Chapter

4

Case Study 2 – MUDHOLE, ANDHRA PRADESH, INDIA

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Illustrations

What can we learn from Mudhole?

Choosing a case study from Asia was not easy. The variety of contexts, that stretch from the lands of the Middle East, through the nations of the sub-continent, to China and the peninsula and island states of the continent's Pacific shore, present little common ground, politically, socially or environmentally – just a unifying need to remove the scourge of preventable blindness.

The progress of VISION 2020 in these lands is also extremely variable. The suggestion was made to take a district programme from India, where VISION 2020 has been adopted as a guiding blueprint since 2001. This is true both at national and at state level, where local autonomy has enabled schemes to evolve in tune with local conditions.

Mudhole, a secondary satellite hospital in a large national NGO programme in India's South East state of Andhra Pradesh, was eventually chosen. Why? A first look may be disappointing as the focus of the organisation for Mudhole secondary eye hospital is the influential NGO of LV Prasad Eye Institute in Hyderabad. The role and importance of that very successful tertiary centre cannot be denied. However, the ideas that have germinated from there to be employed at Mudhole have enabled many people in need to be reached with quality, comprehensive eye care through low cost procedures. This district model therefore should be seriously considered by programme planners whatever the context.

1. What is the national context for the eye care programme at Mudhole?

Mudhole is a small town in the south west of Adilabad District (AD in this study). This district is situated in southern India, in the far north of Andhra Pradesh (AP) state, next to Maharashtra state (Fig. 4.2).

AP, bordering the Bay of Bengal and lying between 12º and 22º north of the Equator, is the fifth largest (by population) of the 28 states in the country. Its capital is Hyderabad. The state comprises three regions (Fig. 4.1). The fertile Coastal Andhra (Kosta), including the deltaic, perennially irrigated lowlands of the lower Godavari and Krishna rivers, is often termed India's rice bowl. To the west, behind the low hills of the Eastern Ghats and on the

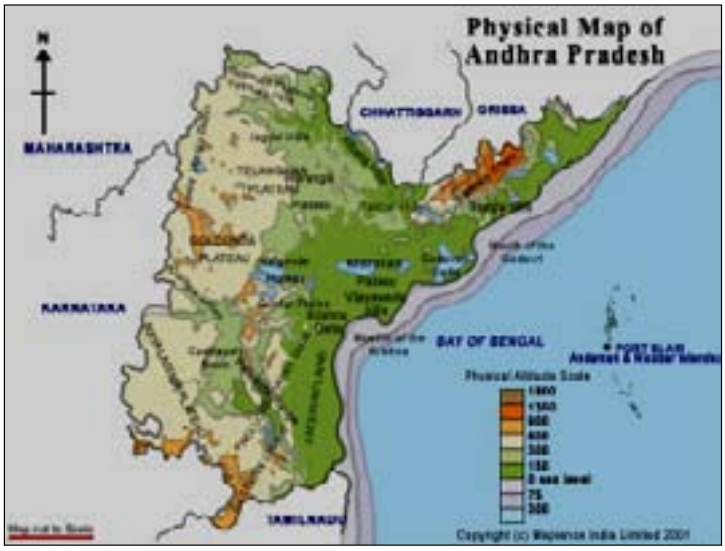


Fig. 4.1 Physical features of Andhra Pradesh with Adilabad District and Mudhole lying on the Telangana Plateau in the climatically unreliable low plateau lands in the north

edge of the Deccan Plateau, lie the other two regions, Rayalaseema to the south and Telangana in the north west. AD (Fig. 4.3), one of 22 districts in AP, is typical of Telangana region. This less favoured part of the state is subject to extremes of heat in the early summer and also to an unreliable monsoon with consequent risks of severe drought. As a result, Telangana, a largely agricultural and less populated area, is a region of low economic development and above average poverty, as shown in Figs. 4.3 and 4.4 and later in Table 4.3.

Fig. 4.2
Position of Andhra Pradesh in Southern India

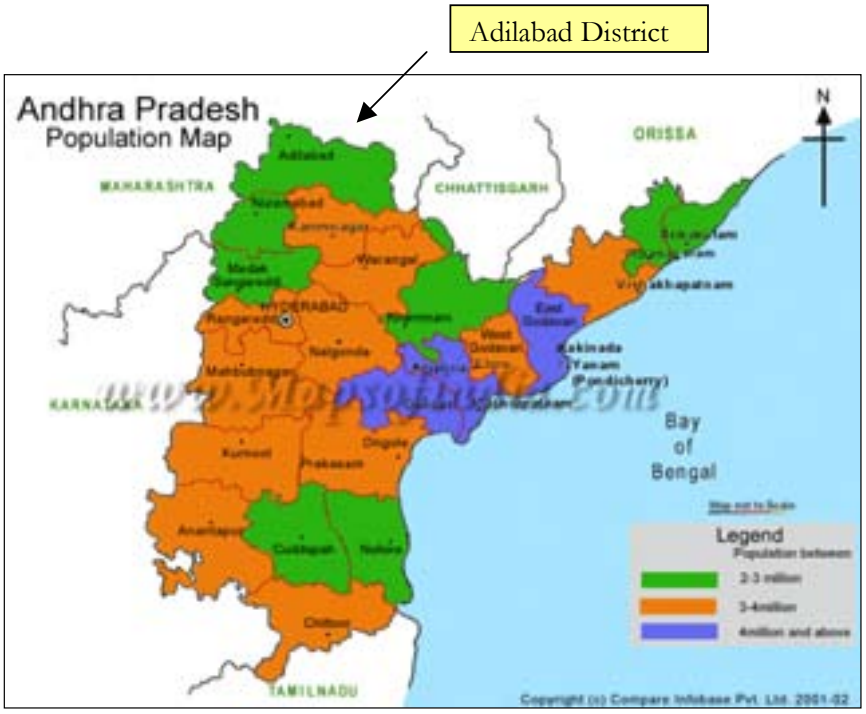


Fig. 4.3
Location of Adilabad District in the far north of Andhra Pradesh state, showing the distribution of the population by district at the time of the 2001 census

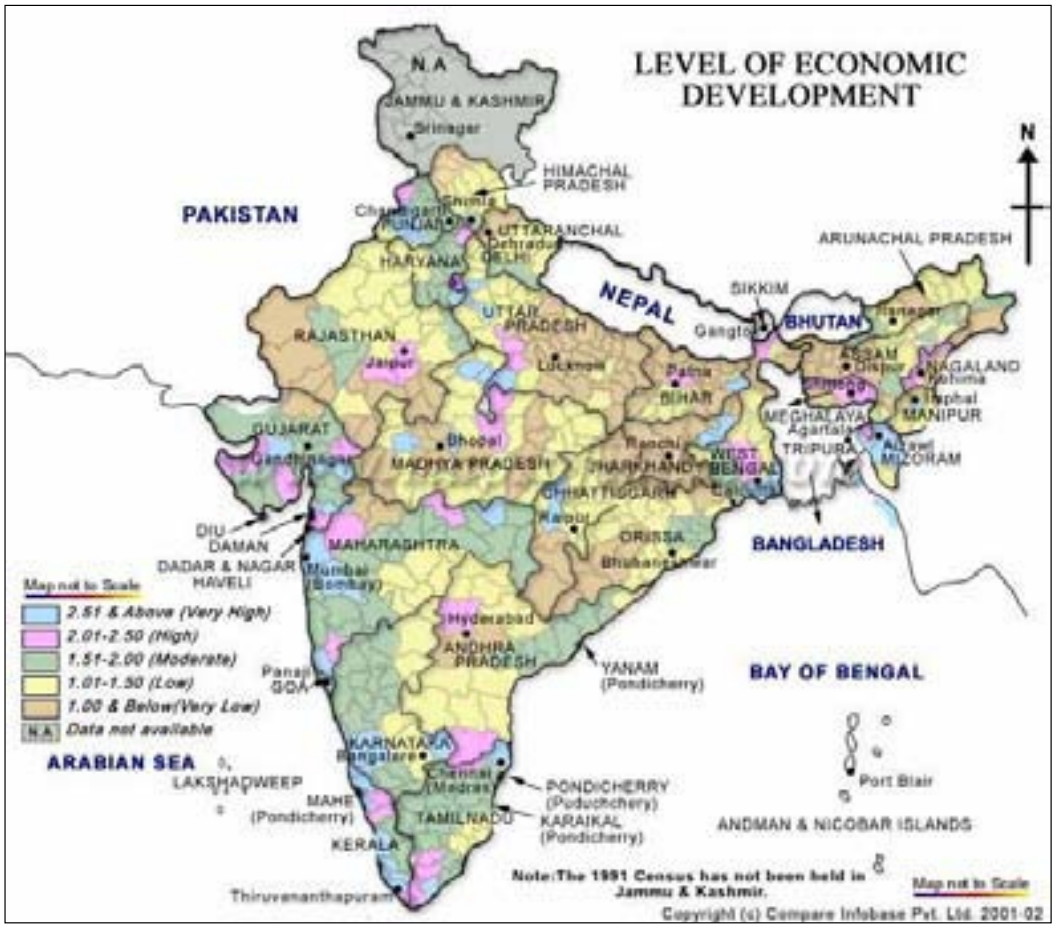


Fig. 4.4 Levels of economic development in India as an indicator of wealth distribution (2001) and of relative poverty in northern Andhra Pradesh (Adilabad District in Telangana region)

- Andhra Pradesh is 73% rural.
- 85% of the poor are rural, especially in AD in Telangana region.
- 70% of the rich are urban, largely in and around Hyderabad.
- 6.67% in AP are unemployed.

2. Is there government support for community eye care at national and state levels?

A nationwide sample in a survey carried out by the Indian Council for Medical Research, 1974-6, showed a blindness prevalence of 1.34% (and a cataract contribution of 55%). As a result, the Indian government in 1976 took a global lead in recognising prevention of blindness as one of the government's 20 priorities – encouraging health education, planning an appropriate infrastructure and organising eye camps. Developments in succeeding years are headlined in the following chart and considered on the next page. Despite these activities, blindness prevalence continued to increase through to the turn of the century, eventually leading to the more radical approach offered by VISION 2020.

Table 4.1 Development time line for PBL in India and Andhra Pradesh (not to scale)

showing key dates in the growth and means of government support for community eye health at national and state levels

INDIA		ANDHRA PRADESH and MUDHOLE
Government adopts PBL as a priority following national survey Danish assistance prog. Increases infrastructure at all levels	**1976**	
Government accepts WHO Almata Declaration of PHC for all	**1978**	
National health policy includes control of blindness	**1983**	
Increased prevalence shown by PBL national survey Other INGOs follow HKI lead and become involved in Indian PBL, especially with cataract	**1986**	
	1987	LV Prasad Eye Institute (LVPEI) established
Decentralisation of PBL proposed – 5 district pilots across India District Blindness Control Societies to plan and implement PBL	**1991**	
Review leads to recommendation to decentralise to **all** districts	**1993**	
7-year World Bank investment programme in 7 states with highest prevalence of blindness	**1994**	Andhra Pradesh becomes one of the seven states in the World Bank programme
	1996	Mudhole Rural Eye Centre (1st LVPEI satellite) in December.
National adoption of VISION 2020 in late October	**2001**	AP adopts VISION 2020 on October 4th
National survey shows decrease in prevalence of blindness		
	2002	AP Right to Sight Society is founded
	2003	First Vision Centre in Mudhole catchment opens at Bhainsa
400 District Blindness Control Societies (DBCSs) active in 600 districts under state government control	**2006**	23 DBCSs are active in AP

Some key events in the growth of PBL support over the past fifteen years:-

1991 – **Nationally** the 5 pilot districts for PBL decentralisation were carefully selected and widely distributed. They each had populations of about 2 million.

The District Blindness Control Societies (DBCSs) were to be autonomous groups of locally assembled experts, providing local planning expertise, with stakeholders from public and private sectors and from voluntary associations. A district programme manager (usually an individual retired from public service) was selected and given an honorarium and a vehicle. Each DBCS was to be chaired by the District Magistrate or Deputy District Commissioner.

Funding came directly from the national government channelled through the districts. The amount was related to need and track record for efficiency. 1991-92 brought a 150% improvement in cataract surgeries by the worst performers and 300% by the best. 60-70% of the improvement came through NGO involvement - they were given subsidies and reimbursed costs for holding screening camps and transporting patients to hospital. Part of the DBCS funding (25-30%) was based on subsidy per case.

The success of this policy was acknowledged in a **1993** review and a national recommendation followed to decentralise and extend the DBCS approach nationwide.

1994-2001 – The World Bank invested USD 118 million in PBL programmes in 7 states with highest prevalence (>1.5) in the earlier (1986) survey. The programme supported more than 12m surgeries (40% sight restoring) in the public sector (with some cost-recovery) to those presenting <6/60. In the first three years, 1994-1996, 200 DBCSs were set up in the 7 states, including Andhra Pradesh.

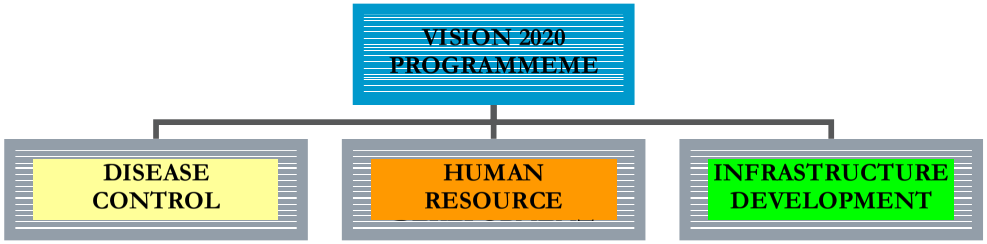
Eye care is **now** about 30-40% public, 30-40% highly subsidised through I/NGOs and 30% in private hospitals. DBCSs persuade private hospitals to join the scheme through a wide application of surgery subsidies.

2002 – Following the decision of **AP** to adopt VISION 2020 in 2001, the state formed the **Right to Sight Society (AP RSS)** chaired by the Chief Minister. This has two bodies. (1) The governing body, with the Health Minister as vice chair, has a membership that equates government representation with that from NGOs and private bodies. It determines broad policy and the allocation of funds (presently 60% state but with reduction to 40% planned by 2020 through NGO subsidy and cost-recovery). (2) The executive has an eminent ophthalmologist as vice chair and the same balanced representation in its membership and on sub-committees. This body devises improvements to eye care services to implement VISION 2020 strategies and to improve the residency programme. Although this two-layered model is still evolving, it is being adopted by other state societies and as a model for national PBL organisation.

The AP RSS receives an annual budget (INR160m/year) to invest in the three pillars of the VISION 2020 programme - disease control, human resource development and the strengthening of infrastructure. Additional funds are available through an IOL subsidy (INR750), which increases to INR1000 for screening and surgery transport in difficult to reach areas. Graded incentives also encourage higher performance levels. The success of the rural eye centre at Mudhole, featured in this second case study, is due in part to the support of the AP RSS, whose wide ranging activities are summarised in Table 4.2, on the following page.

2006 - Each Indian state has the autonomy to select the cost-recovery measures they think appropriate. In **AP,** state hospitals have not practised cost-recovery for the last 18 months, just charging a registration fee and a charge per item. As will be seen later, **Mudhole** and its linked centres do not reflect the state's practice of long term dependence on subsidy. A strong feature of this successful project is the **drive for cost-recovery and targeted sustainability at each individual rural eye centre.**

Table 4.2 Activities of the Andhra Pradesh Right to Sight Society (from 2002)



DISEASE CONTROL STRATEGY	ACTIVITY
Cataract	Prompt grants for free cataract surgeries with enhanced support in remote areas – over 26% increase in surgeries in AP state 2002-2005
Refractive Error	Screening in all government and aided schools with free spectacles to all children with significant refractive error and to elderly people below poverty line – giving a state increase of 3,659% in free distribution 2002-2005
Corneal Blindness	Distribution of Vitamin A capsules
Primary Eye Care	Planned establishment by Dec. 2006 of vision centres in government primary health units
Childhood Blindness	Development of 4 government CB units
Diabetic Retinopathy	Planning for a workshop to identify strategies to manage DR in AP to be implemented in government medical college hospitals
Low Vision Care	Planning for a workshop to identify strategies to develop LV care centres in government teaching institutions and to make LV care part of ophthalmic residency curriculum
Eye Banking	One eye bank to be established per 20m people

HRD ACTIVITIES

1. **Training of ophthalmologists, e.g. specific disease fellowships, IOL treatment, training trainers, district programme managers – 850 Os for a population of 76m**
2. **Funding residency programmes to promote O specialisation**
3. **Funding fellowship programmes to promote sub-specialties**
4. **Providing grants for Os to attend academic conferences**
5. **Training MLOPs – e.g. refresher, CEH and technician courses – 650 MLOPs**
6. **Training ophthalmic nurses – refresher courses and phaco assistance**
7. **Upgrading libraries for residency programmemes in eye departments**
8. **Upgrading teaching/learning aids**
9. **In state training facilities are provided for all eye care cadres**

IS ACTIVITIES

1. **Strengthening equipment base in government and NGO sector eye hospitals**
2. **Supplying of eye screening kits to all DBCSs**

3. Needs Assessment 1 – What are the population characteristics of Adilabad District in Andhra Pradesh?

Some maps and statistics are included to show a number of important demographic characteristics of the case study area – for Adilabad District (AD) if available and for Andhra Pradesh state at large. The problems outlined have been a key factor in selecting the Mudhole site for a rural eye centre as a pioneering satellite project.

Fig. 4.5 Population growth by state in India for the decade 1991 – 2001

- The map (Fig. 4.3) and Table 4.3 show the lower than average population numbers and lower density in AD, despite a higher growth rate, than for AP as a whole. While Mudhole, serving a population of 0.5m, complies with the model size for a VISION 2020 district programme, the relatively small and scattered farming population clusters in its catchment area have had to be carefully considered in the integrated PBL plan to serve these rather isolated communities.
- The maps (Figs. 4.4, 4.5 and 4.6) and Table 4.3 show further problems for AD. Despite the industrial growth of the state capital Hyderabad, the population growth of AP remains lower than average for India. The relative poverty of rural AP and especially AD, with larger family size associated with the higher than average population growth, is accompanied by lower literacy levels especially for women. These factors have presented challenges, for example (1) to educate mothers in particular and the community in general to accept and follow advice and (2) to provide treatments at Mudhole eye centre that can meet long term needs with sustainable resources. Such resources cannot be dependent on either cost-recovery from the majority of patients who are poor or on unreliable long term state support.

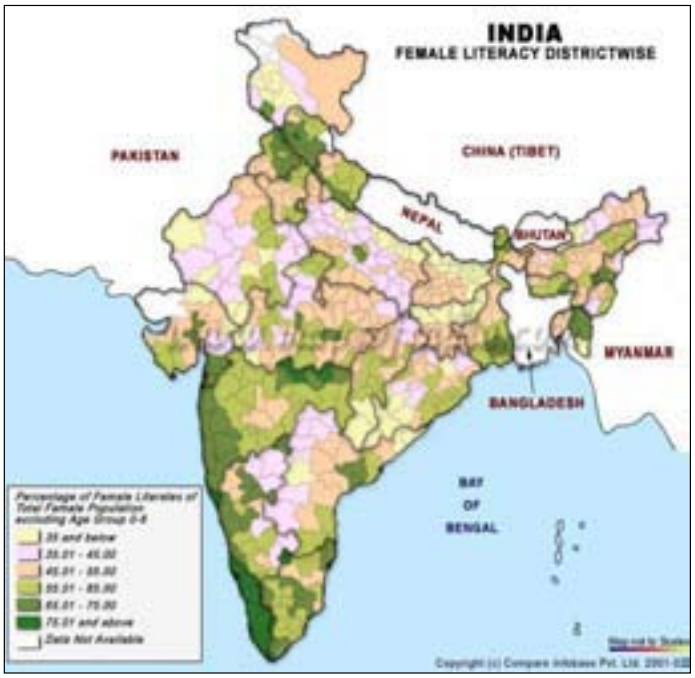


Fig. 4.6 Female literacy in India emphasizing the relative disadvantage of Andhra Pradesh and Adilabad District

Table 4.3 The population environment of Mudhole – India, AP and AD

POPULATION PARAMETER	INDIA	ANDHRA PRADESH	ADILABAD DISTRICT (if known)
KEY STATISTICS – based on 2001 census or as given			
Number	1,027 m	76.2m	2.5 m (Mudhole 0.5m)
Gender (f/1000m)	933	978	980
Population density/sq.km.	307	275	154
Annual growth rate (%)	1.4	1.8	1.91
Average life expectancy	63	62	
Dependent population (%)	38.0	42.7	
Infant mortality / per 1000 live births	61	53	
Under 5 mortality / 1000 live births	96	67	
Urban/rural distribution (%)	28/72	27/73	26/74
IMPORTANT DEMOGRAPHIC INDICATORS relevant to PBL programme planning			
Access to clean drinking water (%)	62	67.8	
Access to good sanitation (%)	49	42.4	
Public health expenditure (% of GDP)	5.6 (1997)		
Child immunization against measles (%)	81 (1996)	69.4	
Enrolment in secondary education (%)	42 (47m,37f)		
Enrolment in primary education (%)	77	57.6	
Literacy in one or more languages (%)	65 (76m, 54f)	64 (71m, 51f) *	53.5 (65m, 41.4f)
Unemployment (%)	6.03	6.67	
Annual per capita income		US$ 400	
Below the poverty line (%)	25	22	
Living in hunger (% of children under weight)	47	38	

***** Andhra Pradesh literacy rate is 26/28 of Indian states; Rural/urban literacy ratio 57/77

4. Needs Assessment 2 – What is known about eye diseases and blindness in Andhra Pradesh and Adilabad?

A report by Dr GN Rao[2], prepared from a population based survey and published in 2001, emphasised the main blindness concerns for India and **Andhra Pradesh** – providing the evidence that came to launch and sustain a drive to develop a PBL programme along VISION 2020 principles in that state. The report acknowledged not just the human cost but also the economic cost in lost productivity, a serious handicap for an emerging but fragile economy. In brief AP showed:

- A blindness prevalence of 1.84% (about 1.5 m blind) – based on visual acuity of <6/60
- An additional 8.09% (6.5m) with significant visual impairment
- A situation with over 70% of this problem needlessly caused by diseases that could be prevented or treated with cost effective interventions
- A situation that could be more than twice as bad by 2020

Additionally, the distribution of blindness prevalence was 1.36% in urban areas and 2.03% in rural areas – stressing the area of greatest need for PBL activity.

The main causes of blindness are set out below in Table 4.4. The possibility of good strategies eliminating 70 – 75 % of all blindness in AP is complemented by the statistics for severe visual

impairment that showed a further 45% caused by refractive errors and 40% due to cataract. Those diseases, which can be cured, or prevented, or the progress of blindness arrested, are marked * below – and the number of blind-person-years potentially to be saved are indicated.

***Table 4.4 Causes of blindness (visual acuity <6/60) in Andhra Pradesh in 2001,* extrapolated from a population based survey**

Causes of Blindness	Prevalence (%)	% of total	No. Blind	Blind-Person-Years (m) if successfully treated	No. Blind in Mudhole catchment
Cataract*	0.81	44.0	660,000	3.58	4,356
Refractive Error*	0.30	16.3	240,000	7.84	1,584
Retinal Disease	0.20	10.9	165,000	-	1,089
Glaucoma*	0.15	8.2	125,000	0.38	825
Corneal Disease*	0.13	7.1	100,000	2.67	660
Optic Atrophy	0.11	6.0	90,000	-	594
Amblyopia	0.08	4.3	65,000	-	429
Microphthalmos	0.02	1.1	16,000	-	105
Other	0.04	2.2	32,000	-	211

Despite these statistics and the intention of reducing blindness prevalence considerably with a concentration on the diseases marked*, data on surgical outcomes, notably for cataract, has indicated high failure rates in rural areas. Reasons given have referred to the methods and quality of cataract treatment, inadequate post-operative care and insufficient refractive correction. The task of developing an improved eye care model has had to confront these problems and also secure sustainable improvement in a society with scarce financial resources. The approach adopted at Mudhole, described in the pages that follow, has achieved accelerating progress following VISION 2020 principles.

5. Mudhole – Bhosle Gopal Rao Patel Rural Eye Centre (Secondary Level) - Fig. 4.7

What are the resources for district eye care?

5.1 Human resources

Table 4.2 highlights the support offered through the AP Right to Sight Society, in increasing the human resource pool for Mudhole and elsewhere in the state. This support has been considerable. The availability of professional staff in all cadres is good with full in-state facilities to train, upgrade and refresh as necessary. The problem lies at times in the unequal HR distribution between hospitals and PEC centres in remote and central areas - there is no HR mobilisation policy.

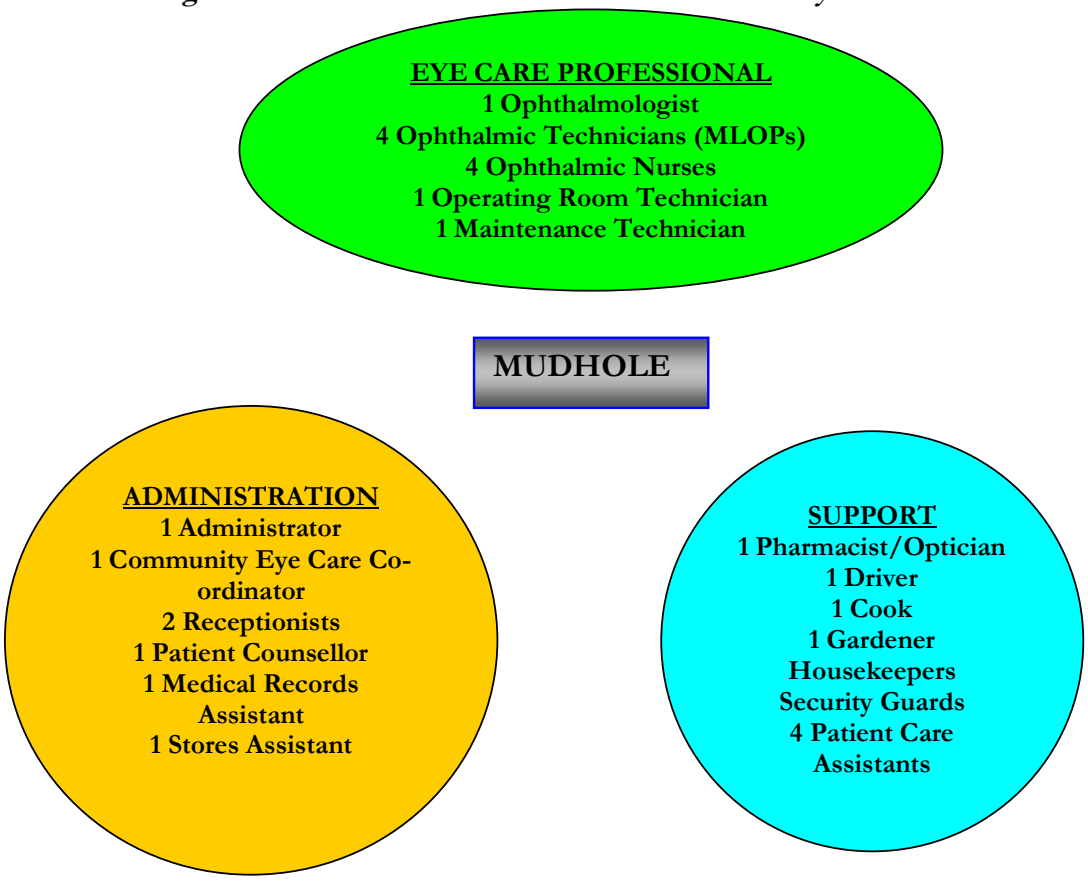
The International Centre for the Advancement of Rural Eye Care (ICARE), a leadership and training centre and part of the tertiary L.V. Prasad Eye Institute (LVPEI) in Hyderabad, has evolved a model eye care team to provide secondary level services to a population of 0.5 to 1 million in areas poorly reached by the state system. This model arose from an expression of need from the local community to have a facility providing high quality affordable eye care as close to them as possible. It was first employed at Mudhole (opened in 1996) and subsequently introduced at a number of other secondary eye hospitals, tributary to LVPEI. It recognises the equal importance of all cadres of workers in providing truly comprehensive eye care. The resulting HR team at Mudhole is partly cross-functional, especially for non-

clinical staff. Neither absence nor extremes of work load create problems of service breakdown, as staff are trained to move sideways to undertake roles outside their normal work. The well integrated team is shown in the following chart (Fig.4.8) and many roles are then summarised.

Fig.4.7
Mudhole Rural Eye Centre, Adilabad District

The first of 6 (by June 2005) secondary eye hospitals, satellite to LVPEI – built on land gifted by the community (partly as a response to the reputation of LVP) and serving a population of 500,000 over an area with a radius of 50-60 km.

Fig. 4.8 Human Resources Team at Mudhole Rural Eye Centre



Team cohesion, commitment and ownership are fostered by local recruitment and the chance to live at home. There is good hospital/community rapport providing a sustainable programme for HR provision. Vacancies are quickly filled by word of mouth or the local district paper. Training is largely undertaken at ICARE-LVPEI, combining theory with hands-on experiences. Completion of this training is followed by appointment to the rural eye centre and access to performance related salary increases and promotion. Only the ophthalmologist has been externally recruited and therefore lives on site.

Professional roles

1. Ophthalmologist

The comprehensive role covers:

- High quality extracapsular surgery with posterior chamber IOL implants, sustained by regular educational updates and good quality equipment
- Clinical quality assurance for the eye care team
- Planning, implementation, management and evaluation of eye care programmes and services – skills derived through a six month diploma in CEH at ICARE
- Training clinical staff

2. Ophthalmic Technician (MLOP)

Either a three-year trained ophthalmic technician **or** a one-year trained vision technician

- **Service centre role for ophthalmic technician** covers:

(1) Taking patient history, assessing visual acuity, refraction, external eye examination, slit lamp biomicroscopy, applanation tonometry, keratometry, A-scan for IOL calculation and perimetry for visual fields
(2) Training clinical and non-clinical staff
(3) Delivering low vision services (after training at LVPEI)

- **Community role for ophthalmic technician** involves:

(1) Screening and refraction services in PEC centres
(2) Screening in the community, including schools

- **The vision technician** provides

Management of Vision Centres in the community for screening, refraction and referral of cases to the secondary service hospital

3. Ophthalmic Nurse

Mostly recruited for training from the community without previous nursing experience (although a trained general nurse is preferred if available) to:

- Assist in all surgery
- Provide ward care for in-patients

4. Operating Room Technician (Nurse)

This technician, together with a cross-skilled ophthalmic nurse, provides theatre support through:

- Preparing the patient and operating room for surgery
- Sterilising equipment
- Giving supervised local anaesthesia

5. Maintenance Technician

This role at Mudhole is unique in AP. The holder provides vital equipment maintenance support (largely preventive) within the secondary hospital so ensuring that most equipment remains in use. S/he also looks after the facility's electricity and plumbing systems and provides training for individuals from other centres.

Administrative roles

1. Administrator (Eye Care Manager)

This is a vital role in the co-ordination and supervision of all non-clinical services. One year training is provided at ICARE to develop necessary skills in HR, finance and material management. Responsibilities include:

- All aspects of patient administration – finding, assessing for free/paid care, organising services, counselling, record keeping
- Overseeing the CEC programme (see '2' below)
- Liaising with agencies
- Managing finances
- Infrastructure management – site, buildings, equipment and medical resources
- Ensuring quality of non-clinical care
- Working if necessary cross-functionally with other administration team members
- Building and maintaining good morale and a teamwork ethos

2. Community Eye Care (CEC) Co-ordinator

The role serves the community in two significant ways – (1) linking those in the community in need with the eye care centre; (2) providing preventive care at the community level. Community and school outreach programmes are integral to service delivery and a primary way of generating service demand.
The post involves:

- A responsibility for both community screening and community-based rehabilitation programmes
- Logistics of referral to eye centre
- Promotion of eye health awareness programmes
- Supervision of a small team of field workers drawn from the local community who deliver PEC services
- Training the nearest of kin of the incurably visually impaired in the personal and social skills needed to encourage self reliance and self worth

3. Receptionist

This person is the first contact for the patient at the eye care centre. The respect shown to the patient contributes highly to community appreciation, reputation and uptake of services – and therefore also to income in a system targeting financial sustainability for its eye care programme.

4. Patient Counsellor

The role is to enhance patient satisfaction by:

- Explaining surgical procedures to patients
- Assessing the paying ability of each patient
- Advising the appropriate fee-tier for the surgical package in the ICARE scheme

5. Medical Records Assistant

Responsibility includes the accurate filing and retrieval of records, and the maintaining of accurate patient statistics with regard to diagnosis and treatment.

6. Stores Assistant

Responsibility involves maintaining an inventory of supplies and the anticipation of future need – based on an ICARE model.

Support roles

1. Pharmacist/Optician

Both roles involve achieving a balance between good quality of services and free services for those who cannot pay. Well-trained professionals can help the drive towards the centre's financial self-sufficiency as well as achieving greater patient satisfaction by ensuring all services are available under one roof.

2. Other support staff – driver, cook, gardener, housekeepers, security guards and voluntary patient care attendants maintain an efficiently functioning and user-friendly centre.

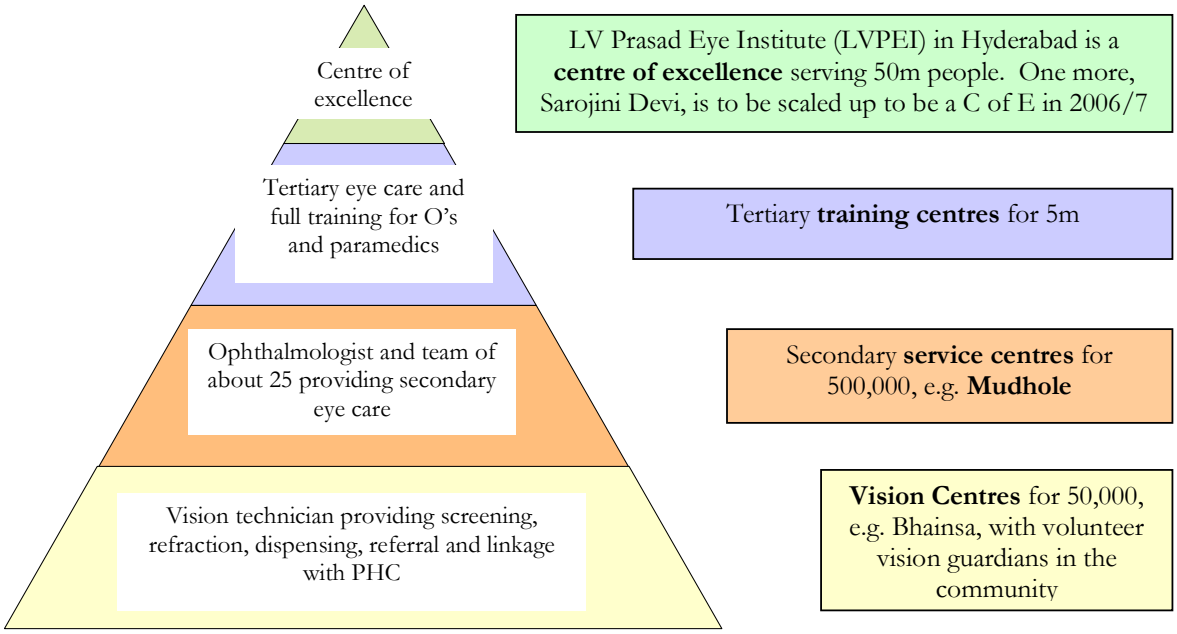
ICARE has established **partnerships** enabling it to monitor the programmes of other local or international organisations involved in delivering community eye care – in terms of quality of service, self-sustainability and the extent to which the population's needs are being met. Sharing and then learning from periods of both good and disappointing performance enhances the opportunities for all to improve their programmes for reaching the VISION 2020 targets.

5.2 Infrastructure

AP with a population of about 76m has 23 district hospitals (50/50 public/private), 15 of which are training centres, 70 secondary hospitals, e.g. Mudhole, together with a developing network of community health centres, primary health centres and vision centres. Equipment (much of it provided through the World Bank Programme) is the responsibility of the RSS/DBCS or NGO. Table 4.2 summarises the equipment contributions from the AP RSS. However at Mudhole, as with all LVPEI satellites, funding for these needs comes from the local NGO – **LVPEI.** This organisation has the capacity itself to attract competitive funding. As a result, the equipment at Mudhole is broadly satisfactory and supplies are secure.

The eye care services in and around Hyderabad, Adilabad District and Mudhole fit within a 4-tier pyramidal structure, as in Fig. 4.9 – of which levels 3 and 4 conform to the VISION 2020 model. The foundation is this model's strong community base.

Fig. 4.9 LVPEI/ICARE model for the provision of community eye health – in the process now of being implemented in other parts of India and the developing world



LV Prasad Eye Institute – provides advanced and tertiary eye care, training of trainers, other training programmes, research, low vision and community eye health training, planning and policy formulation. This centre is responsible for the functioning of the whole pyramid.

There is a careful separation of responsibilities between the four tiers – avoiding duplication and enhancing the efficiency and effectiveness of allocated responsibilities for each tier. Nevertheless

good interaction between the tiers is critical to the success of the model - including the studied example of Mudhole, one of presently six LVPEI satellite hospitals.

The infrastructure provision, as with the human resources, is designed to an LVPEI model. Mudhole, has 13,000 square feet of floor space designed to provide:

1. Outpatient area, including:
   - Reception area for patient registration
   - Waiting areas for paying and free (see Fig.4.10)

Fig. 4.10 Waiting room for free patients at Mudhole rural eye centre

   - Screening rooms for taking history and initial examination by ophthalmic technician (see Figs. 4.11, 4.12)

Fig. 4.11 Screening room 1 at Mudhole rural eye centre

   - Examination room for ophthalmologist to complete examination and advise patient on problem management
   - Counselling room for explaining surgery and assessing socio-economic status
   - Investigations room for calculations of intraocular lens power
   - Biochemistry lab for blood and urine testing
   - Eye donation centre
   - Toilets
2. Operation Theatre, including:
   - Pre-operative room
   - Staff changing rooms
   - Scrub area
   - Air conditioned operating room
   - Sterilization room
3. Inpatient area, including:
   - Six rooms of three types for the three-tier fee structure for paying patients – 10 beds

Fig. 4.12 Screening room 2 at Mudhole rural eye centre

Fig. 4.13 A ward for non-paying patients at Mudhole rural eye centre

   - Two wards for non-paying patients, 1 male, 1 female – total 10 beds (Fig. 4.13)
   - Nursing station
   - Two patient dining rooms

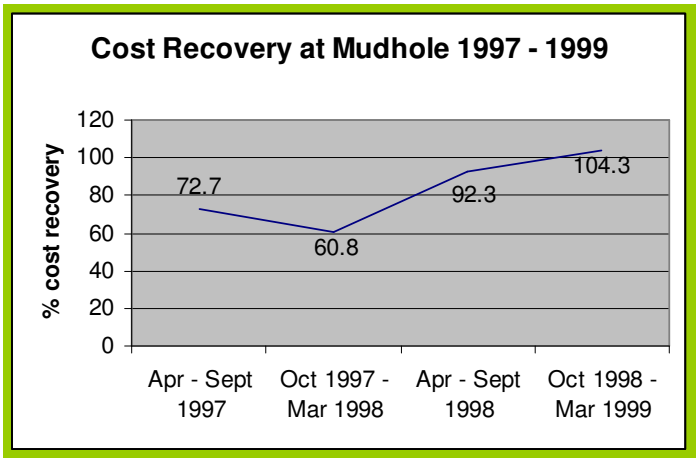
4. Medical Records room
5. Stores room
6. Optical shop and pharmacy for sale of spectacles and medicines
7. Room for coordinating community eye care programme
8. Administration office for coordinating daily activities at the eye centre
9. Maintenance block – generator room (with back up solar power installation), maintenance room, cafeteria, toilets, changing rooms
10. Accommodation rooms for ophthalmologist and administrator

Additional storage areas exist for medical equipment and supplies, general equipment, furniture and surgical instruments.

5.3 Financial resources

A review of financial support for eye care is included on pages 44-46. In brief, LVPEI and its satellites have targeted **financial sustainability** through their **cost-recovery** model. Elsewhere in the state there has been a possibly unsafe reliance on state subsidies. That less favoured option broadly allocates payment 50/50 between surgery and outcome. This can contribute to an under use of resources and reduced success in overcoming surgery backlogs. The LVPEI scheme that applies to Mudhole rural eye centre and is working well is set out more fully on page 57. Although the programme of cost-recovery predates VISION 2020, its structure and major achievements need to be set in the context of Mudhole as a flourishing district model programme at the present time. Figure 4.14 shows the successful progress of cost-recovery in the early years of Mudhole from 1997 to 1999.

Mudhole together with Thoodulurthy rural eye centre in Mahabubnagar District, south of Hyderabad (1998), existed before VISION 2020 was launched globally in 1999 and then adopted in India and AP in 2001. They were founded and are owned and run by LVPEI as satellite hospitals. This NGO has carried the financial responsibility as policies working for self sustainability have evolved. The initial capital costs of Mudhole, amounting to US$188,600, were underwritten by SSI and CBMI. CBMI continues to offer targeted assistance for specific projects, for example the recent biochemical lab at the hospital. Other smaller NGOs, including the Combat Blindness Foundation and philanthropists also finance specific projects.



The achievement of self-sustainability by mid 1999 in running costs reflects a surplus of income (services, sales and bank interest) over expenditure (salaries, consumables, optical/pharmacy shop requirements, utilities and other sundry costs). Recurrent grants and depreciation were not included.

Fig. 4.14 The success of cost-recovery strategies in the early years of Mudhole

6. Mudhole – The District VISION 2020 Programme

6.1 How were the aims, objectives and activities defined?

The **aim** or overall direction for the VISION 2020 programme that is centred on the eye hospital in the village of Mudhole, a previously under-served area in AP, and repeated for other LVPEI satellites, is to achieve **'Excellence and equity through efficiency in eye care service provision'**. The intention is to secure high quality, comprehensive and sustainable eye care services as closely as possible to the people who need them through their active participation.

This broad remit is being targeted through specific **objectives**:

1. To achieve a sustainable service that:
   (a) provides at least 50% of patients with a free eye care service of uncompromised quality
   (b) fast tracks paying patients with a supporter service to double eye care centre capacity.
2. To ensure a comprehensive coverage of eye care services by:
   (a) increasing throughput of cataract and refractive error patients to set targets
   (b) extending services to include glaucoma, diabetic retinopathy, low vision, community rehabilitation, and the promotion of eye donation activities.

6.2 What strategies are used in the programme?

Strategies to achieve these objectives can be summarized as (**1) promoting the service efficiency of the eye hospital at Mudhole** and **(2) securing the maximum effective coverage in the community.** These needs are being addressed through a number of **activities** that are set out in Figure 4.15.

These two broad and complementary strategies and the supporting activities must be considered in the context of the total LVPEI ICARE programme through reference to a report that was issued in 2001 (see page 48) at the outset of VISION 2020 involvement in AP. The programme, to be implemented in four 5-year phases from 2002, contained the following **target-led activities** across the tiered service structure set out previously on page 53, within which Mudhole as a secondary level hospital is a major contributor and a successful model.

Promoting service efficiency at the base hospital and in the community in AP

There is a need to control the prevalence of blindness in the population; 1.84% with 1.5 m. blind in 2001, at risk of doubling by 2020.

- Despite a CSR in AP of 4,400, an increase in the number of and provision for **cataract** surgeries from 350,000 in 2001 to 500,000 by 2005 and 600,000 by 2010 is essential to remove the backlog, with high quality surgery and mandatory use of IOLs, unless medically ill-advised – all surgery to be in base hospitals. A greater surgical emphasis on patients with blinding cataract is urged (rising from 25 to 50% of treated patients). The coming change to day care at Mudhole will remove dependence on bed capacity and promote moves to increase surgery throughput.
- Spectacles would be provided to all children below 15 years with **refractive errors** and adults above 40 years with near vision problems by 2005 and the elimination of all refractive blindness for all age groups will be achieved by 2010.
- Prevention of any needless **child blindness** after 2010 through (1) full access to vitamin A capsules and immunisation against measles and rubella, (2) a full development of accessible primary eye care centres, (3) an adequate number of high quality tertiary children's eye care centres to which secondary hospitals like Mudhole can refer.
- An effective **eye banking** system and trained corneal surgeons will be developed in all districts, e.g. Adilabad, by 2010.

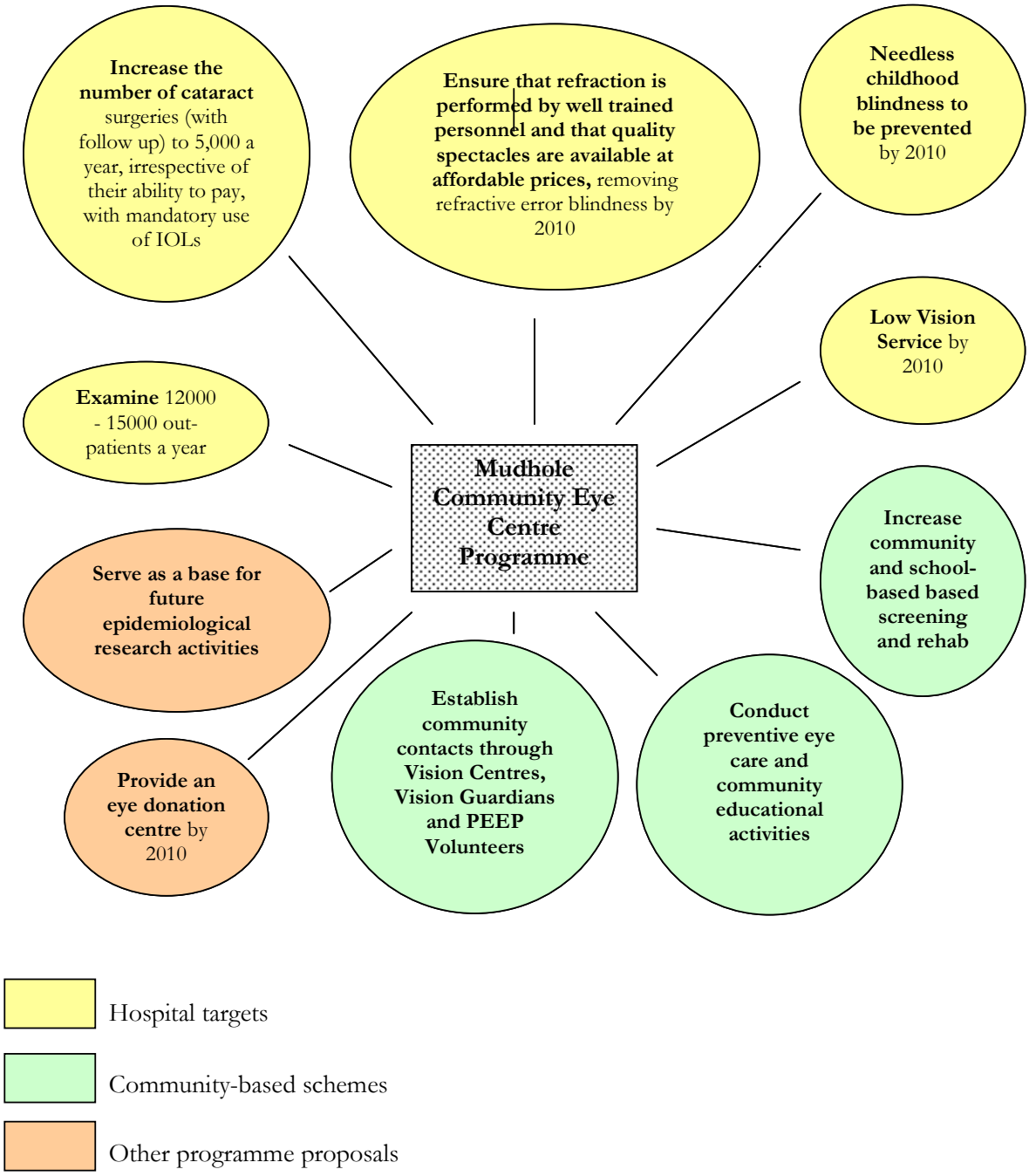
- **Low Vision Services** would be initiated in all tertiary centres by 2005 and secondary centres like Mudhole by 2010.
- **Cost-recovery** measures are designed to ensure the long term sustainability of efficient eye care service at Mudhole in particular and across the LVPEI service structure in general. Mudhole should be covering completely its own running costs by 2008, if present progress continues. Broadly Mudhole did 2,600 surgeries April '04 – March '05 (90% for cataract) – capacity exists for 4,000 – of which 30% are charged for accommodation packages at one of three levels (outlined in the note below). Contributory factors to long term sustainability at Mudhole include the fact that the hospital is within three hours travel for most patients and that most eye problems can be tackled at the hospital. Children and patients with retina and advanced cornea problems are referred to LVPEI. There is no significant trainee accommodation at Mudhole so LVPEI takes trainee income at present.
- **Human resource development** to include: (1) training all ophthalmologists in micro-surgery and modern cataract surgery by 2005 and in comprehensive eye care by 2010; (2) developing a uniform basic curriculum for post graduate ophthalmology residency programmes; (3) developing an adequate number of paramedic personnel training programmes, including refraction, by 2005, meeting all needs by 2010; (4) training eye care management teams and technical teams to cover all tertiary care centres and district programmes by 2005 and all secondary centres by 2010; (5) training Low Vision professionals for all tertiary centres by 2005 and all secondary centres by 2010.
- Easing access to screening and refraction by the introduction of village-based **Vision Centres** and by voluntary empowerment **initiatives in the community,** e.g. vision guardians (junior and adult) and the PEEP scheme (Providing Eye care through Empowered People) – see the following section.

Cost Packages at Mudhole (in the context of self-sustainability for the eye care programme)

- Beds are provided for 28 patients at present – for paying (3 classes) and free.
- The cost packages for paying patients are (1) economy – 5/room at 2 prices (INR 1,560 sutureless; INR 1,250 with sutures); (2) semi-private – 2/room at INR 3,000 or INR 2,350; (3) de-luxe in private room at INR 6,250 or INR 5,000.
- Paying patients additionally are charged INR 60 up front for comprehensive eye care. No charge is made for follow up provided the patient returns within six weeks.
- Patients in a hurry, in the semi-private and de-luxe categories, can be fast-tracked, avoiding the appointment system and having priority treatment in OP clinic and surgery – so increasing flow.
- There is in patient accommodation provision at present for 12 paying and 12 non-paying patients (50/50 male/female).
- Ratio between paying and non-paying patients varies across the 6 LVPEI satellite hospitals but experience suggests that a 65/35 ratio should enable cross-subsidisation to bring sustainability with regard to running expenses within three years of initial service delivery.
- Achievement of this self-sustainability can be attributed to (1) good patient care with equal emphasis given to medical and management systems; (2) well trained clinical and non-clinical staff working as a team; (3) the support of the local community; (4) addressing the barriers to eye care services with regard to accessibility, availability and accountability; (5) no difference in treatment arising from patient paying status; (5) optimum utilisation of staff; (6) bulk central purchasing of consumables with minimum wastage; (7) strong links with social development organisations for community relations and mobilisation.

Fig. 4.15 Planned activities and targets of the <u>original</u> Mudhole programme for 500,000 people, initiated and partly sustained by NGO (LVPEI) funding – to achieve the above objectives

A VISION 2020 District Model



Securing the maximum effective coverage of eye care services in the community

Studies have repeatedly emphasised that primary eye care systems are the least developed of all levels of eye care in the developing world. Yet analyses of the causes of avoidable blindness make it clear that a well planned and developed system of PEC can bring great improvements through increasing accessibility, availability and affordability of eye care to many currently poorly served populations. Such approaches should be low cost, sustainable and closely integrated, both with the PHC system and with secondary levels of eye care. It is also vital that the community itself is as involved as possible in planning, launching and working for the continuing effectiveness of such developments.

The aim to bring quality eye care services as near as possible to the people who need them is being realised in several ways in the rural Mudhole, low income catchment.

1. Vision Centres

LVPEI has developed a 'Vision Centre' model at PHC level to realise the above principles for the more remote areas of AP, such as Adilabad District, as mapped in Fig. 4.16. Each centre serves a population of about 50,000 people in areas without PHC/MLOP access. They occupy converted buildings with a leased space of about 500 sq. ft., providing rooms for waiting and consulting. Each centre is staffed by one vision technician – selected from high school graduates in the local community, trained for one year at ICARE (5 months theory, 7 months practical) and then appointed to serve his/her own people. The training enables the vision technician **to undertake refraction and dispensing, detect potentially blinding diseases, communicate with patients and develop linkages with both PHCs and the nearest secondary hospital**. The equipment to make the technician effective is provided at the Vision Centre. This includes low cost ready-made spectacles – the small profit made from these covers the operating cost of the centre, including the salary, lease expenses and maintenance.

Fig. 4.16 Vision Centres with linked secondary hospitals in AP

The cost of setting up each centre is around US$ 10,000 – 20 cents per person served. Ten Vision Centres are planned to be attached to each secondary level service centre – e.g. the first was established at Bhainsa in August 2003, 12km from Mudhole, in Fig. 4.16. The spectacles are provided by LVPEI in Hyderabad and the set up costs are currently provided by international NGOs, although local community sponsorship is being investigated for future centres. Both Mudhole in AD and Thoodulurthy in Mahabubnagar District now have their full complement of Vision Centres.

Fig. 4.17 Lohesra Vision Centre in Adilabad on opening day in October 2005

A new Vision Centre at Lohesra (not mapped) in a small converted shop, 35km from Mudhole but nearer to another recently acquired satellite facility in Adilabad, was opened during my visit to AP in 2005. Fig. 4.17 shows the frontage of the new centre with a waiting area in front and a consulting room through a door behind. The name of the sponsoring INGO – Lavelle Fund for the Blind - is visible. The photograph, Fig. 4.18, looks along the road from the new centre and emphasises the rural nature of the community served. The official opening gave cause for a village gathering, especially the local elders - in Fig. 4.19 - emphasising the community's involvement in and recognition of the values of this new service.

Fig. 4.18 Lohesra village street in front of new vision centre

Fig. 4.19 Community support at the opening of Lohesra's vision centre

Community use of this facility is encouraged by providing free screening to all villagers. Daily average screening is of 10 – 19 patients. Generally 25 – 35% of patients need spectacles, of whom 50 – 60% buy them at the VCs. The technician also provides a screening service in the local school. If referral is needed (on average for 25% of patients seen) to the secondary eye hospital (Mudhole) for further eye care investigation or surgery, appointments are made to give greater assurance that patients will follow up their eye care needs. At present about 65% of referrals do attend this hospital appointment – ways are being sought of reducing the drop out. Payment status for surgery is determined by a counsellor at the hospital. Mudhole also provides the dispensing centre for new spectacles that are delivered to the vision centre for easy patient collection.

The project so far has brought undeniable success in terms of:

- improving access to care for remote communities
- increasing public awareness of the problems of visual impairment and blindness

- providing coverage for school screening services
- creating a sense of community ownership
- linking community, health and governmental organisations to bring economic benefits to individuals and families from transport savings and improved vision

Future developments in this programme may:

- transfer ownership of Vision Centres to local communities or businesses with LVPEI restricted to quality monitoring
- see the development of community-based rehabilitation services as a component service of the Vision Centres
- extend the role of these centres in the management of corneal infections, glaucoma and diabetic retinopathy – currently under investigation

There is an encouraging national response to this scheme in India. The government has included it in the national VISION 2020 programme, 2006-2010. It is committed to funding 2,000 Vision Centres. The AP government is creating Vision Centres within their 350 PHC centres.

2. Vision Guardians

An extension of the Vision Centre model is a deeper involvement with the community through 'Vision Guardians', a recent and developing initiative. These individuals identify with populations of 5,000. The individuals selected for this role come from the local community and satisfy criteria related to educational background, aptitude and willingness to be involved. As volunteers they work in a part time capacity, attached to the local Vision Centre. They pay special attention to children, the elderly and those who have surgical interventions.

3. Junior Vision Guardians

Fig. 4.20 Children entertaining fellow pupils at Pragati School in AD at a Junior Vision prize giving with teachers looking on

LVPEI is also experimenting with child to child and child to parent guardianship. In one example seen at Pragati School, Echoda, in eastern AD (Fig. 4.20), teachers volunteer to give basic eye health education to children, focussing on disease recognition, hygiene, nutrition and acuity testing at a very simple level. Children are then encouraged to investigate friends and parents and where there is cause for concern, they are encouraged to persuade them to attend a local Vision Centre. The Vision Centre technician keeps a record of these referrals and, at an annual prize-giving, awards are given to the most successful Junior Vision Guardians.

Fig. 4.21 Prize being awarded to a top Junior Vision Guardian at Pragati by Usha Raman from LVPEI

4. PEEP scheme (Providing Eye care through Empowered People)

This is a system for self help groups organising shared community insurance. Individuals agree to pay INR1/month into a community fund to cover the cost of future eye care for empowered people – with a photo identity to guarantee economy class provision in hospital. PEEP organisers also serve as Vision Guardians. The scheme is being trialled for three years with a target enrolment of 90,000 in 4 mandals (taxation districts of 50,000) around Mudhole.

5. The DBCS is normally responsible for health education through the local media and at pension collection points. Community volunteers, beyond the above schemes, help to (1) organise outreach, e.g. publicity, lunches, transport and patient support and (2) promote health education – with variable success.

6.3 How is the programme managed?

Externally

- As Mudhole is a satellite hospital within the LVPEI service area in AP, hospital policy is centrally determined by the trustees and executive committee of LVPEI. The agreed activities with annual targets for the eye care programme stem from decisions taken by that Institute and then effected with the oversight of ICARE. Representation of Mudhole's achievements, problems and proposals is provided to the Institute by the hospital administrator through monthly reports and by the attendance of a consultant and chief administrator for the outreach programme on LVPEI's Executive. These two officials interact with the local administrator and ophthalmologist at each satellite facility.
- More broadly, the governors and executive of AP's Right to Sight Society take investment decisions resulting from policies related to the implementation of VISION 2020 in the state. This, as outlined on page 45 and Table 4.2, has a wide-ranging influence on the decisions of LVPEI and its implementation programme.
- Since India has a federal structure, each state has the autonomy to take and implement its own health policy decisions. Beyond the support of the MoH in Delhi for VISION 2020 and the presence of a national co-ordinator for the effective promotion and implementation of that programme, there is no management level in operation influencing the Mudhole programme on a national scale.

Internally

- The Heads of Administration and Clinical Matters manage well their respective areas of responsibility in Mudhole hospital. Their roles focus on the effective and efficient implementation of the decisions passed down by LVPEI.
- Central to Mudhole's success is the motivation these two managers instil in their respective teams. Their management is very visible; successes are openly shared; staff meeting involvement is encouraged; appraisal is positive; employee of the year status is a carrot; social gatherings are organised and parties given to welcome new members.
- ICARE drafts the annual budget application based on Mudhole's reports for submission to LVPEI and possibly on then to another I/NGO (CBMI) as necessary.
- There is no local PBL committee and no direct community involvement in management at an official level. The Outreach Co-ordinator from Mudhole does however attend all community meetings – where community members can express their views. It is very important to remember that Mudhole's employees are very largely local villagers so this automatically provides a supportive spirit and sense of shared ownership that reduces the need for formal structures. The evident success of the hospital's treatment record strengthens that linkage.

6.4 How is the programme monitored?

- Regular and systematic reporting is essential for monitoring the programme's progress in meeting targets and objectives – there are 3 stages: (1) individual staff members report to the two internal Heads daily; (2) internal Heads to ICARE weekly; (3) ICARE to LVPEI monthly. Reports are in 3 formats – statistical, narrative and financial.
- A committee at LVPEI, comprising an ophthalmologist and two administrators, regularly monitors the satellite hospitals and their outreach services and proposes actions if necessary. This is supported by fortnightly visits to the satellite centres.
- There is also a national reporting procedure that links the eye care service activity with the DBCS, then with the state BCS (RSS in the case of AP), and then to the MoH in New Delhi. This reporting chain is essential for services dependent on state subsidy – not actually relevant to the LVPEI service structure with its policy of sustainable self-reliance through cost-recovery procedures.
- A strict and regular process of quality management is exercised and this is important for ensuring the continuing success of the NGO project as a whole and Mudhole in particular - the implementation of the LVPEI/ICARE model for eye care:-

1. Each activity – patient care, public health, training, research, and product development – is based on carefully planned and managed priorities that have grown from the total eye disease, demographic and socio-economic context of the service.
2. Quality management is data driven at all levels, for example:
   (a) Regional surveys are regularly conducted on the prevalence of visual impairment and programme effectiveness, to enable strategies to be built to address the specific problems that have been recognised.
   (b) Local tracking traces patient adherence to treatment programmes, treatment outcomes, costs and utilisation of services to ensure that targets are being met and procedures adjusted if necessary.
   (c) Organisational effectiveness is continually monitored through self-evaluations and quarterly supervisory evaluations, leading to reconsiderations of personnel and infrastructural utilisation if necessary.
   (d) Quantitive and qualitative service assessment was also planned to coincide with Mudhole's 10-year anniversary in 2006.

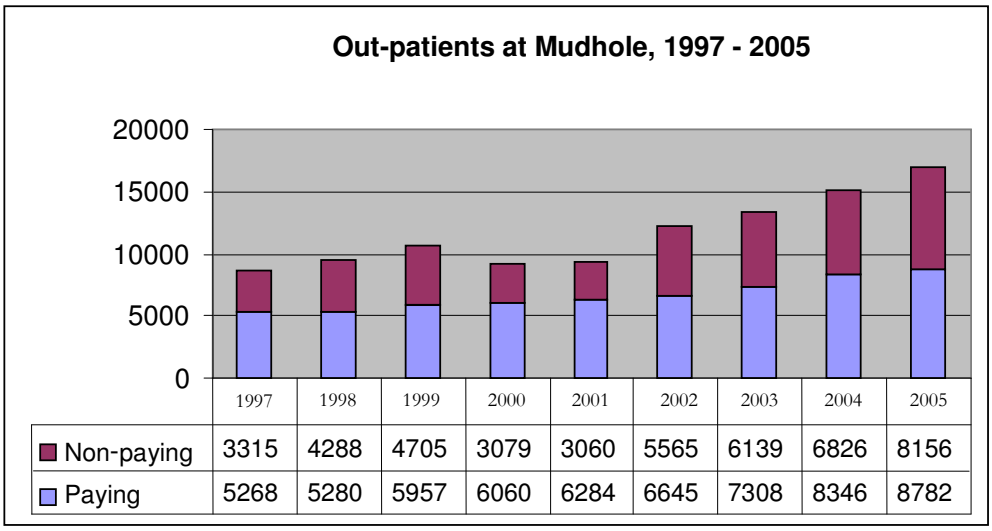
The **effectiveness of Bhosle Gopal Rao Patel Eye Centre at Mudhole** can be assessed through a study of treatment statistics. Although the hospital was founded in 1996, it is evident from Figs. 4.22 and 4.23 that eye care has significantly increased in outpatient numbers and surgeries with the introduction of VISION 2020 in 2001.

Referring in part to the **objectives** set out on page 56, several very encouraging trends can be seen:

1. The number of OPs treated freely at Mudhole has not yet reached the 50% target. It has nevertheless grown from 32.7% in 2001 to 48% in 2005. However, the number of surgeries treated freely at Mudhole (consistently >50% since the founding of the hospital) has grown from 52% in 2001 to 71% in 2005 – very significant in an area of relative economic disadvantage.
2. The growth of the paying patient sector, increasing over the period by 40% (OPs) and 40% (surgery), is noted against the graphs. This has enabled the planned cross-subsidisation to increasingly cover the costs of the non-paying sector, growing at a far faster rate of 167% for OPs and dramatically of 214% for surgery. The target year for full self-sustainability through cost-recovery for this satellite remains set at 2008.

3. The most recent patient statistics for the year April 2004 – March 2005, show approximately 2,600 surgeries of which 90% were for cataract. This is a 155% increase in cataract surgery for the VISION 2020 period, 2001 – 2004. (In a survey available for the period 2000 – 2002, 90% of the surgeries then were on patients >50 years and 56.5% were on females.) There is evident room to increase surgery activity further, given a present capacity of 4,000 and an intention to move more completely to a system of day rather than in-patient treatment. Increased success in finding patients, through for example Vision Centres and Vision Guardians, will promote a fuller use of this capacity. This will benefit both the drive to reduce the cataract backlog in Adilabad District and possibly advance Mudhole's schedule for total sustainability.

Fig. 4.22 Growth in Mudhole outpatients

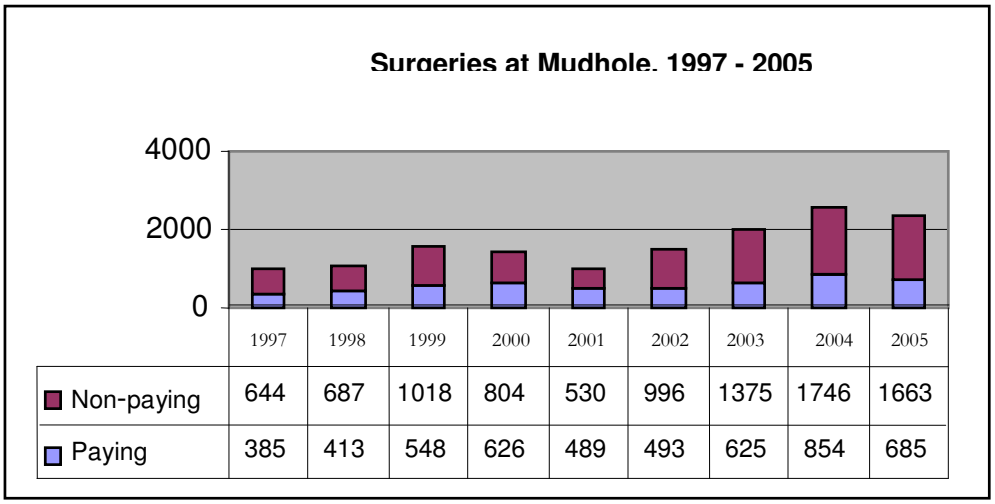


	1997	1998	1999	2000	2001	2002	2003	2004	2005
Non-paying	3315	4288	4705	3079	3060	5565	6139	6826	8156
Paying	5268	5280	5957	6060	6284	6645	7308	8346	8782

OP Growth 2001 – 2005 (with VISION 2020)

Non-paying 167%
Paying 40%

Fig. 4.23 Growth in Mudhole surgeries



	1997	1998	1999	2000	2001	2002	2003	2004	2005
Non-paying	644	687	1018	804	530	996	1375	1746	1663
Paying	385	413	548	626	489	493	625	854	685

Surgery Growth 2001 – 2005

Non-paying 214%
Paying 40%

4. A further encouraging statistic is the trend recorded towards an increasing patient uptake of recommended surgery from eye investigations at Mudhole. In 2004, the monthly average for successful conversion from surgeries advised to surgeries performed was 74.5%. For 2005, the monthly average increased to 81.5%. The success of the patient support network, for example

through patient counsellors and a patient-friendly appointment system, together of course with the hospital's good reputation in the community for successful surgery outcomes, appear to be bringing this welcome success.

5. Away from the major concern of cataract, the objective to extend treatments both for refractive error and for other eye disease has been met by increasing the throughput of patients both at the base hospital and through the outreach initiatives described earlier in this chapter. At Bhainsa for example, the first Vision Centre attached to Mudhole and established in August 2003, 4,885 patients were screened 2005-2006. This led to 1168 spectacles being prescribed and 852 referred to Mudhole base hospital for follow up treatment on suspected eye diseases. Regretfully only 42% attended their appointments. The existence by the close of 2005 of the full complement of ten Vision Centres for Mudhole enhanced the refractive error coverage and also increased surgery activity at the base hospital in a wide range of eye conditions, largely but not solely for cataract – although, as stated earlier, ways have to be found of improving patient take up for these treatment opportunities.

   The growing number of community screening activities (including in schools) together with an increase of Vision Guardians, Junior Vision Guardians and PEEP schemes, as their merits are tested and increasingly acknowledged, will further the increase in finding patients in need of eye care. Also of great importance is the state-wide support for disease control, exercised by the AP RSS, summarised earlier in Table 4.2 and complementary to the work of LVPEI/ICARE. This brings welcome investment to evolve and apply prevention and treatment strategies that are much needed in the relatively poor and isolated communities of Adilabad District.

7. Mudhole – What conclusions can be drawn?

The key strengths of the Mudhole model programme are summarised in Figure 4.24

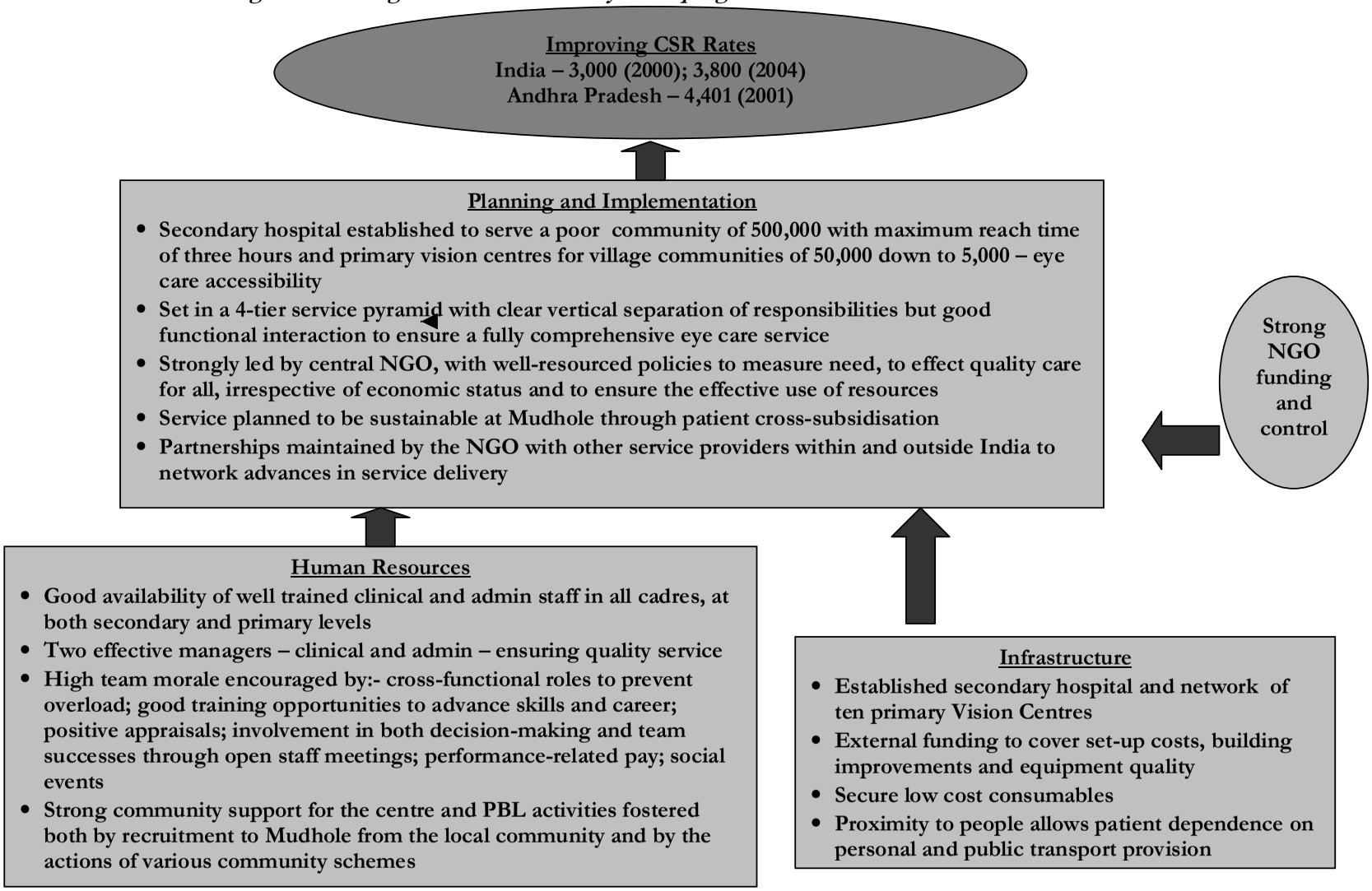
The reasons for the growing success of this model programme based at Mudhole can be explained through the way it resolves four important needs:

1. How are cataract patients encouraged to attend for surgery?

This is at present more successful for patients screened at Mudhole than in the wider catchment – ways are being sought of redressing this serious problem. In general however the following are effective in attempting to increase patient throughput and reduce the cataract backlog:

- The service centre is close to the target population, which ensures easy patient access without the need for expensive transport organised by the centre or for low income patients to pay public transport fares.
- Community initiatives have encouraged an awareness of PBL and stimulated a flow of potential patients across the catchment.
- Quality provision of skilled HR and modern infrastructure achieves fine surgery outcomes and stimulates community confidence.
- Patient counsellors ensure that barriers to surgery are minimised for the patients with regard to both their intellectual/mental concerns and their economic preparedness.
- The previous point underlines the importance of the availability of free patient care in an economically underprivileged community.
- Effective co-ordination for patient records exists between the primary Vision Centres and the base hospital at Mudhole.
- Patient satisfaction is enhanced by having all the critical needs for secondary level eye care available under one umbrella – a one-stop service delivery system.

Fig. 4.24 – Strengths of the Mudhole eye care programme as a VISION 2020 model



2. How is staff motivation kept at a high level?

Two related influences can be recognised – the overall NGO structure and the base hospital.

Table 4.5 Influences on staff motivation at Mudhole

NGO (LVPEI) structure	Mudhole base hospital
Professional confidence in an NGO of high national/international reputation	Effective administration to promote organisational efficiency
Frequent appraisal visits by national/international representatives who clearly value the effectiveness of the eye care programme and boost staff morale as a result	Managers in clinical care and administration who engender team spirit and productivity through their own professional involvement and by establishing a variety of procedures to encourage individual ownership and pleasure in contributing to an effective and well-received service
Excellent training and promotion opportunities	Good local community relations and support
Confidence in infrastructure – buildings and equipment – to support their work	A pleasant working atmosphere – in terms of people and environment – domestically convenient

3. How is the project financed?

The recognition of the need to overcome a high and growing prevalence of blindness, in a society of limited economic potential, stimulated LVPEI/ICARE to frame a very individual cost-recovery model based on cross-subsidisation by the more wealthy of the less fortunate, without compromising quality of surgery and patient care.

The early self-sustainability achieved at Mudhole on the basis of running costs, shown in Fig. 4.14, illustrates the effectiveness of this strategy. Longer term sustainability, encompassing the full cost expenditure, including depreciation, is a more distant but certainly realistic target – possibly by 2008.

It has to be recognised that injections of capital to initiate new projects will almost always need external investment at the outset from I/NGO sources.

4. How is the project managed?

The leadership shown by the instigator of LVPEI and the management practices of that organisation during the subsequent period in planning and implementing comprehensive eye care, in Adilabad District in particular and AP in general, have produced a system working with great success to international renown. Although the care and authority of the NGO in establishing effective procedures has been previously set out, it should not be overlooked that each centre in the LVPEI pyramid, including the secondary satellite of Mudhole with its ten Vision Centres and community programme, is a key piece in the overall jigsaw. It is therefore necessary always to recognise that the internal management of Mudhole, though working under external controls, is contributing strongly to this overall success, through its clinical care, administrative procedures and integrating team loyalties. The supportive attitudes of patients and the community reflect clearly the merits of this well-conceived and managed establishment. Mudhole is a case of what could be termed 'watchful neglect' – autonomy within a broad policy framework.

In trying to identify whether aspects of this approach to community eye care can be replicated readily in other political or socio-economic situations, it should be recognised that some elements may seem to be better fitted to Mudhole, LVPEI and AP, while others are readily transferable – as Table 4.6 suggests:

Table 4.6 Key elements of the Mudhole (LVPEI/ICARE) model

Possibly unique and less easily copied	Transferable and usable in other locations
Heavily dependent on a single and internationally prestigious national NGO, founded and initially led by an ophthalmologist of vision and considerable leadership skills, with a capability for attracting global financial support in launching projects	System of satellites and vision centres with defined catchment populations, human resource provision, infrastructure support providing comprehensive, quality eye care to all
The strengths and centralised character of LVPEI with its ability and power to organise eye care for 50 million people through the four-tiered pyramid model	Ability to experiment, for example low cost Vision Centres, voluntary Vision Guardians and PEEP schemes
As each state in India has autonomy in health care provision, LVPEI/Mudhole is able to operate outside the national system for subsidy payments. The programme is however endorsed by the Indian MoH and elements have been adopted for eye care strategies nationally.	Uniform salary scales for cadres irrespective of working location, primary or secondary – but with the availability of incentive schemes to reward particular services
Based on a cost-recovery system funded by user fees to subsidise non-paying patients – the majority	LVPEI – quality resource centre for state eye care and the NGO service pyramid
Flexible staffing system with regard to both working times and cross-over roles	Strong community-based networks

While the Mudhole eye care service, as a part of the LVPEI/ICARE programme, has a number of locally unique elements and influences, it certainly is important to emphasise that there is much in this model that offers good prospects of fruitful imitation in other locations. The governments of both AP and India, recognising its success, are supporting the piloting of the model across the country. If we accept that LVPEI is unlikely to be totally replicated for the reasons suggested, we must appreciate that the devices it has initiated, both to bring eye care to the doorstep of the wider community and to ensure that no person should be or feel unreached by the quality, comprehensive services on offer, are relatively low cost innovations. These fruitful developments should not remain peculiar to AP or India. They should have the capacity for global consideration in the many and varied rural communities, where the intent exists to plan and implement VISION 2020 at the district level and a means is sought to ensure that reductions in preventable blindness are totally inclusive in their benefit.