Chapter

3

Case Study 1 – KITWE, ZAMBIA

Contents

Illustrations

What can we learn from Kitwe?

I was looking for a good case study in sub-Saharan Africa. Kitwe Central Hospital (KCH) in central Zambia was recommended. This was good advice. It is a fine example of what can be achieved for community eye health with slender resources. The eye unit at KCH demonstrates well how VISION 2020 works, both in the way the service is structured and in its achievements. This is true for the eye care it provides within its own Copperbelt Province and beyond in its broader area of outreach. In the next couple of years Kitwe expects to achieve the targets set for patients seen and cataract surgeries completed – a fine model for eye care in this continent. Much of Africa still lags far behind.

How has this happened? What lessons can we learn and what practices might be repeated elsewhere? The description that follows gives attention to the important role that NGOs can adopt. But the input from NGOs would be far less likely if there were not so many positives in the existing local situation. Much can be done in a government hospital with a well led, locally resourced eye care team that welcomes challenges, shares ownership and works hard at being successful. All this has given Kitwe the good reputation necessary to ensure that willing patients want to use a well managed service. Thus Kitwe is able to achieve success after success and, by extension, other units can do the same.

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

Kitwe is situated in the Copperbelt province of Zambia, a land-locked country covering 752,614 square kilometres, lying between 8° and 18° south of the Equator. Its climate has three seasons: cool and dry May - August, hot and dry September - October, and warm and wet November - April. The northern part of the country has rainfall ranging from 1,100 mm to over 1,400 mm, while the south which often suffers droughts ranges from 600mm to 1,100 mm. The country is largely elevated plateau with higher relief mostly in the north and east (Fig. 3.1), rising to a maximum of 2,301 m.

The country has been independent since 24th October 1964 and is divided for administration into nine provinces (Fig. 3.3). Two of these, Lusaka and Copperbelt (CBP in the text), are largely urban while the remainder are predominantly rural. Zambia is further divided into 72 districts. The capital is Lusaka, lying at 1,277 meters above sea level (Fig. 3.1). There are seven official languages.

Fig. 3.1 Zambia's neighbours and physical features

Zambia has a mixed economy. A modern urban sector with associated business and industrial employment follows the old line of rail (Fig. 3.2), while the rural sector dominates the rest of the country. Copper mining is the country's main economic activity, although problems with world copper prices

mean that this narrow dependency creates major problems for the national economy. About 50% of the working age population is unemployed. This leads to **high poverty** levels, especially in rural areas. In total about 85% of the population live below the poverty line, with 46% classed as extremely poor – statistics that are beginning to improve. In 2003 the country was ranked at 163 out of the 177 countries listed in the Human Development Index (measuring longevity, knowledge and standard of living).

In recent years there has been some improvement with higher copper prices and improved maize harvests. A strong drive by the government to fight corruption has ensured that support will now come from international organisations, such as the International Monetary Fund and the International Development Agency, to bring enhanced debt relief. Repayment of interest on loans has been a major crippling economic factor in past years, inhibiting state investment in public services, including health care in general and the prevention of blindness in particular. The claims of HIV/Aids, TB and malaria for service investment have further diminished the resources available to combat blindness, both for treatment and prevention.

Fig. 3.2 Zambia - Main towns and communications

2. Is there government support for community eye care?

The first **National Five Year Strategic Plan for the Prevention of Blindness**[1] in Zambia was presented in October 2003 by the National Prevention of Blindness Committee with the support of the Central Board of Health, and launched at a National Planning workshop in 2004. This document acknowledged the need to focus attention on VISION 2020 as the means of eliminating avoidable blindness. It also recognised that '*eye health is an integral part of other health care services and therefore needs to be implemented…with other primary health care activities'* and that '*districts…. are now the focal points in the delivery of health care services'* (page iv). The Plan argued that the logical outcome of resource competition lies in the horizontal integration of primary health care activities. The CBoH Director General in his foreword stated that this '*document* (will focus) *government direction in terms of planning and delivery of eye health services'.*

The Plan underlined five needs:

- a **strong community approach** to eye care to parallel national and individual endeavours
- a greatly **improved distribution of specialized ophthalmic human resources** (targets were set)
- a greatly **enhanced availability of physical facilities for both services and training** with supporting equipment and transport (targets were set)
- a greater **availability of referral centres** and centres to develop the PBL programme.
- the need for a **National Co-ordinator for the Prevention of Blindness**

The government has therefore supported the aim to improve community eye care in Zambia but resource limitations have made active participation difficult. A further problem rests in the failure of the National Plan to lay down a 5-year implementation programme with a district planning framework, a failure common across Sub-Saharan Africa. Recently central government has shown a stronger commitment, for example in supporting primary eye care workshops and in organising screening and surgical camps to celebrate World Sight Day in 2005. Further, in November 2005, the Ministry of Health together with the National PBL Committee met the main NGOs to coordinate more fully their eye care programmes in Zambia. It is now recognised that the Central Board of Health, previously set up in 1996 to implement government policy, needs to be dissolved to avoid duplication and save money. This has been balanced in 2006 with the employment by the Ministry of Health of a National VISION 2020 Manager, with NGO support, to coordinate eye care activities across the country.

The Ministry of Health remains the strategic group, setting and controlling budgets and paying salaries. Powers are delegated to Provincial Offices of Health (PHOs) whose management capacity is well regarded. The PHO role is to monitor health expenditure, authorize appointments, pay salaries, and check on MoH policy implementation. So long as individual service units, such as KCH, inform the PHO and therefore the MoH of their plans and activities, there is little worry about external interference in health programmes.

The structure of hospital provision in Zambia is outlined in Table 3.1, the provinces are mapped in Fig. 3.3 and the towns/hospitals with their main communication links are shown in Fig. 3.2. The only dedicated eye hospital in Zambia is privately owned in Lusaka. Full eye units are found in tertiary and some secondary hospitals, for example at KCH, unusually opened as long ago as 1958. All primary and many secondary hospitals treat only minor traumas and otherwise refer – involving lengthy patient journeys. Some secondary hospitals provide a base for outreach activities.

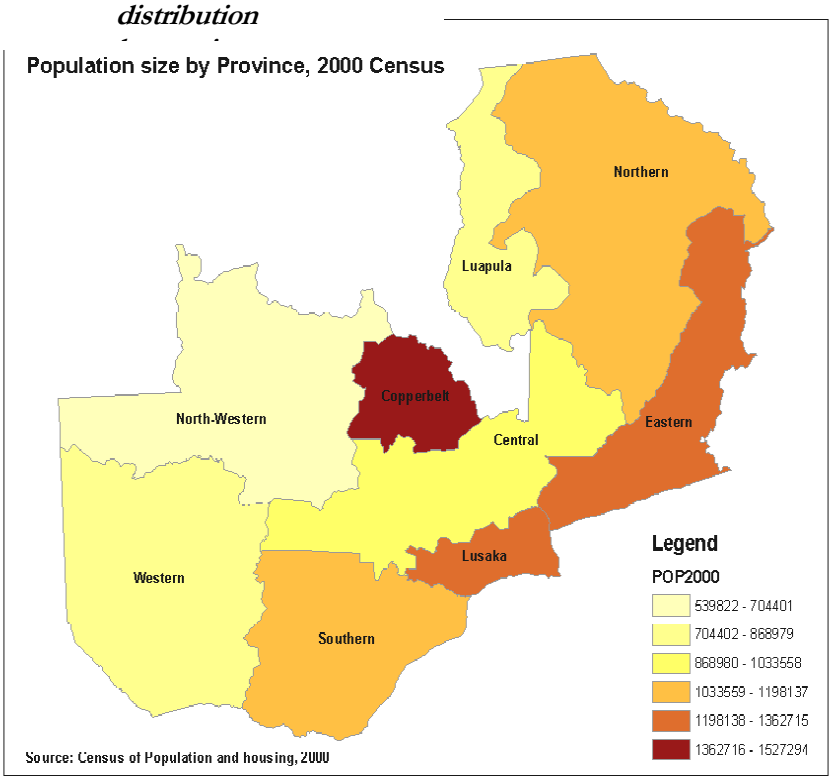
Kitwe Central Hospital (KCH), the subject of this case study, is a tertiary level hospital and lies in the Copperbelt Province**.** There are 10 districts in CBP (8 of which – see Fig. 19 – form part of the KCH catchment). The remainder of the area served lies in two neighbouring provinces, bringing the dependent population in total to approximately 1.6m.

Table 3.1 Hospital provision in Zambia

Tertiary	Secondary (referral)		Primary
University Teaching Hospital (UTL) - Lusaka	***Province***	**Town**	73 District and Mission Hospitals
Central Hospitals Kitwe (CBP), Ndola (CBP)	*Central*	Kabwe	
	Copperbelt	Chingola, Mufulira	
	Eastern	Chipata	
	Luapula	Mansa	
	Northern	Kasama, Mbala	
	North Western	Solwezi	
	Southern	Choma, Monze, Livingstone, Mazabuka	
	Western	Mongu	

3. Needs Assessment 1 – What are the population characteristics of Zambia and Copperbelt Province?

Fig. 3.3 Zambia - Population distribution



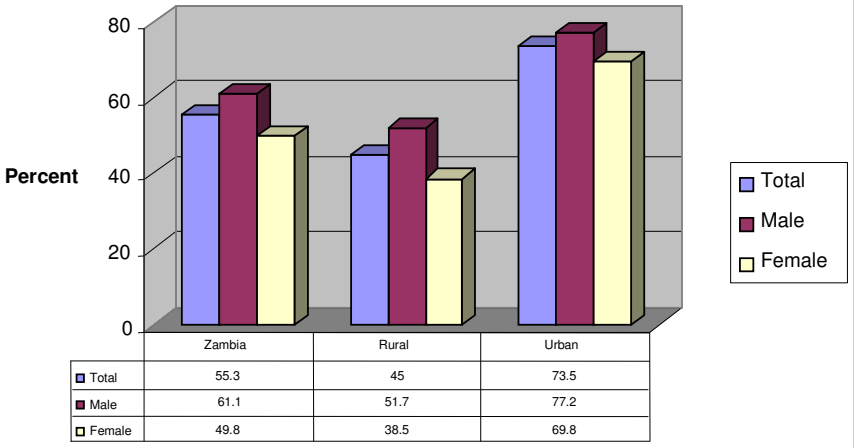
The population distribution map (Fig. 3.3) and the statistical table (Table 3.2) help to show the key features of the population environment in which the eye unit of Kitwe Central Hospital (KCH) has planned and is implementing an increasingly successful VISION 2020 district programme.

- CBP in 2006 has a population of 1.6 million. The catchment area for KCH covers most of CBP and also areas of Northern and Luapula provinces, although at present only 40% there access eye care services. This gives a total served population of about 1.6m, within the model limits for a district VISION 2020 programme.
- The higher than average population density in CBP facilitates the movement of patients to the hospital. This is further helped by the province's relatively good transport network.
- The central position of CBP in Zambia, with regard to north-south distance, has helped the hospital's organisation of outreach to other more rural and underserved provinces.
- Many education, wealth and health indicators for CBP suggest a supportive environment for the promotion, acceptance, affordability and potential success of a VISION 2020 programme. Figs. 3.4 and 3.5 show better than average literacy rates for urban areas and in CBP in particular. Fig. 3.6 shows a lower than average incidence of poverty; with consequences for affording treatment and accessing surgical centres. However Fig. 3.7 highlights poor health aspects in the proportion of underweight children and Table 3.2 shows the relatively high HIV/AIDS incidence in Zambia's urban areas which is reflected in CBP towns. Better access to fresh drinking water and sanitation (Table 3.2) do however offer good support for prevention of corneal scar due to trachoma.

Table 3.2 The population environment of Kitwe – Zambia and Copperbelt Province

POPULATION PARAMETER	ZAMBIA	CBP (if known)
KEY STATISTICS – based on 2000 census or later estimates		
Number	11.5 m (1980 – 5.7m; 2000 – 9.9m)	1.6 m. (467,084 in Kitwe)
Gender	49.2% male; 50.8% female	50.6% male; 49.4% female
Population density	14/sq.km. (Fig.7 shows variations)	52.9/sq.km, but much lower in Luapula and Northern provinces
Annual growth rate	2.1 % (70's – 3.1%; 80's – 2.7%; 90's – 2.4%)	0.8%
Median age	16.5 (46% under 15 years)	? (43.6% under 15 years)
Average life expectancy	40 years	50
Overall dependency ratio	96.2%	85.1
Infant mortality	120/1000 (182 / 1000 > 5s)	92/100
HIV/AIDS prevalence	16.5% (higher for women and in towns)	19.9%
Urban/rural distribution (%)	40/60	18.2/78.2 Urban to rural migration
IMPORTANT DEMOGRAPHIC INDICATORS when considering PBL programme planning (largely 2003)		
Access to clean drinking water	53% (increasing)	78%
Access to good sanitation	45% (increasing)	89%
Public health expenditure (GDP share)	3.5%	-
Child immunization against measles	84%	-
Education expenditure (GDP share)	2.3%	-
Enrolment in primary education	68% (23% secondary)	72%
Literacy in one or more languages	67.9% - rising (see Fig.8 for rural/urban contrasts)	70.5% (see fig.9)
Unemployment	50%	24%
Below the poverty line	85% - falling. Worse in rural areas	58% (see Fig.10)
Living in hunger	28% 2003 – falling	See Fig.11
GDP p.c.	417	-

Fig. 3.4 Zambia - % Literacy Rates (5 years +) by residence and gender, 2000



	Zambia	Rural	Urban
Total	55.3	45	73.5
Male	61.1	51.7	77.2
Female	49.8	38.5	69.8

Fig. 3.5 Zambia - % Literacy Rates (5 years +) by province, 2000

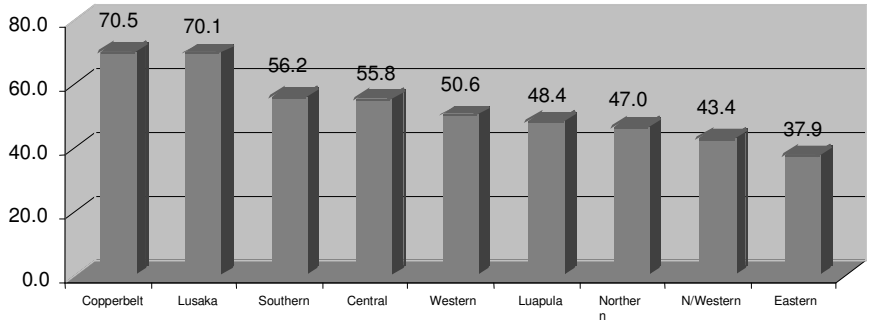


Fig. 3.6 Zambia – Poverty distribution

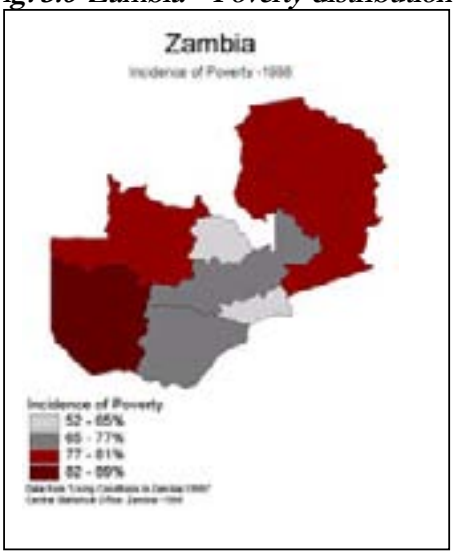
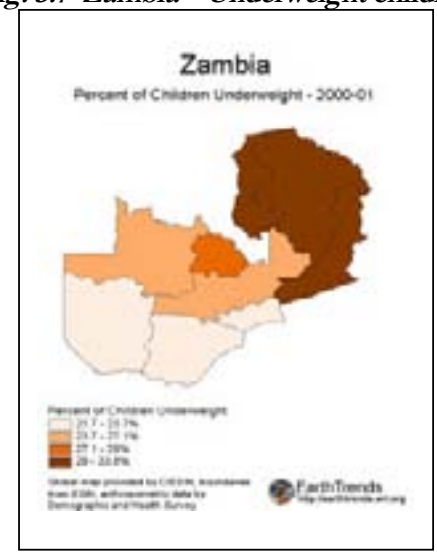


Fig. 3.7 Zambia – Underweight children



4. Needs Assessment 2 – What is known about eye diseases and blindness in Zambia and CBP?

Zambia has not had a national needs analysis of eye diseases and blindness, although plans are underway to carry out a Copperbelt survey. An earlier survey in The Gambia is the basis for assumptions regarding prevalence and causes of blindness at present (as for most of Sub-Saharan Africa). Survey data from Malawi and Kenya, together with professional expertise, has been used to modify the survey figures for a local context.

Table 3.3 shows the blindness situation for Zambia and CBP, based on that extrapolation from The Gambia. Fig. 3.8 shows the disease break down for the active catchment of Kitwe Central Hospital, calculated in 2003 at 1.3 million, giving blindness prevalence at 1% of 13,000. This catchment included a large part of CBP together with districts of other less well served provinces to the north and east.

Cataract (50%), Corneal Scar (25%) and Glaucoma (15%) are the major blinding diseases, which in the first two cases can be inexpensively prevented or treated, while visual loss from glaucoma can be halted or reduced – all if caught through early case detection and with accessible, sufficient and sustainable resources for treatment.

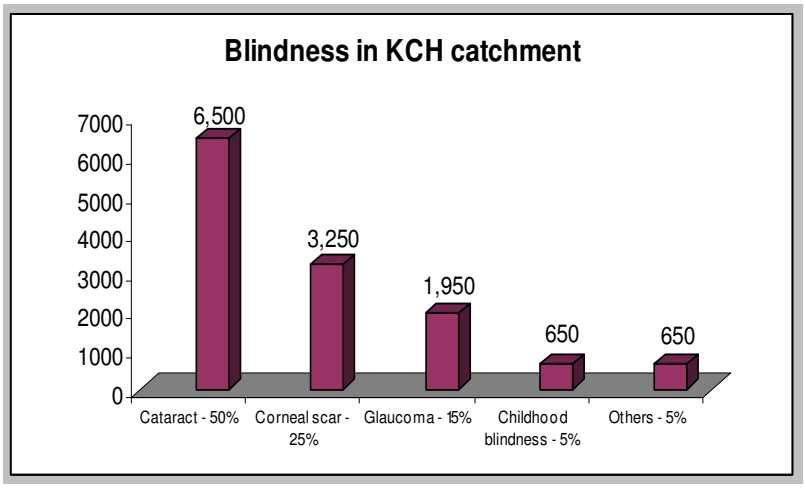
Table 3.3 Blindness estimates in Zambia and Copperbelt Province (based on 2000 population)

	Zambia	CBP
Total Population	**10,000,000**	**1,600,000**
Prevalence of blindness – 1%	**100,000**	**16,000**
Prevalence of main causes of blindness		
• Cataract – 50%	50,000	8,000
• Corneal scarring – 25%	25,000	4,000
• Glaucoma – 15%	15,000	2,400
• Childhood Blindness – 5%	5,000	800
• Others – 5%	5,000	800

Fig. 3.8 Prevalence of blindness in the catchment for Kitwe Central Hospital (2003 estimate)

Although it is estimated that there are 6,500 blind people with cataract in the KCH catchment, the number of eyes with a cataract causing < 6/60 vision (operable) is likely to be 4 times this figure, giving approximately 26,000 operable cataract eyes.

Increasing blindness due to cataract has potentially very negative social and economic effects.



5. KCH – What are the resources for district eye care

Fig. 3.9 KCH Eye Ward

5.1 Human resources

The success of KCH eye unit is heavily reliant on its HR team (Fig. 3.12). The reasons include –

- leadership by the head of the eye unit – see below
- the support of the executive director and the management team of the parent government hospital
- the support from NGOs (see pg. 28), the provincial health office and the Ministry of Health (the state contributes about 30% of the costs – 6% excluding salaries)
- efficient management by the eye unit administrator – see below
- a nurse/patient ratio higher than the hospital average
- incentive schemes for some staff, including salary top ups for outreach working time
- training provision for different cadres in the team
- non-hierarchical structure, promoting teamwork, ownership and an excellent working atmosphere
- reputation in the catchment community.

Ophthalmologists

- The present eye unit head, a Ghanaian ophthalmologist appointed to KCH in 2000, has been able through careful planning and team management to implement an increasingly successful community eye health programme. This case study exemplifies the advantage of initially planning and implementing VISION 2020 at district level in situations that have advantageous conditions – the **right person, in the right location** (see page 20) and **at the right time**, within **a supportive external framework (hospital, provincial office and NGOs on stream)** - see 'Planning Priorities' on page 9.
- The unit head's role is to coordinate, control and monitor the administrative and professional specialist services in order to provide effective and efficient medical and health care services to patients. The job description has four components:-

  (1) Administration - targeting efficient service delivery by formulating, implementing and reviewing the unit's broad policies and procedures, and by monitoring and regulating the use of the unit's resources, including staff through supportive appraisal.

Fig. 3.10 KCH Eye Unit – Ophthalmologist and theatre nurse

  (2) Clinical care - performing specialist surgical treatment, conducting outpatient clinics to review referred case, and leading outreach surgical teams.
  (3) Teaching - providing a surgical attachment for MMED registrars from, for example, Nairobi, advancing the academic excellence and practical competence of the medical team, and undertaking research and publishing findings.
  (4) Liaison - providing consultancy support to medical professionals within and beyond KCH.

- A second ophthalmologist joined the Kitwe team in late 2005.
- Nationally, ophthalmologists are a limited resource of about 15 at present (5 in CBP, 8 in Lusaka, 1 each in Southern and Eastern Provinces) not all practising, giving a ratio of little better than 1 Ophthalmologist to 1 million population (WHO target – 1:500,000 in 2000, 1:250,000 in 2020). Training in the sub-specialty is not available in Zambia – accessible courses exist in Nairobi, Moshi, Kampala, Harare and Cape Town or outside Africa. Participation must be secured through private finances, at times with NGO bursary support – currently five are training in Nairobi and will be distributed to centres throughout Zambia. Attrition is not a problem.

Ophthalmic Clinical Officers (OCOs)

- They act as team leaders with specific medical roles in the eye unit. Their job description in the eye unit team has four target areas:

  (1) Clinical Service – screening – taking history, examining, investigating and treating as appropriate, assisting the ophthalmologist in theatre, carrying out minor operations, carrying out refraction, and sharing an on-call stand in for the ophthalmologist

  (2) Administration Service – planning outreach activities

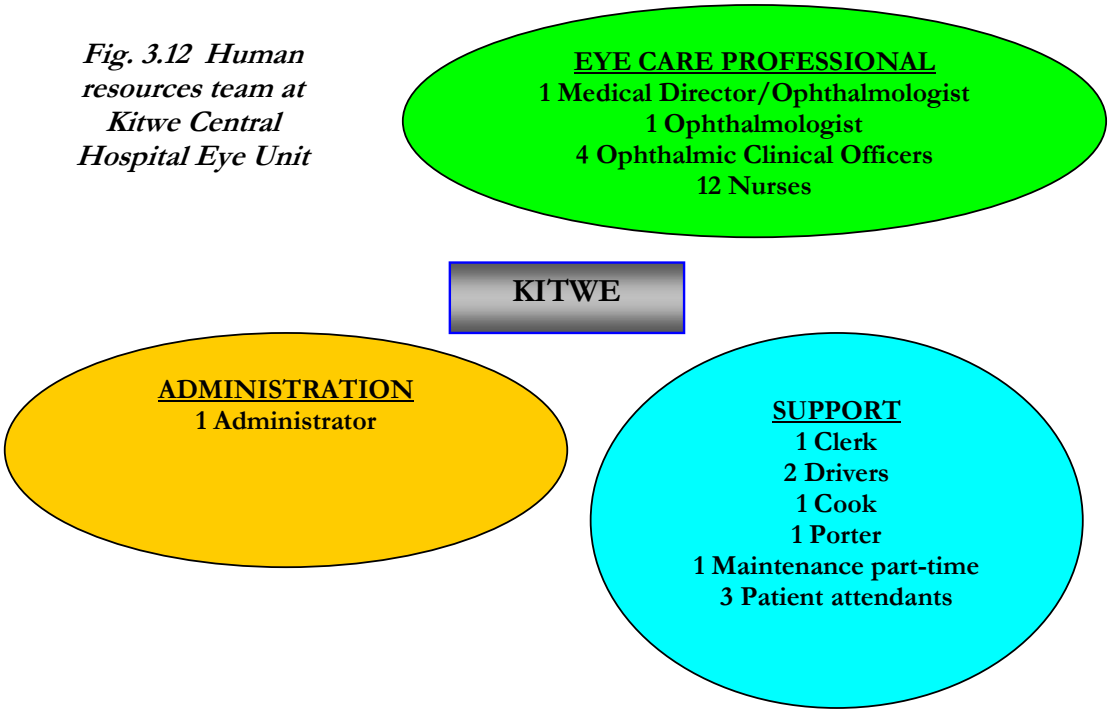
  (3) Health Education – nurse training during attachment

  (4) Community Activities – PBL through community health education and periodic mass screening.

- Screening outreach takes place three times a week in CBP districts. Patients are then taken if necessary either to KCH or to St. Theresa's Mission Hospital, which acts as a second referral surgical centre for three CBP districts to minimise the distance patients must travel.
- Every three months, surgical outreach extends to Mansa in Luapula Province and to Kasama in Northern Province – again to provide easier access for patients who would otherwise have to make their own way to a referral hospital, probably Kitwe.
- Nationally, OCOs are in short supply, in part through attrition to better paid jobs within the medical service or outside Zambia, and also through the continuing growth of the number of district hospitals. A four-year training course has an initial CO training element in Lusaka, followed by a one-year OCO diploma in Malawi.

Fig. 3.11 Outreach surgical team – Ophthalmologist, ophthalmic clinical officer, theatre nurse, eye nurse and driver en route to Mansa, Luapula Province

Fig. 3.12 Human resources team at Kitwe Central Hospital Eye Unit



Nurses

- Either EN – 2-year Certificate trained in Zambia or RN – 3-year Diploma trained also in Zambia (some attrition through emigration of RN nurses). KCH contributes to the national programme for training primary clinic nurses in eye care. EN nurses can progress to an RN Diploma with two additional years of training. KCH has two ONs (Diploma trained in The Gambia), responsible for the nursing body, the leadership of outreach teams in the absence of an OCO, the treatment of minor eye diseases, and taking a lead role in patient screening and nurse training.

Fig. 3.13 Nurse Training at KCH Eye Unit

- The EN role combines basic nursing care (promotion of patient health through on ward care and communication, for example in nutrition and hygiene) with careful observation and recording procedures.
- The RN role is divided between the supervision and training of enrolled nurses, the assessment of student nurses, and the organising of patient reception and the provision of nursing care.
- The Theatre Nurse is responsible for the standard of theatre nursing care, including procedures during surgery and the provision of appropriate drugs.

Patient Attendants

These are directly employed by the unit, rather than seconded from the hospital. Their role is to:

- accompany outreach teams and give assistance in screening patients
- assist in taking visual acuity, intra-ocular pressure and in screening in OPD
- assist nurses in ward tasks
- assist in counselling services.

The Eye Unit Administrator/Project Manager (a qualified accountant and Aravind-trained in hospital administration)

This role holder is the financial manager – receiving and allocating funds, purchasing consumables, writing reports to donors, working with the head of unit and the management team on financial planning and budgetary management, and reporting daily to the KCH Executive Director. This was introduced as a part time post in 2003 but has been full time from January 2005. The administrator has been very successful in ensuring efficient and effective financial back up for the expansion of the eye unit's activities. Previously this central role was a part of the head of unit's job description, so this appointment has freed the head of unit to focus more on the medical priorities in developing eye care services at and from KCH.

The HR Working Environment

As summarised in the introduction on page 23, it is important to recognise not just the effective structure and responsibilities of the unit HR team (Fig. 3.12) but also the broader human context in which the team is encouraged to give excellent service. A number of key points characterise this productive context.

- There is a strong degree of **unit independence from the hospital** – management meetings comprising the six line managers in the unit are empowered to take and act on decisions without representation from the hospital board. This includes setting the budget for the coming year, a portion of which is dependent on government funding. It is only subsequently necessary to report externally on decisions taken. This reflects well on the very supportive hospital framework in which the eye unit works and thrives. The same degree of trust is shown by the **Provincial Health Office** that implements government health policy but which is unobtrusive in its relationship with the operation of this unit. The PHO also contributes to publicity and patient mobilisation.
- Staff meetings within the unit are held monthly and incorporate agenda items suggested by team members, encouraging a sense of **team ownership** in the management of the unit as well as a corporate sharing of both its successes and its problems. Future developments of both Low Vision and Paediatric orientated teams will bolster the positive momentum of the unit. Thus the ethos is horizontal and consultative rather than hierarchical.

- Salaries are funded by the government as the majority are seconded from the parent hospital. Top-ups are available to seconded staff (this excludes the administrator and the patient counsellors), and are NGO funded, to recognise extended hours of work involved in outreach. Other **motivating incentives** include training workshops for all cadres, weekly clinical presentations, a positive appraisal system, the caring quality of the working environment as far as funds permit and social team-building functions.
- The human context includes also the **wider community's respect** for the service of the unit. This is derived both from the successful surgical outcomes of the unit and also the system of patient counselling that attempts to ensure that expectations are realistic. Patients are seen promptly and never turned away. Care and time are devoted to all and knowledge of this respect soon spreads through the community. The shared role of all medical, ancillary and volunteer staff is vitally important in this supportive team communication.

5.2 Infrastructure

- Government support (funded through Highly Indebted Poor Countries initiative) and INGO assistance enabled building repairs to be carried out to original buildings, 2004-5.
- Supplies of consumables from the Standard List of Ophthalmic Equipment are available through government and INGO funds and are accessible with forward planning – a part of the Administrator's responsibility.
- Furniture is mostly inherited from the hospital.
- Equipment needs are largely met through INGO support but some replacement is due.
- The 27 beds are insufficient but space restricts further provision. Patients normally stay two nights. The success of the unit has caused it to outgrow its original buildings. Plans to build a new eye unit to overcome this problem were INGO initiated but have become stalled.
- Two vehicles – a 4-wheel drive and a small bus, INGO funded, have been provided for outreach. Bicycles are provided to case finders.
- A Low Vision unit on site in a renovated building, INGO funded, is due to open in 2006 (initially with two additional staff, trained in Malawi and India at LV Prasad Eye Institute) to assess sight impaired children, assist with LV devices, provide rehabilitation and select appropriate schools for sight impaired children.

5.3 Financial resources

As already stated, the eye unit at KCH is dependent on state and INGO funding to an approximate 30/70 ratio. Most of the government's contribution is for salaries. This central funding, processed through the Provincial Health Office, is provided with the minimum of external intervention in the running of the service. KCH base hospital (government funded) is also responsible for day to day management, services, land and buildings, staff recruitment, and some supplies.

The INGO funding has allowed this unit, unusually in Zambia, to plan and implement a programme that provides a strong model for district level VISION 2020 implementation in Sub-Saharan Africa, both in the structure of the programme and in its function. Its activities and successes are described from pg. 29.

The INGOs most active at KCH eye unit are Christian Blind Mission International (CBMI) from 2003 and Sightsavers International (SSI) from 2004. Funding is received quarterly and like other income sources, including patient payments, it is channelled through the Central Hospital. NGO budgets are prepared separately but endorsed by the hospital's executive director. Their emphasis is on funding separate items with CBMI concentrating on top-up allowances, administration, equipment, consumables, and medicines, while SSI sponsors training and patient mobilisation. Their objectives, though

overlapping, are expressed briefly and individually as follows.

(1) CBMI targets the elimination of avoidable blindness in CBP and the outlying areas by increasing the number of cataract operations (ensuring quality of outcomes) and refractive error corrections.

(2) SSI targets the reduction of preventable blindness in CBP and the outlying areas through the provision of sustainable outreach to screen, a secondary referral service to increase cataract operations, and the training of mid-level eye care workers to staff the primary health care centres. SSI is also involved nationally in Zambia in a project to establish an effective and efficient national eye care co-ordination system in the MoH to improve eye care services across the country.

Other contributors to KCH eye unit are Lions Club of Kitwe, Standard Chartered Bank (Kitwe Branch), Satya Sai Organisation (an Indian NGO), churches (St Theresa Mission Hospital) and traditional healers/leaders. Their support covers such areas as screening camps, patient mobilisation, patient subsidies and World Sight Day.

6. KCH – The District VISION 2020 Programme

6.1 How were the aim, objective and activities defined?

The programme was initiated in 2001 and named the **COMMUNITY EYE SERVICE PROJECT.** Its **aim** was to establish equitable, quality, comprehensive eye care, especially for cataract and refractive error, within and beyond Copper Belt Province. The programme is designed to bridge the gap between tertiary and primary levels of eye care with the latter frequently poorly integrated with PHC in Zambia.

The focus for the funding NGOs is outlined above. Pulling their concerns together, the **objective** for the Project is to reduce the burden of blindness and low vision through increasing the number of cataract operations and refractive error corrections in CBP and outlying areas**.** The emphasis initially was on the catchment districts of CBP; extensions to Luapula and Northern Provinces came more recently.

To achieve this disease control objective, **strategies** to (1) improve human resources and (2) develop the primary eye care infrastructure, in order to achieve enhanced provision for screening and surgery are being realised through a number of **activities**, set out in Fig. 3.14. Activities are budgeted, timetabled and responsibilities allocated to team members. Successive annual plans set and revise targets for each activity.

6.2 What strategies are used in the programme?

Improving human resources

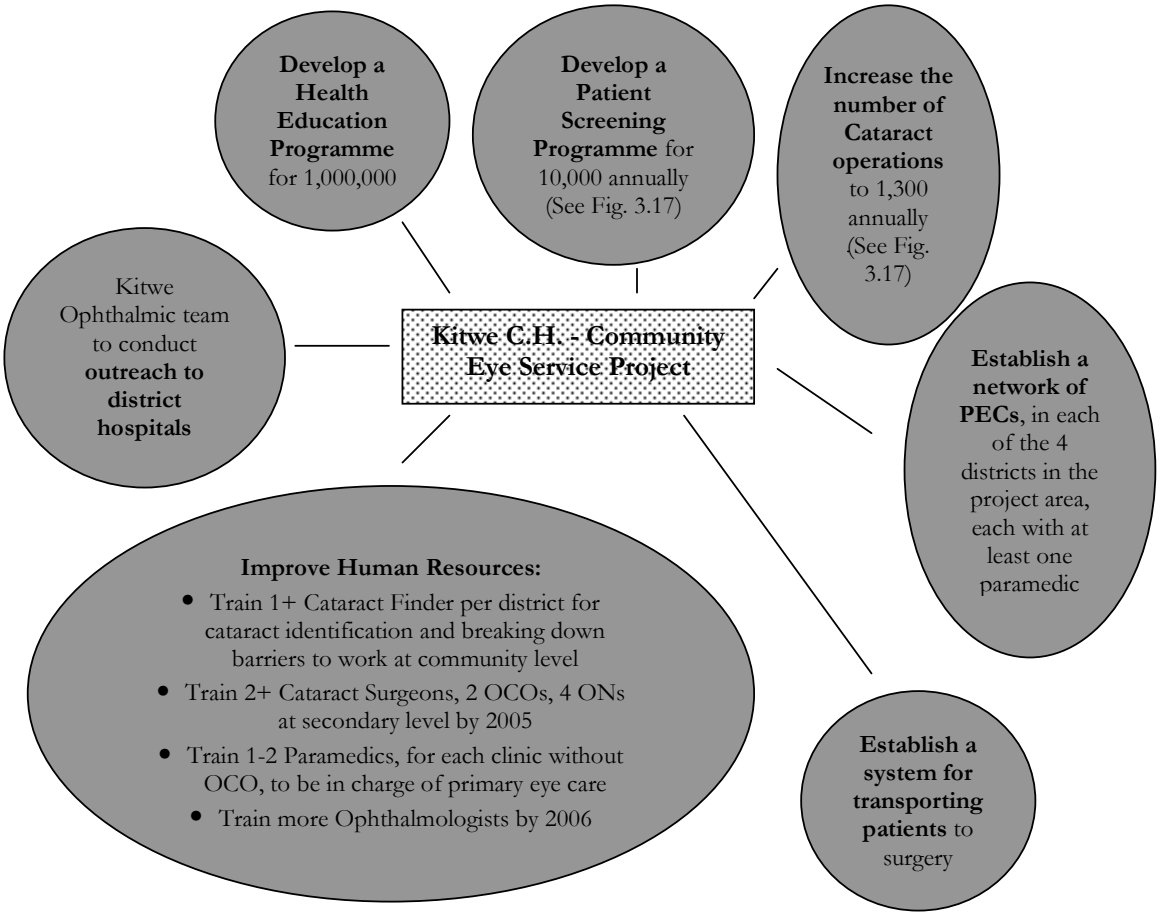
By the close of 2005, there were 29 people (20 in 2003) seconded from KCH to its eye department. Further recruitment as well as the on-going training of existing staff (both to upgrade and refresh) is essential to secure the skills to achieve the growth in screening and surgery targeted by the project. During 2004/5, the following training activities took place:

1. **Ophthalmologists** – The Project took a lead in securing training places for five Zambian doctors on the MMED Ophthalmology programme at the University of Nairobi. One of this group has now joined the Kitwe team to become the second ophthalmologist.
2. **Ophthalmic Clinical Officers** – OCOs, trained in Malawi, have joined the Kitwe team. There is an intention to train more Clinical Officers from the Districts. Patient screening in district clinics requires trained OCOs to reach the necessary targets. One co-ordinator at St Theresa Mission Hospital attended a 2-month certificate course in Community Eye Health.
3. **Nurses** – One nurse was sent to The Gambia to study for a Diploma in Ophthalmic Nursing and is now a second ON in the Kitwe team. A Theatre Nurse from St Theresa attended a course in Uganda. ENs from CBP districts, as well as from Kasama and Mansa in the outreach provinces,

have been given basic ophthalmic training in Kitwe to give them the skills to conduct proficient patient screening, especially in those clinics where OCOs are not yet present.

Fig. 3.14 Activities and targets of the KCH community eye service project planned at the outset of NGO funding – to achieve a reduction in blindness and low vision in CBP and outlying areas

(A VISION 2020 District Programme)



4. **Community Workers** – A workshop was held for the Chief and community health workers in Lufwanyama District, within CBP's catchment area. The purpose was to share information about the objectives and activities of the community eye service. In a culture where there is a limited tradition of volunteer support, it is hoped that such communication will spread awareness and encourage appreciation for the services being organised and so encourage the community to give support, for example in spreading publicity. Neighbourhood Health Committees will be asked to help.

Traditional healers have also been approached in three districts to attend meetings to consider their responsibilities towards health issues and to receive advice regarding safe treatment and the advisability of referral.

Week-long childhood blindness workshops have been held – one for the north and one for the south of Zambia – involving teachers, midwives, nurses and OCOs – to

raise awareness and promote treatment. KCH was represented by a nurse.

5. **Patient Counsellors** – Counsellors are being trained for both the base hospital and outreach centres to provide patients with the right information to overcome superstition and fear and to help them make the best decisions for their eye health.
6. **Low Vision** – Two staff members initially are being trained to staff this new base hospital facility.
7. **Cataract Finders** – Four have been trained and provided with bicycles to assist outreach services at the community level in Kawama, Ipusukulo and Luangwa townships in CBP. They have a role in identifying cataracts and in 'breaking down barriers', by providing positive information about treatment opportunities and facilitating movement to a treatment centre. Their involvement is currently under review.

Developing primary eye care infrastructure

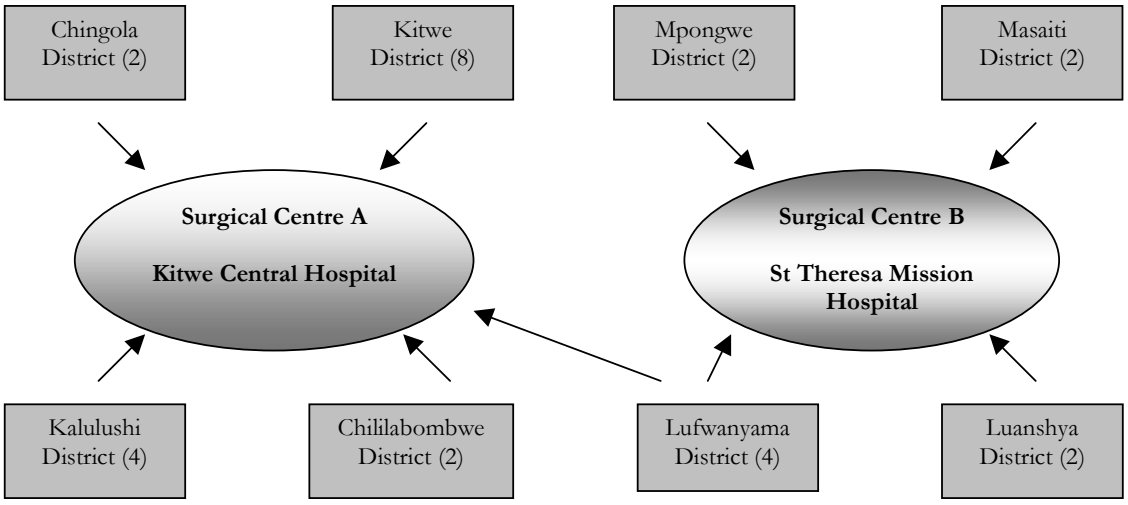
The project activities are planned to cover at least three quarters of **Copperbelt Province** – an estimated population of 1.3 million, with an additional 0.3 million from two other provinces – **Luapula and Northern**. All the project's networked activities are carried out in the district clinics, see Fig. 3.15 for CBP. Good co-ordination between district screening centres, VISION 2020 community eye care centres and surgical centres seeks to ensure good patient awareness, mobilisation and prompt screening/treatment/surgery with good outcomes.

The project is mostly designed to serve people in the low income bracket who cannot afford to pay for health care. As a result the majority are treated free (67%). Additionally, over 65s are also given free treatment by government regulation (21%). This leaves 12% making a direct contribution. Some districts do make contributions on behalf of patients to cover some treatment expenses. Payment rates are: Consultation - £1.30; Treatment for all major eye conditions - £3.00; Post operative review - £1.30. Drugs are additional to these charges. Average weekly incomes in Zambia are under £10 per capita.

Radio and TV are regularly used to raise awareness of the need for eye care and of treatment opportunities, with greater local media emphasis in advance of screening outreach programmes.

(1) Copperbelt Province

Fig. 3.15 Copperbelt Province - District eye care clinics (with screening frequency/month)



Outreach patients are brought in on Monday, surgery follows on Tuesday and discharge with transport is provided the following day. On Friday, patients are received from St Theresa or the surgery team visits that hospital. In all cases patients are screened and mobilised by district clinic staff. This pattern is for approximately nine months. During the other quarter, farming activity is more intense and outreach is cut back to conserve resources.

1. **Kitwe** is the third largest city in Zambia and KCH is the third largest referral hospital. Community PEC clinics are based in PHC centres in selected townships of Kitwe District – Kawama, Luangwa, Chimwemwe, Ipusukilo, Kamfinsa and Ndeke. The number of these clinics is growing each year. They are used as weekly screening centres with an outreach team consisting of an OCO and a nurse, supported by local nurses and community health workers. Churches and community workers contribute to publicity and social mobilisation. Patients can be transported to KCH for surgery, although in 2005 38% of the patients made their own way to the hospital.
2. **Masaiti, Mpongwe and Luanshya Districts** access St. Theresa Mission Hospital, at Ibenga, at which an OCO with two nurses runs the hospital clinics together with village outreach. Transport is provided for outreach patients. This also serves as a second surgical referral hospital for these three districts, removing the transport problems in reaching Kitwe. The KCH surgical team visits fortnightly.
3. **Lufwanyama** (St. Joseph Mission Hospital) is a much smaller rural district; about one hour's drive from Kitwe, with eye clinics based weekly in various health centres and health posts and run by a KCH OCO since 2002. Cataract case finders assist in identifying potential patients. The District Health Management Team (DHMT) provides publicity and transport for cataract patients to KCH or St Theresa.
4. **Chingola District**, the furthest from Kitwe city, has had an OCO and nurse to conduct daily clinic and outreach for the remotest rural parts of the district since 2003. Transport problems necessitate either the DHMT or KCH providing cataract surgery patients with transport to Kitwe. A future surgical centre may be established here (or at Mufulira) – the fifth in the project.

(2) Luapula and Northern Provinces

Since 2004, the KCH surgical outreach team has made quarterly visits to Mansa in Luapula Province and Kasama in Northern Province. In both cases there is no ophthalmologist, so the alternative would be a long journey to Lusaka or Kitwe. The secondary hospitals are used for this.

KCH established the partnership through the PHOs. The hospitals provide food and accommodation for the visiting team of 5, together with 7 additional staff. The hospitals also provide publicity and passenger transport. The Lions club helps in all these matters. The KCH team brings the surgery materials.

Fig. 3.16 Patients awaiting surgery at outreach clinic

Before each surgical outreach, local staff screen at publicised clinics and health posts. Dates are given to patients in need of

surgery (mainly cataract and glaucoma) to ensure they are present at collection points (7 for Mansa and 11 for Kasama) for onward transport to the hospital. After surgery, the local team follows up on the patients.

6.3 How is the programme managed?

The management structure for KCH eye unit closely resembles the recommended model set out on page 12.

The **Management Committee** comprises the Executive Director and line managers of KCH (nursing, medical, outreach, financial), PHO representatives, PHC clinic representatives and community leaders. Its role is to make appointments, pay salaries, agree incentives, receive reports and support the executive committee. The Committee, though watchful with its responsibilities, is easy to work with and a source of strong support.

The **Executive Committee** meets weekly and represents the line managers of the eye unit for patient care, outreach, personnel establishment, finance and consumables. As outlined previously, this group has the day to day responsibilities for implementing and monitoring the Community Eye Service Project (District VISION 2020 Programme). Its role reflects closely the nine points set out on pages 12-13. Within this management structure, this Committee has considerable devolved powers to achieve its objectives. Ideas from this committee are communicated to the Executive Director for approval, who later will receive reports on outcomes. An environment characterised by success, teamwork and trust is important in ensuring that people and funds are managed efficiently and effectively to the community's benefit.

6.4 How is the programme monitored?

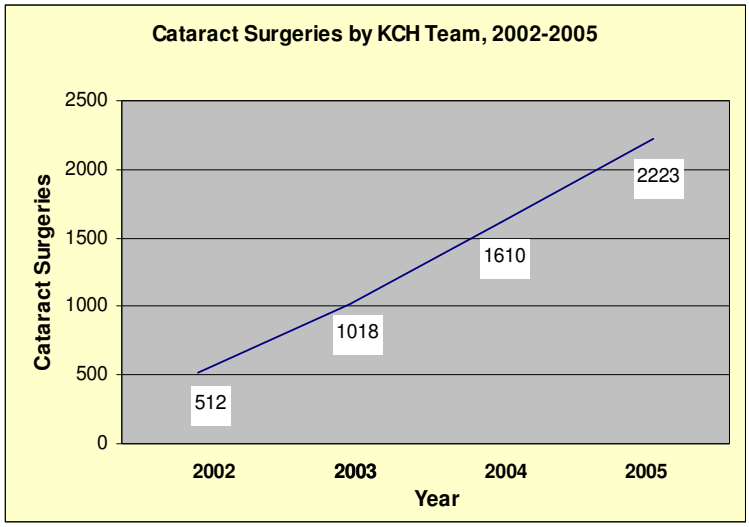
Internally the KCH eye unit reports at intervals determined by the NGO funders – as below. The narrative report, setting out activities and achievements against targets, is prepared by the Medical Director. The financial and statistical reports are collated and presented by the project administrator, who is the principle communication link with the external bodies.

Four organisations are involved in the external monitoring of the programme.

- **CBMI** monitors annually on the basis of three annual reports – narrative, financial and statistical. Advisors also visit to evaluate and make recommendations. No problems have been experienced as the cataract surgery rate is showing great improvements. The idea for the LV unit also came from CBMI, which has helped to gain the agreement of the Central Hospital. Success is measured by: (1) number of patients pre-screened by detectors; (2) number of patients confirmed by permanent screening centre; (3) number of surgeries undertaken in each centre; (4) post operative visual acuity reports after refraction.
- **SSI** requires quarterly reports, also in three forms. Their regional representative visits and evaluates also quarterly – again with no consequent difficulties. Data reported is as above plus the number of paramedical staff trained. At the close of the project, SSI will additionally be concerned about access to treatment with regard to patient gender and economic status.
- Ndola **PHO**, in overseeing salary and other state income payments, requires no separate report except for that received from the Central Hospital – including an eye unit section. The Unit's annual report is also received by the PHO.
- At **central government** level, the National VISION 2020 Committee of the Central Board of Health also receives this narrative report but has so far made no comment. The new appointment of a National VISION 2020 Co-ordinator should bring a stronger central interest and response.

With regard to the key objective of increasing **the number of cataract operations**, monitoring shows the success of the programme (as graphed in Fig. 3.17).

Fig. 3.17 Increasing cataract operations at KCH, 2002 - 2005



Before 2002, the figure was under 100.
The growth shown has come in part from increasing outreach activity in Luapula and Northern provinces.
The 2004 total of 1,610 (29,330 patients seen) was greater than the target of 1,500.
The 2005 figure of 2,223 was against an estimate of 2,000 with 28,886 patients seen.
Of the surgeries, 1003 were at KCH, 442 at St. Theresa, 506 at Mansa and 272 at Kasama
The KCH target for cataract surgeries is 3,000.

A number of procedures contribute to this increase.

- Surgery throughput is maximised with a team of 6 – 1 blocking, 1 setting tables, 1 bringing patients, 1 runner (IOLs, drugs, forms, etc), 1 theatre nurse and 1 surgeon.
- Quality of outcome is promoted by patient screening at three stages – initial, on arrival at hospital and at blocking. A major concern to parallel increased output is improving the quality of outcome. Evidence of other eye diseases on screening that may act against improving acuity with cataract surgery can be a factor in reasoning against surgery. Patient counsellors are trained to give individual support before a decision is taken.
- About 10% of identified cataract patients have not gone to surgery because of other conditions or patient mental/social barriers (in 2004, 1,610 cataract surgeries on 1,781 identified patients).
- Treatment is normally ECCE + IOL, taking 10 -15 minutes.
- Day 1 – patient arrives, is examined and given a health talk and operation preparation; day 2 – operation; day 3 – removal of bandages, acuity test and home. Follow up after one month – sometimes does not happen for in house patients because of travel costs.
- Maximum daily throughput capacity at KCH base hospital is for 50 cataracts. This may not be reached because of other surgeries or a lack of patients possibly due to farming season or to inefficiency of cataract case finders with competing jobs who find the incentive structure not sufficiently rewarding.

Capacity needs to be increased – handicaps include limited bed spaces, a small operating theatre, aging equipment and an unreliable water supply.

The intention to raise the number of cataract operations in 2005 was achieved by:

- increasing publicity – lobbying support from Neighbourhood Health Committees; printing brochures and posters; making greater use of the print and electronic media
- increasing the number of outreach activities within and beyond CBP
- increasing use of patient counsellors to overcome the barriers imposed through fear and belief
- improving administrative strength to increase the potential for working towards full capacity.

7. What have been the key milestones in this programme?

Table 3.4 Development Time Lines of PBL for Zambia and Kitwe C.H. (not to scale)

ZAMBIA		KITWE
	1958	KCH opens
	1974	Eye department established
Health service reforms are initiated with emphasis on	1991	
decentralisation and district empowerment		
CBoH is established to implement MoH policies	1996	
	2000	Present unit head is appointed
Government signs up to VISION 2020	2001	Community Eye Service project is initiated
		Outreach programme to CBP begins
National 5-Year Strategic Plan is drawn up for	2003	Administrator appointed part time
the Prevention of Blindness		Partnership with CBMI begins
National Planning workshop to launch Strategic Plan	2004	Partnership with SSI begins
		Outreach to Luapula and Northern Provinces begins
National Eye Care Co-ordination Project begins	2005	Administrator becomes a full time appointment
National Committee for the Prevention of Blindness starts		Second ophthalmologist is appointed
National VISION 2020 Manager is appointed	2006	Low Vision Unit opens

8. What conclusions can be drawn?

The Kitwe project is now in its sixth year. Its strengths as a successful model for the care of community eye health through district level VISION 2020 can be summarised by:

- highlighting the influential aspects (positive and negative) of its broader **environment** (Table 3.5)
- drawing out the key elements in the **programme** (Fig. 3.18).

Table 3.5 Assets and challenges for the KCH Project – national and provincial

Assets	Challenges
Verbal support from the government – for decentralisation and horizontal integration of health care at the district level. Support also through financial flows, especially for salaries	Low national income, adversely affected by: (1) an economy reliant largely on the export of a primary product, subject to world price fluctuations, and (2) high levels of international debt
Appointment of a National VISION 2020 Manager with powers to co-ordinate eye care nationally	Prevalence of other major disease problems – HIV/AIDS, TB and Malaria – competing for scarce central government health resources
Political stability with less factional disruption than in some other parts of Africa	High national levels of unemployment and individual poverty
VISION 2020 advocacy at national level leading to a National Plan in 2003	A National Plan for VISION 2020 that does not incorporate a clear plan for district level implementation
Support both from central government and provincial health offices	Very inadequate and poorly distributed national human resources for eye care
CBP factors include the number and density of population, accessibility, relatively favourable attributes of lower poverty and unemployment, higher literacy, better water supply and hygiene	A lack of training resources within Zambia for the higher levels of qualification for eye care professionals
The existence of an eye department at KCH since 1974	A national eye care infrastructure that means that many populations in need remain largely unreached

The reasons for the growing success of this model programme, with its important features shown in Fig. 3.18, can be set out by analysing how four central issues, common globally, are resolved at Kitwe.

1. **How are cataract patients encouraged to attend for surgery? – The three C's provide the answer:**
   - **Care** – The KCH team has a wide reputation for its pronounced patient care ethos, demonstrated by a number of features, including – minimal waiting times; unhurried consultations; skilled patient counsellors reducing concerns and ensuring realistic expectations; a focus on an open and welcoming respect for patients by the whole KCH team – medical, ancillary and volunteer; and not least its successful surgery outcomes. The caring approach helps to overcome real or mental barriers of distance, costs of travel, poor escort availability, fear of surgery and beliefs.
   - **Co-ordination** – Two communication links are particularly important:- (1) Good patient access to convenient and free transport from collection points and a secure awareness of set dates and times for pick up ensure that screening centres are well used on the set days, that consequent surgery appointments are reliably kept and that patients return for follow up appointments. This last point is actually much easier to ensure for outreach patients than for the walk in-patients at Kitwe. (2) PHC staff in clinics and hospitals, trained in eye care, provide secure information links between locally based screening activity at outreach centres and visiting surgical teams.

- **Community** – The whole community, represented through neighbourhood health committees, supports this drive for improved community eye health and is involved in local meetings and through the media in health promotion to urge forward those in possible need of treatment.

2. **How is staff motivation kept at a high level** to achieve this successful service? It is the result of a complementary balance between a caring, yet highly professional style of leadership and team reward.

   - **Leadership** – As stated earlier – the right person appointed at the right place and at the right time has been all important. The management style of the unit head has successfully moulded a highly motivated, industrious and caring team that not only brings the patient care above but also characterises a working environment founded on mutual support and respect. At the same time the skills demonstrated by the unit head in surgery, teaching, administration and external relations have provided a strong foundation on which to establish a leading centre of eye health in Southern Africa.

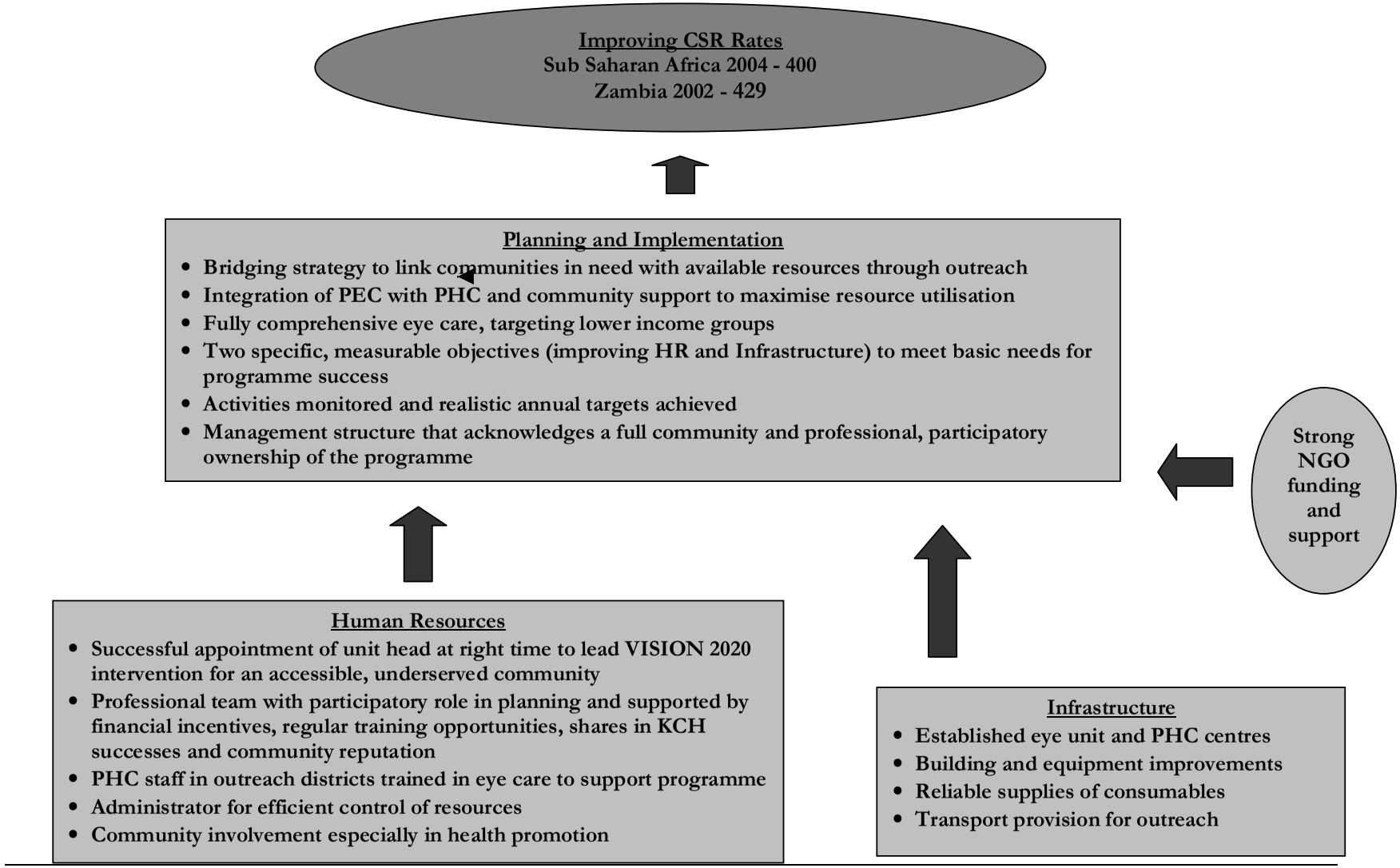
   - **Reward** – Staff at all levels are encouraged in this participatory, non-hierarchical structure to share in the drive to make the KCH community eye project successful. A number of examples can be given: - monthly staff meetings with agendas drawn in part from staff concerns; group clinical presentations; financial incentives in recognition for time given to long days of outreach; good access to training opportunities; positive procedures for appraisal; bonding activities through social events organised for all staff members; and, not least, a shared ownership of the unit's evident success and growing reputation.

3. **How is the project financed?** It is accepted at Kitwe, as through most of Sub-Saharan Africa, that the goal of sustainability for the eye care programme has to be seen for some indeterminate time in terms of guaranteed external support – whether through I/NGOs or the state or a combination of the two. At present Kitwe eye unit is dependent on both to the ratio of approximately 30 % state support (largely salaries) and 70% I/NGOs. The role of CBMI and SSI in particular has been crucial in two ways. The generosity of their support has been described on pages. 28-29. Additionally, their experience of project management has helped to ensure proactively that realistic targets, carefully monitored, have kept the project well on track with respect to the key objectives of promoting both HRD and the primary eye care infrastructure for outreach support.

   While the success of the project has undoubtedly encouraged I/NGO investment, in the longer term the balance between state and I/NGO input must change. This will enable I/NGO support to be redirected to currently under-funded districts. A slow growth in cost-recovery on site (at present minimal), enabled in part by a growing demand for an expanding service, together with an appreciation by the state of the need for increased funding for a successful programme has to eventually secure those necessary future financial adjustments. The time factor for this transition remains an unknown.

4. **How is the project managed?** Three strands work well together to compose a good complementary model. (1) The hospital's management committee, with government, professional and community representation, provides strong support and co-ordination with minimal pressures. This is also the experience at Mansa and Kasama General Hospitals. (2) The eye unit's executive committee, involving the unit managers, has the day to day responsibility for implementing the programme. (3) The unit head and the unit administrator are the key personnel within the unit's administration and in its external dealings with all stakeholders.

Fig. 3.18 Elements of the KCH VISION 2020 model programme



The growth plan for 2007, building on these successes, includes the following objectives:

- increase surgery, including glaucoma and trachoma as well as cataract
- increase the number of refractions and open an optical shop
- introduce a high cost clinic to enhance income to complement partner support
- employ an additional doctor for specialist clinics, for example paediatrics and training programmes
- recruit and train three further OCOs
- employ a cashier for the paying clinic and the optical shop
- increase ONs to three
- increase training workshops for local and district staff
- train in refraction and LV services
- move to the development of a full and permanent eye care programme based on Mansa, supervised by KCH with the support of Mansa General Hospital, the District Health Team and the PHO.

It has to be acknowledged that Kitwe Central Hospital and Copperbelt Province are not typical of Zambia. As outlined in this case study, the relatively helpful demographic characteristics and health care resources found there have contributed to the successes achieved in the early years of the community eye health project. With the key elements of this model, summarized on page 38, including a continuing access to external financial support, it should be a realistic goal to achieve a CSR of 2000+ by 2010, beyond which reduced incidence will lead to a falling population of avoidably blind people. It is accepted that this external funding has to be a long term certainty in low income economies that cannot plan for locally based sustainability. It is however also realistic and very relevant to suggest that, with the adoption of some elements of the careful planning and management strategies in the model adopted at Kitwe, cataract blindness in particular can be successfully reduced in other districts, both within Zambia and beyond.