30FF-1w	Contractors
33						
34	EQUIPPING FIXED & MOBILE SITES	680d	7/18/94	2/28/97	1	
35	Needs Assessment	12w	7/18/94	10/11/94	1	State Govts
36	Finalize Specifications for all Equipment Items	8w	7/18/94	9/12/94	35SS	NPM Cell
37	Exhibition of Equipment to Assess quality	8w	9/13/94	11/8/94	36	NPM Cell
38	Invitation of tenders to Pre-Qualified Vendors	4w	11/9/94	12/8/94	37	NPM Cell

INDIA - Blindness Control

ID	Name	Duration	Scheduled Start	Scheduled Finis	Predecessors	Resource Names
39	Fixing Vendors and Placing Orders	12w	12/9/94	3/3/95	38	NPM Cell
40	Procurement & Distribution	104w	3/6/95	2/28/97	39	NPM Cell
41	All Equipment in Place	0d	2/28/97	2/28/97	35,40	
42	Inviting Tenders for Maintenance of Equipment	16w	3/6/95	6/23/95	39	State Govts
43	Award Maintenance Contracts	16w	6/26/95	10/13/95	42	State Govts
44						
45	SUPPLY OF SPECTACLES & CONSUMABLES	1860d	7/18/94	9/7/01		
46	Yr 1 - Assessment of District Requirements	4w	7/18/94	8/12/94	1	DCBS
47	Finalize Consumable list & Specifications	12w	7/18/94	10/11/94	46SS	DGS&D
48	Tender Invitations	8w	10/12/94	12/8/94	47	DGS&D
49	Award and Placement of Orders	12w	12/9/94	3/3/95	48	DGS&D
50	Procurement & Distribution	52w	3/6/95	3/1/96	49	State Govts
51	Yr 2 - Assessment of District Requirements	4w	6/26/95	7/21/95	50FS-36w	DCBS
52	Finalize Consumable list & Specifications	12w	6/26/95	9/15/95	51SS	DGS&D
53	Tender Invitations	8w	9/18/95	11/10/95	52	DGS&D
54	Award and Placment of Orders	12w	11/13/95	2/2/96	53	DGS&D
55	Procurement & Distribution	52w	2/5/96	1/31/97	54	State Govts
56	Yr 3 - Assessment of District Requirements	4w	5/27/96	6/21/96	55FS-36w	DCBS
57	Finalize Consumable list & Specifications	12w	5/27/96	8/16/96	56SS	DGS&D
58	Tender Invitations	8w	8/19/96	10/11/96	57	DGS&D
59	Award and Placement of Orders	12w	10/14/96	1/3/97	58	DGS&D
60	Procurement & Distribution	52w	1/6/97	1/2/98	59	State Govts
61	Yr 4 - Assessment of District Requirements	4w	4/28/97	5/23/97	60FS-36w	DCBS
62	Finalize Consumable list & Specifications	12w	4/28/97	7/18/97	61SS	DGS&D
63	Tender Invitations	8w	7/21/97	9/12/97	62	DGS&D
64	Award and Placement of Orders	12w	9/15/97	12/5/97	63	DGS&D
65	Procurement & Distribution	52w	12/8/97	12/4/98	64	State Govts
66	Yr 5 - Assessment of District Requirements	4w	3/30/98	4/24/98	65FS-36w	DCBS
67	Finalize Consumable list & Specifications	12w	3/30/98	6/19/98	66SS	DGS&D
68	Tender Invitations	8w	6/22/98	8/14/98	67	DGS&D
69	Award and Placement of Orders	12w	8/17/98	11/6/98	68	DGS&D
70	Procurement & Distribution	52w	11/9/98	11/5/99	69	State Govts
71	Yr 6 - Assessment of District Requirements	4w	3/1/99	3/26/99	70FS-36w	DCBS
72	Finalize Consumable list & Specifications	12w	3/1/99	5/21/99	71SS	DGS&D
73	Tender Invitations	8w	5/24/99	7/16/99	72	DGS&D
74	Award and Placement of Orders	12w	7/19/99	10/8/99	73	DGS&D
75	Procurement & Distribution	52w	10/11/99	10/6/00	74	State Govts
76	Yr 7- Assessment of District Requirements	4w	1/31/00	2/25/00	75FS-36w	DCBS

INDIA - Blindness Control

ID	Name	Duration	Scheduled Start	Scheduled Finis	Predecessors	Resource Names
77	Finalize Consumable list & Specifications	12w	1/31/00	4/21/00	76SS	DGS&D
78	Tender Invitations	8w	4/24/00	6/16/00	77	DGS&D
79	Award and Placement of Orders	12w	6/19/00	9/8/00	78	DGS&D
80	Procurement & Distribution	52w	9/11/00	9/7/01	79	State Govts
81						
82	STAFF RECRUITMENT & REDEPLOYMENT	402d	10/30/93	6/1/95		
83	EFC & Cabinet Clearance Secured	0d	10/30/93	10/30/93		NPM Cell
84	Sanction Additional staff by GOI to State	4w	11/1/93	11/30/93	83	NPM Cell
85	Sanction Additional staff at State Level	12w	12/1/93	2/25/94	84	State Govts
86	Advertise for Filling new Posts	12w	1/6/94	4/1/94	84FS+5w	State Govts
87	Selection of New Candidtates	12w	4/4/94	6/27/94	86,85	State Govts
88	Posting of new recruits	12w	6/28/94	9/21/94	87	State Govts
89	Identification of Surgeons not doing Surgery	4w	7/18/94	8/12/94	1	State Govts
90	Transfer of required staff to new positions	12w	8/24/94	11/17/94	88FS-4w,89	State Govts
91	New & Relocated Staff in Place	0d	6/1/95	6/1/95	90	State Govts
92						
93	IMPROVE SERVICES THRU TRAINING	620d	7/18/94	12/6/96		
94	Course Planning	12w	7/18/94	10/11/94	1	NPM Cell
95	Course Confirmation from training Institutes	8w	10/12/94	12/8/94	94	Trng Institutes
96	Confirm from States on Trainee accomodations	12w	10/12/94	1/6/95	94	State Govts
97	Develop Curriculum & Training Material	52w	12/9/94	12/8/95	95	NPM Cell
98	Select & Notify Trainees for Trng Cycle 1	4w	10/16/95	11/13/95	99SF-4w	State Govts
99	Conduct Training Cycle 1	52w	12/11/95	12/6/96	97,40SS+24	Trng Institutes

INDIA
CATARACT BLINDNESS CONTROL PROJECT
MULTILEVEL PARTICIPATORY PROCESS IN PROJECT DEVELOPMENT

INTERVENTION	SPHERE OF PARTICIPATION	MECHANISM	PARTICIPANTS	STRATEGY/OBJECTIVE
<p>Health</p> <p>- Cataract Blindness Control Project</p>	<p>1. Project Design</p>	<p>a. NGO meeting</p> <p>b. Preparation Workshop</p> <p>c. Beneficiary Assessments</p> <p>d. Technical Norms Workshop</p> <p>e. Training Workshop</p> <p>f. GOR/State/IDA Working Meetings</p>	<p>1. 13 NGOs, DANIDA, WHO and IDA mission</p> <p>1. GOR Central Team: Health Sec., Jt. Sec., Health Officers 2. State Teams: Health Sec., Health and Ophthalmic Officers 3. Apert Eye Care Institutes 4. NGOs: Laxmi Club, Arvind Hospital, Kalyanesh Hospital 5. Private Ophthalmologists: Repr. of Indian Ophthalmological Assoc., reserved Indian private ophthalmologists 6. IDA Team: IDA officials, NIH consultants, NDO staff, WHO 7. DANIDA</p> <p>1. Beneficiaries: current and past patients, family members</p>	<p>1. Agree on workshop objectives 2. Learn what they are doing to blindness 3. Brainstorm on: a. Issues on blindness control b. What can be done about it</p> <p>1. Agree on workshop objectives 2. Each stakeholder (e.g. NGOs, IDA, State, COH) states issues and expectations for the project 3. Group agrees on strategy and next steps, e.g. to hold a technical workshop and modify draft proposals according to agreed framework and objectives</p> <p>1. <u>Beneficiary Assessments of type of services used, patient satisfaction, access to services, barriers and attitudes towards surgery, beliefs and attitudes about blindness</u></p> <p>1. Develop new technical and operational norms with indigenous experts, practitioners, and health officials based on pre-agreed agenda 2. Open debate on pros and cons of different approaches 3. IDA mission leader acts as facilitator to bring consensus</p> <p>1. Develop training components relevant to Indian context 2. Exchange of views on approaches 3. Conclusion - training program Design</p> <p>1. Discuss project proposal, review beneficiary assessments, agree on next steps</p>

INTERVENTION	SPHERE OF PARTICIPATION	MECHANISM	PARTICIPANTS	STRATEGY/OBJECTIVE
	<p>3. Implementation</p>	<p>a. Supervision Plan</p> <p>b. Monitoring and Evaluation</p>	<p>1. Task manager, architects, ophthalmologists, training specialist, management specialists</p> <p>2. Task manager, anthropologists, architects, ophthalmologists, MIS specialists, public health specialists</p> <p>3. Task manager, architects, management specialists, MIS specialists, ophthalmologists, public health specialists</p> <p>4. Teams trained in Rapid Assessment methods</p> <p>5. Task Manager, architects, management specialists, ophthalmologists</p>	<p>1. Project launch</p> <p>2. Supervision, staff allocation, training, epidemiological surveys</p> <p>3. Supervision/review of utilization of facilities, training at Medical Colleges, role of NGOs and private practitioners and progress on Cost Recovery</p> <p>4. Annual Beneficiary Assessment to measure patient satisfaction</p> <p>5. Biennial (every two years) review</p>

INDIA

CATARACT BLINDNESS CONTROL PROJECT

PROJECT MONITORING AND EVALUATION
(ESSENTIAL BENCH MARKS)

<u>Provider (Supply) Side</u>	<u>Beneficiary (Demand) Side</u>
<p>Impact of Training:</p> <ul style="list-style-type: none"> * Assess skills and number of ophthalmologists trained through the project. * Rate of case detection and accurate diagnosis by Para-Medical Ophthalmic Assistants (PMOA). <p>Technical Indicators:</p> <ul style="list-style-type: none"> * Rates of ECCE/IOL use in government and NGO/private sectors. * Unilateral cases treated with ECCE/IOL. * Rate of patient satisfaction by treatment type. * Rate of unilateral and bilateral cases treated. * Complication rate. <p>Facility Utilization:</p> <ul style="list-style-type: none"> * Assess patient volume and utilization of facilities in tribal and remote areas and selected cluster of non-tribal districts. <p>Camp Activities:</p> <ul style="list-style-type: none"> * Assess number and frequency of camps, patient volume and utilization of resources. <p>NGO/Private Sector Involvement:</p> <ul style="list-style-type: none"> * Measure NGO/Private sector patient volume. * Government/NGO/Private Sector Cooperation as viewed by NGO/Private Sectors providers. * Workload distribution between government and NGO sector. 	<p>Independent Beneficiary Assessment/Audit:</p> <ul style="list-style-type: none"> * Demographics of operated patients. * Post-operative visual acuity (sight restoration results). * Appropriateness of patient triage and follow-up. * Socio-economic assessment from patient perspective. * Patient satisfaction with provider system. * Prevalence rate. * Demand generation. <p>IEC:</p> <ul style="list-style-type: none"> * General community awareness of cataract and surgical solution. (Compare urban vs. rural vs. tribal areas).

Note: Evaluation efforts should be designed using scientific methodology with assessments conducted by parties organizationally **INDEPENDENTLY** from those whose performance is being evaluated.

Evaluation of Facility Utilization

The Six-Monthly Review will include:

Facility Location and Types:

Number of patients examined.

Percentage of patients diagnosed with cataract by visual acuity.

Percentage of patients diagnosed where surgery is indicated by visual acuity.

Percentage of patients accepting surgery by visual acuity.

Number of patients operated by visual acuity (ICCE, ECCE/IOL).

Surgical Volume (Per Surgical Team):

ICCE

ECCE/IOL

Utilization of Bed Capacity:

Average Length of Hospital Stay:

Sight Restoration Results (Post Operative):

Camp Evaluation

Camp Location and Type:

Camp Organizers and Partners:

Number and Mix of Cases Screened/Examined By Visual Acuity:

Percentage of cases diagnosed with cataract by visual acuity.

Percentage of diagnosed cases where surgery is indicated by visual acuity.

Percentage of patients accepting surgery/operated by visual acuity.

Surgical Volume Per Surgical Team (For Each Surgeon):

Average Length of Camp Post-Operative Stay:

Sight Restoration Results (Post Operative):

INDIA

CATARACT BLINDNESS CONTROL PROJECT

DATA COLLECTION

1. A Blind register would be designed and standardized. This would be maintained for each PHC, CHC, District, urban, rural, tribal and remote area by the Paramedic Ophthalmic Assistant. Standard case sheets, follow-up formats, referral slips and reporting proformas would be developed after pre-testing and used to facilitate timely, uniform and need-based information flow.
2. The District Blindness Control Coordinator (DBCC) and the District Ophthalmic Surgeon (DOS) would be the officials responsible for supervising the activities within the District. The State Project Officer (SPO) would be responsible for monitoring the activities at the State level. An Management Information System (MIS) Unit at the Central level would coordinate the monitoring and evaluation of the project.
3. A computerized MIS would be developed, all the way to the District levels, and linked to the National Health Management Information System (NHMIS) network of the National Informatics Center (NIC).
4. Annual beneficiary analysis would be performed using random samples of beneficiaries in each state in the months of April to May to measure patient satisfaction.
5. A baseline, two mid-term and an endline epidemiological surveys would be undertaken to evaluate the program by an independent expert group consisting of ophthalmologists, epidemiologists and social scientists. The evaluation would include the redirection of vision, qualitative aspects of surgery, patient satisfaction, reasons for underutilization, prevalence rates and other aspects of the program services. Economic evaluation of the project would also be undertaken.
6. Review meetings of concerned District officials would be held monthly, and quarterly at the State levels. These would then be forwarded to the National Program for the Control of Blindness meetings, thus creating an upward feedback mechanism.
7. Below is a table of indicators and their foci for the task of data collection.

INDICATORS	FOCI
Development	Central and State Cells/Committees/Boards in position; DBCS registered and functional; percentage of PHCs, CHCs, DMUs, DHs, and Medical Colleges equipped, of DMUs and DBCS with vehicles and of Operating Theaters, Wards, Dark Rooms, etc., completed.
Manpower and Training	Number of trained personnel by category and facility; percentages of new positions filled up, of vacancy by positions, of Ophthalmic Surgeons (OS) redeployed on surgical positions, of DBCC in position and of DBCC trained.
Performance	Number of cataract operations in a District/State; percentage of targets achieved by the District/State and of villages covered for screening of cataract cases by talukas/districts; number and percentage of achievement by facility (DMU/CMU/DH/MC); operation per lakh population in District/State; performance rates by sex/SC-ST/tribal areas; proportion of operations performed by Government/NGO and Private sectors; rankings of Districts in the State (using number and percentage of achievement by facility in DMU/CMU/DH/MC) and of States among themselves based on performance.
Beneficiary Assessment	Percentage of beneficiaries satisfied and of distribution of problems encountered in awaiting services; reasons for not availing of existing services; knowledge about services available; sources of existing knowledge about cataracts; number of beneficiaries whose sight has been restored (self-assessment by beneficiary).
Financial	Percentage of budget utilized per year and of DBCS fully utilizing their budget; cost of operation by facility (statewide); correlation between cost and performance.
Impact Evaluation	Prevalence of blindness (Baseline); prevalence of blindness (Mid-Term/Endline); percentage of decline of prevalence; districts free from backlog of cataract; classification/reclassification of districts on the basis of prevalence; percentage of prevalence change in tribal districts.
Efficiency and Quality	Operations per operating surgeon per year by District/State; operations per bed per year by District/State; average operations per mobile camp by district; beds occupancy ratio; percentage of population/villages fully screened and of villages free of cataract backlog; age distribution of cataract operations; distribution of operations by unilateral/bilateral cases; percentages of turnover during follow-up, of post-operative refractions performed/glasses provided, of cases encountering complications/successes (details) and of total failures in sight restoration (medical assessment).

INDIA

CATARACT BLINDNESS PROJECT

SUPERVISION PLAN

<u>FY</u>	<u>Semester</u>	<u>Tentative Activities</u>	<u>Staff and Skills Required</u>	<u>Staff Weeks</u>
FY95	(1)	Project Launch.	Task Manager, Architects, Ophthalmologists, Training Specialist, Management or Organizational Development (OD) Specialists.	10
FY95	(2)	Supervision ¹ Staff Allocation, Beneficiary Assessment (BA), Training, Epidemiological surveys.	Task Manager, Anthropologists with knowledge of Rapid Assessment (RAP) methods, Architects, Ophthalmologists, MIS Specialists, Public Health Specialists.	20
FY96	(1)	Supervision/Focus Groups with State Project Officers, District Coordinators, NGOs and Ophthalmologists.	Task Manager, Architects, Anthropologists with knowledge of RAP methods, Implementation Specialists, OD Specialists, Ophthalmologists, Training Specialists.	15
FY96	(2)	Biennial Review	Task Manager, Ophthalmologists, Training Specialists, Anthropologists, IEC Specialists, Architects, MIS Specialists, Public Health Specialists.	24

¹/ Refers to overall review of procurement, disbursement and infrastructures with concentration on the specified areas.

<u>FY</u>	<u>Semester</u>	<u>Tentative Activities</u>	<u>Staff and Skills Required</u>	<u>Staff Weeks</u>
FY97	(1)	Supervision/Focus Groups with Ophthalmic Assistants/ Review of BA.	Task Manager, Architects, Public Health Specialists, Anthropologists, Training Specialists.	10
FY97	(2)	Supervision/Review of utilization of facilities, training at Medical Colleges, role of NGOs and private practitioners and progress on Cost Recovery.	Task Manager, Architects, Management Specialists, MIS Specialists, Ophthalmologists, Public Health Specialists.	15
FY98	(1)	Supervision/Review of ECCE/IOL progress, training and results of BA in tribal areas.	Task Manager, Ophthalmologists, Anthropologists, Training Specialists.	10
FY98	(2)	Biennial Review	Task Manager, Ophthalmologists, Training Specialists, Anthropologists, IEC Specialists, Architects, MIS Specialists, Public Health Specialists.	24
FY99	(1)	Supervision of Outreach and Information, Education and Communication (IEC) components and Operational Research.	Task Manager, IEC Specialists, Public Health Specialists, Ophthalmologists.	10

<u>FY</u>	<u>Semester</u>	<u>Tentative Activities</u>	<u>Staff and Skills Required</u>	<u>Staff Weeks</u>
FY99	(2)	Supervision of effectiveness of service delivery models and NGO participation.	Task Manager, Architects, Management Specialists, Ophthalmologists.	5
FY00	(1)	Supervision: Review of implementation of modifications recommended during the Mid-Term Review.	Task Manager, Ophthalmologists, Public Health Specialists, Anthropologists, Management Specialists, Architects, Auditors.	10
FY00	(2)	Biennial Review	Task Manager, Ophthalmologists, Training Specialists, Anthropologists, IEC Specialists, Architects, MIS Specialists, Public Health Specialists.	24
FY01	(1)	Supervision of Progress on Cost Recovery and ECCE/IOL services in tribal areas.	Task Manager, Economists, Ophthalmologists, Anthropologists, Women In Development (WID) specialists.	10
FY01	(2)	Supervision of patient satisfaction, utilization of facilities and the Terms of Reference (TOR) for the epidemiological survey.	Task Manager, Ophthalmologists, Implementation Specialists, Public Health Specialists, Social Marketing Specialists.	15

INDIA
NATIONAL BLINDNESS CONTROL PROJECT

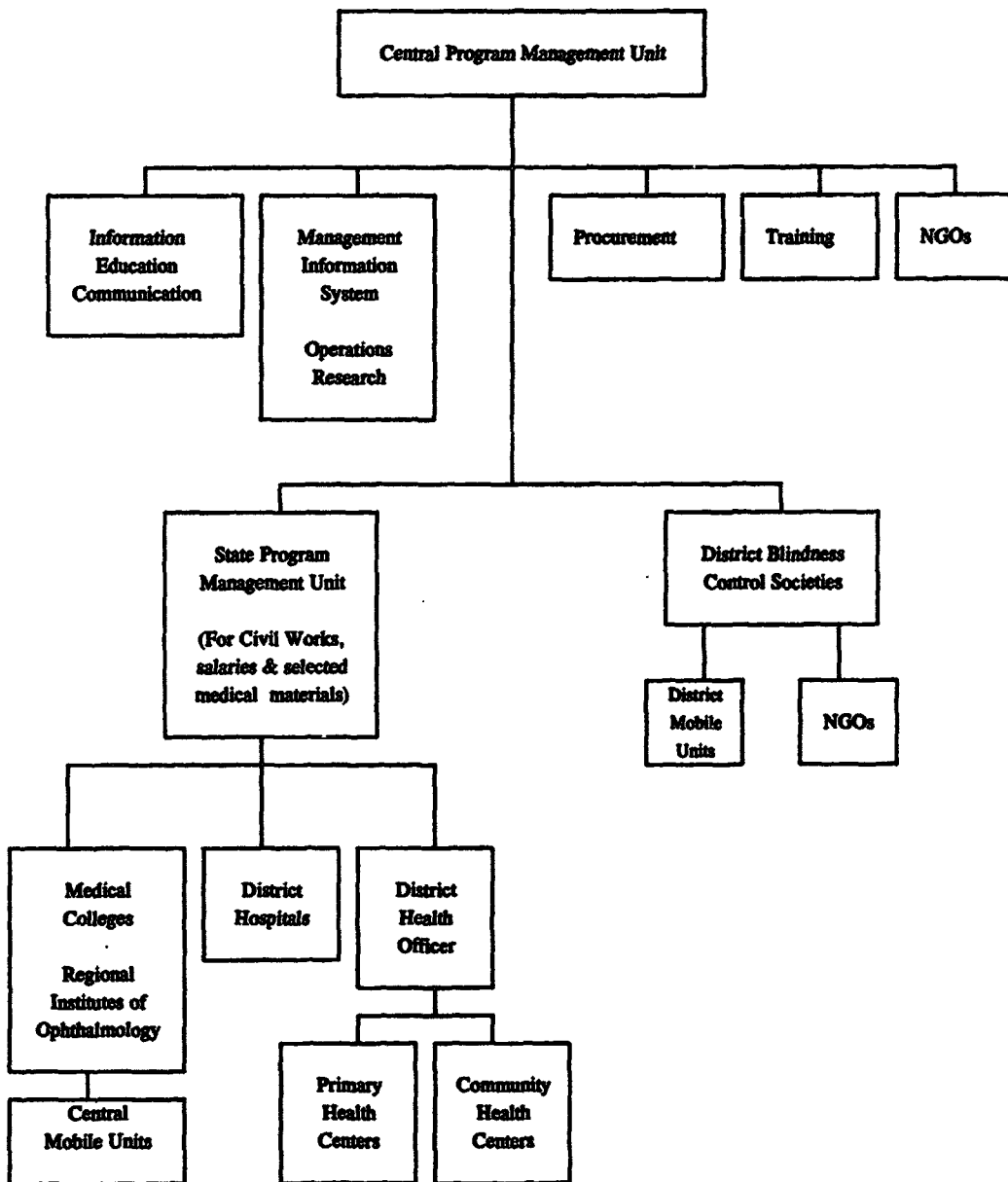
FORECAST OF EXPENDITURES AND DISBURSEMENTS

IDA Fiscal Year	Expenditures		Disbursements	
	Semester	Cumulative	Semester	Cumulative
----- \$US Million -----				
FY95				
1st (Jul 94 - Dec 94)	4.54	4.54	5.00	5.00
2nd (Jan 95 - Jun 95)	4.54	9.08	2.68	7.68
FY96				
1st (Jul 95 - Dec 95)	9.10	18.18	6.61	14.29
2nd (Jan 96 - Jun 96)	9.10	27.28	6.61	20.89
FY97				
1st (Jul 96 - Dec 96)	12.22	39.50	9.18	30.07
2nd (Jan 97 - Jun 97)	12.22	51.71	9.18	39.26
FY98				
1st (Jul 97 - Dec 97)	12.32	64.03	8.99	48.24
2nd (Jan 98 - Jun 98)	12.32	76.35	8.99	57.23
FY99				
1st (Jul 98 - Dec 98)	11.52	87.86	9.35	66.59
2nd (Jan 99 - Jun 99)	11.52	99.38	9.35	75.94
FY2000				
1st (Jul 99 - Dec 99)	11.25	110.63	8.88	84.82
2nd (Jan 2000 - Jun 2000)	11.25	121.88	8.88	93.69
FY2001				
1st (Jul 2000 - Dec 2000)	11.45	133.33	9.05	102.74
2nd (Jan 2001 - Jun 2001)	11.45	144.78	9.05	111.78
FY2002				
1st (Jul 2001 - Dec 2001)	-	144.78	6.00	117.78

INDIA

CATARACT BLINDNESS CONTROL PROJECT

FLOW OF FUNDS CHART



INDIA

CATARACT BLINDNESS CONTROL PROJECT
IN THE SEVEN PROJECT STATES

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A. Project Proposals and Plans

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- A-4. Government of Andhra Pradesh. Project Report on Control of Blindness in Andhra Pradesh. Health, Medical and Family Welfare Department.
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- B-4.** Kumar, Raj et al. Manual for the District Blindness Control Society Developed by the DANIDA Support Unit for the National Programme for Control of Blindness.
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- B-6.** National Institutes of Health. Model-Based Workload Projections for the Seven Project States (Report).
- B-7.** Pararajasegaram, R. NGO/Private Sector Participation: Proposed Modalities. Programme for the Prevention of Blindness, WHO, 1993.
- B-8.** Government of Madhya Pradesh. Socio-Economic Dimension of Blindness in Madhya Pradesh. Health and Family Welfare Department, BHOPAL, January 1993.
- B-9.** Government of Madhya Pradesh. Action Plan for the Implementation of the Blindness Control Programme in the Tribal Areas of Madhya Pradesh: A Project Profile for World Bank Assistance. Health and Family Welfare Department, BHOPAL, June 1993.
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- B-13.** Government of India. National Technical Workshop for Project Preparation for Blindness Control in India, 19th to 21st October, 1992.
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