UPGRADING
SECONDARY LEVEL HEALTH CARE FACILITIES
IN THE STATE OF KARNATAKA,
INDIA

FINAL
PROJECT PROPOSAL
FOR

KREDITANSTALT FUR WIEDERAUFBAU
GERMANY

DEPARTMENT OF HEALTH AND FAMILY WELFARE
GOVERNMENT OF KARNATAKA

BANGALORE, JULY 1995

Copied on Riso & Binded at Project Secretariat - June 1997

FOREWORD

As elsewhere in India, health services in Karnataka are being provided by the State at three levels, Primary, Secondary and Tertiary. Over the years, Primary Health Care has received considerable attention and resources through the State's own funding as also external agencies, through various IPP Projects. The main objective of these projects is to promote integrated family welfare through strengthening of the health infrastructure and planned improvement of the delivery system and the quality of health services at the primary level.

The Secondary Level of Health Care, comprising all rural hospitals of varying types and magnitude, has not, however, received attention and assistance on a similar scale. There are also marked disparities in the availability of infrastructure and the quality of services provided by these hospitals, across different regions in the State. The fact that the broad network of the secondary hospitals discharging, as they do, the essential first referral services all over the State, is only a natural and organic extension of the Primary Health Care system has now been recognized all over the world.

The preliminary project proposal prepared earlier by the Department of Health & Family Welfare, Government of Karnataka has now become full-fledged. A Workshop held on Feb. 28-March 1, 1995, has provided a comprehensive set of norms for a wide range of hospital services and facilities at different levels of Health Care. This was followed up by setting up a large number of expert Working Groups on various components of the Project, whose recommendations have been incorporated in this document.

The Project funded by Kreditanstalt fur Wiederaufbau shall aim at identifying and filling the glaring gaps within our Health Care System. This will concentrate on the upgrading and renovation of secondary level hospitals in the Districts of Gulbarga Division. This Division comprises four districts which are socio-economically less developed than most other districts of Karnataka. It is hoped this project proposal will help not only in conducting a detailed dialogue with the Kreditanstalt fur Wiederaufbau on the Health Systems Development project in Karnataka, but once the negotiation is completed, it will also serve as the basis for implementation of the project itself.

I would like to place on record the Department's sincere gratitude to Mr. H.C. Mahadevappa, Honourable Health Minister for his constant support, and leadership. I would also like to convey my appreciation to the members of the Project Preparation Committee, our consultant Mr. D.V.N.Sarma and the large number of experts who have put in tireless efforts to bring this document out in record time. My thanks are specially due to Mr. Dieter Nassler and the members of the team of Mediconsult Management Sdn. Bhd., Kuala Lumpur, Malaysia, without whose tireless efforts the project report could not have been completed in time.

Gautam Basu
Secretary to Government,
Health & Family Welfare Department,
Government of Karnataka
Bangalore, 15, July 1995

EXECUTIVE SUMMARY

Socio-Demographic and Health Status

The available data shows that the state of Karnataka has more favourable indicators compared to India in terms of population growth, crude birth and death rates, fertility, age at first marriage and literacy. There is evidence of improved health status over time as measured by declining infant mortality, especially post-neonatal mortality in urban areas, increased childhood immunizations, increased deliveries by trained personnel, (including institutional deliveries), and control of infectious and parasitic diseases.

However, declines in infant mortality, specifically neonatal deaths, have not continued in recent years, especially in the rural areas. The factors associated with this need to be identified in order to plan ways to reverse the trend. For example, raising the capability of small hospitals to control diarrhoeal diseases and respiratory infections in infants and young children may be one measure. Hospital admissions data further show that diseases of the circulatory system have increased in relative proportion over time and injuries continue to feature most prominently. Public health strategies on behavioural and other risk factors are warranted to prevent these health problems.

In terms of case-fatality, improvements in curative care appear to have occurred for some conditions, such as neoplasms, but have worsened for others, such as conditions originating in the perinatal period. It is felt that upgrading skills in neonatal care, especially at first referral level, would contribute to improving infant survival.

Data on women indicate a need for far greater efforts to alleviate high maternal mortality and reduce risks of childbearing through antenatal care, safe deliveries, identification of high-risk pregnancies for referral and reducing adolescent pregnancies. Intervention by medical providers at the first referral level on high-risk pregnancies and obstetric complications would be needed to reduce maternal mortality and morbidity. Finally, improving literacy and education attainment among females would have benefits on the health status of women as well as children.

Strengthening of Secondary Level Hospitals in Karnataka

Primary healthcare has been advocated as a major strategy towards achieving the goals of "Health for All". This strategy is based on providing and increasing preventive and basic curative care to the entire population. The main components are the safe motherhood initiatives (birth spacing, antenatal care, nutrition supplementation, safe delivery), breastfeeding promotion, childhood immunizations, oral rehydration therapy and growth monitoring.

The provision of safe water supply and proper sanitation facilities are also important non-health sector components of primary health care. Primary health care programmes in India have been a focus since the 1970s with the nationwide Integrated Child Development services (initiated in the mid 1970s) and the Child Survival Safe Motherhood programme (initiated in the mid 1980s). The Primary Health Care Sector has also been the recipient of fiscal and technical support from international agencies such as the World Bank.

However, with the improvements made in the area of Primary Health Care, secondary level healthcare facilities have not received the same level of attention resulting in imbalances between primary and secondary levels. The focus of the KfW project will thus be to address the problems of secondary level

health care facilities. The objectives to meet the project goals will entail upgrading and renovation works of all secondary level hospitals in the 2 phases in the Gulbarga Division.

Phase 1 will involve upgrading of 19 Hospitals and renovation works for 7 other hospitals. Upgrading will involve adding beds to the existing bed capacity and renovation will involve improvements. The hospitals to be upgraded and renovated in Phase 1 require more urgent work while the remaining hospitals for upgrading and renovation works has been proposed for Phase 2.

Planned Measures by the State Government

The Government assures that increases to the healthcare budget will continue at least in the same proportion as in preceding years and with external funding will further strengthen the goals of achieving "Health for All".

With the physical upgrading of the hospital facilities, the Government of Karnataka will improve the medical services provided in the hospitals by sanctioning and filling additional doctors/specialists and other medical staff, and also increase the operating budget especially for maintenance and drugs.

To support the plan to strengthen the secondary health care level facilities, the government is prepared to improve cost sharing.

Project Components

The project is phased in two stages whereby stage one comprises 26 hospitals out of which 19 hospitals will be upgraded and 7 hospitals renovated. Additional staff quarters will also be included in the upgrading process. The total number of additional beds in phase one will be 627 beds. In phase two, the main emphasis will be on the renovation of district hosptials including the remaining General Hospitals or Community Health Centres.

The budget that has been allocated to strengthen the secondary level hospitals has been divided into the following project elements:-

- Construction
- Equipment
- Vehicles
- Maintenance
- Cost Sharing Study
- Project Management

Careful planning and detailed estimates have been included in the overall project plan in order to achieve the desired results.

Budget

In the following, the summary of all project components is provided. The total project cost amounts to IR319.67 million which is equivalent to DM15.22 million.

PROJECT ELEMENTS	COST (Rs)	COST (DM)*	% OF TOTAL PROJECT COST
Construction	149,029,000	7,097,000	47%
Fees for design and engineering	12,964,000	617,000	4%
Equipment	60,653,000	2,889,000	19%
Initial supplies	2,300,000	109,000	1%
Vehicles	8,400,000	400,000	3%
Provision for district hospitals	35,000,000	1,667,000	11%
Maintenance	8,000,000	381,000	2%
Cost sharing development	4,000,000	190,000	1%
Project management	39,320,000	1,872,000	12%
Project cost	319,666,000	15,222,000	100%
Contingency	32,334,000	1,540,000	
Inflation	105,000,000	5,000,000	
Sub-total (Total Funding)	457,000,000	21,762,000	
Contribution of the government	69,700,000	3,319,000	
GRAND TOTAL project cost phase 1	526,700,000	25,081,000	

* Exchange rate IR: : DM = 21:1

The second phase will mainly comprise the renovation of the district hospitals and some of the remaining general hospitals or community health centres which will be renovated or upgraded. The final approval of the second phase will depend on the findings of the mid-term review which will be undertaken in the third year of the project implementation of the first phase.

ACTIVITY	COST IN IR	COST IN DM*
District hospital Bidar	25,000,000	1,190,000
District hospital Bellary	30,000,000	1,429,000
District hospital Gulbarga	20,000,000	952,000
District hospital Raichur	20,000,000	952,000
Sub-total district hospitals	95,000,000	4,523,000
Renovation and upgrading of other facilities	60,000,000	2,857,000
Other project components	35,000,000	1,667,000
Inflation (30% of Grand Total)	80,000,000	3,810,000
Sub-total (Total Funding) Phase 2	270,000,000	12,857,000
Contribution by the Government	50,000,000	2,381,000
GRAND TOTAL Phase 2	320,000,000	15,238,000

* Exchange rate IR:DM 21:1

The total project funding for first and second phase will be approximately IR727.00 million which is equivalent to DM34.62 million. The contribution of the Government of Karnataka can be assumed to be IR119.70 million or DM5.70 million.

	KFW FUNDING		CONTRIBUTION GOK		TOTAL	
	IR	DM	IR	DM	IR	DM
PHASE 1	457,000,000	21,762,000	69,700,000	3,319,000	526,700,000	25,081,000
PHASE 2	270,000,000	12,857,000	50,000,000	2,381,000	320,000,000	15,238,000
TOTAL	727,000,000	34,619,000	119,700,000	5,700,000	846,700,000	40,319,000

ABBREVIATIONS

ANM	Auxiliary Nurse Midwife
CBR	Crude Birth Rate
CDR	Crude Death Rate
CEO	Chief Executive Officer
CHC	Community Health Centre
CSSM	Child Survival Safe Motherhood
DH	District Hospital
DHFW	Department of Health and Family Welfare
DHO	District Health Officer
DME	Department of Medical Education
GH	General Hospital
HA	Health Assistant (Male/Female)
ICDS	Integrated Child Development Services
IEC	Information, Education and Communication
IMR	Infant Mortality Rate
IPP	Indian Population Project
IUD	Intra-Uterine Device
LHV	Lady Health Volunteer
MCH	Maternal and Child Health
MIES	Management Infomation and Evaluation System
MMR	Maternal Mortality Rate
MO	Medical Officer
MS	Medical Superintendent
NGO	Non-Government Organization
NSS	National Sample Survey
NM	Nurse Midwife
OPEC	Oil Producing and Exporting Countries
PHC	Primary Health (Care) Centre
PHU	Public Health Unit
Sc	Sub-centre
SDH	Sub-District Hospital
TBA	Traditional Birth Attendant

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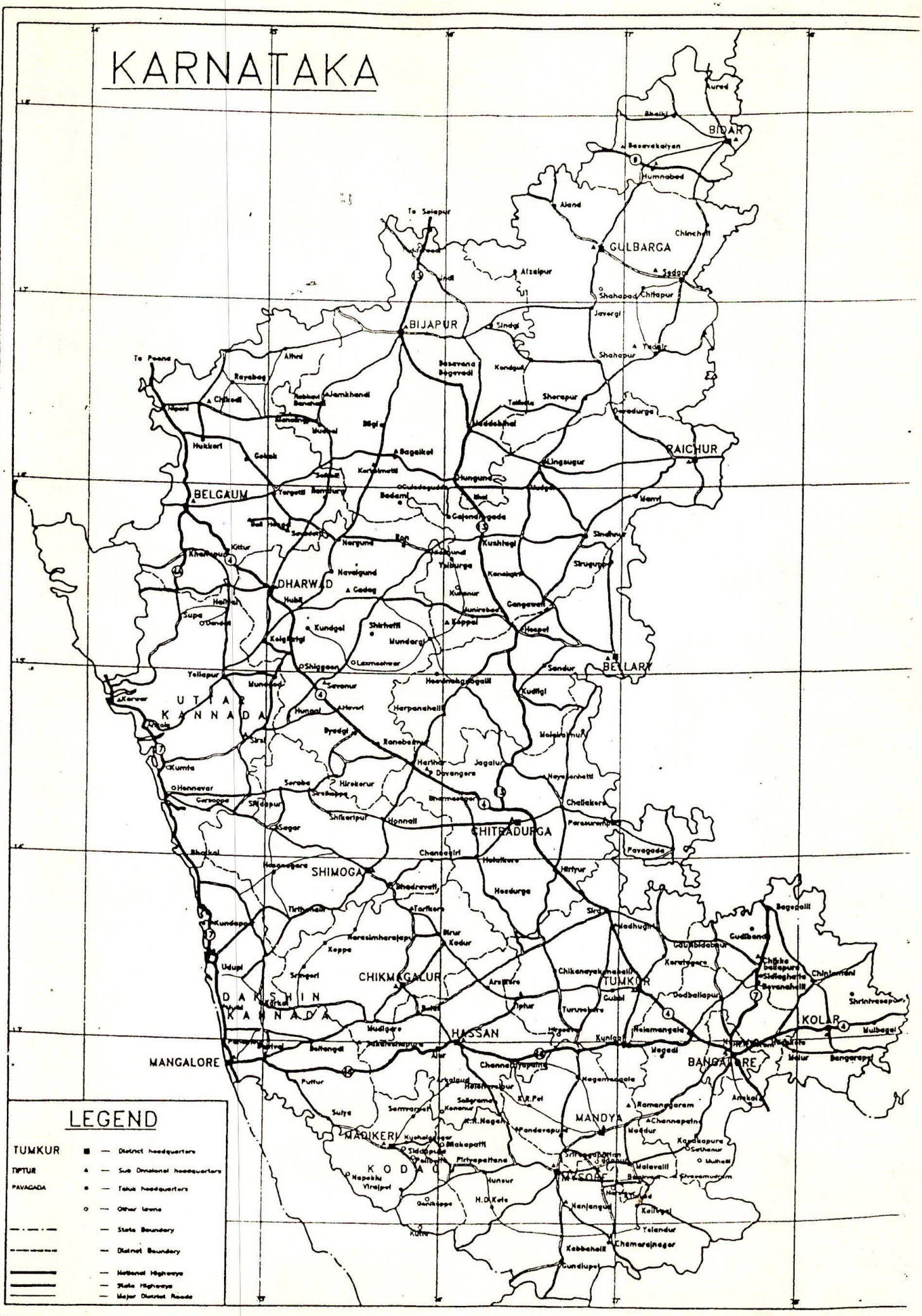

KARNATAKA
BIDAR
GULBARGA
BIJAPUR
RAICHUR
BELGAUM
DHARWAD
BELLARY
UTTAR KANNADA
SHIMOGA
CHITRADURGA
CHIKMAGALUR
TUMKUR
DAKSHIN KANNADA
HASSAN
KOLAR
MANGALORE
BANGALORE
MANDYA
MADIKERI
KODAGU
MYSORE
CHAMARAJNAGAR
LEGEND
TUMKUR — District headquarters
TIPTUR — Sub Divisional headquarters
PAVAGADA — Taluk headquarters
— Other towns
— State Boundary
— District Boundary
— National Highways
— State Highways
— Major District Roads

1. INTRODUCTION

The State Department of Health and Family Welfare of Karnataka, India, submitted a proposal to Kreditanstalt fur Wiederaufbau (KfW) in March 1992 to upgrade secondary level hospitals. Subsequent to negotiations between the Government of Germany and the Government of Karnataka, a revised proposal was submitted by the state government in February 1994. Thereafter, in April 1994, the Government of Germany agreed in principle to provide financial assistance for the project.

In May 1994, a project concept paper to upgrade primary and secondary health care facilities in Karnataka was then prepared and accepted by both KfW and the Government of Karnataka. As per concept paper, this project comprises: (1) expansion of hospital facilities, including infrastructure, renovation of existing buildings and mechanical and electrical services for Primary Health Centres (PHC), Community Health Centres (CHC) and General Hospitals (GH); (2) supply of medical equipment; (3) upgrading of maintenance facilities at District and Division levels; and (4) training to improve knowledge and skills of health care providers.

The Districts to be covered under this project are Bidar, Raichur, Gulbarga and Bellary in the Gulbarga Division. These constitute the least developed districts in the state, and were selected on the basis of available health and socio-economic indicators.

During the mission of KfW from 11. - 13. June 1995 the main framework for the project had been discussed and agreed in principle and this involves funding by KfW for upgrading and renovation of secondary level hospitals in Gulbarga Division. The project will be implemented in two phases. Phase one will involve Community Health Centres and General Hospitals or Sub-District Hospitals. Phase two will involve renovation of District Hospitals and facilities which have not been covered in the first phase. The respective Minutes of Meeting between the State Government and KfW is enclosed in ANNEX 1.

Based on the project concept developed in May 1994, the Final Project Report describes the selection of facilities in each district and defines the specific upgrading needs for each facility. A team of architects and engineers visited all proposed facilities and elaborated a detailed status of each facility. Based on the report, the scope for each hospital was defined. This report will also qualify and quantify the other project elements and the project management scope in further detail.

Within this project, efforts by the State Government to increase continuously the budget for health care services, deployment of required staff and the development of a cost-sharing mechanism will continue.

2. PROFILE OF KARNATAKA

2.1. Area and Administrative Divisions

Karnataka is located in the South-West part of India and lies between latitudes 11° 5" N and 19° N and longitudes 74° E and 78° E. It is bounded, in the clockwise direction, by the States of Goa, Maharashtra, Andhra Pradesh, Tamil Nadu, Kerala and the Arabian Sea. The area of the State is 191,791 sq. km. and constitutes 5.38 percent of the area of the country. The twenty districts of the State are grouped into four Revenue Divisions with head quarters at Bangalore, Belgaum, Gulbarga and Mysore.

Table 2.1: Administrative Division of the State of Karnataka

DIVISION	DISTRICT
Bangalore	Bangalore, Bangalore (Rural), Chitradurga, Kolar, Shimoga and Tumkur
Belgaum	Belgaum, Bijapur, Dharwad, Uttara Kannada
Gulbarga	Bellary, Bidar, Gulbarga and Raichur
Mysore	Chikmagalur, Dakshina Kannada, Hassan, Kodagu, Mandya and Mysore

2.2. Socio-economic Characteristics

The population of the State in 1991 was 44.98 million and accounted for 5.31 percent of the population of India. In terms of population, size and area, Karnataka ranks eighth among the States.

Kannada is the mother tongue of 65.7 percent of the population. There are regional concentrations of linguistic groups. Tulu and Konkani are the mother tongues of 59 percent of the population of Dakshina Kannada, while Konkani is the mother tongue of 22 percent of the population of Uttara Kannada. Kodata is the mother tongue of 28 percent of population of Kodagu. The Telugu speaking population is concentrated in Kolar district (52 percent) and is also present in sizeable numbeRs in Bangalore, Chitradurga, Tumkur and districts of Gulbarga Division bordering Andhra Pradesh. Marathi is spoken in the districts bordering Maharashtra namely, Belgaum (21 percent) Bidar (19 percent) and Uttara Kannada (9 percent). People with Malayalam as mother tongue are concentrated in Kodagu (22.9 percent) and Dakshina Kannada (12.9 percent), bordering Kerala. The Tamil speaking population is concentrated in Bangalore (16 percent), Kolar (9 percent) and Mysore (5 percent). The Urdu speaking population is distributed in all districts but they form only 5 percent of the population of Mysore division while in other divisions the Urdu speaking population ranges between 10 to 14 percent.

Hindus, including Jains, Buddhists and Sikhs form 86 percent of the population of the State, while 11 percent are Muslims and 2 percent are Christians.

In 1992-93, the per capita net domestic product for Karnataka was Rs. 5898 at current prices which is marginally higher than that for India (Rs 5583). The per capita income varied between districts. Kodagu district has the highest per capita income of Rs. 10,810 and Bidar the lowest per capita income of Rs. 3,725.

Table 2.2: Per Capita Income 1992-1993

PER CAPITA INCOME	DISTRICT
Over Rs. 9,000	Kodagu (10,810), Bangalore (9,190).
Rs. 6,000 to 9,000	Belgaum (6,206),Uttara Kannada(6,339),Mysore (6,400), Bangalore Rural, Dakshina Kannada (7,203), Chikmagalur (8,065)
Rs. 5,000 to 6,000	Tumkur (5,045),Dharwad (5,108), Chitradurga (5147), Bellary (5,293), Shimoga (5,812)
Below Rs. 5,000	Bidar (3,725), Kolar (4,151), Raichur (4,159), Bijapur (4,414), Gulbarga (4,732), Mandya (4,827), Hassan (4,924).

In 1991, the literacy rate among those aged seven years and above was 67 percent among males and 44 percent among females, which is marginally higher than that for the country (64 percent for males and 39 percent for females).

The proportion of workers to total population in 1991 was 53.9 percent among males and 29.3 percent among females. The corresponding rates for 1981 were 54.6 among males and 25.3 among females. There has been a three percent shift away from agriculture and household industry to other occupations. However, agriculture continues to be the occupation for 63 percent of the male workers.

A requisite to disease control is access to a safe water supply and proper sanitation facilities. In regards to the former, the majority (70%) of the population in Karnataka now have safe drinking water (TABLE 2.3) compared to about 34% a decade ago. This substantial increase has been achieved by a concerted effort by the state authorities to identify and provide bore wells to communities. The increased coverage is particularly substantial in the rural areas. In addition, treated water for drinking is also supplied by the municipal council to urban and some semi-urban areas either directly to homes or to public water tanks. In fact, the increase in provision of safe drinking water is higher in this state than for India as a whole.

TABLE 2.3: Percentage with Access to Safe Water Supply

		SAFE DRINKING WATER	
		1981	1991
Urban & Rural	Karnataka	33.9	71.7
	India	38.2	62.3
Rural	Karnataka	17.6	67.3
	India	26.5	55.5
Urban	Karnataka	74.4	81.4
	India	75.1	81.4

2.3. *Demographic Characteristics*

The compound annual growth rate of the population of Karnataka was 1.93 percent in the decade 1981-91. The decline in population growth rate has been more rapid in Karnataka than in India. While in Karnataka, the compound annual growth rate declined from 2.40 percent during the decade 1971-81 to 1.93 percent in 1981-91, that for India declined marginally from 2.23 percent to 2.16 percent.

In 1991, the urban population accounted for 30.91 percent of the population of the State as compared to 25.71 percent for India. Nearly 30 percent of the urban population of the State lives in Bangalore Urban Agglomeration and another 35 percent in twenty urban agglomerations with population over 100,000. The remaining 35 percent of the urban population live in 233 towns. The rural population is distributed over 27,024 villages.

The sex ratio expressed as the number of females to thousand males declined from 963 in 1981 to 960 in 1991 in the State. Similar decline occurred at the national level (934 in 1981 to 927 in 1991).

The mean age at marriage of females in Karnataka was estimated for the year 1981 at 19.2 years as compared to 18.3 years for the country.

Scheduled Castes and Scheduled Tribes formed respectively, 16.4 and 4.0 of the total population in 1991.

The Crude Birth Rate (CBR) for Karnataka is estimated at 25.5 for the year 1993. The CBR for urban Karnataka was 23.1 while for rural Karnataka it was 26.7. Estimates of birth rates by district for the year 1993 reveal that Chikmagalur had the lowest birth rate of 19.9 and Raichur the highest birth rate of 35.1.

Table 2.4: Crude Birth Rate (CBR) by District (1993)

CBR PER 1000 POPULATION	DISTRICT
CBR over 29	Raichur (35.1), Bidar (34.9), Gulbarga (33.3), Bijapur (32.0), Bellary (29.2).
Between 24-28	Kolar (27.2), Dharwad (27.1), Chitradurga (26.9), Belgaum (28.9).
Between 22 to 24	Uttara Kannada (23.5), Tumkur (23.2), Shimoga (22.4) Bangalore (22.3).
Below 22	Mysore (21.6), Mandya (21.0), Kodagu (21.0), Hassan (20.6), Dakshina Kannada(22.3), Chikmagalur (19.9).

The crude death rate for the year was 8.5 for the State while it was 6.0 for urban Karnataka and 9.4 for rural Karnataka. The infant mortality rate estimate for the year 1993 was 67 for the state, 41 for urban Karnataka and 73 for rural Karnataka.

2.4. *Regional Variations*

As mentioned, the population of Karnataka is distributed in twenty districts and four revenue divisions. There are wide variations in the demographic characteristics across the four divisions as may be seen in Table 2.5.

Table 2.5 Demographic Characteristics of Districts

							Percent Literate 1991*		Scheduled	
	Thousand Persons 1991	Density sq. km. 1991	Annual Growth Percent 1981-91	Sex Ratio 1991	Mean Age at Marriage 1981	Percent Urban 1991	Male	Female	Castes % of Total 1991	Tribes % of Total 1991
Bangalore	4,839.2	2,210	3.31	903	20.2	85.8	83.1	69.0	14.7	1.1
Bangalore Rural	1,673.2	288	1.43	950	N.A	18.2	61.1	38.9	19.5	3.0
Chitradurga	2,180.4	163	2.06	944	19.2	67.0	43.5	36.2	19.8	14.6
Kolar	2,216.9	224	1.53	966	19.1	23.3	63.0	38.1	25.7	6.9
Shimoga	1,909.7	351	1.43	961	20.5	26.5	71.1	51.4	17.7	3.9
Tumkur	2,305.8	135	1.55	959	19.2	16.6	66.6	42.1	17.7	7.3
Bangalore Division	**15,125.2**	**281**	**2.12**	**939**	**19.8**	**42.6**	**71.6**	**51.1**	**18.4**	**5.4**
Belgaum	3,583.6	498	1.87	959	19.4	23.9	65.5	38.7	11.4	2.3
Bijapur	2,928.0	270	2.00	965	17.3	23.6	70.6	41.3	17.4	1.4
Dharwad	3,503.2	415	1.75	945	19.2	35.0	71.7	45.5	11.7	3.0
Uttara Kannada	1,220.3	89	1.29	967	21.2	24.2	76.1	56.7	7.5	0.8
Belgaum Division	**11,235.0**	**279**	**1.80**	**957**	**19.0**	**27.3**	**69.9**	**43.5**	**12.6**	**2.1**
Bellary	1,890.1	116	2.41	957	18.1	29.9	59.3	32.5	19.3	8.8
Bidar	1,255.8	184	2.35	953	17.6	19.5	59.5	31.0	20.7	8.3
Gulbarga	2,582.2	629	2.18	962	17.5	23.5	52.3	24.9	23.7	4.1
Raichur	2,309.9	281	2.62	978	17.5	20.8	49.7	22.3	17.2	7.8
Gulbarga Division	**8,037.9**	**227**	**2.39**	**964**	**17.7**	**23.6**	**54.4**	**26.9**	**20.3**	**6.9**
Chikmagalur	1,017.3	205	1.10	977	20.8	16.9	70.6	51.5	19.3	2.6
Dakshina Kannada	2,694.3	225	1.26	1063	22.4	28.3	84.7	68.3	6.5	3.9
Hassan	1,569.7	112	1.47	1000	20.2	17.4	68.9	45.1	17.4	1.1
Kodagu	488.5	46	0.56	989	21.8	16.1	74.5	61.4	12.1	8.3
Mandya	1,644.4	155	1.49	962	18.5	16.2	59.1	36.9	13.8	0.7
Mysore	3,165.0	308	2.00	953	19.3	29.8	56.1	37.9	18.9	3.2
Mysore Division	**10,579.1**	**170**	**1.49**	**993**	**20.4**	**23.6**	**67.8**	**49.3**	**14.4**	**2.9**
Karnataka	**44,977.2**	**235**	**1.93**	**960**	**19.2**	**30.9**	**67.3**	**44.3**	**16.4**	**4.3**

* Literacy percent among population aged 7 years and over

Generally, Gulbarga Division, comprising the districts of Gulbarga, Bellary, Bidar and Raichur along with Bijapur district in Belgaum Division, is the most backward in terms of health and socio-economic indicators. These above five districts show higher growth rates over the ten year period for the years 1981-91. The highest growth was, however, registered in Bangalore District, reflecting rural-urban migration and rapid urban growth. The population growth rate for the decade 1981-91 declined in all districts excepting Bidar, Bijapur, Gulbarga and Raichur. The annual compound growth rate of the population of these four districts increased from 1.99 percent in the decade 1971-81 to 2.25 percent in the decade 1981-91, suggesting that the decline in mortality has been more than the decline in fertility On the other hand,the

annual compound growth rate declined in the remaining sixteen districts from 2.50 percent during the decade 1971-81 to 1.85 percent during the decade 1981-91.

The sex-ratio is the most favourable in Mysore Division, with Dakshina Kannada and Hassan boasting of a female to male sex- ratio of over 1.0. This division also has the highest mean age at marriage. Conversely, the lowest mean age exists in the four districts of Gulbarga Division together with the adjacent Bijapur district. Crude birth rate is also significantly higher in this part of the State and female literacy is lowest in the Gulbarga Division. Similarly, the Gulbarga Divisions Districts have relatively lower per capita income levels

In general, one can state that there is a North South divide with the Southern parts of the State, being somewhat better placed in demographic status, compared to their Northern counterparts.

3. HEALTH STATUS

3.1. Morbidity

According to the Forty Second Round of the National Sample Survey conducted in 1986-87, 40.3 persons per thousand population suffered from some ailment or other during the 30 days preceding the date of interview and 89.6 percent of them consulted a doctor. During the preceding year, 21.8 per thousand population were admitted as inpatients.

3.1.1. Morbidity Pattern Among Users of Government Facilities

The estimates of outpatients and inpatients per thousand population per year for the government hospitals derived from the findings of the Forty Second Round of National Sample Survey conducted in 1986-87 were 168.2 and 12.0 respectively. These estimates are close to those estimated from data on morbidity compiled from returns submitted by hospitals in the government sector for the year 1992. The average number of registrations in outpatient department is 176.8 per thousand population and for inpatients it is 12.3 per thousand population.

Between 1982 and 1992 there has been an overall increase in outpatient consultations as well as inpatient admissions. The outpatients have increased by 47 percent, the inpatients by 65 percent, while the increase in total population has been 21 percent. The increase in treatment as outpatients for the respiratory, digestive, genito-urinary systems, complications due to pregnancy and the puerperium, injuries and poisoning has been above the average of all diseases.

The increase in inpatients for treatment of infectious diseases, neoplasms, endocrine, nutritional & metabolic diseases and immunity disorders, mental disorders, diseases of circulatory system, diseases of genito-urinary system, complications due to pregnancy and the puerperium, diseases due to injuries and poisoning, has also been higher than the increase in total hospital admissions. The increase in inpatients between the years 1982 and 1992 may be due to increase in morbidity level or in utilisation of hospital services or both.

Clearly, a substantial proportion of admissions are due to accidental injuries. It is assumed that a large proportion of these are related to motor vehicle and occupational injuries. Burns from domestic accidents, e.g., with kerosene stoves, are probably also common. Environmental and occupational safety could be improved through public education using effective information, education and communication (IEC) strategies to reduce hospital admissions of this type and the resultant burden on hospital care.

Table 3.1 presents morbidity data by category as per International Classification of Diseases, 1975, Revision IX adopted to Indian conditions.

Table 3.1. Morbidity Pattern by Category of Diseases Recorded in Government Hospitals (1992)

CATEGORY OF DISEASE	PER THOUSAND POPULATION			
	OUTPATIENTS		INPATIENTS	
	1982	1992	1982	1992
Infectious and Parasitic Diseases 001-139	26.73	24.16	1.37	2.35
Neoplasms 140-239	0.80	0.90	0.09	0.18
Endocrine, Nutritional & Metabolic Diseases and Immunity Disorders 240-279	5.24	6.30	0.28	0.43
Diseases of blood and blood forming organs 290-319	12.57	14.77	0.40	0.51
Mental disorders	0.24	0.44	0.01	0.05
Diseases of the Nervous System and sensory organs 320-389	9.07	10.32	0.47	0.53
Diseases of the circulatory system 390-459	3.54	3.82	0.30	0.45
Diseases of the respiratory system 460-519	27.30	33.64	1.53	1.23
Diseases of the digestive system 520-579	7.99	11.32	0.62	0.49
Diseases of the genito-urinary system 580-629	1.90	4.72	0.24	0.34
Complications of pregnancy child birth, and the puerperium 630-679	2.29	4.95	1.14	2.38
Diseases of the skin and sub-cutaneous tissue 680-709	6.70	13.27	0.06	0.22
Diseases of the musculo skeletal system and connective tissue 710-739	2.47	2.86	0.11	0.11
Congenital anomalies 740-759	0.06	0.11	0.03	0.02
Certain conditions originating in the perinatal period 760-779	0.44	0.50	0.04	0.04
Signs ,symptoms and ill-defined conditions 780-799	1.61	1.79	0.17	0.13
Injury and poisoning 800-999	32.83	42.92	1.93	2.83
TOTAL	141.77	176.80	8.78	12.32

3.1.2. Death Rate of Inpatients

The deaths in hospitals for treatment of various diseases has increased from 1.77 percent of hospital admissions in 1982 to 2.63 percent in 1992. The disease groups in which the death rate has increased by more than 80 percent are diseases of the circulatory system, congenital anomalies, conditions originating in the perinatal period, ill-defined conditions and injury and poisoning.

During the same period the number of patients admitted in government hospitals has increased from 332,546 to 548,812 representing an increase of 65.0 percent putting pressure on hospital facilities. The pressure on hospitals to admit more patients without commensurate increase in infrastructure and other facilities may have resulted in increased mortality among hospital inpatients.

The data on deaths among inpatients of government hospitals by disease group is presented for the years 1982 and 1992 in Table 3.2.

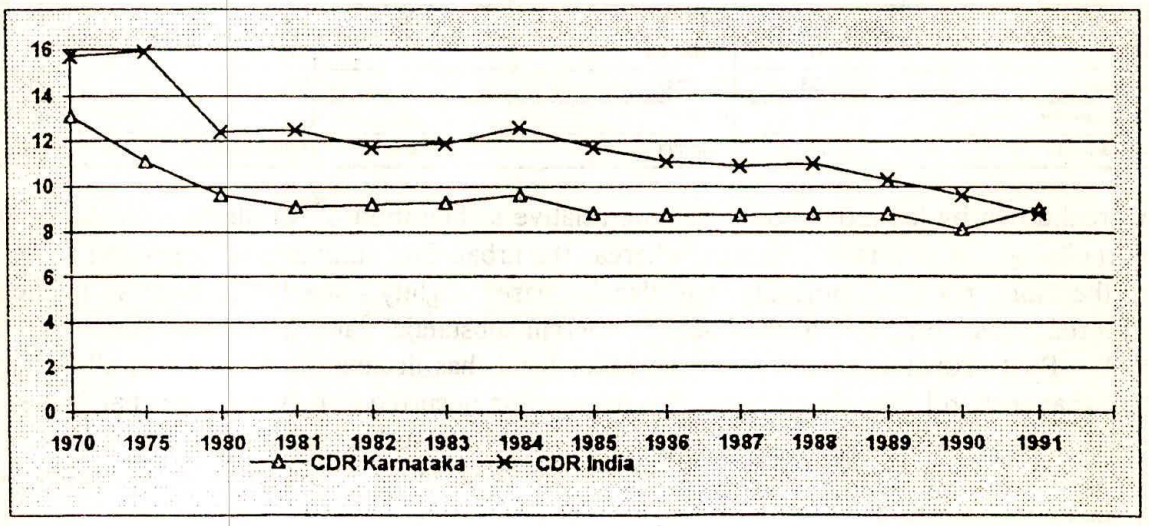
Table 3.2 Deaths among Inpatients of Government Hospitals

CATEGORY OF DISEASE	PERCENT OF THOSE ADMITTED FOR THE SPECIFIC DISEASE	
	1982	1992
Infectious and Parasitic Diseases 001-139	3.92	3.27
Neoplasms 140-239	5.54	3.86
Endocrine, Nutritional & Metabolic Diseases and Immunity Disorders 240-279	3.98	2.34
Diseases of blood and blood forming organs 290-319	2.21	2.34
Mental disorders	0.39	1.27
Diseases of the Nervous System and sensory organs 320-389	1.47	1.33
Diseases of the circulatory system 390-459	4.75	9.07
Diseases of the respiratory system 460-519	0.46	1.48
Diseases of the digestive system 520-579	1.61	2.47
Diseases of the genito-urinary system 580-629	2.13	1.88
Complications of pregnancy child birth, and the puerperium 630-679	0.13	0.16
Diseases of the skin and sub-cutaneous tissue 680-709	0.00	0.51
Diseases of the musculo skeletal system and connective tissue 710-739	0.17	0.28
Congenital anomalies 740-759	2.87	6.94
Certain conditions originating in the perinatal period 760-779	6.73	12.40
Signs ,symptoms and ill-defined conditions 780-799	1.87	7.30
Injury and poisoning 800-999	1.33	3.95
TOTAL	1.77	2.63

3.2. Mortality

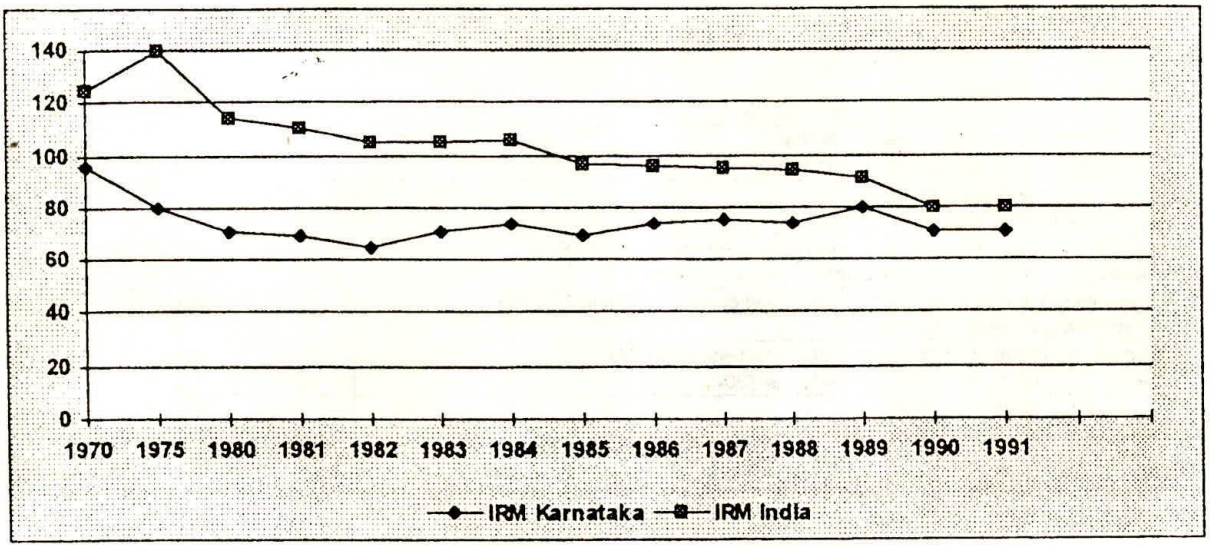
The crude death rate (CDR) in Karnataka for 1993 has been estimated at 8.0 per thousand by the Sample Registration System. The CDR for rural Karnataka was 9.5 as compared to 5.2 for urban Karnataka..

CHART 3.1: Crude Death Infant Mortality Rate for Karnataka and India (1970-1991)



During the same period, the infant mortality rate (IMR) has been 67 per thousand births. The IMR in rural areas was 79 as compared to 41 in urban areas. Over 70 percent of infant mortality is accounted by neo-natal mortality.

CHART 3.2: Infant Mortality Rate per 1000 Live Births for Karnataka and India, 1970-1991



It will be observed from the infant mortality data available from 1981 census and presented in Table 3.3 that there is considerable variation across districts.

Table 3.3: Infant Mortality by District (1987)

DISTRICT	IMR	DISTRICT	IMR	DISTRICT	IMR
Bangalore	60	Dakshina Kannada	55	Tumkur	77
Belgaum	67	Dharwad	85	Mysore	67
Bellary	92	Hassan	80	Raichur	90
Bidar	81	Gulbarga	83	Shimoga	83
Bijapur	103	Kodagu	57	Uttara Kannada	94
Chikmagalur	77	Kolar	69		
Chitradurga	71	Mandya	84	Karnataka	81

A breakdown by location shows that the relative stabilisation of, or slight increase in, infant mortality occurs in rural Karnataka, whereas the urban data continues to improve (Table 3.4). Furthermore, neonatal mortality has also increased slightly since 1981, more so in the rural reported rates, compared to the country wherein substantial gains have been achieved (Table 3.4). Post-neonatal mortality, on the other hand, has declined in Karnataka, albeit far less than that seen in India. In addition, this decline has occurred largely for the urban areas. The stable infant mortality rates, thus, appears to be related to lack of improvements in deaths in the neonatal period. This influence is significant because over 70% of infant mortality occurs in the neonatal period.

It is generally recognised that neonatal mortality has a closer relationship with maternal risk factors, such as nutritional status and parity, and factors at time of delivery. The contributions of low birth weight, prematurity, congenital abnormality and declines in breastfeeding practice to infant deaths cannot be inferred in the absence of data. Nonetheless, these factors are most

probably relevant in the case of Karnataka. Earlier, it was shown that hospital-based deaths due to perinatal conditions and congenital abnormalities have increased in the state. Based on hospital treatments per 1000 population, data also indicates an increase in congenital abnormalities from 0.06 in 1982 to 0.11 in 1992 (Directorate of Health, Karnataka State). Part of this may be due to improved diagnosis. Post-neonatal mortality tends to be associated with environmental factors, such as quality of drinking water and sanitation, contributing to diarrhoeal diseases and respiratory infections. In this case, there has been some success in controlling these, particularly in urban Karnataka. This is supported by the hospital morbidity data, described above.

TABLE 3.4 : Infant Mortality and Stillbirth Rates in Karnataka and India

		RURAL		URBAN		TOTAL	
INDICATOR	YEAR	KARNATAKA	INDIA	KARNATAKA	INDIA	KARNATAKA	INDIA
Infant mortality rate	1981	77.1	119.1	45.0	62.5	69.1	110.4
	1985	78.8	106.5	40.1	58.9	69.4	97.2
	1990	80.0	86.0	39.0	50.0	70.0	80.0
	1992	82.0	-	41.0	-	73.0	-
% Change	1981-92	6.3	-27.8	-8.9	-20.0	5.6	-27.5
Neonatal mortality rate	1981	54.9	75.6	29.3	38.5	48.6	69.9
	1985	51.1	66.6	25.8	33.3	45.0	60.1
	1990	57.7	57.4	29.8	30.9	51.1	52.5
% Change	1981-90	5.1	-24.1	1.7	-19.7	5.1	-24.9
Postnatal mortality rate	1981	22.2	43.5	15.7	24.0	20.5	40.5
	1985	27.2	39.9	14.3	25.6	24.4	37.1
	1990	22.5	28.9	9.1	19.5	19.3	27.2
% Change	1981-90	1.3	-33.6	-42.0	-18.7	-5.9	-32.9
Stillbirth rate	1981	13.1	11.4	7.6	6.2	11.7	10.6
	1985	9.8	10.8	10.2	8.9	9.9	10.4
	1990	20.3	11.0	10.8	11.0	18.0	11.8
% Change	1981-90	55.0	4.4	42.1	77.4	53.8	11.3

Source:Registrar General India (Sample Registration Scheme)

In contrast, stillbirth rates have increased for the state as well as for India (Table 3.4). Clearly, however, the increase is far more in Karnataka, which has a much higher stillbirth rate (1991 data). The sharp rise in still birth rates could be due to improved registration of pregnancies and reporting arising partly from increased deliveries by trained Personnel. Previously, more stillbirths may not be reported. Apart from improved registration and reporting, it is interesting to note that the highest increase in stillbirths have occurred in urban India.

3.3. Causes of Death

During the decade 1981-91, the share of deaths due to parasitic diseases declined while that due to diseases of the circulatory system increased. The share of deaths among females due to complications of pregnancy and child birth declined.

In 1991, diseases of the circulatory system constituted the single largest cause of deaths (23.5 %) followed by infectious and parasitic diseases (19.6%). Injury and poisoning took the third place (14.6%). The fourth place was taken by conditions originating in the perinatal period (8.8%). Diseases of the respiratory system and diseases of the nervous system came fifth and sixth, accounting for 7.8% and 6.1% of deaths respectively. These six diseases accounted for 80.4 percent of deaths.

Analysis by age revealed that infant deaths formed 12.9 percent of total deaths. The major causes of infant deaths were slow foetal growth, foetal malnutrition and immaturity (28.7%), hypoxia, birth asphyxia and other respiratory conditions (20.2%) and all other causes originating in the perinatal period (17.6%).

The age group 15-34 accounted for 28.4 percent of deaths of females due to all causes as compared to 16.3 percent in case of males.

Table 3.5: Percent Distribution of Deaths in Karnataka by Major Cause Groups

CAUSE	MALE		FEMALE	
	1981	1991	1981	1991
Infectious and Parasitic Diseases	28.7	19.8	27.3	19.4
Neoplasms	3.6	4.3	3.4	4.2
Endocrine, Nutritional & Metabolic Diseases and Immunity Disorders	4.0	3.2	4.4	3.6
Diseases of blood and blood forming organs	2.7	1.6	4.5	2.6
Mental disorders	0.1	0.9	0.2	0.2
Diseases of the Nervous System and sensory organs	5.5	5.9	6.2	6.4
Diseases of the circulatory system	16.9	24.5	13.9	21.8
Diseases of the respiratory system	7.4	8.3	6.5	6.9
Diseases of the digestive system	9.0	6.2	5.6	4.2
Diseases of the genito-urinary system	1.8	1.3	1.4	1.4
Complications of pregnancy child birth, and the puerperium			6.2	1.8
Diseases of the skin and sub-cutaneous tissue	0.3	0.2	0.3	0.3
Diseases of the musculo skeletal system and connective tissue	0.1	0.2	0.1	0.1
Congenital anomalies	1.4	0.1	1.2	0.1
Certain conditions originating in the perinatal period	7.1	8.7	8.7	9.1
Signs ,symptoms and ill-defined conditions	2.0	1.3	2.3	1.6
Injury and poisoning	9.4	13.6	7.8	16.3
	100.0	100.0	100.0	100.0

Source: Report on Medical Certification of Cause of Death in Karnataka, 1991; Directorate of Economics and Statistics, Govt. of Karnataka, Bangalore.

3.4 Maternal and Child Health

The emphasis on primary health care in the state of Karnataka has contributed to improvements in maternal and child health, as shown by safe deliveries, child immunizations and contraceptive use. Improvements in these areas have undoubtedly led to reduced infant

mortality, as described earlier. The training and use of community-based auxiliary nurse midwives (ANM) has played an important role in this regard.

In terms of immunizations, the proportion of children aged 12-23 months immunised ranges from 55% for measles to 82% for BCG (Table 3.6). Furthermore, the disparity in immunisation rates between urban and rural areas is relatively small. It is understandable that there is higher attrition for vaccinations administered later because of access to the children.

TABLE 3.6 : Immunisation Rates among Children 12-23 month in Karnataka

Immunisation	Rural	Urban	Total
BCG	81.4	82.4	81.7
DPT 3doses	69.6	73.3	70.7
Polio 3 doses	67.2	70.9	68.3
Measles	52.2	61.2	54.9
All vaccines	47.5	55.8	50.0

Source:Registrar General India (Sample Registration Scheme)

Another indicator relevant to infant as well as maternal mortality is the percentage of safe deliveries, measured by the percentage of deliveries by trained Personnel, including traditional birth attendants or "dais". Overall, about 62% of deliveries are by trained birth attendants, more than the figure for India (Table 3.7). In fact, the improvement in this indicator has been very substantial compared to the country as a whole, with the major change being in rural deliveries. Unfortunately, there is no data on trends in maternal mortality to correlate with this factor.

As a demographic indicator relevant to maternal health, fertility rates have declined since 1981 to a smaller extent than that achieved for India (Table 3.7). However, from 1981 fertility was already lower than the country average. Fertility reduction was also lower in urban than rural areas.

Correspondingly, couple protection rates have increased more than twice in the state (Table 3.7). This is slightly more than achieved for the country (Table 3.7). The most common method is sterilisation (40%) followed by the intra-uterine device (IUD) (6%) (Population Centre 1993). Sterilisation as the major method applies to all districts, with those in Bangalore and Mysore Divisions having slightly higher sterilisation prevalence (38-55%) compared to the other Divisions (26-41%) (Population Centre 1993). The average age at sterilisation for women is about 31 years after an average number of about three children (Population Centre 1993).

TABLE 3.7: Fertility, Safe Delivery and Couple Protection Rate in Karnataka and India

		RURAL		URBAN		TOTAL	
INDICATOR	YEAR	KARNATAKA	INDIA	KARNATAKA	INDIA	KARNATAKA	INDIA
Total fertility rate	1981	3.8	4.8	3.0	3.3	3.6	4.5
	1985	3.9	4.6	2.9	3.3	3.6	4.3
	1990	3.5	3.8	2.6	2.8	3.2	3.8
% Change	1981-90	-8.6	-26.3	-15.4	-17.8	-12.5	-18.4
% Deliveries by trained Personnel	1981	24.7	26.3	69.2	65.8	33.5	36.2
	1985	45.4	31.0	72.6	72.3	52.1	38.6
	1990	54.0	36.4	87.2	78.9	61.9	44.2
% Change	1981-90	118.6	38.4	26.0	19.9	84.8	15.7
Couple protection rate	1981	-	-	-	-	22.3	22.3
	1985	-	-	-	-	32.8	32.1
	1990	-	-	-	-	45.4	43.3
	1992	-	-	-	-	49.1	44.1
% Change	1981-90					120.2	97.8

Source:Registrar General India (Sample Registration Scheme)

Sterilisation, primarily by tubectomy, is done on a voluntary basis whereupon women are disbursed a sum of Rs 140. The procedure is carried out at all levels of care from the Primary Health Centre. Most Community Health Centres and General Hospitals also have weekly camps for sterilisation operations on women. Although men were targets of sterilisation efforts in the seventies, the focus currently is almost entirely on women.

TABLE 3.8: Age Specific Fertility in Karnataka by Rural - Urban Location

		RURAL			URBAN			TOTAL		
	AGE	1981	1985	1990	1981	1985	1990	1981	1985	1990
Age Specific Fertility Karnataka	15-19	73.2	97.9	86.5	75.5	56.1	48.4	69.0	85.4	76.3
	20-24	213.3	249.0	257.1	174.2	203	195.4	201.4	235.1	239.3
	25-29	203.0	207.1	179.8	164.1	159.2	164.5	191.1	191.4	175.1
	30-34	142.8	121.8	95.9	114	97.2	74.8	134.3	115.4	89.5
	35-39	83.5	70.0	48.4	61.4	6.6	31.3	77.8	60.0	44.1
	40-44	30.9	27.9	20.2	26.0	18.7	11.0	29.6	25.8	17.6
	45-49	14.7	10.0	7.0	6.4	5.1	1.9	12.6	7.1	5.9

Age-specific fertility indicates reduced fertility for all age-groups except for the 20-24 years group among whom a slight increase is observed (Table 3.8). More specifically, this increased fertility occurs in this age-group, whereas in the urban areas, an increase occurs later in the 25-29 years group. Above 30 years, fertility falls substantially. This supports the contraceptive use data which shows this to be the average age that many women are sterilised.

4. ORGANIZATION OF PUBLIC HEALTH CARE SYSTEM

4.1. Organization at The State Level

The primary responsibility for health care and family welfare is with the State Government under the Department of Health and Family Welfare (DHFW). The Central Government is only the national coordinating and policy recommending body with little control over implementation. Within the State, there are three levels of responsibility:

- State level:
  Health policy, budget, tariffs, capital investment, salaries, 40% of the supply of drugs and consummables, training, manpower and IEC.

- Division level:
  Each of the four Divisions in the State, covering four to six districts, is an administrative and coordination unit responsible for medical equipment maintenance.

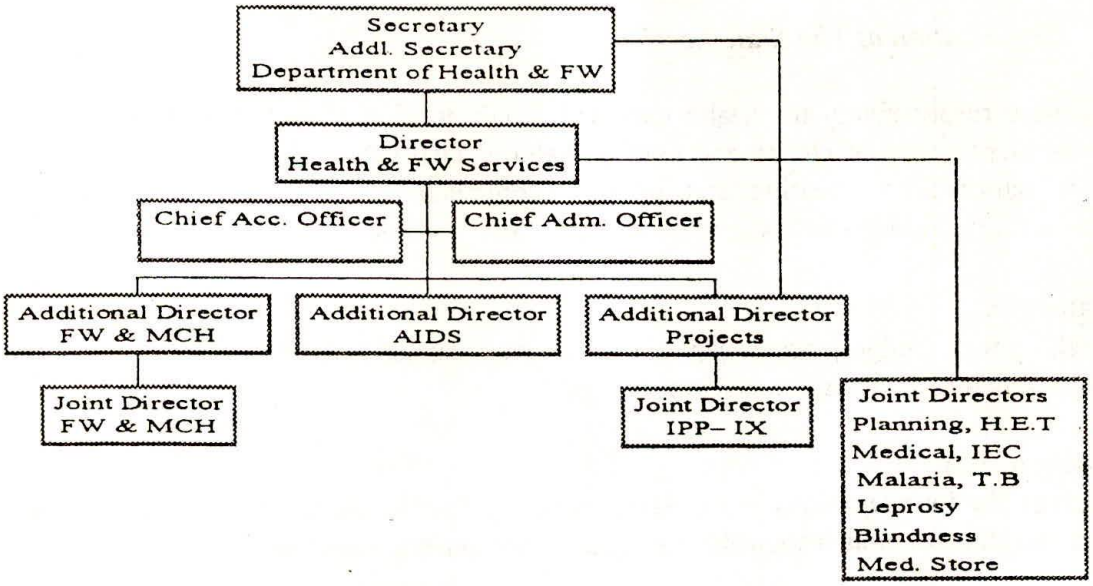
- District level:
  The district level prepares the budget (excluding the budget for District Hospitals and hospitals above 100 beds) and is responsible for building maintenance, office expenses and 60% of the supply of drugs and consumables.

The Secretary, Health & Family Welfare is responsible for formulating and implementing policies of the Government in the field of Health Care. He is assisted in the Secretariat by an Additional Secretary, Deputy Secretary (Medical Education), Deputy Secretary (Health) and an Internal Financial Advisor.

The Director, Medical Education (DME), Director, Health and Family Welfare Services (DHS), Director, Indian Systems of Medicine and Homeopathy and the Drugs Controller report to the Secretary.

The Medical Colleges run by the State and the government hospitals attached to the teaching institutions including private medical colleges, nursing colleges and nursing schools come under the jurisdiction of the Director Medical Education. While the teaching staff are under the administrative control of the DME, the staff of the hospitals attached to the teaching institutions are under the control of DHS.

CHART 4.1: Organization Chart of Public Health Care System



The Director of Health Services is responsible for Public Health, Primary Health Care, and Secondary level Hospitals. He is assisted by three Additional Directors — one each for MCH & FW, AIDS and Projects. The Additional Director (Projects) is responsible for implementing externally assisted projects such as IPP–IX. He is also designated as ex-officio Additional Secretary, to facilitate issue of Government Orders after obtaining the approval of the Secretary, Health.

At the Directorate level, The Director Health & Family Welfare Services is assisted by a Chief Administrative officer, a Chief Accounts Officer and nine Joint Directors.

There is one Divisional Joint Director in-charge of each of the four Revenue Divisions and report to the DHS. In each district, there is a District Surgeon to manage the district hospital and a District Health Officer (DHO) to manage primary health care at all hospitals excluding the district hospital and programmes to control diseases. The activities managed by the DHO fall under the jurisdiction of the Zilla Panchayat. Consequently, he reports to the Chief Executive Officer (CEO) of the Zilla Panchayat, who is an IAS officer. The DHOs are under the administrative control of the DHS in so far as evaluation of their performance, promotions and transfeRs are concerned. The organizational set-up under the DHO is almost similar to that under DHS.

The Zilla Panchayats receive grants from the State Government to meet expenditure on health care. Such grants and actual expenses are reflected in the Health Budget of the State, under the District Sector component.

The Karnataka Panchayat Raj Act, 1993, which is now in force in the State, specifies the functions to be performed by the Zilla Panchayats, Taluka Panchayats, and the Grama Panchayats. The matters to be dealt with by the Zilla Panchayat, in respect of Health and

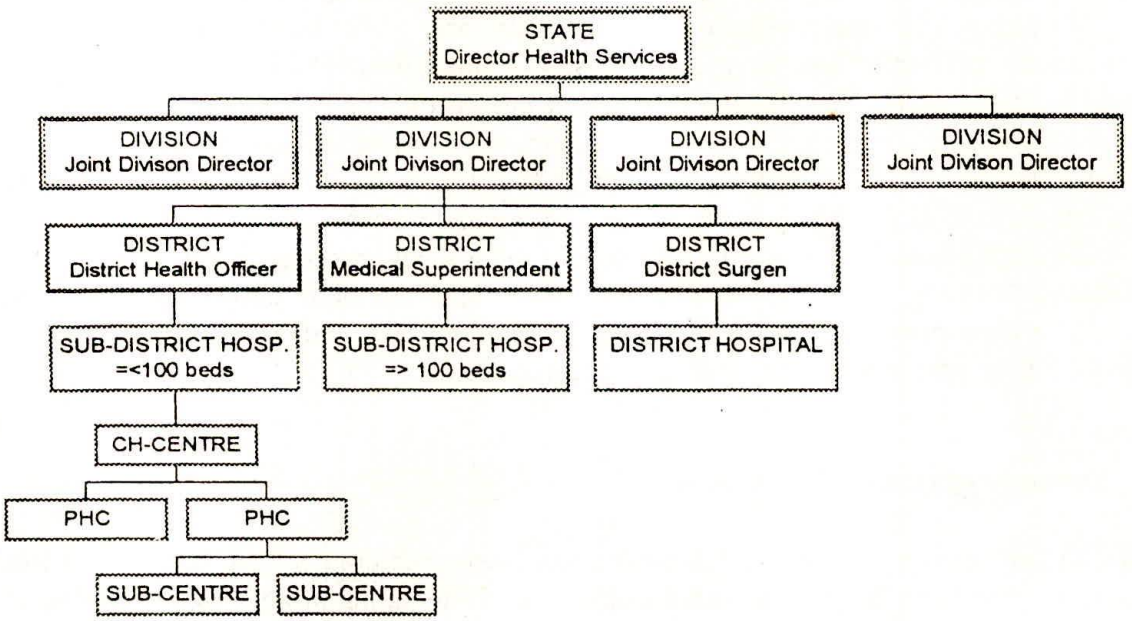
Family Welfare, at the district level, are: (1) Management of hospitals and dispensaries excluding the District hospital and hospitals under the direct management of Government (above 50 beds); (2) Implementation of maternity and child health programmes; (3) Implementation of family welfare programmes; (4) Implementation of immunisation and vaccination programmes. The Taluka Panchayats deal with: (1) Promotion of Health and Family Welfare programmes; (2) Promotion of immunisation and vaccination programmes at the Taluka level; and, (3) Health and sanitation at fairs and festivals. At the village level, the Grama Panchayats deal with: implementation of family welfare programmes, prevention measures against epidemics, regulation of sale of food articles, participation in immunisation programmes, licensing of eating establishment, and regulation of offensive and dangerous trades. Apart from operating the District Sector budget, the Zilla Panchayats also implement such State Sector schemes as are entrusted to them by Government.

4.2 Structure of Health Care System

The health care delivery system in Karnataka has been structured on the basis of national norms which have been formulated with the objective of integrating promotive, preventive and curative aspects of health care. The health services delivery structure existing in the State is described below:

- For each District (approximately 2 million population): One District Hospital with 250 beds with specialized curative services
- For each Sub-District (approximately 500,000 population): One Sub-District Hospital with 100 beds with curative services
- For each Taluk/block (100,000 to 120,000 population): A Community Health Centre (CHC) level hospital with 30 beds with specialized medical care services in gynaecology, obstetrics, surgery and medicine.
- For an area covering 30,000 population: A Primary Health Centre (PHC) to render preventive, promotive and curative services.

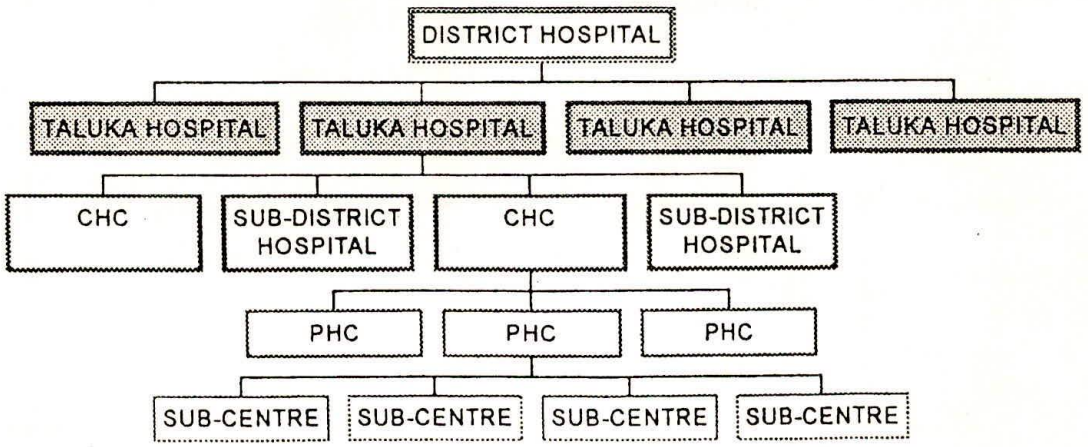
CHART 4.2: Organization of Health Care Delivery System



The state of Karnataka provides health care services in all levels of the delivery system. In the last decade, the emphasis in health care has been at the primary level, for which various programmes (IPP) have been implemented, including the upgrading of facilities. Based on the number of beds, secondary level facilities are mainly available in the district capitals while tertiary level services are mostly in the state capital of Bangalore.

Primary level care is mainly served by SCs and PHCs, whereas CHCs, GHs, Sub-District Hospitals (also known as Taluk Hospitals) and District Hospitals are mainly providing secondary level services. Some of the District Hospitals are also Teaching Hospitals which provide tertiary services as well. The basic structure of the health facilities is shown in CHART 4.3.

CHART 4.3: Type of Health Care Facility



5. HEALTH FACILITIES IN KARNATAKA AND THEIR USAGE

5.1. Medical Practitioners

There are nearly 17,000 practising physicians in Karnataka according to a survey conducted by ORG. The number of doctors in the private sector in the State is estimated at about 11,000. The number of doctors in the Government sector is 5,828, accounting for 35 percent of the doctors.

About 82 per cent of doctors in the Government sector are general duty doctors. The distribution of doctors in the Government sector by specialisation is presented in Table 5.1

Table 5.1: Government Medical Practitioners by Specialisation.

SPECIALISATION	NUMBER	PERCENT
General Duty Medical Officer	4775	82
Specialists	1053	18
General Medicine	157	
Obstetrics & Gynaecology	168	
General Surgery	145	
Paediatrics	130	
Anaesthesiology	114	
Orthopaedics	56	
Optholomology	54	
ENT	39	
Skin/Dermatology	34	
Psychiatry	23	
Pathology	20	
Tuberculosis	30	
Forensic Medicine	13	
Radiology	24	
Super specialities	46	
TOTAL	5828	100

5.2. Hospitals

There are 31,840 beds in government hospitals in Karnataka excluding those run by Defence Services, Railways, Employee State Insurance and Public Sector undertakings which are not open to the general public. Out of this bed strength, 3,330 beds are in hospitals for specific diseases such as tuberculosis, infectious diseases etc., leaving 28,510 beds for general use.

There are varying estimates of the number of private hospitals. Of these, the estimate made by ORG is more exhaustive and also provides data on bed strength. ORG estimated that there are 307 hospitals and 439 nursing homes in the private sector with a total bed strength of 17,668 in Karnataka.

The total number of beds in the Government sector, excluding those in specialty hospitals and private sector put together is 46,178 for the estimated population of 47.51 million in 1994 or 1029 persons per hospital bed as compared to the norm of 1000 persons per bed set by the Planning Commission. The beds in the Government sector account for 57.5 percent of total beds as against the norm of 66.7 percent set by the Planning Commission. The Planning Commission has also recommended that 15 percent of the beds should be at the primary level, 70 percent at the secondary level and 15 percent at the tertiary level. The actual distribution of hospital beds at different levels in Karnataka is 23.1 percent at the primary level, 54.5 percent at the secondary level and 22.4 percent at the tertiary level.

Table 5.2 presents the estimated number of institutions and existing bed capacity in Government and private sectors.

Table 5.2: Distribution of Institutions and Bed Strength

SECTOR AND TYPE	NUMBER OF INSTITUTIONS	TOTAL BED STRENGTH	% OF BEDS IN GOVT. SECTOR	PERCENT OF TOTAL BEDS
Govt. Hospitals used for Teaching	11	6400	22.45	13.86
Govt. run CHCs, Sub-District and District	227	15518	54.43	33.60
PHCs/PHUs	1874	6592	23.12	14.28
Total Government Sector	*2112*	*28510*	*100.00*	*61.74*
Private Hospitals	307	12388	70.112	26.83
Private Nursing Homes	439	5280	29.88	11.43
Total Private Sector	*746*	*17668*	*100.00*	*38.26*
TOTAL	2858	46178		100.00

The distribution of hospitals in the Government sector by size and type is presented in Table 5.3.

Table 5.3: Distribution of Govt. Hospitals by Type and Size

NUMBER OF BEDS	PHU	PHC	CHC	OTHER *	TOTAL
0-10	600	1167	38	1	1806
11-20	18	70	19	3	110
21-30	2	11	64	2	79
31-50	1	4	39	2	46
51-100	0	1	18	10	29
101-200	0	0	1	14	15
201-300	0	0	0	5	5
301-500	0	0	0	10	10
501 & Over	0	0	0	10	10
TOTAL	621	1253	179	57	2110

* Includes District, Major and Teaching Hospitals.

At the state level the persons per bed, including the beds at the tertiary level and speciality hospitals in the government sector, as per service statistics, is 1,481, which is close to the norm of 1,500 set for the government sector. However, there is considerable variation across districts . In half the districts the availability of beds is below the norm and in five of them the number of persons per bed exceeds 2,200. The distribution of hospitals and beds in the Government sector by district is presented in Table 5.4.

Table 5.4: Distribution of Hospitals and beds in Government Sector by District

DISTRICT	POPULATION (1991) (THOUSANDS)	NUMBER OF HOSPITALS	NUMBER OF BEDS	POPULATION PER INSTITUTION	POPULATION PER BED
Bangalore	4,839.2	69	4769	70,133	1,015
Bangalore Rural	1,673.2	98	574	17,073	2,915
Belgaum	3,583.6	133	1610	26,944	2,226
Bellary	1,890.1	85	1600	22,236	1,181
Bidar	1,255.8	53	668	23,694	1,880
Bijapur	2,928.0	93	1293	31,484	2,265
Chikmagalur	1,017.3	86	925	11,829	1,100
Chitradurga	2,180.4	133	1962	16,394	1,111
Dakshina Kannada	2,694.3	135	2360	19,958	1,142
Dharwad	3,503.2	135	2507	25,950	1,397
Gulbarga	2,582.2	119	1455	21,699	1,775
Hassan	1,569.7	124	1062	12,659	1,478
Kodagu	488.5	40	1481	12,213	330
Kolar	2,216.9	114	1538	19,446	1,441
Mandya	1,644.4	98	853	16,780	1,928
Mysore	3,165.0	189	3385	16,746	935
Raichur	2,309.9	82	905	28,170	2,552
Shimoga	1,909.7	121	1178	15,783	1,621
Tumkur	2,305.8	121	941	19,056	2,450
Uttara Kannada	1,220.3	84	774	14,527	1,577
Karnataka	**44,977.2**	**2112**	**31840**	**21,296**	**1,413**

5.3. Usage of Medical Services

The Forty Second Round (1986-87) of National Sample Survey (NSS) provides extensive information on utilization of services by the community. Information relating to Karnataka and where relevant for India has been extracted from the NSS report and is presented in this section.

5.3.1. Outpatient Service

It was found that 1.68 million persons or 4.03 percent of total population of Karnataka reported that they had an ailment during thirty days prior to the date of interview. Ninety

percent of those who had an ailment had consulted a doctor. The average duration of sickness was eleven days.

Only 2.6 percent of the patients had gone for systems of medicine other than Allopathic system.

When the respondents who did not take treatment were asked the reasons for not obtaining treatment, 70 percent stated that the ailment was not considered serious. Finance was the second most important reason advanced by 15 percent of the respondents.

Table 5.5: Reasons for not Taking Treatment

REASON FOR NOT GETTING TREATED	RURAL	URBAN	COMBINED
Not considered serious	67.61	81.63	71.94
Financial reasons	14.63	11.26	13.59
No facility / long waiting	5.45	0.71	3.99
Lack of faith	3.40	1.73	2.88
Other reasons	8.91	4.67	7.60
TOTAL	100.00	100.00	100.00

Private doctors and hospitals run by Non-Government Organizations (NGOs) accounted for 62.9 percent of the treatments both in rural and urban areas. Those who received treatment in institutions run by State and Central Governments and public sector undertakings accounted for 37.1 percent of the total treated.

Table 5.6: Percent Treated as Outpatients by Type of Facility

FACILITY	RURAL	URBAN	COMBINED
Private Doctor	41.51	43.19	42.03
Private Hospital / Institution	19.81	23.32	20.89
Public Hospital	25.72	27.00	26.12
PHC	8.47	1.71	6.38
Public Dispensary	1.27	1.23	1.26
ESI	0.94	1.36	1.07
Others	2.28	2.09	2.22
TOTAL	100.00	100.00	100.00

Forty-five percent of the outpatients in rural areas and thirty-eight percent in urban areas did not pay for medical services. In one-third of the cases, both in urban and rural areas, payments for medical services were made to private hospitals/doctors. Employers' Medicare schemes paid for one out of eight cases in urban areas and one out of forty cases in rural areas. In rural areas, 20 percent of the patients made payments to Government hospitals; the corresponding percentage in urban area was 15. On an average, Rs 50 were paid to government hospitals and Rs. 64 to private hospitals and doctors.

Table 5.7 (a): Percent Paying for Medical Services

	RURAL	URBAN	COMBINED
No payment made	44.72	37.57	42.51
Employers' Medicare	2.40	12.51	5.53
Payment made to Govt. Hospital	19.97	15.17	18.49
Payment made to Pvt. Hospital /Doctor	32.91	34.17	33.30
Not identified party to whom payment was made	0.00	0.58	0.18
TOTAL	100.00	100.00	100.00

Table 5.7 (b): Amount Paid for Medical Services

	EXPENSE IN RUPEES		
	RURAL	URBAN	COMBINED
Average amount paid to Govt. Hospital	41.93	68.37	50.10
Average amount paid to Pvt. Hospital / Doctor	58.64	74.66	63.59

5.3.2. Inpatient Services

It has been estimated that 909,000 persons or 0.22 percent of the population were admitted during 365 days preceding the date of interview to hospitals as inpatients for treatment. The admission of females as in-patients is considerably lower in rural areas than in urban areas.

Table 5.8: Gender Difference in Rural Karnataka for Hospital Admission

	SEX RATIO(FEMALES TO THOUSAND MALES)	
	TOTAL POPULATION	IN-PATIENTS
Rural Karnataka	975	760
Urban Karnataka	930	966
Combined	960	800

The utilization of inpatient services in government and private sector institutions is presented in Table 5.9. Hospitals in the government sector in Karnataka are utilized by 58 percent of the rural patients and 49 percent of the urban patients while at the national level 60 percent of the rural as well as urban patients used health facilities in the government sector. In Karnataka, the private sector plays a greater role in providing health facilities especially in urban areas as compared to that in the country.

Table 5.9: Utilization of Inpatient Services by Sector

FACILITY	PERCENT OF INPATIENTS					
	RURAL		URBAN		COMBINED	
	Karnataka	India	Karnataka	India	Karnataka	India
Public Hospital	55.31	55.40	48.51	59.51	53.21	56.47
PHC	2.71	4.34	0.39	0.75	1.99	3.40
Total Government. Sector	58.02	59.74	48.90	60.26	55.20	59.87
Private Hospital / Institution	32.94	31.99	40.49	29.55	35.27	31.35
Nursing Home	5.62	4.86	9.05	7.04	6.68	5.43
Charitable Institution	2.51	1.71	1.26	1.91	2.12	1.76
Others	0.91	1.70	0.29	1.24	0.72	1.58
Total Private Sector	41.98	40.26	51.09	39.74	44.79	40.12
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00

In rural areas nearly 60 percent use free wards while in urban areas less than 40 percent use free wards.

Table 5.10: Distribution of Inpatients by Type of Ward

TYPE OF WARD	PERCENT OF INPATIENTS		
	Rural	Urban	Combined
Free	58.50	36.31	51.64
Paying General	29.36	34.61	30.98
Paying Special	12.14	29.08	17.38
TOTAL	100.00	100.00	100.00

The average stay of an inpatient in rural areas is 16.9 days as compared to 14.8 days in urban areas mainly due to the fact that more patients go to government hospitals in rural areas as compared to urban areas. Further the length of stay in Government hospitals is more than in private hospitals.

Table 5.11: Average Length of Stay in Hospital

Payment Category	AVERAGE STAY (DAYS)	
	Rural	Urban
Government Hospital	17.7	20.2
Free Ward	20.3	20.3
Paying General Ward	11.4	23.6
Paying Special ward	20.5	11.5
Private Hospital	12.0	10.0
Free Ward	9.8	8.9
Paying General Ward	14.6	9.8
Paying Special ward	11.8	11.6
Combined	16.9	14.8

Nearly 80 percent of the inpatients in Karnataka make payments to the institutions, whether they are in the Government sector or private sector, as compared to 70 percent at the national level. The average amount paid by an inpatient in the State is higher than the national average.

Table 5.12: Distribution of Inpatients by Payment Category and Amount Paid

	RURAL		URBAN	
Payment category	Karnataka	India	Karnataka	India
No Payment %	16.8	23.2	12.3	19.6
Employers' Scheme %	3.8	6.2	10.3	13.0
Payment to Institution %	79.5	70.7	77.4	67.4
Amount Paid Rs.				
to Govt. Hospital	280	320	525	385
to Pvt. Hospital	1048	733	1178	1206
to both	815	597	1029	933
TOTAL EXPENDITURE FOR TREATMENT	919	853	1231	1183

In nearly two thirds of the cases, medicines and X-ray, ECG and EEG facilities are provided free by Government hospitals to both urban and rural patients, when required. In case of other services such as other diagnostic tests, physio-therapy, radio therapy and surgery nearly 90 percent of patients in rural areas who are in need of such services are provided free service by government hospitals. In urban areas, surgical services are provided free of charge in nearly 60 percent of cases and 70 percent in diagnostic tests and physio-therapy and radio therapy.

Hospitals in the private sector provide free services to about 9 percent of the patients in rural areas and 3 percent in urban areas.

Table 5.13: Percentage Distribution of Hospitalized Cases by Types of Medical Services, Sector and Region

	MEDICINE		X-RAY, ECG, EEG		OTHER DIAG. TESTS		PHYSIO-THERAPY		SURGICAL OPERATION	
Sector	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
Government	54.26	47.46	57.71	48.69	58.18	48.93	57.93	48.93	58.14	48.92
Private	45.74	52.54	42.29	51.31	41.82	51.07	42.07	51.07	41.86	51.08
Government										
Free	63.25	60.20	22.20	31.40	52.30	47.15	51.89	46.58	20.02	19.18
Partly Free	20.86	16.73	1.68	0.76	1.06	0.76	1.09	0.78	0.74	0.00
On Payment	13.16	22.57	8.54	8.54	4.97	16.68	5.04	17.04	1.911	13.65
Not Needed	2.73	0.50	67.58	58.70	41.67	35.41	41.98	35.60	77.33	67.17
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Private										
Free	9.58	5.92	1.18	1.54	5.95	2.45	5.97	2.51	8.77	0.49
Partly Free	1.27	0.86	0.31	0.0	0.79	0.00	0.78	0.00	0.00	0.00
On Payment	88.06	90.41	41.36	44.36	61.05	62.60	60.97	62.85	21.12	32.42
Not Needed	1.09	1.81	57.15	54.10	32.21	34.95	32.28	34.64	70.11	67.09
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Both										
Free	38.70	30.33	13.31	16.37	32.92	24.32	32.57	24.07	15.31	9.63
Partly Free	11.90	8.41	1.10	0.37	0.95	0.37	0.96	0.38	0.43	0.00
On Payment	47.42	60.03	22.42	31.97	28.42	40.13	28.57	40.44	9.85	23.24
Not Needed	1.98	1.23	63.17	56.34	37.71	35.18	37.90	35.11	74.31	67.13
All	100	100	100	100	100	100	100	100	100	100

Note: Not needed includes not taken

5.4. Bed Occupancy

The average duration of stay in the Government and private sectors has been presented in Annex 3. The bed occupancy estimated on the basis of average duration of stay is presented in Annex 3. As the estimates of duration of stay for Government hospitals are very high, alternative estimates of bed occupancy based on duration of stay in Government hospitals are 25 percent over private hospitals. These estimates are only indicative of the level of bed occupancy. In the Government sector, the bed occupancy is very low in PHCs, while in all other hospitals the occupancy is reasonably good. The bed occupancy in the private sector is close to 70 percent.

Table 5.14: Estimated Bed Occupancy

	TOTAL BED STRENGTH	BED OCCUPATION IN PATIENT YEARS		PERCENT OCCUPANCY	
		Alter-native 1	Alter-native 2	Alter-native 1	Alter-native 2
PHCs	6592	980	784	14.9	11.9
Other Govt. Hospitals	25248	24382	19506	96.6	77.3
All Govt. Hospitals	31840	25362	20290	79.6	63.7
Private Hospitals	17668	11994		67.9	67.9

Alternative 1: Based on NSS Estimates of duration of stay in Govt. Hospitals
Alternative 2: Duration of stay in Govt. Hospitals as 25 percent over NSS estimates for Private Hospitals

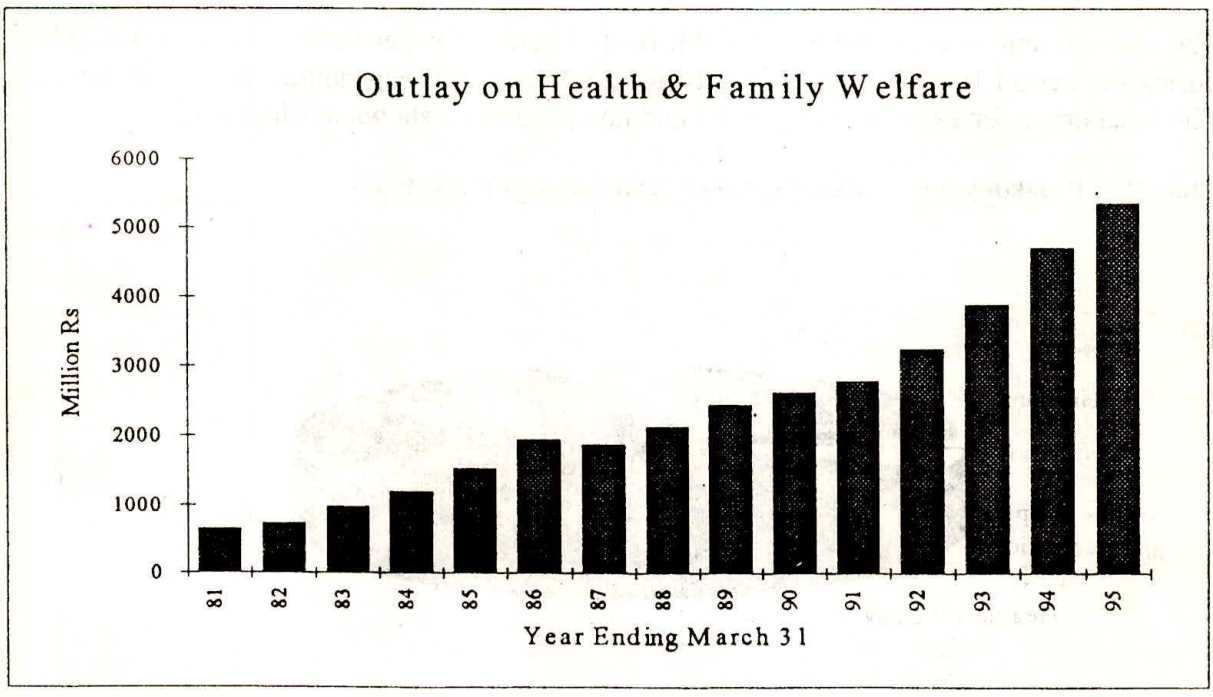
6. PUBLIC HEALTH EXPENDITURE AND COST SHARING

6.1. Expenditure on Social Services

The expenditure of the State Government on Social Services has been hovering around 38 percent of total revenue expenditure. It has increased at an annual rate of 16.7 percent from Rs 3.403 billion in 1980-81 to Rs 34.325 billion in 1995-96. Adjusting for inflation, the annual rate of increase in expenditure on social services has been 6.4 percent. The overview of expenditure for the last five years related to Government spending for social services is provided in ANNEX 2.

Assuming that the State would continue to maintain this growth in outlay on health and family welfare, the per capita expenditure on health and family welfare in the year 2000-2001 will be Rs. 163 at current prices. The projected outlay for expected population of 52.174 million would be Rs. 8,304 million.

The share of health and family welfare in the total expenditure of the state is around 4.5 percent. In 1994-95, the Non-Plan expenditure accounts for 60 percent of the total expenditure on health and family welfare. The Non-Plan expenditure, which is met from resources raised internally by the State, is expected to increase from Rs. 3,160 million in 1994-95 to Rs. 5,565 (or 67 percent of projected expenditure in the year 2000-01).



The breakdown of revenue and capital expenditure (Plan and Non-Plan) is presented in Table 6.1. The revenue expenditure has been increasing at the rate of 18 percent per annum.

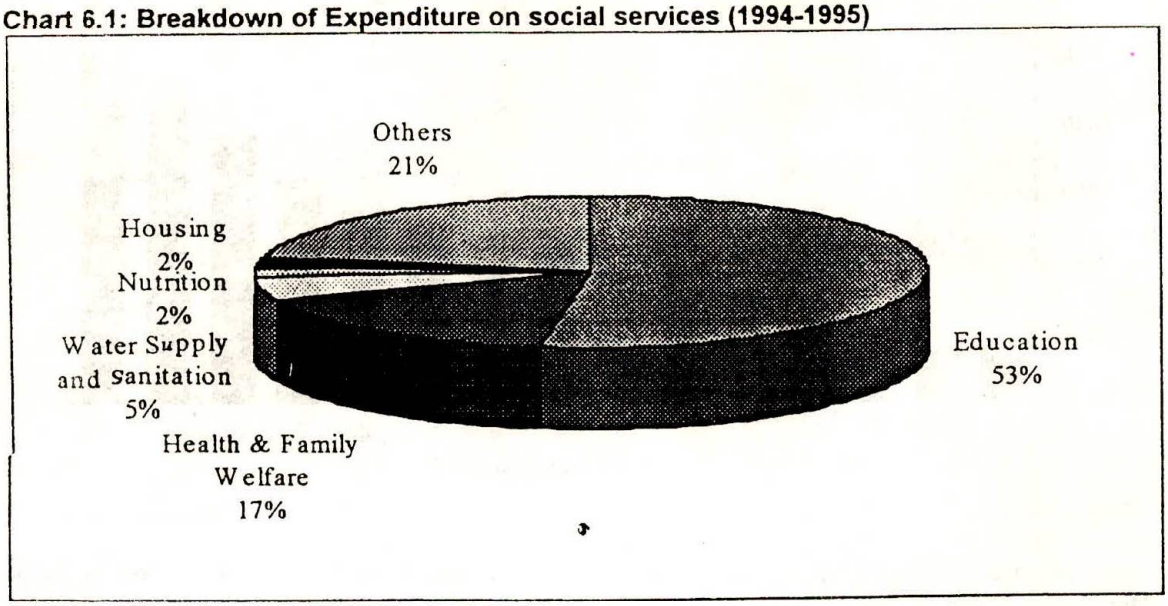
Table 6.1. Structure of Revenue and Capital Expenditure

Billion Rs.

	1990-91 ACCT.	1991-92 ACCT.	1992-93 ACCT.	1993-94 ACCT.	1994-95 REV. EST	1995-96 BUDGET
REVENUE EXPENDITURE						
General Services	11.746	14.220	16.997	19.049	23.941	27.728
Social Services of which	15.389	18.928	20.823	23.785	28.577	34.325
Education	8.020	9.614	10.978	12.781	15.349	17.755
Health & Family Welfare	2.430	2.954	3.602	3.912	4.872	5.688
Water Supply & Sanitation	0.061	0.810	0.958	1.186	1.641	2.267
Others	4.329	5.551	5.285	5.906	6.715	8.615
Economic Services	11.593	15.214	16.851	18.009	22.523	27.346
Grants-in-Aid	0.983	1.179	1.247	1.493	1.476	1.537
Total Revenue Expenditure	39.711	49.541	55.917	62.336	76.517	90.936
CAPITAL EXPENDITURE						
General Services	0.114	0.136	0.091	0.230	0.255	0.300
Social Services of which	0.177	0.325	0.387	0.521	0.879	1.117
Education	0.017	0.036	0.058	0.091	0.149	0.078
Health & Family Welfare	0.066	0.053	0.071	0.102	0.122	0.316
Water Supply & Sanitation	0.000	0.000	0.000	0.000	0.000	0.000
Others	0.094	0.236	0.258	.0328	0.608	0.723
Economic Services	6.258	7.398	7.288	11.128	9.544	10.412
Grants-in-Aid	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL CAPITAL EXPENDITURE	6.549	7.859	7.866	11.879	10.678	11.830

The average annual expenditure on health related items of expenditure was Rs 5.535 billion during the period 1990-95, and accounted for 25.7 percent of expenditure on Social Services. The breakdown for expenditure (planned and non planned) is shown in Chart 6.1.

Chart 6.1: Breakdown of Expenditure on social services (1994-1995)

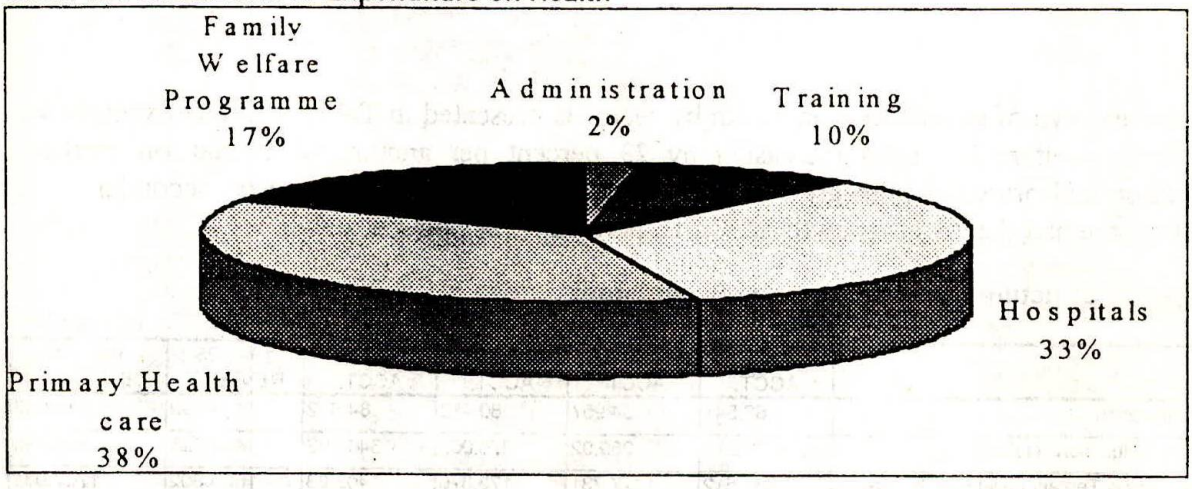


The outlay on Health and Family Welfare increased from Rs 0.647 billion in 1980-81 to Rs. 5.363 billion in 1994-95, representing an annual compound growth of 16.3 percent. The per capita outlay increased at an annual rate of 14.3 percent from Rs. 17.6 to Rs. 115.0. Adjusting for the observed annual rate of inflation of 8.3 percent during 1981-82 to 1992-93 in Karnataka, the annual increase in real terms in per capita expenditure is 6.0 percent.

The revenue and capital expenditure (Plan and Non-Plan) for Health and Family Welfare in the last five years have been increased from Rs 2.496 billion in the year 1990-91 to Rs 4.994 billion in the year 1994-95. For the year 1995-96 the budget allocation amounts to Rs 6.004 billion. The increase between the years 1990 and 1996 represents 240%

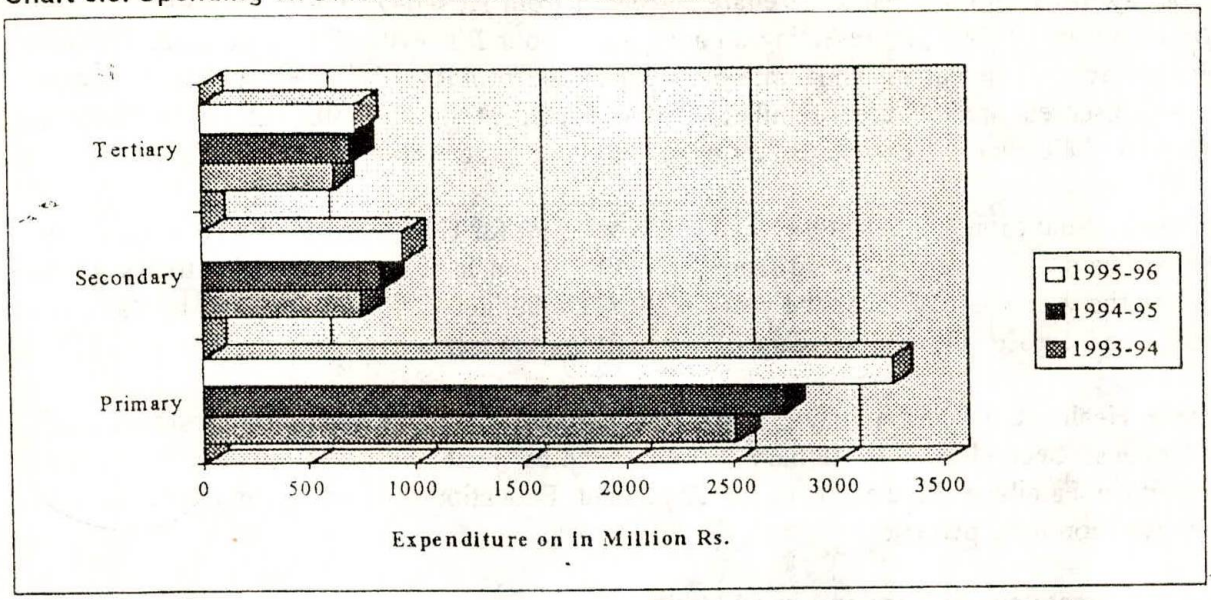
Primary Health Care has a major share (38 percent) of the expenditure in the Health Department. Secondary and tertiary hospitals come next with (33 percent) share in expenditure. Family Welfare accounts for 17 percent, Education & Training for 10 percent and Administration for 2 percent.

Chart 6.2: Breakdown of Expenditure on Health



Primary health care takes the lion's share of expenditure on health care services with a 64.8 percent share. Secondary and tertiary sectors respectively account for 19.4 and 15.8 percent share. Furthermore the growth in the last three years has been mainly on primary level care and the increase in secondary and tertiary level care has been minimal.

Chart 6.3: Spending on Different Sectors in Health Care



The breakdown of expenditure on health by sector is presented in Table 6.2. The expenditure on family welfare has been increasing by 23 percent per annum while that on medical education and primary health grew at 18 percent per annum. Expenditure on secondary and tertiary care had the lowest growth rate of 16 percent per annum.

Table 6.2: Structure of Health Revenue Expenditure

Million Rs.

	1990-91 ACCT.	1991-92 ACCT.	1992-93 ACCT.	1993-94 ACCT.	1994-95 REV. EST	1995-96 BUDGET
Administration	62.541	84.957	80.412	84.632	99.99	118.048
Medical Education/ Training	222.19	289.02	378.062	340.592	493.028	526.495
Secondary & Tertiary Level Health Care	831.512	1027.731	1173.376	1403.83	1608.802	1767.931
Primary Health Care	931.212	1013.335	1382.969	1452.94	1834.879	2158.126
Family Welfare Programme	382.706	538.662	590.607	630.424	835.003	1117.891
Total Health Expenditure	2430.161	2953.705	3605.426	3912.418	4871.702	5688.491

6.2. Increase in Recurring Expenditure

The increase in recurring expenditure on account of the development plan outlined in the preceding chapters is estimated at Rs. 855 million per annum. This forms 35 percent of the increase in Non-Plan expenditure which is of the order of Rs. 2405 million between 1994-95 and 2000-01 or about 10 percent of projected expenditure in the year 2000-01.

6.2.1 Current Status

The Government of Karnataka has a system of levying charges for diagnostic services, treatment and usage of wards in the hospitals managed by it. The last revision of these user charges was made in 1988 vide order No: HFW 126 SMM 86 dated March 10, 1988.

There are other types of charges levied e.g. certificates for physical fitness, wounds etc. Fifty percent of the charges collected are retained by the government and the balance given to the doctor issuing the certificate. Charges for the issuance of such certificates were fixed last in 1946 and have not been revised to date

The user charges are to be collected and remitted to the treasury. Neither the hospital collecting the charge nor the Department of Health has access to the user charges collected. As a consequence, there is no incentive to collect user charges. The average collections of user charges per year during 1990-93, amounted to Rs. 107 million. Approximately 40 percent or Rs. 41 million is on account of issuance of certificates and the balance amount of Rs. 66 million on account of ward charges and charges for surgery and investigations. In 1992-93 the collection accounted for 3 percent of the expenditure of the health department.

6.2.2 Current Pattern of User Charges

No charge is levied on outpatients. The registration charges which used to be levied earlier have been discontinued.

Inpatients with annual family income of below Rs. 8,001 are exempted from paying charges for any service as they are considered to be economically weaker sections. The patients with family income of over Rs. 8,000 and admitted in general wards are charged a nominal amount of Rs. 2 per day. There are charges for special wards, graded according to the number of beds in such special wards, the maximum charge being Rs. 30 per day for a single bed in special ward with basic diet included.

A schedule of rates has been prepared for different services. Those admitted in special wards irrespective of income and those with family income of over Rs. 20,000 admitted in general wards have to pay the full charge as listed. Those admitted in general wards and with family income of Rs. 8,001 to 20,000 per annum have to pay 50 percent of the charges while those with income below are exempted from all charges.

The charges for issuance of certificates are low, when one considers the present day cost of living. For example, the charge for issuing certificate for physical fitness is Rs. 5. There is justification for substantial revision of these charges. Increasing the charges especially for wound certificates does not affect the economically weaker sections since the certificates are collected by the police without paying any charge when a complaint is lodged by them with the police.

7. HEALTH POLICY AND PROGRAMMES

7.1 Health Policy

The health situation in India is typical of a developing country whereby communicable diseases and malnutrition feature prominently, with poor maternal and child health outcomes. Population growth, poverty and poor education continue to be major concerns and challenges to the achievement of 'Health for All'. Towards this end, the Government of India (GOI) has formulated a National Health Policy in 1983 under the jurisdiction of the central Ministry of Health and Family Welfare. This Policy recognizes the need to integrate policies for health and human development with socio-economic development, particularly in the health-related sectors such as pharmaceuticals, agriculture and food production, rural development, education and social welfare, housing, water supply and sanitation, food quality control, and environmental conservation (National Health Policy 1983). The overall aims are to provide universal, comprehensive and affordable primary health care services in line with the needs and priorities of the community, ensuring community participation in the planning and implementation of health programmes, and adequate utilization of private voluntary health care services.

Thus, the National Health Policy encompasses a 20-point Programme that gives priority to family planning on a voluntary basis; universal provision of primary health care; control of leprosy, tuberculosis and blindness; social welfare programmes for women and children; nutrition programmes for pregnant and lactating women and children, especially in tribal, less accessible and less developed areas. At the same time, there is also emphasis on provision of safe drinking water to problem areas, low-cost housing, production of essential food crops, integrated rural development, universal education and expansion of the public distribution system. The components are:

- Population stabilization
- Medical and health education
- Provision of primary health care with special emphasis on preventive, promotive and rehabilitative aspects
- Reorientation of existing health personnel
- Phasing out private practice by government medical staff (with provision of appropriate compensatory non-practising allowance)
- Integration of traditional sources of health care
- Health education and communication
- Management information system
- Development of the bio-medical industry
- Health insurance to mobilize additional resources for health promotion and ensure that the community shares the cost of services proportionate to their paying capacity.

TABLE 7.1: Targets for Health and Family Welfare in National Health Policy 1983

GOALS FOR HEALTH AND FAMILY WELFARE PROGRAMMES			
	GOALS		
INDICATOR	1985	1990	2000
Infant mortality rate	122	-	-
Perinatal mortality			30 - 35
Crude death rate	12	10.4	9
Pre-school child (1-5 yrs) mortality	20 - 24	15 - 20	10
Maternal mortality rate	3 - 4	2 - 3	Below 2
Life expectancy at birth(yrs)Male	55.1	57.6	64
Life expectancy at birth(yrs)Female	54.3	57.1	64
Babies with birth weight below 2500 gms. (%)	25	18	10
Crude birth rate	31	27	21
Effective couple protection (%)	37	42	60
Net Reproduction Rate (NRR)	1.34	1.17	1
Growth Rate (annual)	1.9	1.66	1.2
Family size	3.8	-	2.3
Pregnant mothers receiving ante-natal care (%)	50 - 60	60 - 75	100
Deliveries by trained birth attendants (%)	50	80	100
Immunizations status (% coverage)			
TT (for pregnant women)	60	100	100
TT (for school children)			
10 years old	40	100	100
16 years	60	100	100
DPT (children below 3 years)	70	85	85
Polio (infants)	50	70	85
BCG (infants)	70	80	85
DT (new school entrants 5 - 6 years)	70	85	85
Leprosy - (% of disease arrested cases out of those detected)	40	60	80
TB - (% of disease arrested cases out of those detected)	60	75	90
Blindness - Incidence of (%)	1	0.7	0.3

Within this Health Policy, national goals have been set for specific indicators (TABLE 3.1). In the description of health status in the next section, some of the indicators for Karnataka state are compared to these national goals.

Furthermore, due to the priority given to population control, the states and Union Territories of India have been divided into three regions based on the expected period when the targeted net reproductive rate (NRR=1) should be achieved. This categorization was based on the couple-protection rate in April 1983. Under this scheme, Karnataka falls under Group B which should attain NRR of 1 in 1996-97. Group A areas, which include the neighboring states Kerala, Andhra Pradesh and Maharashtra, are expected to attain this goal in 1991-92.

7.2 *Health Programmes*

The current health and population programmes in Karnataka are funded by the central and state governments as well as by international donors. These state-wide programmes are implemented within the primary health care system.

7.2.1 Integrated Child Development Services

In 1975, the Integrated Child Development Services (ICDS) was implemented in 33 pilot projects and later expanded nationwide. This was the initiative of the Government of India with support from state governments. The objectives are to:

- improve nutritional and health status of children aged 0-6 years
- nurture the proper psychological, physical and social development of children
- reduce mortality, morbidity, malnutrition and school attrition
- achieve effective coordination of policy and implementation among various departments to promote child development
- enhance the capacity of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education

The ICDS is implemented throughout Karnataka state at the primary care level.

7.2.2 Child Survival and Safe Motherhood Project

In the mid-1980s, the Government of India launched the Child Survival Safe Motherhood (CSSM) Programme throughout the country. This was focused on maternal and child health care services, including family planning and immunization. The components include:

- Immunization for children and child bearing women
- Control of diarrhoeal diseases, including social marketing of oral dehydration salts through private and commercial channels
- Control of acute respiratory infections
- Prevention of blindness and vitamin A supplementation
- Enhanced neonatal care
- Promotion of breastfeeding

This state-wide project includes the provision of sterile delivery kits to community-based auxiliary nurse midwives (ANMs) who distribute them free to pregnant mothers to be used during domiciliary births attended by traditional birth attendants. It also includes the provision of portable sterilizing equipment to the ANMs.

7.2.3 India Population Projects

The India Population Projects (IPP) are supported by the World Bank up to the most recent IPP IX. Karnataka has been included in four of these - IPP I, IPP III, IPP VIII and IPP IX.

Up to nine India Population Projects (IPP) focusing on health and family welfare have been implemented with support from the Government of India and various international donors.

Karnataka has been the recipient of four of these projects, including the most recent IPP-IX. IPP I and III covered 70% of the state population while IPP-VIII is focused on the urban poor in Bangalore. IPP IX will include 13 districts. In sum, these IPPs will have covered the entire state.

IPP-I (1973-80) was supported by the Ministry of Health and Family Welfare (MoHFW), Government of India with assistance from the International Development Authority and the Swedish International Development Authority. The project was implemented in six districts in the Bangalore Division, including Urban Bangalore, covering 12 million people or about 33% of the state population (1981 data). The project aims were:

- expansion of health infrastructure
- linking family planning provision with nutrition supplementation
- setting up of a population centre for continued evaluation and to design and operate Management, Information and Evaluation System (MIES)
- provision of technical assistance

IPP-III (1984-92) was implemented by the MoHFW with support from the International Development Authority. It was implemented in six districts in the Belgaum and Gulbarga Divisions covering about 16 million (1991 data) or about 36% of the state population. IPP-III districts had the lowest literacy levels among men and women. Based on 1980 data, IPP-III districts also had higher infant mortality (males and females), total fertility rate and crude birth rate compared to IPP-I and other districts. Conversely, 1992 figures show that the couple protection rate was also lowest compared to IPP-I and other districts.). In addition, childhood immunizations, with the exception of BCG, had the lowest coverage in the IPP-III areas as pointed out in the IPP-IX Project Proposal, Final Version (DHFW 1994). Justifiably, the objectives of IPP IX were to reduce fertility in accordance with the country's population policy, and to reduce infant, child and maternal mortality by:

- generating demand for family welfare services through Information, Education and Communication (IEC) strategies
- augmenting staff and facilities
- improving professional and technical skills
- improving management capabilities
- involving community, voluntary organizations, other government and local authorities in the family welfare programme.

Although aimed at improving maternal and child health, nutrition supplementation for pregnant women in the last trimester, nursing mothers and young children (6-24 months) was not included in IPP-III as in IPP-I.

IPP-VIII (1994), as mentioned earlier, is focused on the urban poor in Bangalore city and planned for extension to other cities in the future. Its scope covers primary health care, maternal and child health and family planning, health education and sanitation. The urban slum areas of Bangalore will benefit from this project.

IPP-IX (1994-2001) is the most recent population project to be implemented with support from the World Bank. The largest to date in terms of area coverage, it will be implemented in, initially 10 districts and now in 13 districts in all Divisions. The objectives are to reduce birth rates, infant mortality and maternal mortality and increase contraceptive usage according to specific targets (IPP-IX Project Proposal 1994) through:

- involvement of the community in promoting and delivering family welfare services
- strengthening service delivery by providing drugs, health kits and supplies to traditional birth attendants (TBAs),
  sub-centres and primary health centres (PHCs)
- increase mobility at sub-centre level by providing loans for vehicles
- providing buildings for sub-centres with accommodation for ANMs
- providing residential quarters for medical officers
- improving quality of services by providing training to personnel, official and non-official, at various levels including TBAs, community leaders and voluntary agencies
- strengthening monitoring and evaluation by developing and operating MIES at district to state level.

Under IPP-IX, four training centres, one in each Division, will be set up for training paramedical staff, namely ANMs and Lady Health Visitors (LHV), as well as training in IEC and MIES for all districts.

8. HEALTH SECTOR ISSUES

8.1. Integration of PHCs and Secondary Hospitals

The IPP projects have concentrated on strengthening the infrastructure for delivery of primary health care services, improving the quality of services and generating demand for family welfare services. The institutions strengthened are sub-Centres and Primary Health Centres. Under IPP–IX, rehabilitation of Community Health Centres (CHC) as well as upgrading of selected CHCs into first level Referral Units (FRUs) is being taken up.

The PHCs and CHCs in a district are independent and each unit reports directly to the District Health Officer (DHO). The sub-District or Taluka hospitals also report directly to the DHO. On the other hand the District Hospital falls under the jurisdiction of the District Surgeon. There is no linkage between District Hospital with sub-District Hospitals, sub-District Hospitals with CHCs, and, in turn CHCs with PHCs falling within its catchment. As a result, technical supervision and up-gradation of skills of medical and paramedical staff are inadequate.

The common perception is that the higher the share of expenditure on hospitals, the lower the equity in the overall health system. This is based on the assumption that if more resources are devoted to primary care programmes and facilities it will be possible to provide relatively low cost preventive and curative services to a larger segment of the population who are more vulnerable. Both hospitals and PHC programmes cover multiple and overlapping functions. PHC is associated with community-level delivery programmes, whereas hospital services are delivered through large facilities socially detached from the community. Hospitals and PHC should be more integrated, and the services provided by the health sector should be balanced and inter linked, from lower level preventive and curative outreach programs to upper level facilities. Similarly, there is need to have integration between the health and the family welfare structures. The question remains, however, of the appropriate balance of services within the integrated system. Efforts to integrate lower-level hospitals could increase the effectiveness of outreach and community-based programs. Hospitals can also provide technical support for lower level services and provide a focus for training of skilled manpower

8.2. Resource Allocation

Not only is there a need to increase the allocation of resources to the public health system to match the needs, but also more balanced distribution between primary, secondary and tertiary sectors. The emphasis on primary health care has resulted in under funding of hospitals at the secondary level. This under funding has led to deterioration in the quality of buildings and equipment, supply of drugs and staffing especially medical and skilled paramedical personnel. Many of the buildings need to be rehabilitated by providing continuous water supply, uninterrupted power, clean and adequate number of toilets and arrangement for managing solid wastes. Most of the equipment have become obsolete and needs to be replaced. The quality of medical care needs improvement. Therefore, there is need for enhancing the allocation of funds to the public health system, and to introduce efficiency in the utilization of

resources. A reallocation of resources will have to be based on the cost effectiveness of different components of the health system.

8.3. Planning and Management

There are major weaknesses in the management of the health system in the State. At the Directorate level, there is lack of clarity in the roles among various functionaries. There is also a lack of adequate administrative and financial accountability. At the lower levels, the hiatus is often sharper. While the medical officer is required to manage the hospital, all decisions on medical and financial aspects are taken at the Directorate. In specific areas the delegation of powers such as the maintenance of infrastructure viz., building and equipment, both at the district and State levels is poor leading to deterioration of assets. The Government is also considering the delegation of responsibilities to the Division and district levels. The process is in Annex 10.

There is also a need to have an institutionalized system to study on a continuing basis:

- changes in epidemiological profile and disease burden;
- cost effective means of utilizing resources; and
- continuous upgrading of manpower skills.

8.4. Quality of Services

The hospital system in the State suffers from major handicaps. Budgets meant for maintaining equipment and building need to be stepped up. Diagnostic facilities, equipment, ambulance and trained personnel require strengthening. Existing norms for staffing at various levels have to be reviewed, given the heavy pressure on the hospital system which currently results in poor quality of services. Similarly, norms for equipment and the range of clinical services at each level need to be worked out on a rational basis. The infrastructure needs thorough overhauling as well as expansion to meet the needs of the over strained hospital system. Management skills at the hospital level need to be continually upgraded. The overall environment in which the hospitals function need improvement.

8.5. Access and Equity

Access to public health facilities in the state is uneven. Even where physical facilities exist, the quality and range of services is poor. Typically, in areas of the state where health status is poor, the gaps in infrastructure are large.

There is need to have significant increase in the bed capacity in poorly served regions. Only in 18 percent of the taluks, the bed availability is equal to or more than the norm of 1679 persons per bed, determined on the basis of epidemiology. In 35 percent of the taluks, the persons per bed, ranges between 1,700 to 5,000. In 29 percent of the taluks, the bed availability ranges

between 5,000 to 10,000 persons per bed. Persons per bed exceeds 10,000 in 18 percent of the taluks.

The Northern districts of Gulbarga, Bidar, Raichur, Bellary, Dharwad and Bijapur have a relatively poorer developed health infrastructure.

There is also a major urban-rural divide with most of the well equipped hospitals located in a few urban agglomerations of the State. The rural poor have limited access for obtaining critical health referral services. In the urban areas also, there are imbalances. In major metropolitan cities such as Bangalore, there are glaring inadequacies in the first referral network. The availability of infrastructure is inadequate, as it has to not only cope with fast rising urban population, but also with the pressure from rural areas.

There is no conscious effort to focus on reducing morbidity and mortality rates among the disadvantaged segments of the society, such as Scheduled Castes and Scheduled Tribes. Utilization of services by women is poor. This issue is intricately related to the low level of women's status, lack of public health education, as also the physical inadequacy of the hospital services required by women.

8.6. Work Force

In some parts of the State there is a severe shortage of staff, both in respect of doctors, nursing staff as well as para medical personnel. Due to various reasons the recruitment procedures have been slow. The situation is made worse by many cases of unauthorized absence and indiscipline in the work-force, adversely affecting the quality of services. Manpower development, specially clinical skills training and training in the maintenance of equipment have remained neglected areas.

8.7. Referral System

At present, the referral system does not function effectively. This is due to the following reasons: (i) Overloading of hospitals with self-referrals; (ii) lack of confidence in lower-level facilities because of perceived low quality of care; (iii) lack of organizational and management links between hospitals at various levels. An effective referral system has to be designed by focusing on three important areas: the structure of the referral system, management co-ordination and quality improvement.

It is necessary to define the mix of patients to be served and the services to be made available at each tier of the hospital system. Referral criteria have to be established for diagnosis and treatment for different disease categories. Manuals need to be prepared, information disseminated, and training needs met for medical, paramedical and laboratory staff.

The effectiveness of the referral system depends on the (i) quality of services at all levels; (ii) awareness among the public about the type of services available at each level of the health

system and (iii) enforcement of procedures to ensure that patients do not bypass one level, without the consent of the health personnel at the lower level.

While designing the referral system it is necessary to involve the community. Wide publicity has to be undertaken to disseminate information about the diagnostic, treatment and surgical services available at the Primary level (CHC), Secondary level (Sub–District Level) and District level Hospitals.

8.8. Management of Communicable and Other Diseases

The recent outbreak of plague and recurrence of malaria in Karnataka serves to emphasize the need to more effectively manage the communicable diseases. Hospital data show that Karnataka has high incidence of the following diseases:

- Tuberculosis,
- Malaria,
- Filaria, and
- Blindness

While there are national programmes for the control of diseases, there is a need to strengthen the surveillance system for their early detection and management. There is also a need to effectively integrate the hospital system with the management and control of diseases at the primary level.

8.9. Burns and Injuries

The casualty departments of hospitals are understaffed and under equipped to handle the increasing number of cases of burns and injuries. There is an urgent need to improve the casualty wards by providing basic facilities in each hospital. There is also need to address the gaps in providing emergency health care services for victims of accidents, specially along major highways and in the proximity of factories.

8.10. Chronic Illnesses

The increase in life expectancy that has occurred over the last four decades and that is continuing to increase will pose greater problems of medical care for the population in the management of chronic illnesses, specially among the older age groups.

8.11. Role of Private sector

In terms of number of patients being served by the private sector, the role of private sector appears very significant. Forty two percent of out patients and thirty five percent of inpatients are treated by the private sector. There is no yardstick developed by the government to assess their quality and ensure that unlicensed and unqualified practitioners do not provide services.

The private sector is also under-utilized in managing communicable diseases, respiratory infections and high risk births. There is also need to utilize the services of voluntary organizations, specially in remote and inaccessible areas. In the hospitals, contracting out services to private agencies has not been tried out, though it could lead to significant improvements in efficiency.

8.12 User Charges and Sustainability

The appropriateness of adopting user charge principles and imposing user fees depends on the type of service provided. Hospital services are mostly patient related curative services. There is a scope to levy fees or charges on curative services provided. A mechanism exists to adjust fees depending on the patients ability to pay. Studies have shown that prescription fees accompanied by improvement in quality can lead to increased utilization. However, the additional revenues generated by levy of user fees may not be adequate to cover fully the expenditure in improving quality through better facilities in terms of equipment and drugs. The levy of user fee may be a step in restoring equity; the poor may benefit proportionately more than the non-poor. Cost recovery with a dispensation that provides for ploughing back of resources will be appropriate for promoting efficiency and equity.

Prescription fees will augment resources for the health sector and should, therefore, lead to improvements in supply both in qualitative and quantitative terms. Sustainability would also be promoted to a large extent because the revenue realised would finance a portion of the operational costs, thereby relieving the budgetary constraint. Cost recovery would result in improvements in the quality of care if the resources generated internally are ploughed back for improving the availability of drugs and maintenance of facilities.

9. HEALTH SECTOR DEVELOPMENT STRATEGY

The State Government has begun a serious exercise to assess the strengths and weaknesses of its Health care system. The major issues on which the State Government is engaging its attention, and the direction of its future Reform package has been spelt out in the Health Sector Development Policy matrix seen below.

ISSUE	EFFECT	PROPOSED CHANGE OR ACTION
1. Adequacy of the overall size of the health budget to meet public health goals	Public health expenditure is about 5% of the state budget and 1.48 % of GDP. These health expenditures are inadequate to provide essential primary health care together with a basic package of clinical/curative services	Recognising the link between basic public health provision and poverty alleviation, the Government will not only maintain the share of health sector allocations within the overall budget at least at the current level, but will step up the allocations progressively.
2. Imbalances in public expenditure between different levels of the health sector	With increasing expenditure on tertiary level health care, there has been a relative decline in the investment in primary and secondary level facilities. This imbalance needs correction.	The State recognises the need for focussing attention on the primary and secondary levels of health care and also to step up allocations for the same levels. While a beginning has already been made, it is expected that by the year 2000 the imbalance will have been corrected. A viable referral system will also relieve pressures on tertiary hospitals themselves, which will function in a more organised and efficient manner.
3. Management	Management of public health facilities in Karnataka is weak which produces low service efficiency and effectiveness. Moreover, lack of appropriate management arrangements and authority to act means that there are few incentives for hospitals and their staff to improve hospital operations and quality of services.	District, sub-district and Taluka hospitals will be strengthened by improving their implementation capacity. Five key areas will be addressed: strengthening structures, systems and procedures; culture of service delivery; resources; decentralisation & autonomy, and training. At the Directorate level the focus would be on improving management effectiveness; at Taluka, sub-district and district hospitals; the emphasis would be on strengthening service delivery management. These changes will be facilitated by introducing mechanisms to give back a major portion of the income generated through user charges for use by the concerned institution.
4. Regional imbalance	The six districts of Gulbarga, Bidar, Bijapur, Raichur, Dharwad and Bellary show poor health indicators on account of uneven development in the health infrastructure and delivery of services	Through both project as well as non-project interventions, a policy of positive discrimination in favour of the poorer developed districts will be followed to reduce the existing imbalance. This differential policy is already under implementation. The State Government has earmarked funds for providing additional resources to these districts for filling critical gaps in the Primary Health Care infrastructure - in terms of sub-centres, drugs and MCH inputs.

5. Quality of and access to hospital services	Quality of medical services is inadequate; in addition, access to health care services is limited especially for populations in the least developed areas of the State, particularly women, scheduled castes and scheduled tribes.	Quality and access will be improved, especially for the poor and underprivileged, by: i) upgrading and expanding physical capacity; ii) upgrading clinical effectiveness and quality of services at Taluka, sub-district and district hospitals; iii) improving the referral system e.g. for essential obstetric care for women with high risk pregnancies; and iv) adopting staffing and technical norms at the Taluka, sub-district and district hospitals in line with the recommendations of the high level committee which has been accepted by Government. In respect of Scheduled Caste and Scheduled Tribes access will be improved through a system of Health Cards and bi-annual health check - ups. In respect of Tribal groups this will supplement the efforts being made through IPP-IX. NGOs will be encouraged to maintain and operate facilities in remote tribal areas. Poor patients who cannot afford high cost treatment will be provided support through the recently set up CM's Medical Relief Fund, while at the same time encouraging the high-tech tertiary government institutions to enhance charges in respect of those who can afford to pay.
6. Strategic Planning	Inadequate strategic planning capacity in the health sector has resulted in sub-optimal use of resources. Decisions on public health spending priorities presently do not take into full consideration the size and scope of services provided by private-commercial and voluntary sectors; the health manpower supply situation; and the predicted future epidemiological profile in Karnataka.	The capacity for strategic planning will be enhanced through establishment of a Planning Cell in the Dept. of Health and Family Welfare. This will, either independently or through specific research projects: study the role of the private sector; review the suitability of present regulations evolving epidemiological profile in Karnataka; monitor the burden of disease and recommend cost-effective means for achieving the best use of limited resources; and undertake periodic review of the health manpower supply situation and training needs in the state.
7. Workforce	Improvement of services at hospitals is significantly restricted by workforce problems, both in terms of quality and quantity. The number of staff sanctioned at hospitals does not fit current needs; there are many vacancies due to poor and cumbersome recruitment procedures, and unimaginative personnel policies. The distribution of medical specialists is not commensurate with the need e.g.: a general surgeon in place of an O&G Surgeon	No economy orders will be imposed with regard to recruiting staff. In a short period the problem of mismatching in medical staff will be solved; OOD posting banned; doctors recruited on contract where direct recruitment process is slow and doctors will be asked to serve a mandatory period of six years in rural areas before being considered for posting at more preferred places. The State Government has already taken a decision to ban private practice by Government Doctors, and to provide compensatory non-practising allowance.

TABLE 11.1: PROJECT GOALS

OBJECTIVE	ACTIVITIES	OUTPUT INDICATOR	INPUT INDICATOR
• Significant improvement in the Health Status of Socio-Economic backward regions in the State	• Physical upgrading and renovation of secondary level hospitals	• Upgrading and renovation of 26 hospitals in the first phase and district hospitals in second phase • Renovation of 7 hospitals • Upgrading of 19 hospitals with additional 650 new hospital beds • Building of staff quarters	• Easier accesability to curative care • Higher utilization of GH and sub-district hospitals • Less pressure on district hospitals • Staff quarters to attract doctors/staff to rural hospital
• Setting up a comprehensive referral system in the Division through strengthening and revamping of the Secondary Hospital network in the Division.	• Increase number of specialists in medium size hospitals • Sanctioning and employment of staff in accordance with the guidelines • Increase of drug budget	• Providing more specialized services in 50 bed and 100 bed hospitals (Anaesthesist, Paediatrician, Ophthalmologist) • Filling vacant posts for medical and non medical designations	• Increased acceptance of medium sized hospitals by the population • Increase in number of out and inpatients • Reducing of certain fatalities for specific conditions • Reduction of infant mortality • Improvement of neonatal care, reduction of neonatal mortality • Improvement of maternal care
• Sustainability of infrastructure and equipment	• Establishment of workshop facilities • Increase of allocation for maintenance • Assumption of maintenance responsibilities by DHFW	• In each district one workshop will be set up • Maintenance staff available at secondary level • User training for equipment	• Longer life span of medical equipment • increase the availability of equipment due to fewer breakdowns • Lower capital investment for building and equipment • systematic servicing of equipment
• Increase sustainability of health care	• Alternative approaches for operation (autonomous institutions, NGO's) • Improvement and rationalisation of cost sharing • Introduction of reporting and monitoring procedures • Training of collecting personnel • Reorganization of user charges	• Improve motivation for fee collection • Increase of funds available for hospitals and primary health care facilities	• Increase efficiency of hospital operation • Increased awareness of health care cost • Greater autonomy and responsibility at hapital level

The upgrading of services and facilities at secondary level hospitals will provide the basis for the implementation of a more effective cost recovery system.

Within the framework of the project, measures will be implemented by the Government of Karnataka to safeguard the operation and maintenance of the hospitals. With the implementation of the approved Government guidelines for secondary health care facilities, the physical upgrading concomits with the provision of better facilities as well.

Finally, the Government of Karnataka is fully committed to improving the cost sharing system. At present, this involves income-generation from user fees and a new income distribution structure such that the bulk of the user fees will benefit the respective health facilities. The goals of the project are summarized in TABLE 11.1.

11.2 Selection Criteria

As mentioned earlier, the project will cover four districts in Gulbarga Division. These districts were selected based on specific health and socio-demographic measures, i.e., comprising the less developed areas in the state.

Activities for this project will be confined to 50 and/or 100-bed secondary level hospitals primarily located in the taluka headquarters, i.e., the sub-district hospitals. The upgrading of PHCs to CHCs is not included in this project because the 30-bed CHCs, as per current standard norms, do not constitute health care facilities which provide the minimum hospital-based services for the community. As such, these facilities tend not to be utilized by patients seeking care. Instead, the next higher level of hospital care is utilised, i.e. the 50 or 100-bed facilities. The location of some of the 30-bed CHCs are also more remote, hence, staffing is problematic due to the lack of facilities such as housing and schools.

In each district, facilities to be upgraded were identified based on specific criteria at taluka level or facility level, which are as follows:

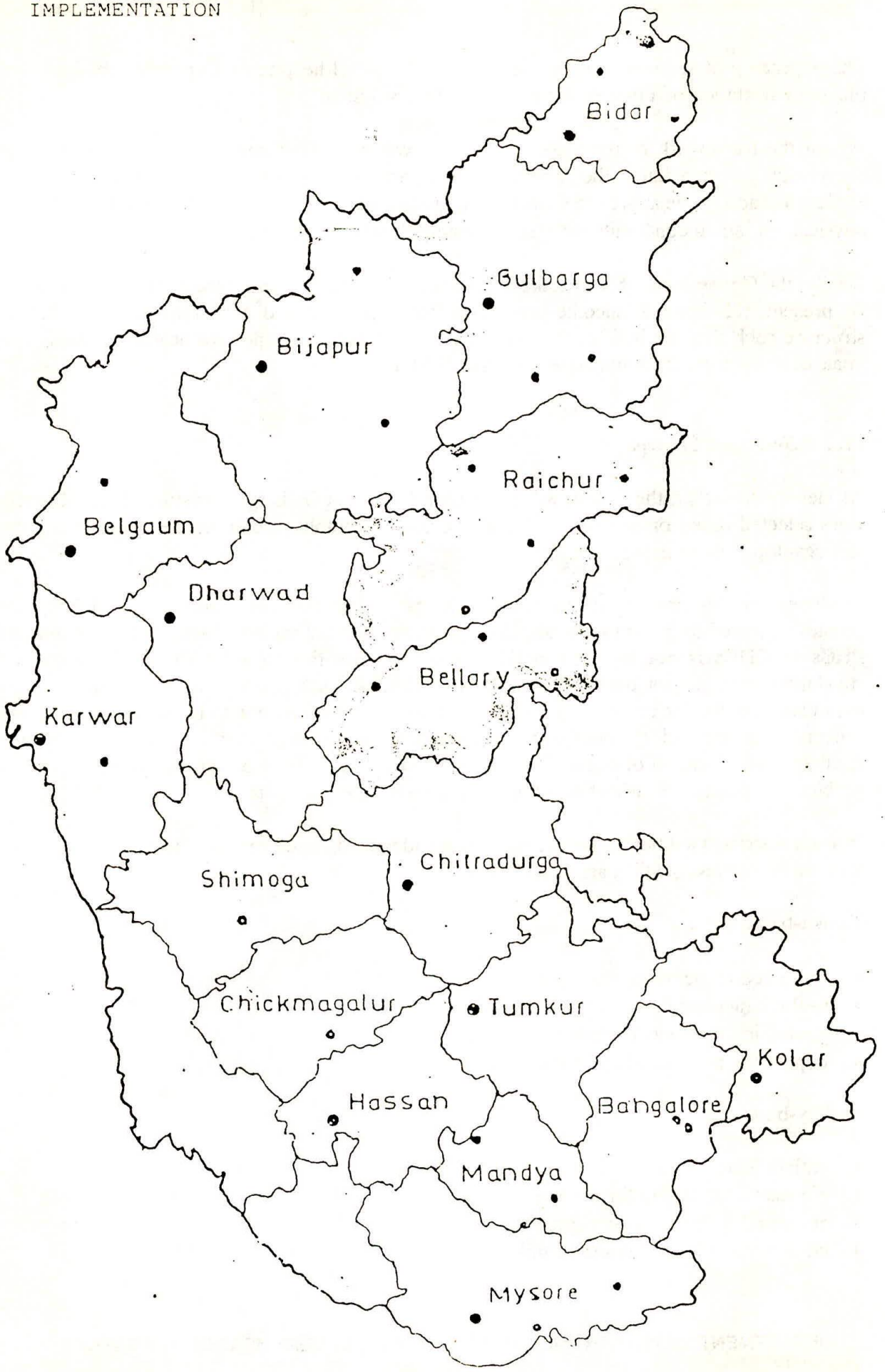
Taluka-based criteria:

- socio-economic background
- health indicators
- population catchment size (within 15 km of facility)
- population per secondary hospital bed ratio

Facility-based criteria:

- patient load
- physical accessibility for patients
- accessibility for health personnel
- conditions of buildings and facilities

MAP OF DISTRICTS FOR PROJECT IMPLEMENTATION



- proximity to other secondary level health facilities

The above factors served as a general guide in the selection process. At the same time, other factors specific to each facility may be incorporated as justification for selection. Based on the above criteria, a principle list of facilities was established which is approved in principle by the Government of Karnataka.

11.3 Project Components

The project scope comprises renovation, physical upgrading and expansion, i.e., the upgrading of secondary health care facilities and workshops at district level for improvement of maintenance. The project also includes measures to strengthen and improve the operation of these facilities by sanctioning and engagement of additional manpower as well as provision of additional operational budget for drugs and maintenace. The project components to be included are described below.

11.3.1 Renovation and Upgrading of Facilities

Gulbarga Division has the highest ratio of population per bed in the State of Karnataka. There are 14 CHC's, 28 GH's (General Hospitals or Sub-District Hospitals) and 5 DH's.The total number of beds (excluding beds of PHC's is 2,959)

Within the project, secondary health care facilities will be renovated or upgraded. The following definition applies for this project:

- ***Renovation*** means that the existing buildings will be further improved, unsatisfactory functions corrected and missing functional units added. Engineering service components will be repaired and if necessary replaced. Non functional equipment will be replaced or equipment required but not available provided.

- ***Upgrading*** means the existing facility will be upgraded to the next higher level facility and all necessary buildings, engineering services and equipment will be provided. Existing buildings and engineering services will be incorporated as part of the overall exercise and if necessary renovated.

The total number of facilities in the project is 47 hospitals for phase one and two whereby in the first phase 26 hospitals will be renovated or upgraded. Out of the 26 hospitals of the first phase, 15 hospitals will be upgraded from 30 to 50 beds and 4 hospitals will be upgraded from 30 beds to 100 beds. A further 7 hospitals in phase one will be renovated. In most of the facilities additional staff quarters will be included. The upgrading will result in the addition of 627 new hospital beds. TABLE 11.2 provides an overview of increase of hospital beds per district

TABLE 11.2: Distribution of Existing and new Hospital Beds by District (Secondary Level)

DISTRICT	EXISTING BEDS	POPULATION PER BED	NEW BEDS	FUTURE TOTAL BEDS	FUTURE POPULATION PER BED
Bidar	423	2,970	140	563	2,270
Bellary	1,009	1,873	96	1,105	1,710
Gulbarga	1,126	2,291	154	1,280	2,016
Raichur	425	5,420	213	638	3,611
TOTAL	603				

The ratio of population per bed in Raichur District after upgrading and renovation will be reduced from 5,745 to 3,611. This ratio will be further reduced when the 500 bed hospital financed by OPEC is implemented. Taking the 500 beds into account, the population per bed will be further reduced to 2,025 which is in line with all the other districts.

With the physical upgrading, the hospitals will provide improved medical services in accordance with the new guidelines by the Government of Karnataka by availing more specialist doctors and other categories of medical staff. The guidelines for staffing, space allocation and equipment for 30, 50 and 100-bed hospitals were finally defined by a "High Level Review Committee" in March 1995. The basic norms are enclosed in ANNEX 3.

Under this component of the project, the financing of design and engineering, civil works, engineering works, medical equipment, initial supply and vehicles will be provided. The renovation or upgrading includes infrastructure, building, landscaping as well as water storage, waste water treatment (septic tanks), emergency generator and waste treatment equipment (incinerator).

Within the project budget, 11% of the total project cost is provided for sustaining of medical services in district hospitals until the second phase of the project is implemented. This amount will be used only for emergency purposes.

The total amount planned for the renovation or upgrading of secondary health care facilities is IR 233.35 million or equivalent to DM 11.11 million. This amount represents 74% of the project cost.

TABLE 11.3 provides the overview of the project cost for each facility which will be renovated or upgraded in the first phase of the project (four years). The description of the scope of renovation and upgrading for these hospitals is provided in the APPENDIX (Facility evaluation,development and costing).

The project scope for the second phase and the respective project cost for upgrading and renovation will be defined before the mid-term review of the first phase.

TABLE 11.3:Summary of Facilities to be Upgraded

FACILITY	PROJECT SCOPE	PROJECT COST (IR)
BIDAR DISTRICT		
GH Aurad	Upgrading 30 beds to 50 beds	9,057,000
GH Basavakalyan	Upgrading 30 beds to 50 beds	9,124,000
GH Bhalki	Upgrading 30 beds to 100 beds	16,378,000
DH Bidar	Phase 2	
GH Humnabad	Upgrading 30 beds to 50 beds	8,431,000
CHC Mannekahalli	Renovation (equipment only)	3,553,000
TOTAL		46,543,000
BELLARY DISTRICT		
DH Bellary	Phase 2	
Women& Children Hospital	Phase 2	
GH Hadagalli	Upgrading 30 beds to 50 beds	4,499,000
GH Hagaribommanahalli	Phase 2	
GH Harappanahalli	Phase 2	
GH Hospet	Renovation (100 beds)	6,166,000
GH Kudligi	Upgrading 24 beds to 50 beds	8,319,000
CHC Chikkajogihalli / TK Kudligi	Renovation	7,314,000
GH Sandur	Upgrading 30 beds to 50 beds	8,984,000
GH Sirguppa	Upgrading 20 beds to 50 beds	6,700,000
TOTAL		41,982,000
GULBARGA DISTRICT		
GH Afzalpur	Upgrading 30 beds to 50 beds	10,703,000
GH Aland	Upgrading 30 beds to 50 beds	11,512,000
CHC Madanahippargi / Aland	Renovation	9,551,000
CHC Nimbarga / Aland	Phase 2	
GH Chincholi	Upgrading 30 beds to 50 beds	11,546,000
CHC Gaddakeshwar / Chincholi	Phase 2	
GH Chitapur	Phase 2	
CHC Hebbal / Chitapur	Phase 2	
CHC Kalgi / Chitapur	Renovation	3,217,000
CHC Shahbad / Chitapur	Renovation	10,243,000
DH Gulbarga	Phase 2	
GH Jevargi	Upgrading 30 beds to 50 beds	7,047,000
GH Sedum	Phase 2	
CHC Mudhol / Sedum	Phase 2	
GH Shahapur	Renovation (50 beds)	6,788,000
GH Shorapur	Phase 2	10,124,000
GH Yadgir	Upgrading 50 beds to 100 beds	
CHC Gurumatkal / Yadgir	Phase 2	
TOTAL		80,731,000
RAICHUR DISTRICT		
GH Devadurga	Upgrading 30 beds to 50 beds	11,476,000
GH Ganawati	Upgrading 30 beds to 100 beds	12,296,000
CHC Kanakagiri / Ganawati	Phase 2	
CHC Koratgi / Ganawati	Phase 2	
GH Koppal	Upgrading 17 beds to 50 beds	9,875,000
GH Kushtagi	Upgrading 30 beds to 50 beds	8,228,000
GH Lingsugur	Upgrading 50 beds to 100 beds	11,132,000
CHC Mudgal / Lingsugur	Phase 2	
GH Manvi	Phase 2	
DH Raichur	Phase 2	
GH Sindhnur	Upgrading 30 beds to 50 beds	11,083,000
GH Yelbarga	Phase 2	
CHC Kuknoor / Yelbarga	Phase 2	
TOTAL		64,090,000
TOTAL COST		233,346,000

11.3.2 Improvement on Maintenance

The main reason for the present poor maintenance is lack of funding, insufficient maintenance facilities and manpower, and also complicated procedures for the execution of maintenance services. To improve the maintenance of the secondary level facilities, the setting-up of a workshop at division and district level is proposed.

The establishment of the proposed four workshops will provide basic maintenance for the medical equipment, engineering services and will be responsible for the management of all maintenance activities. Each workshop will be responsible for all sub-district and district hospitals. The workshop at division level will in addition be responsible for training of biomedical technicians and user-training. The element comprises the establishment of building, supply of workshop equipment and initial spare parts and consumables as well as the purchase of a vehicle for each wokshop. The respective maintenance concept for the project is enclosed in ANNEX 7.

Maintenance will utilize 2% of the total project cost which is IR 800 million equivalent to DM 0.38 million.

11.3.3 Clinical, Technical and Management Training

All training for Gulbarga Division will be covered within The World Bank project. The training includes upgrading of clinical, technical and management skills of hospital staff.

11.3.4 Improvement on Sustanability of Medical Services

Besides strengthening the maintenance aspect, the improvement of cost sharing will be an important factor to ensure better sustainability. The improvement of cost sharing will be treated by two means. First, the present mechanism relating to procedures for fee collection in government health care facilities will be enforced and the respective adjustments of fees, reorganization of fee collection and establishment of a monitoring and evaluation system will be implemented during the project period. Secondly, the distribution of income generated, which is presently mainly collected only in the district hospitals, will be restructured. The income from patient fees is now transferred directly to the state Treasury and cannot be used by the DHFW. In future, the collected fees will be reallocated such that at least 75% of the income will be made available to the income-generating facility. The outline of the cost sharing system which shall be implemented is enclosed in ANNEX 5.

The contribution for the implementation of this component will be IR 4.00 million, equivalent to DM 0.19 million which represents less than 1% of the project funding.

11.3.5 Contribution of the Government of Karnataka

The Government of Karnataka assures that increases to the health care budget will continue in the same proportion as in preceding years. This is in accordance with the present economic development of the country.

With the physical upgrading of the hospital facilities, the Government of Karnataka will also improve the services provided in the hospitals by sanctioning additional staffing and additional operating expense budget (especially for maintenance and drugs) for the upgraded facilities as well as for the facilities which will be renovated or upgraded in the second phase. The basis for the services provided in the respective facilities is outlined in the report of the High Level Review Committee enclosed in ANNEX 4.

The estimate of the contribution by the Government of Karnataka is indicated in ANNEX 6 which is mainly for additional staffing, implementation of workshops, increase of budget norms for drugs and maintenance and for project management participation. The total amount contributed by the Government is IR 69.70 million, equivalent to DM 3.32 million. The contribution of the Government represents approximately 18% of the funding provided by KfW.

11.3.6 Project Management

At the APEX of the project management team will be the Governing Board headed by the Chief Secretary to the Government followed by the Steering Committee headed by the Secretary to the Department of Health. The project management will be formed at Gulbarga Division level. The project management team will function at division and district levels.

An important difference in the present project is that all the required design and engineering, and supervision of construction will be tendered and provided by the private sector. All civil works and engineering works will be tendered at district level and all supply of equipment and vehicles will be tendered locally. Tendering will be executed in accordance with the guidelines of KfW.

An independent project management monitoring team will be appointed by the government to assist the project management team at division level in the execution of the project.The basic management concept is enclosed in ANNEX 8.

For the final approval of the second phase, a mid-term review will evaluate the project progress of the first phase after three years of implementation. The mid-term review will also define the scope of work and the final budget of the second phase of the project.

The cost estimation of the project management amounts to IR 39.32 million which is equivalent to DM 1.87 million. The amount represents 10% of the project funding.

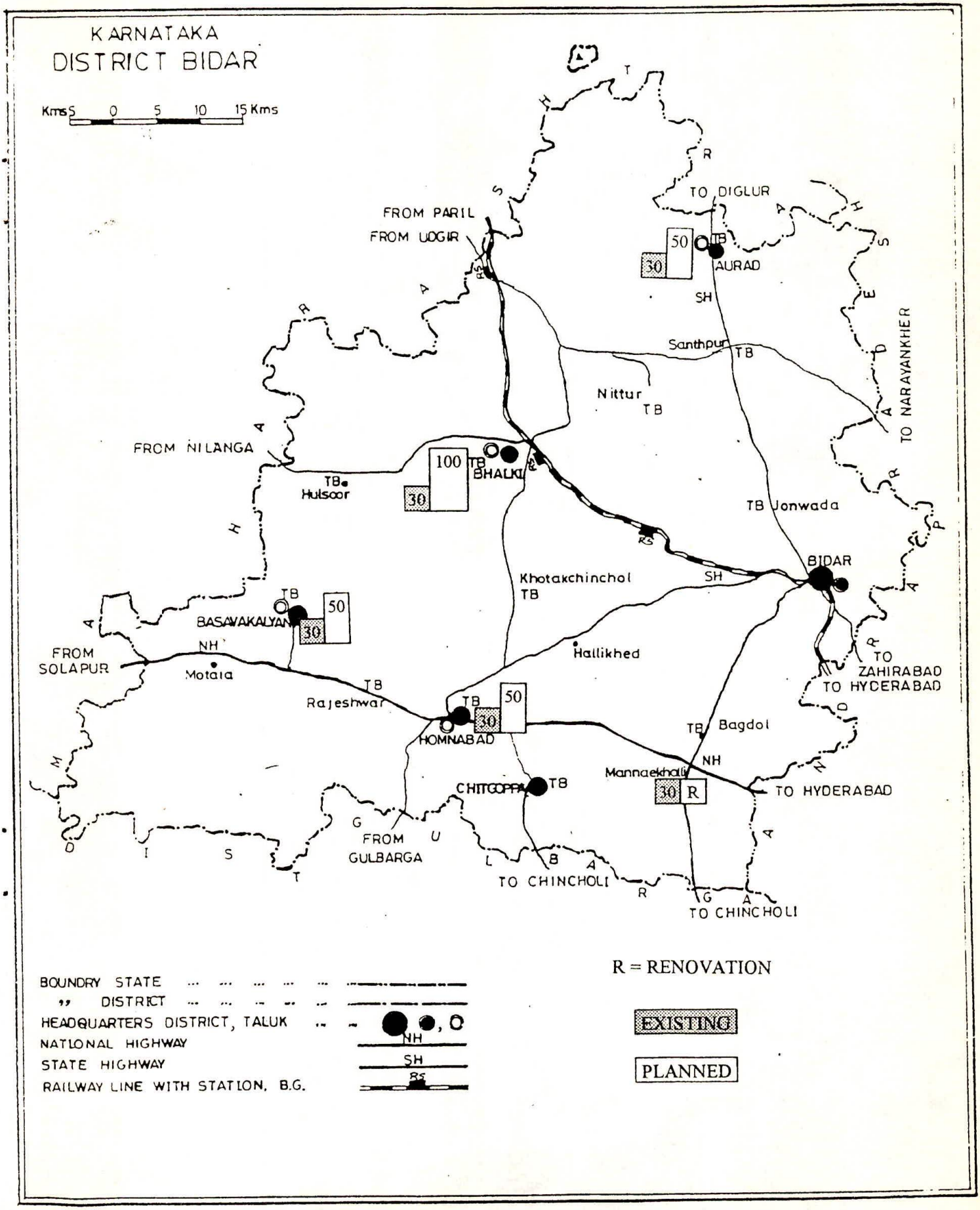
11.4 The Selected Facilities

The basis for the selection of facilities for upgrading are described herewith by district and taluka. It should be noted that selection was confined to data and other information that were provided by the state or district health authorities. The information was verified by the survey team at each of the sites. In accordance with the survey team's findings, the scope of services for upgrading was changed in some cases. Thus, the final report may differ from the Stage Report submitted at beginning of May 1995 as the survey will be completed at the end of May 1995.

Although the upgrading is described in terms of bed capacity, it must be noted that bed capacity corresponds with other facilities, such as number of professional staff including medical specialists and range of services offered.

In the following section, the socio demographic indicators and data related to existing beds may differ from data in the previous section. The information provided in the section below are the most recent figures from district statistics which were collected within this year.

The discription of each facility which will be renovated or upgraded is given in ANNEX 9.


KARNATAKA
DISTRICT BIDAR
Kms 5 0 5 10 15 Kms
FROM PARIL
FROM UDGIR
TO DIGLUR
AURAD
50
30
SH
Santhpur
TB
Nittur
TB
TO NARAYANKHER
FROM NILANGA
TB
Hulsoor
100
30
BHALKI
TB Jonwada
BIDAR
Khotakchinchol
TB
SH
BASAVAKALYAN
50
30
FROM
SOLAPUR
NH
Motala
Hallikhed
TO
ZAHIRABAD
TO HYDERABAD
Rajeshwar
TB
HOMNABAD
50
30
TB Bagdol
NH
Mannaekhali
30 R
TO HYDERABAD
CHITGOPPA
TB
FROM
GULBARGA
TO CHINCHOLI
TO CHINCHOLI
R = RENOVATION
BOUNDRY STATE
,, DISTRICT
HEADQUARTERS DISTRICT, TALUK
NATIONAL HIGHWAY
NH
STATE HIGHWAY
SH
RAILWAY LINE WITH STATION, B.G.
BG
EXISTING
PLANNED

11.4.1 Bidar District

Bidar District located in the far north of the State of Karnataka is an important centre for pilgrims who are devotees of Guru Nanak. The total population of 1,255,799 is the smallest in comparison with the districts in the Gulbarga Division and is divided into 5 talukas. The urban population is only about 10% and as in all other districts in this Division, the majority of the population is comprised of agricultural workers.

TABLE 11.4: Socio Demographic Indicators Bidar District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Bidar	n.a.	n.a.	n.a.	n.a.	n.a.	1,255,799
TK Bidar	27.4	8.8	50.96	71.0	1.8	223,436
TK Aurad	27.6	8.5	39.50	72.0	1.8	210,040
TK Bhalki	29.5	8.8	46.47	72.1	2.4	196,042
TK Humnabad	28.2	8.7	42.87	72.0	2.1	201,378
TK Kalyani	28.3	8.9	42.95	72.3	2.0	203,592

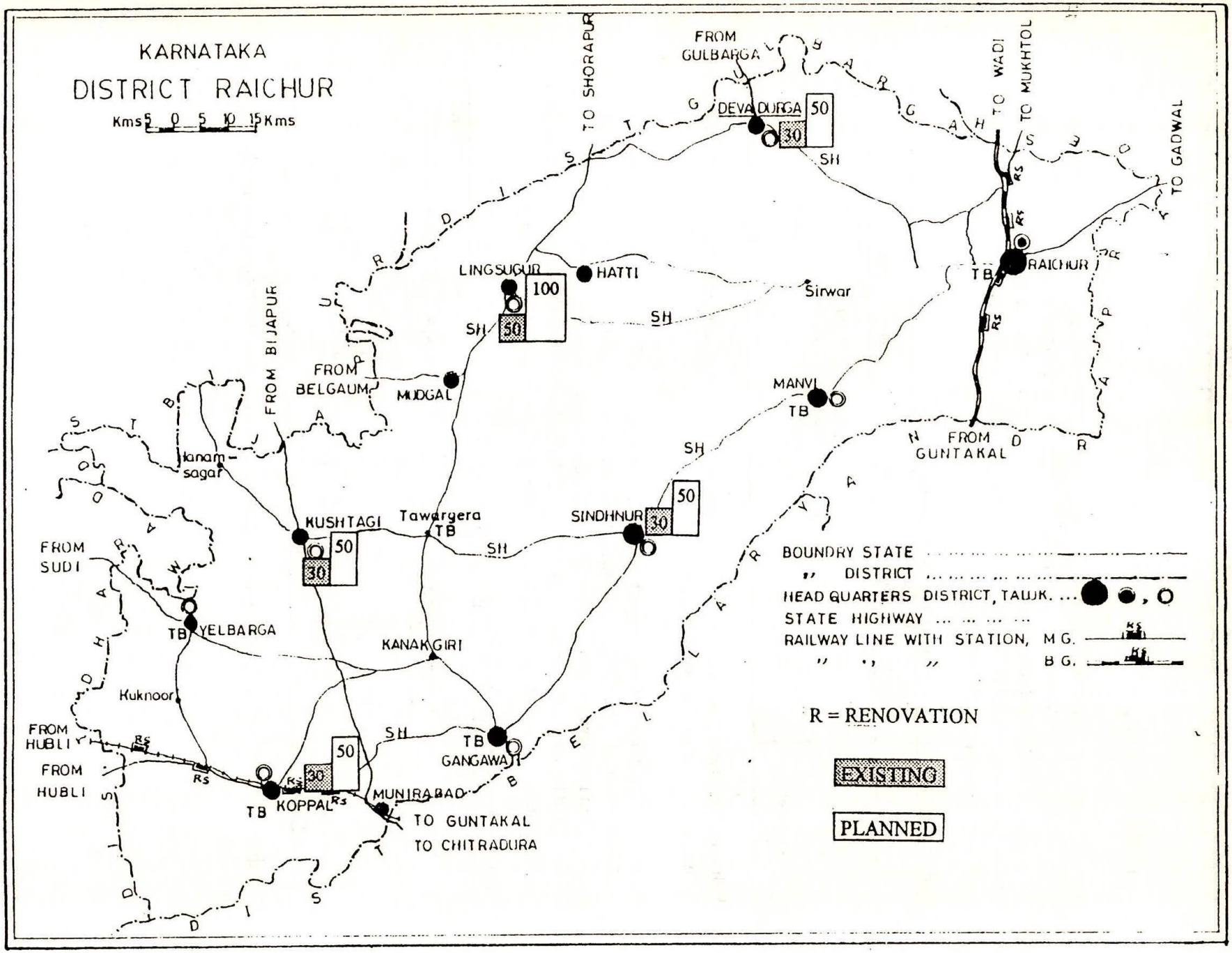
Although the literacy level in the district is above the Division average, the birthrate is one of the highest in comparison with all districts in the state.

Within the first phase of the project scope, four hospitals will be upgraded and an additional 140 beds provided. The CHC in Mannekahalli will be renovated in the second phase. Besides Raichur, Bidar District has the lowest ratio of population per secondary level hospital bed in Karnataka. The ratio of population per bed will be reduced from the present 2,970 to 2,230. The distribution of secondary level hospital beds is shown in TABLE 11.5 below.

TABLE 11.5: Health Services Facilities Bidar Dlistrict

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Bidar	36	268	7	423	140	7	563
TK Bidar	6	58	2	283	-	2	283
TK Aurad	7	62	1	20	30	1	50
TK Bhalki	8	40	1	30	70	1	100
TK Humnabad	7	52	2	60	20	2	80
TK Kalyani	8	56	1	30	20	1	50

The district map is shown in the opposite page which indicates the location of the health care facilities.


KARNATAKA
DISTRICT RAICHUR
Kms 5 0 5 10 15 Kms
FROM GULBARGA
TO SHORAPUR
TO WADI
TO MUKHTOL
TO GADWAL
DEVADURGA
50
30
SH
LINGSUGUR
100
50
HATTI
Sirwar
RAICHUR
TB
FROM BIJAPUR
FROM BELGAUM
MUDGAL
MANVI
TB
FROM GUNTAKAL
Ianam-sagar
KUSHTAGI
50
30
Tawargera
TB
SINDHNUR
50
30
FROM SUDI
YELBARGA
TB
KANAKGIRI
Kuknoor
FROM HUBLI
FROM HUBLI
KOPPAL
TB
50
30
GANGAWATI
TB
MUNIRABAD
TO GUNTAKAL
TO CHITRADURA
BOUNDRY STATE
DISTRICT
HEAD QUARTERS DISTRICT, TALUK.
STATE HIGHWAY
RAILWAY LINE WITH STATION, M.G.
B.G.
R = RENOVATION
EXISTING
PLANNED

11.4.2 Raichur District

Raichur district is bordering the districts of Gulbarga (in the north) and Bellary (in the south). The district population of 2.3 million has the highest ratio of population per bed in the state of Karnataka. The district with 78% comprising of rural population is one of the poorest and is typical for the region with the majority of the population working as agricultural workers. The literacy levels for all talukas in this district are lower than the state average.

TABLE 11.6: Socio Demographic Indicators Raichur District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Raichur	26.2	8.5	35.96	73	3.61	2,309,887
TK Devandurga	24.0	8.8	21.61	79	4.26	176,889
TK Gangawati	21.0	8.4	36.25	71	3.71	255,551
TK Koppal	21.5	8.6	42.39	70	3.13	207,111
TK Kushtagi	26.3	8.8	35.34	72	3.79	189,891
TK Lingsugur	20.9	8.5	35.19	72	3.27	211,096
TK Manavi	24.7	8.9	29.14	81	4.19	241,193
TK Raichur	21.2	8.3	43.62	69	3.89	201,295
TK Sindhur	20.5	8.8	34.48	72	3.58	240,383
TK Yelbarga	24.4	8.1	39.10	71	3.75	196,080

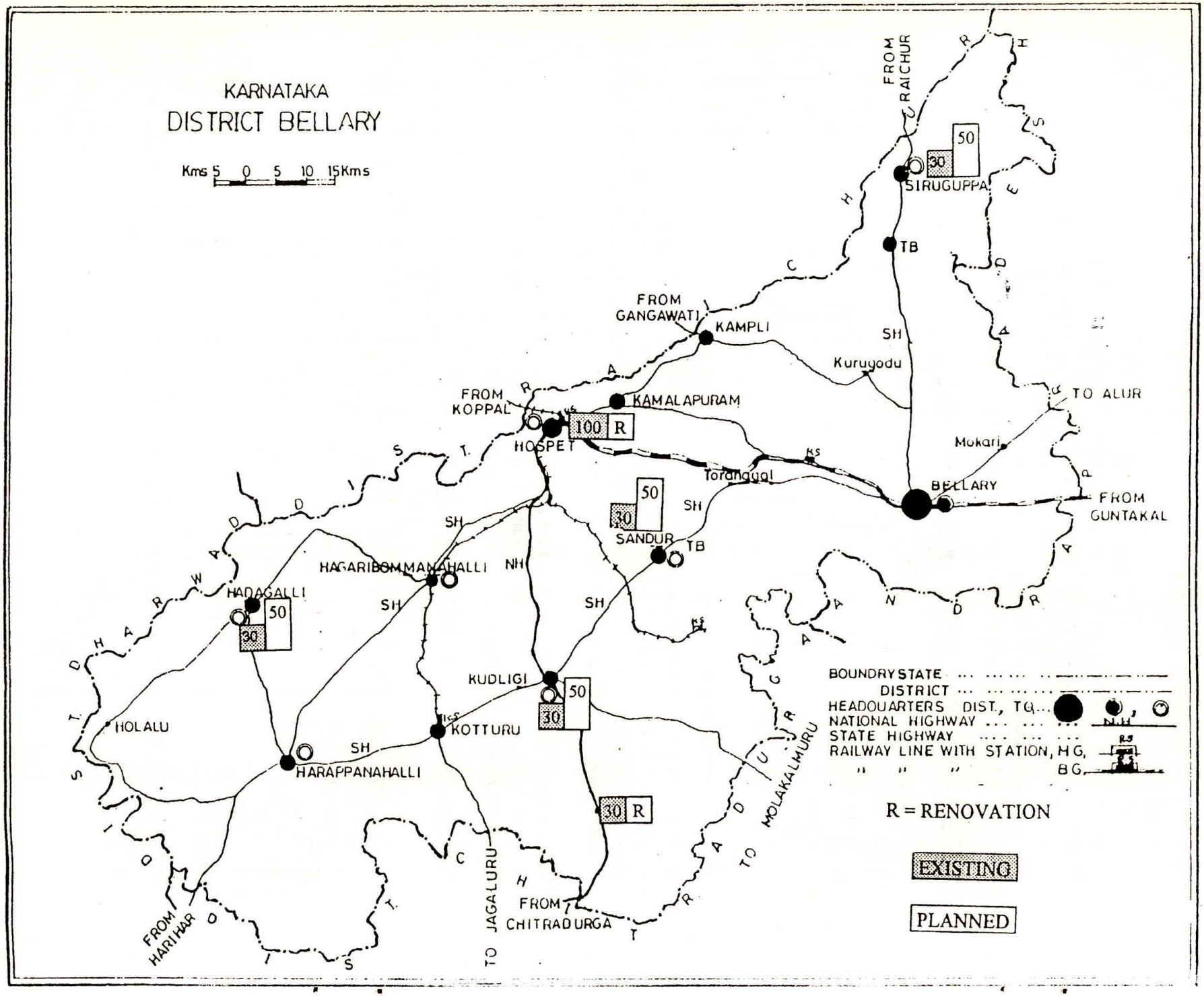
Within the first phase of the project scope, six hospitals will be upgraded and an additional 213 beds provided. Raichur District has the lowest ratio of population per secondary level bed in Karnataka. The ratio of population per bed will be reduced from the present 5,420 to 3,620. The distribution of secondary level hospitals is shown in TABLE 11.7 below.

There are plans to build a 500-bed district hospital financed by the OPEC Fund. However, the construction work has not yet begun. With the establishment of the OPEC financed hospital, the ratio of population per bed will be further reduced to 2,030.

TABLE 11.7: Health Services Facilities Raichur District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Raichur	69	414	13	425	213	13	638
TK Devandurga	5	30	1	30	20	1	50
TK Gangawati	10	60	3	42	70	3	112
TK Koppal	9	54	1	17	33	1	50
TK Kushtagi	6	36	1	30	20	1	50
TK Lingsugur	10	60	2	56	50	2	106
TK Manavi	9	54	1	30		1	30
TK Raichur	6	36	1	130	-	1	130
TK Sindhnur	8	48	1	30	20	1	50
TK Yelbarga	6	36	2	60	-	2	60

The district map is shown in the opposite page which indicates the location of the health care facilities.


KARNATAKA
DISTRICT BELLARY
Kms 5 0 5 10 15Kms
FROM RAICHUR
SIRUGUPPA
50
30
TB
FROM GANGAWATI
KAMPLI
SH
Kurugodu
TO ALUR
FROM KOPPAL
KAMALAPURAM
100 R
HOSPET
Mokari
Toranagal
BELLARY
FROM GUNTAKAL
SANDUR
HAGARIBOMMANAHALLI
NH
HADAGALLI
KUDLIGI
HOLALU
KOTTURU
HARAPPANAHALLI
30 R
FROM HARIHAR
TO JAGALURU
FROM CHITRADURGA
TO MOLAKALMURU
BOUNDRY STATE
DISTRICT
HEADQUARTERS DIST., TQ
NATIONAL HIGHWAY
STATE HIGHWAY
RAILWAY LINE WITH STATION, MG,
BG,
R = RENOVATION
EXISTING
PLANNED

11.4.3 Bellary District

Bellary District located in the south of the Gulbarga division has a population of 1,890,000. In comparison to the other districts in the division, Bellary is the most advanced district. Most of the socio demographic indicators are above the average at division level. The urban population comprises approximately 35 % and is the highest in the division.

TABLE 11.8: Socio Demographic Indicators Bellary District

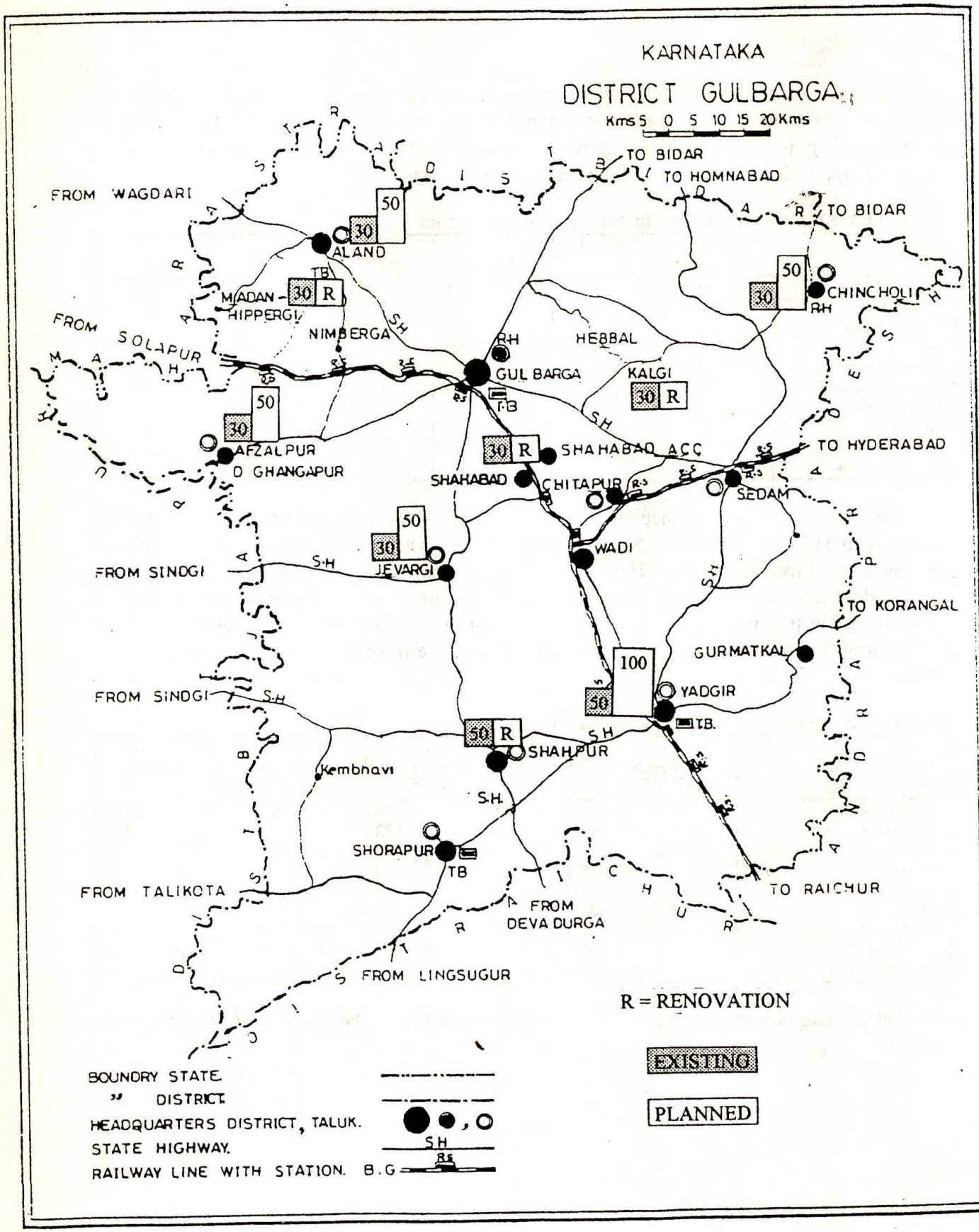
	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Bellary	n.a.	n.a	n.a.	n.a.	n.a.	
TK Bellary						
TK Hadagalli						
TK	27.8	8.6	36.4			140,280
Hagaribommana.	25.0	8.0	40.0	60.0	4	146,778
TK Harpanahalli	27.5	6.2	41.9	85.2		312,788
TK Hospet	26.0	9.0	45.0	79.0	4	
TK Kudligi						
TK Sandur	30.0	8.9	39.3	79.0	2	198,635
TK Siruguppa						

In Bellary there is a teaching hospital with 210 beds and the district hospital is also a medical college with 512 beds at present. Six facilities have been selected for renovation or upgrading and the conversion of four GH to 50 bed sub-district hospitals. Two hospitals will be renovated whereby the sub-district hospital with 94 existing beds will be the largest hospital to be renovated in the first phase. The total number of new beds is 96 as described in TABLE 11.9 below. The ratio of population per bed will improve from 1,870 to 1,710 after the first phase.

TABLE 11.9: Health Services Facilities Bellary District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Bellary	72	260	10	1,009	96	10	1,105
TK Bellary	18	42	2	722	-	2	722
TK Hadagalli	8	20	1	30	20	1	50
TK Hagaribommanahalli	6	28	1	30	-	1	30
TK Harappanahalli	13	48	1	34	-	1	34
TK Hospet	9	32	1	94	R	1	94
TK Kudligi	8	36	2	69	IR + 26	2	95
TK Sandur	4	20	1	30	20	1	50
TK Siruguppa	6	54	1	20	30	1	50

The district map is shown in the opposite page which indicates the location of the health care facilities.


KARNATAKA
DISTRICT GULBARGA
Kms 5 0 5 10 15 20 Kms
TO BIDAR
TO HOMNABAD
TO BIDAR
FROM WAGDARI
ALAND
MADAN HIPPERGI
NIMBERGA
FROM SOLAPUR
GUL BARGA
HEBBAL
KALGI
CHINCHOLI
AFZALPUR
D GHANGAPUR
SHAHABAD ACC
TO HYDERABAD
SHAHABAD
CHITAPUR
SEDAM
JEVARGI
FROM SINDGI
WADI
TO KORANGAL
GURMATKAL
YADGIR
SHAHPUR
Kembhavi
SHORAPUR
TB
FROM TALIKOTA
FROM DEVA DURGA
TO RAICHUR
FROM LINGSUGUR
R = RENOVATION
EXISTING
PLANNED
BOUNDRY STATE
" DISTRICT
HEADQUARTERS DISTRICT, TALUK.
STATE HIGHWAY.
RAILWAY LINE WITH STATION. B.G

11.4.4 Gulbarga District

The Gulbarga district, headquarters of the division is the largest and most populated district (2,582,000). Gulbarga is similar to Bellary District and is one of the more urbanised districts in the state but workers in the agricultural sector are the majority in the distict.

TABLE 11.10: Socio Demographic Indicators Gulbarga District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Gulbarga	32.3	9.2	34.2	73.0	3.3	2,582,169
TK Aland	33.1	9.1	29.9	73.0	3.0	234,270
TK Afzalpur	30.0	10.0	25.5	74.0	3.6	150,856
TK Chincholi	33.0	10.5	36.4	73.5	2.9	189,161
TK Chitapur	32.5	10.0	24.7	74.0	2.7	234,015
TK Gulbarga	30.0	9.0	30.3	71.0	2.7	219,845
TK Jevargi	32.0	9.0	25.7	72.0	3.0	188,707
TK Sedam	33.0	10.0	24.5	73.0	3.1	139,885
TK Shahapur	33.3	10.0	33.0	73.0	3.1	208,417
TK Shorapur	32.5	9.2	44.4	74.0	3.0	247,079
TK Yadgir	33.0	9.1	30.6	73.5	3.0	216,742

The main district hospital in Gulbarga with 750 beds also serves as a teaching hospital. In Gulbarga, five facilities have been selected for upgrading and another four hospitals for renovation. The total number of new beds proposed is 154 as shown in TABLE 11.11 below. The ratio of population per hospital bed will be reduced from 2,290 to 2,020.

TABLE 11.11: Health Services Facilities Gulbarga District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Gulbarga	83	529	17	1,126	154	17	1280
TK Aland	11	66	3	36	20+1R	3	56
TK Afzalpur	6	36	1	6	44	1	50
TK Chincholi	9	54	2	60	20	2	80
TK Chitapur	7	72	4	57	2R	4	57
TK Gulbarga	8	48	1	751	-	1	751
TK Jevargi	8	48	1	30	20	1	50
TK Sedam	4	25	2	56	-	2	56
TK Shahapur	9	54	1	50	1R	1	50
TK Shorapur	9	54	1	30	-	1	30
TK Yadgir	12	72	1	50	50	1	100

The district map is shown in the opposite page which indicates the location of the health care facilities.

12. PROJECT BUDGET

The following project budget comprises the renovation or upgrading cost of each hospital based on the hospital survey for each of the proposed facilities and cost estimation for the other project components. All price assumptions are based on 1995 prices. Although the exchange rate is presently (June 1995) 1DM= 22IR which is due to the low US$ rate in comparison with the DM the exchange rate for the project calculation has been assumed at One German Mark to Twenty One Indian Rupees (1DM = 21IR).

12.1 Budget for upgrading of facilities

The need for upgrading and expansion of each facility is based on item prices for civil works and engineering services, fees for design and engineering, medical equipment, initial supply and vehicles. For the upgrading and renovation cost the following assumptions for each facility has been made:

- The cost of civil works which aso includes cost for infrastructure, landscaping and engineering services are shown in APPENDIX A (Project Brief). In addition, 15% of the cost of civil works are provided for minor renovation and repair works which has not been calculated in the Project Brief.

- The cost for new medical equipment or major replacement is shown in APPENDIX A (Project Brief). The standard for medical and non medical equipment is in accordance with the norms for secondary level facilities.

- Fees for design, engineering and supervision excluding project management is based on 10% of the cost of civil works. The design, engineering and supervision will be executed by external companies. The 10% rate takes into account for the hospital project, which involves upgrading and renovation, a higher pecentage on fees.

- Initial supply is based on IR 100,000 for hospital upgrading from 30 to 50 beds and IR 200.000 for upgrading from 30 beds to 100 beds. Hospitals which are only renovated will not be provided with initial supplies.

- Each hospital upgraded or renovated with 50 beds or 100 beds will be supplied with an ambulance which is calculated at IR 400,000.

TABLE 12.1 provides the overview of project cost for each facility in accordance with the above mentioned assumption.

TABLE 12.1: Summary of Cost for Renovation and Upgrading

FACILITY	CIVIL WORKS	GEN. REPAIR	FEES	EQUIP.	INITIAL SUPPLY	VEHICLE	TOTAL
BIDAR DISTRICT							
GH Aurad	5,176,000	776,000	518,000	2,087,000	100,000	400,000	9,057,000
GH Basavakalyan	5,826,000	874,000	583,000	1,341,000	100,000	400,000	9,124,000
GH Bhalki	9,326,000	1,399,000	933,000	4,120,000	200,000	400,000	16,378,000
GH Humnabad	4,645,000	697,000	465,000	2,124,000	100,000	400,000	8,431,000
CHC Mannekahalli	1,973,000	296,000	197,000	1,087,000	0	0	3,553,000
TOTAL	26,946,000	4,042,000	2,696,000	10,759,000	500,000	1,600,000	46,543,000
BELLARY DISTRICT							
GH Hadagalli	2,101,000	315,000	210,000	1,373,000	100,000	400,000	4,499,000
GH Hospet	2,262,000	339,000	226,000	2,939,000	0	400,000	6,166,000
GH Kudligi	4,403,000	660,000	440,000	2,316,000	100,000	400,000	8,319,000
CHC Chikkajogihalli / Kudligi	3,706,000	556,000	371,000	2,681,000	0	0	7,314,000
GH Sandur.	4,833,000	724,000	483,000	2,444,000	100,000	400,000	8,984,000
GH Sirguppa	3,785,000	568,000	379,000	1,468,000	100,000	400,000	6,700,000
TOTAL	21,090,000	3,162,000	2,109,000	13,221,000	400,000	2,000,000	41,982,000
GULBARGA DISTRICT							
GH Afzalpur	6,392,000	958,000	639,000	2,214,000	100,000	400,000	10,703,000
GH Aland	6,975,000	1,046,000	698,000	2,293,000	100,000	400,000	11,512,000
CHC Madanahippar.Aland	6,440,000	966,000	644,000	1,501,000	0	0	9,551,000
GH Chincholi	7,335,000	1,100,000	734,000	1,877,000	100,000	400,000	11,546,000
CHC Kalgi / Chitapur	1,277,000	191,000	128,000	1,621,000	0	0	3,217,000
CHC Shahbad / Chitapur	7,027,000	1,054,000	703,000	1,459,000	0	0	10,243,000
GH Jevargi	3,793,000	569,000	379,000	1,806,000	100,000	400,000	7,047,000
GH Shahapur	2,787,000	418,000	279,000	2,904,000	0	400,000	6,788,000
GH Yadgir	3,976,000	596,000	398,000	4,554,000	200,000	400,000	10,124,000
TOTAL	46,002,000	6,898,000	4,602,000	20,229,000	600,000	2,400,000	80,731,000
RAICHUR DISTRICT							
GH Devadurga	6,635,000	995,000	664,000	2,682,000	100,000	400,000	11,476,000
GH Ganawati	5,600,000	840,000	560,000	4,696,000	200,000	400,000	12,296,000
GH Koppal	5,177,000	776,000	518,000	2,904,000	100,000	400,000	9,875,000
GH Kushtagi	4,865,000	729,000	487,000	1,647,000	100,000	400,000	8,228,000
GH Lingsugur	6,900,000	1,035,000	690,000	1,907,000	200,000	400,000	11,132,000
GH Sindhur	6,380,000	957,000	638,000	2,608,000	100,000	400,000	11,083,000
TOTAL	35,557,000	5,332,000	3,557,000	16,444,000	800,000	2,400,000	64,090,000
TOTAL COST	129,595,000	19,434,000	12,964,000	60,653,000	2,300,000	8,400,000	233,346,000

The total cost of upgrading and renovation amounts to IR 233,35 million which is equivalent to DM 11,11 million. In the following TABLE 12.2 the breakdown of the upgrading cost is provided.

TABLE !2.2: Breakdown of Upgrading and Renovation of Facilites

ITEM	COST IN IR	COST IN DM	PERCENT OF TOTAL
Civil Works & Engineering Services	149,029,000	7,097,000	64%
Design&Engineering fees	12,964,000	617,000	6%
Medical Equipment	60,653,000	2,889,000	26%
Initial Supplies	2,300,000	109,000	1%
Vehicles	8,400,000	400,000	3%
TOTAL	233,346,000	11,112,000	100%

Exchange Rate 1DM=21IR

12.2 Provision for Sustaining of Services at the District Hospitals

For urgent repair of building and upgrading of engineering services and for urgent replacement of medical equipment, an amount of IR 35.0 million or DM 1.67 million will be reserved. This amount represents 11 % of the project budget. The amount allocated for this purpose is mainly for the district hospitals in Bidar and Bellary.

12.3 Maintenance facilities

The maintenance budget is required for the strengthening of the Division Workshop with respect to facilities, equipment, tools and vehicles. In each district, one workshop will be established. Also incorporated for the project period of four years, are the costs of training technicians and user training as well as reorganization of the maintenance procedures. The budget for maintenance is listed below in TABLE 12.3.

TABLE 12.3: Breakdown of Maintenance Budget in IR

Building cost	2,600,000
Equipment cost	2,700,000
Vehicles	1,000,000
Spare parts	1,200,000
Training	500,000
TOTAL	8,000,000

The total amount required for maintenance will be IR 8.00 million which is equivalent to DM 0.38 million.

12.4 Improvement of Cost Sharing

The project component on improvement of cost sharing will apply for the state of Karnataka. Cost for strengthening and developing cost sharing is estimated as follows:

	in IR
Local consultant fees for development of cost sharing	2,500,000
Training workshops including allowance and travel expenses for trainees	1,500,000
TOTAL	4,000,000

The amount for improvement of cost sharing is equivalent to DM 0.19 million and represents 1% of the overall project cost.

12.5. Project Management

The project management team will be in-charge of the implementation of the project. This team will consist of external consultant and staff from the DHFW. The budget for the project

management and its elements are listed in TABLE 12.4. This includes the salaries for staff seconded by the DHFW.

TABLE 12.4: Breakdown of Budget for Project Management

MANPOWER	8,000,000
OFFICE EQUIPMENT	1,000,000
OFFICE OPERATION AND TRAVEL EXPENSES	960,000
VEHICLES	2,000,000
PROJECT MONITORING	22,360,000
MID-TERM REVIEW	5,000,000
TOTAL	39,320,000

The project management budget represents 12% of the total project cost.

12.6 Summary of cost of project components

In the following TABLE 12.5 the summary of all project components is provided. The total project cost amounts to IR 319.67 million which is equivalent to DM 15.22 million.

TABLE 12.5: Breakdown of Project Cost

PROJECT ELEMENTS	COST (Rs)	COST (DM)*	% OF TOTAL PROJECT COST
Construction	149,029,000	7,097,000	47%
Fees for design and engineering	12,964,000	617,000	4%
Equipment	60,653,000	2,889,000	19%
Initial supplies	2,300,000	109,000	1%
Vehicles	8,400,000	400,000	3%
Provision for district hospitals	35,000,000	1,667,000	11%
Maintenance	8,000,000	381,000	2%
Cost sharing development	4,000,000	190,000	1%
Project management	39,320,000	1,872,000	12%
TOTAL PROJECT COST	319,666,000	15,222,000	100%

* Exchange rate IR:: DM = 21:1

12.7 Contribution by the Government of Karnataka

The recurring cost during the project period, such as salaries, drugs, diet and office expenses will be born by the Government of Karnataka. The government will sanction the posts for the required additional staff for the upgraded facilities and contribute towards the respective budget. The cost estimation for the recurring cost is based on the following assumptions:

Salary hospital staff	36,000,000
Salary maintenance staff	5,000,000
Drugs and chemicals	6,000,000
Diet and other expense	4,200,000
Maintenance	10,500,000
Project management	8,000,000
TOTAL	69,700,000

The total number of newly provided beds within the project is approximately 700 whereby some hospital facilities would have been completed before the end of the project. The contribution within the project period of completed beds and the relevant recurring costs amounts to IR 69.70 which is equivalent to DM 3.32 million. This amount is approximately 18% of the total project cost not considering contingency and inflation.

12.8 Total Project Budget

Within the total project budget, a 10% contingency rate of project cost or 7% of total project funding is included. Approximately 8% inflation rate per year has been considered ((8% per year of project cost) which represents 23% of the total project funding. The present inflation rate is approximately 10% per year but this inflation will be partly offset by the currency exchange rate between DM and IR. The breakdown of the total budget is shown in TABLE 12.6.

TABLE 12.6: Breakdown of Total Budget

PROJECT ELEMENTS	COST (Rs)	COST (DM)*	% OF TOTAL PROJECT COST
Project cost (Table 12.5)	319,666,000	15,222,000	70%
Contingency	32,334,000	1,540,000	7%
Inflation	105,000,000	5,000,000	23%
Sub-total (Total Funding)	457,000,000	21,762,000	100%
Contribution of the government	69,700,000	3,319,000	
GRAND TOTAL project cost phase 1	526,700,000	25,081,000	

* Exchange rate IR: : DM = 21:1

12.9 Project cashflow

Based on the preliminary time schedule, the project budget will be subdivided over the 4 years, as shown in TABLE 12.7.

TABLE 12.7: Distribution of Project Budget by Year

YEAR	AMOUNT (IR)		AMOUNT (DM)		% OF TOTAL	
	KFW	GOV. KARN	KFW	GOV. KARN	KFW	GOK
Year 1	35,000,000	3,000,000	1,667,000	143,000	8%	4%
Year 2	100,000,000	5,000,000	4,762,000	238,000	22%	7%
Year 3	142,000,000	24,000,000	6,762,000	1,143,000	31%	35%
Year 4	180,000,000	37,700,000	8,571,000	1,795,000	39%	54%
TOTAL	457,000,000	69,700,000	21,762,000	3,319,000	100%	100%

12.10 Cost Estimation for the Second Phase

The second phase will mainly comprise the renovation of the district hospitals and some of the remaining general hospitals or community health centres which will be renovated or upgraded. The final approval of the second phase will be pending on the findings of the mid-term review which will be undertaken in the third year of the project implementation of the first phase.

As preliminary costing, the following assumptions have been made as shown in TABLE 12.8:

TABLE 12.8: Cost estimation of the Second Phase

ACTIVITY	COST IN IR	COST IN DM*
District hospital Bidar	25,000,000	1,190,000
District hospital Bellary	30,000,000	1,429,000
District hospital Gulbarga	20,000,000	952,000
District hospital Raichur	20,000,000	952,000
Sub-total district hospitals	95,000,000	4,523,000
Renovation and upgrading of other facilities	60,000,000	2,857,000
Other project components	35,000,000	1,667,000
Inflation (30% of Grand Total)	80,000,000	3,810,000
Sub-total (Total Funding) Phase 2	270,000,000	12,857,000
Contribution by the Government	50,000,000	2,381,000
GRAND TOTAL Phase 2	320,000,000	15,238,000

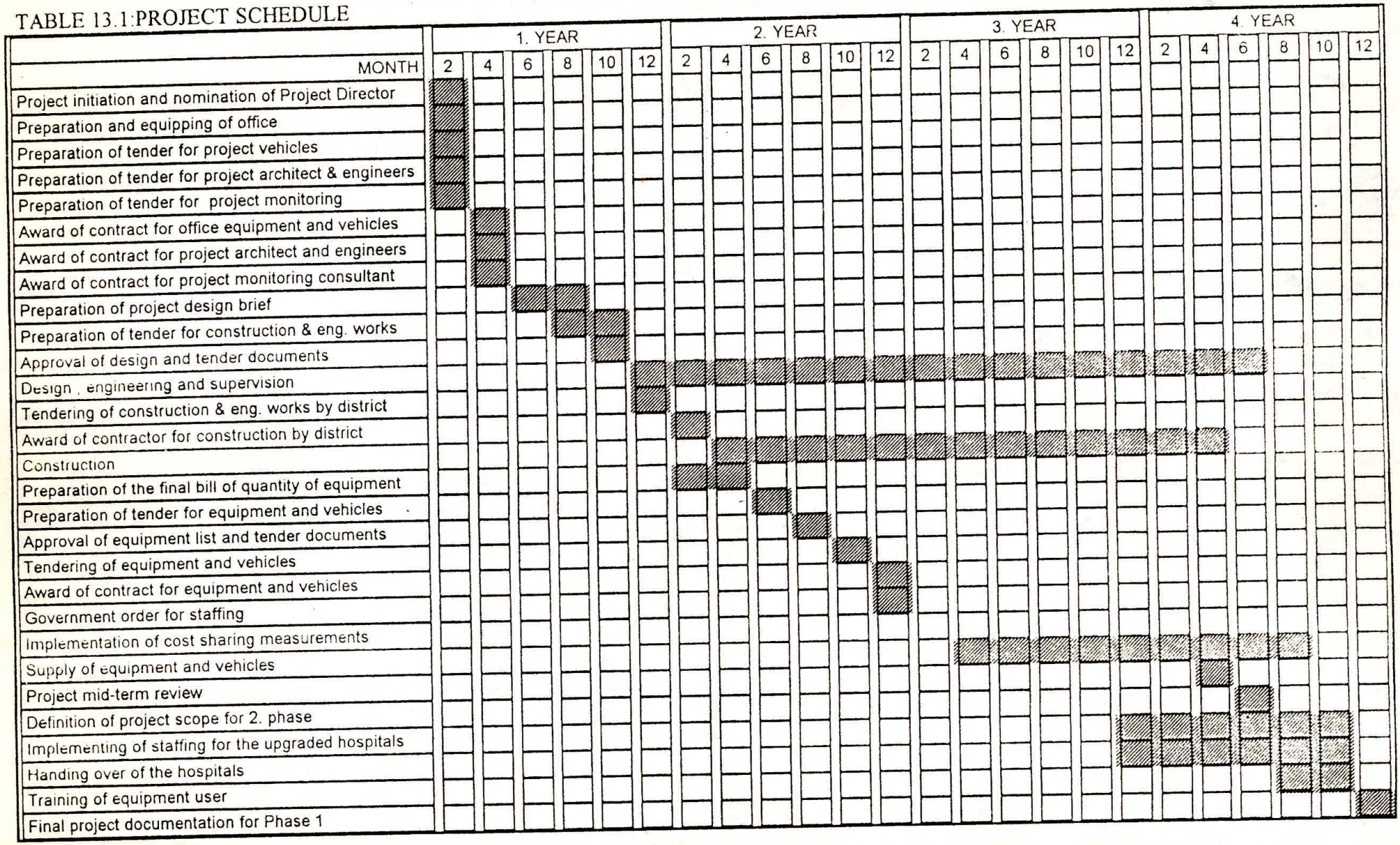
* Exchange rate IR:DM 21:1

The total project funding for first and second phase will be approximately IR 727.00 million which is equivalent to DM 34.62 million. The contribution of the Government of Karnataka can be assumed to be IR 119.70 million or DM 5.70 million. Table 12.9 summarize the total cost of the overall project.

TABLE 12.9: Total Project Cost for Phase 1 and Phase 2

	KFW FUNDING		CONTRIBUTION GOK		TOTAL	
	IR	DM	IR	DM	IR	DM
PHASE 1	457,000,000	21,762,000	69,700,000	3,319,000	526,700,000	25,081,000
PHASE 2	270,000,000	12,857,000	50,000,000	2,381,000	320,000,000	15,238,000
TOTAL	727,000,000	34,619,000	119,700,000	5,700,000	846,700,000	40,319,000

TABLE 13.1:PROJECT SCHEDULE



13. IMPLEMENTATION SCHEDULE

The intention of the Government of Karnataka is to start with the project at the beginning of 1996. The overall implementation of the project in two phases will take approximately seven years.

For the first phase it is assumed that the 26 hospitals could be renovated and upgraded in four years. The first stage of the project will require preparation of all design and engineering works as well as the preparation of the tender documents. In the second and third year the construction and engineering works for all hospitals will take place. During the same period the supply of medical equipment will start.

The first hospitals should be ready in the third year of the project and the final handing over of all facilities should be finished in the last month of the fourth year.

In the third year of the project the mid-term review will initiate the second phase of the project which should at the very latest begin after the first phase is completed. The overall project schedule is indicated in TABLE 13.1.

ANNEX 1

MINUTES OF MEETING

UPGRADING SECONDARY LEVEL HEALTH CARE FACILITIES IN KARNATAKA

Minutes of Meeting

Upgrading Secondary Level Health Care Facilities in Karnataka

A mission of KfW (the mission) visited Bangalore, Karnataka from 11.-13. June, 1995 to discuss the mid-term report for the present assessment phase.

The mission would like to express its sincere gratitude to the Chief Minister, the Health Minister, the Chief Secretary, other Senior Officers, the Healh Secretary and his staff for the excellent preparation of the fruitful discussions and for their hospitality.

The Government of Karnataka made a concise presentation of its findings, which are summarised as follows:

- The Project will cover the 4 districts of the Division of Gulbarga.
- In the first phase (approx. DM 23 million), the Project will consider the level of the General Hospitals and Taluka Hospitals.
- In the second phase, district hospitals will be considered. The final scope for upgradation and, if necessary expansion of the district hospitals will depend on the findings of a mid term review for evaluating the effect and impact of the implementation of the first phase on the utilisation of the facilities already available in the district hospitals. Expansion will be considered where there is a need.
- The Project will not consider construction of new hospitals but will concentrate on consolidation, repair and upgrading of existing hospitals.
- A viable cost-sharing mechanism will have to be developed within the health system. The State Government has agreed to consider specific steps for, not only generating internal revenues on a significant scale, but also for permitting use of the funds thus collected for the improvement of the concerned institutions.
- An innovative scheme already under consideration to entrust the operation of some primary health facilities in difficult/remote regions to NGOs active in the area needs to be promoted vigorously.
- The Government of Karnataka assumes the responsibility for increasing the maintenance budget as required.
- The Government of Karnataka will be supported in the detailed planning, elaboration of bidding documents for construction and procurement, supervision of works and procurement, by a team of external and local consultants. The Consultant team will be selected by KfW and Government of Karnataka. Both sides will agree on the Terms of Reference (TOR). The detailed TOR shall be drawn up during the appraisal.
- Commitment of the State to create necessary posts and to finance the respective salaries, and to deploy staff with required skills, e.g., a doctor with skills in OB/GYN and Anaesthesia for a general hospital.
- A co-ordination mechanism shall be established at the DHFW level to ensure smooth co-operation between the World Bank and KfW sponsored projects.

The Mission was informed that the World Bank is tentatively planning to appraise a Project comprising financial and technical co-operation measures in September of this year. The scope of the financial co-operation shall cover the whole state except the Gulbarga Division and does not overlap with the present Project. The technical assistance (training components, strengthening of the district health system), however, shall include the Division of Gulbarga.

Provided that the final report of the assessment phase is presented by July of this year, a KfW appraisal mission could be tentatively planned for September/October 1995. During the appraisal mission i.a. the following issues will be discussed:

../Furniture...

Objectives

The overall Project goals as well as specific objectives need to be formulated. The indicators for measuring the achievement of the objectives will be defined. The Government of Karnataka will substantiate the availability of adequate primary health care services for justifying a specific Project on secondary level health care services.

Organisational set-up of the Project

In order to guarantee continuity in the management of the Project, the Government of Karnataka will consider by September the possibility of exempting the key staff who are engaged in the Project preparation work from transfers.

The overall scope and components of the Project shall require prior approval of the Government of India. The DHFW of Karnataka shall be fully responsible for the implementation of the Project through an appointed Project Director who shall function as the Chief Executive. He/she will be delegated full financial and administrative powers necessary for smooth implementation of the Project. A detailed description of the management structure and the responsibilities at different levels will be finalised.

Parts of the equipment to be tendered and purchased locally in India and imported from abroad will have to be specified. In this context special attention will be paid to ensure in future smooth maintenance and procurement of spare parts.

Costs

The following items form part of the Project and their costs may be respectively defined as Project costs:
1. infrastructure measures
2. purchase of equipment, drugs, consumables
3. consultancy services
4. the Project co-ordination cell
5. the additional recurrent costs of the health institutions included in the Project

The general administration costs of the DHFW of Karnataka, the DHOs and administration of the health institutions in the Project area do not form part of the Project costs.

Financing

The consultancy services for the tender procedure, supervision of works, and procurement shall be financed fully out of the grant.

The contribution of the Government of Karnataka to the overall Project cost shall be at least 10-15 percent. It shall finance the recurrent cost for the Project co-ordination unit as well as the additional recurrent costs of the various health institutions. However, basic equipment of the Project Co-ordination Cell (fax, computer, vehicle) may be financed out of the financial co-operation.

To enable the Project co-ordination cell to implement the Project smoothly, a direct channelling of the funds to the Project should be ensured without delays (for example the disbursements to a Project account may occur directly upon request by the Project Director). To enable smooth Project implementation and to avoid any liquidity problems, the Government of Karnataka will propose by September a procedure for disbursement of the financial co-operation funds. This procedure (which should be discussed with the responsible authority in Delhi) shall ensure that the funds will be at the disposal of the division/district levels whenever required.

It is understood that the funds allocated out of the financial co-operation of this Project shall be additional to the Government allocations for the health sector. For the appraisal in September/October 1995, the projected trends of Government expenditures on health for the next 5 years will be indicateded.

The findings and recommendations made above are subject to approval by the Government of Karnataka and by the Management of KfW and the German Government.

Bangalore, June 13., 1995

Government of Karnataka

Mr. Gautam Basu
Secretary to Government of Karnataka,
Health and Family Welfare Bangalore

Ms. I. Huber
For KfW mission

ANNEX 2

HEALTH CARE EXPENDITURE

TABLE 1: Population and Net State Domestic Product

Population (million)	1981	37.14				
	1991	44.98				
		90/91	91/92	92/93	93/94	94/95	95/96
		R	R	PR	Q	A	
							Rs. Crores
Net State Domestic Product at Current Prices		20595	26487	29723	32927	36345	NA
Net State Domestic Product at 1980/81 Prices		9160	10241	10682	11125	11514	NA

90/91 & 91/92: Revised Estimates
92/93: Partially Revised Estimates
93/94: Quick Estimates
94/95: Anticipated
NA: Not Available

Source: Economic Survey, 1994-95 Planning Department , Govt. of Karnataka.

TABLE 2: Recent Trends in Public Expenditure and Receipts

	90/91 Acct.	91/92 Acct.	92/93 Acct.	93/94 Acct.	94/95 Rev. Est.	95/96 udget Est.
						Rs. Crores
Revenue Receipts	3,892.18	4,775.47	5,421.66	6,324.65	7,464.86	8,879.97
State Tax Revenue	2,332.12	2,900.20	3,097.81	3,812.34	4,408.52	5,115.96
Non-tax Revenue	517.20	621.28	802.54	733.58	1,014.83	1,122.53
States Share of Union taxes	660.35	782.08	931.97	1,017.41	1,135.93	1,439.51
Grants-in-aid from Central Govt.	382.51	471.91	589.33	761.33	905.59	1,201.98
Revenue Expenditure	3,971.09	4,954.12	5,591.69	6,208.25	7,651.71	9,093.63
Non-Plan expenditure	3,077.64	3,926.03	4,406.41	4,571.50	5,512.42	6,542.59
Plan expenditure	893.45	1,028.09	1,185.28	1,512.83	1,991.65	2,551.04
Revenue (Deficit) / Surplus (Revenue receipts minus Revenue expenditure)	(78.91)	(178.65)	(170.03)	116.40	(186.84)	(213.66)
Capital Expenditure	654.81	785.86	786.63	1,187.80	1,067.81	1,622.49
Non-Plan	90.99	131.55	194.40	209.62	250.03	740.40
Plan	563.82	654.31	592.24	978.18	817.79	882.09
Fiscal Deficit (Revenue deficit minus Capital expenditure)	733.72	964.51	956.66	1,071.40	1,254.65	1,836.15
Outstanding Debt of State Govt.*	5,417.27	6,079.38	7,081.29	8,338.84	9,800.59	11,291.81
Central Government	3,009.73	3,380.69	3,869.93	4,374.29	5,419.09	6,261.88
Internal Debt	977.92	995.50	1,323.73	1,531.73	1,733.67	1,973.10
Provident Fund etc.	835.73	989.00	1,152.94	1,340.40	1,555.40	1,802.40
Reserve Funds/Deposits	593.90	714.20	734.67	1,092.43	1,092.43	1,092.43

* Excluding Reserves & Depreciation

TABLE 3: Structure of Revenue Expenditures						
						Rs. Crores
	90/91 Acct.	91/92 Acct.	92/93 Acct.	93/94 Acct.	94/95 Rev. Est.	95/96 udget Est.
		Non-Plan				
General Services	1,169.70	1,416.90	1,692.85	1,900.42	2,388.83	2,766.76
Social Services	1,172.05	1,453.81	1,545.83	1,680.09	1,891.56	2,109.94
of which						
Education	716.21	855.19	951.14	1,068.51	1,228.80	1,368.67
Health & Family Welfare	166.17	205.60	252.31	269.23	312.90	342.25
Water Supply and Sanitation	10.34	16.80	15.74	11.59	9.91	22.02
Others	279.33	376.22	326.64	330.77	339.95	377.00
Economic Services	647.45	937.44	1,043.06	990.99	1,232.04	1,512.19
Grants-in-Aid	98.27	117.89	124.67	149.30	147.63	153.69
Total Non-Plan Revenue Expenditure	3,087.47	3,926.04	4,406.41	4,720.80	5,660.05	6,542.59
		Plan				
General Services	4.89	5.10	6.84	4.50	5.28	6.03
Social Services	366.87	439.03	536.43	698.42	966.12	1,322.60
of which						
Education	85.88	106.20	146.62	209.61	306.08	406.78
Health & Family Welfare	76.85	89.77	107.90	122.02	174.27	226.60
Water Supply and Sanitation	50.52	64.20	80.03	106.98	154.24	204.68
Others	153.62	178.86	201.88	259.81	331.53	484.53
Economic Services	511.86	583.95	642.01	809.91	1,020.25	1,222.42
Grants-in-Aid	0.00	0.00	0.00	0.00	0.00	0.00
Total Plan Revenue Expenditure	883.62	1,028.08	1,185.28	1,512.83	1,991.65	2,551.04

TABLE 4: Structure of Capital Outlay						
						Rs. Crores
	90/91 Acct.	91/92 Acct.	92/93 Acct.	93/94 Acct.	94/95 Rev. Est.	95/96 udget Est.
General Services	11.39	13.59	19.08	22.97	25.48	30.02
Social Services	17.67	32.53	38.72	52.06	87.91	111.70
of which						
Education	1.72	3.63	5.75	9.06	14.90	7.81
Health & Family Welfare	6.57	5.28	7.12	10.25	12.24	31.56
Water Supply and Sanitation	0.00	0.00	0.00	0.00	0.00	0.00
Others	9.38	23.62	25.84	32.75	60.77	72.34
Economic Services	625.82	739.82	728.83	1,112.83	954.43	1,041.25
Grants-in-Aid	0.00	0.00	0.00	0.00	0.00	0.00
Total Capital Expenditure	654.88	785.94	786.63	1,187.86	1,067.81	1,182.96

TABLE 5: Structure of Health Revenue Expenditures- Plan Expenditure

Rs. Crores

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
MEDICAL	11.22	13.47	16.52	20.44	32.50	36.34
Allopathy	10.34	12.93	16.20	20.10	31.75	35.37
Administration: DME	0.03	0.02	0.01	0.01	0.00	0.01
Administration: ESIS	0.17	0.02	0.04	0.10	0.22	0.39
Medical Colleges: DME	1.44	2.90	2.92	3.54	10.21	10.94
Teaching Institutions: Drug Controller	0.14	0.39	0.12	0.12	0.23	0.26
Training Institutions/ Programmes: DHS	0.00	0.00	0.00	0.00	0.00	0.00
Hospitals Attached to Med. Colleges: DME	2.37	3.08	4.41	7.53	8.18	6.64
Other Hospitals: DHS	4.19	4.97	5.66	5.77	8.68	12.89
Other Hospitals: ESIS	1.99	1.54	3.05	3.04	4.24	4.24
Indian Medical Systems & Homeopathy	0.88	0.54	0.33	0.34	0.75	0.97
Administration	0.12	0.00	0.07	0.00	0.03	0.09
Teaching/ Training Institutions	0.46	0.45	0.22	0.14	0.24	0.31
Hospitals	0.02	0.08	0.04	0.04	0.16	0.19
Dispensaries: ESIS	0.00	0.00	0.00	0.00	0.00	0.00
Primary Health Care	0.28	0.01	0.00	0.15	0.32	0.38
PUBLIC HEALTH	65.59	76.19	91.30	101.54	141.61	190.06
Administration: DHS	0.04	0.11	0.07	0.03	0.16	0.20
Training, Allopathy: DHS	0.06	0.01	0.00	0.00	0.02	0.04
Training, IMS	0.00	0.00	0.00	0.10	0.17	0.00
National & State Programmes: Allopathy, DME	0.94	0.62	0.98	0.75	1.39	1.81
National & State Programmes: Allopathy, DHS	28.60	24.08	32.09	38.70	57.68	77.48
Public Health :IMS	0.81	1.09	3.26	2.58	3.28	4.09
Family Welfare Programme	35.17	50.38	54.98	59.42	79.07	106.65
TOTAL	76.85	89.77	107.90	122.02	174.27	226.60

TABLE 6: Structure of Health Revenue Expenditures- Non-Plan Expenditure

Rs. Crores

	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
MEDICAL	96.23	121.55	140.74	156.24	180.41	196.88
Allopathy	92.01	116.71	134.73	148.97	172.17	187.26
Administration: DME	0.55	0.66	0.85	0.96	1.12	1.20
Administration: ESIS	1.62	3.18	1.91	2.08	2.46	2.64
Medical Colleges: DME	16.62	21.23	29.45	24.00	30.76	32.58
Teaching Institutions: Drug Controller	0.42	0.46	0.50	0.63	0.91	0.97
Training Institutions/ Programmes: DHS	0.36	0.49	0.48	0.56	0.68	0.71
Hospitals Attached to Med. Colleges: DME	38.69	50.51	53.00	66.25	72.91	79.62
Other Hospitals: DHS	22.47	28.46	31.99	36.55	39.10	43.51
Other Hospitals: ESIS	11.27	11.73	16.54	17.95	24.24	26.03
Indian Medical Systems & Homeopathy	4.22	4.84	6.01	7.27	8.24	9.62
Administration	0.19	0.30	0.34	0.47	0.45	0.50
Teaching/ Training Institutions	1.57	1.73	2.56	2.99	3.79	4.76
Hospitals	2.14	2.40	2.65	3.24	3.39	3.67
Dispensaries: ESIS	0.01	0.01	0.03	0.08	0.05	0.07
Primary Health Care	0.31	0.39	0.42	0.48	0.57	0.63
	0.00	0.00	0.00	0.00	0.00	0.00
PUBLIC HEALTH	69.93	84.05	111.91	112.98	132.49	145.37
Administration: DHS	3.53	4.19	4.76	4.81	5.57	6.77
Training, Allopathy: DHS	0.96	1.05	1.26	1.75	1.96	1.60
Training, IMS	0.18	0.19	0.29	0.24	0.34	0.49
National & State Programmes: Allopathy, DME	0.04	0.02	0.02	0.67	0.90	1.19
National & State Programmes: Allopathy, DHS	59.40	72.19	96.92	97.36	114.16	127.28
Public Health :IMS	2.71	2.93	4.57	4.51	5.12	2.89
Family Welfare Programme	3.10	3.48	4.08	3.63	4.43	5.14
TOTAL	166.17	205.60	252.65	269.23	312.90	342.25

TABLE 7: Composition of Revenue Expenditure on Primary, Secondary & Tertiary Care

Rs. Crores

	1993-94			1994-95			1995-96		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
Salaries & Allowances	10.31	28.09	21.24	11.93	33.40	25.29	13.85	37.04	27.43
Travel	0.05	0.11	0.11	0.19	0.14	0.07	1.00	0.14	0.07
Office	1.68	4.62	9.59	0.77	2.54	2.92	0.32	2.67	3.06
Rents	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Elec. & Water	0.00	0.25	0.68	0.00	0.71	2.05	0.00	0.85	2.43
Motor Vehicles	0.40	0.00	0.00	0.82	0.00	0.01	0.67	0.05	0.01
Drugs	14.92	5.87	2.46	7.09	9.38	7.93	7.37	10.28	8.70
Materials	15.26	0.37	0.11	9.60	0.34	0.17	15.56	0.28	0.17
Machinery	4.16	2.67	2.83	2.76	0.92	0.57	4.49	0.97	0.57
Maintenance	0.00	0.05	0.03	0.20	0.05	0.07	0.30	0.29	0.07
Diet	0.04	1.78	2.03	0.20	3.08	2.98	0.21	3.40	3.28
Scholarships & Stipends	0.03	0.16	0.04	0.00	0.03	0.03	0.00	0.03	0.03
Others	0.16	0.09	0.26	0.04	0.00	0.80	0.54	0.00	0.40
Buildings	7.76	0.00	0.00	7.09	0.00	0.00	7.31	0.02	0.00
Lump Sum *	196.64	31.59	23.57	234.08	34.24	28.21	273.83	38.69	27.55
Externally Aided Projects	3.29	0.00	0.00	15.22	0.00	0.34	28.99	2.00	0.58
Total Expenditure	251.42	75.66	62.94	274.77	84.83	71.09	325.45	94.72	73.77

ANNEX 3

DEMAND OF SECONDARY HEALTH CARE BEDS

DEMAND FOR HOSPITAL BEDS IN GOVERNMENT SECTOR

The Directorate of Health and Family Welfare Services has under its control 255 hospitals, CHCs, taluk and district level general hospitals with a total bed strength of 25,376 as per records of the Directorate of Health and Family Welfare Services. The 24 taluk or sub- district level hospitals and the 179 CHCs have a total bed strength of 8,655. The District level and teaching hospitals numbering 42 institutions account for 16,721 or 65.9 percent of beds in CHCs, taluk and district level general hospitals.

The Planning Commission, in the seventh Five Year Plan document, has suggested a norm of one bed per 1,000 population which includes both government as well as private sectors. It has also stipulated that two thirds of the total beds, that is, one bed for 1,500 persons should be provided by the government sector. As compared to this norm of 1,500 persons per bed, there are 1481 persons per bed in the government sector. However, if one looks at the distribution of beds by taluk, it will be observed that in 134 out of 175 taluks the persons per bed exceeds 1,500 and in 90 taluks there are more than 2,500 persons per bed..

The epidemiological approach has been adopted in arriving at the requirement of beds in the government sector. The results of the 42nd Round of National Sample Survey indicate a hospital admission rate of 21.5 per thousand population and an average stay of 15 days. At an average occupancy rate of 80 percent, the total beds in the government and private sectors works out to 1,120 persons per bed. As two thirds of the beds are to be provided by the government sector, the persons per bed should be 1,679 which is close to the norm set by the Planning Commission.

The requirement of beds has been worked out by taluk. In determining the available beds, the beds in PHUs and PHCs and hospitals for infectious diseases, Tuberculosis and other specialty hospitals have been omitted. The PHU and PHC beds have been omitted as they are not staffed to provide 24 hour nursing care and consequently their bed utilization is only 15 percent. The requirement of beds by taluk and the summary by district is presented in Table 1.

The shortage of beds is estimated at 11,831 beds on the basis of average stay in the government hospitals of 15 days based on Assumption 1. However, it is expected that with the various Project interventions the average stay will be brought down to 10 days which is similar to the case of hospitals in the private sector. In this scenario (Assumption 2), the shortage in beds is reduced to 6,084.

It has been decided to leave 52 CHCs located in places other than Taluka headquarters out of the Secondary level Hospital network for the purpose of this Project. These will be treated as first level referral units for providing expanded MCH and FW services.

Table 1: Projected Bed requirement in Government Sector

District	Population in Thousands	Beds Required	Beds Available Assum. 1	Beds Available Assum. 2	Shortfall Assum. 1	Shortfall Assum. 2
Bangalore	4839.2	3207	2875	1922	116	72
Bangalore Rural	1673.3	328	997	665	669	350
Belgaum	3583.6	1101	2134	1423	1429	852
Bellary	1890	1086	1127	751	525	252
Bidar	1255.7	475	748	499	381	197
Bijapur	2927.8	902	1747	1163	1026	579
Chikmagalur	1017.2	658	606	404	166	36
Chitradurga	2076.9	1623	1236	825	492	247
Dakshin Kannad	2797.8	1812	1665	1111	502	226
Dharwad	3503.3	1639	2087	1391	953	452
Gulbarga	2582.2	1117	1537	1025	859	451
Hassan	1569.7	827	933	623	349	157
Kodagu	488.4	1168	291	194	0	0
Kolar	2216.9	946	1320	880	450	163
Mandya	1644.4	446	979	653	575	325
Mysore	3165	2119	1885	1257	886	428
Raichur	2309.9	567	1376	917	865	478
Shimoga	1909.8	935	1138	758	456	242
Tumkur	2305.8	593	1374	916	852	479
Uttar Kannad	1220.1	535	728	485	283	101
Karnataka	44977	22084	26783	17862	11834	6084

* The available beds in CHCs, taluk, district and teaching hospitals have been estimated from actual survey of 66 percent of such hospitals. The actual beds in CHCs are 79.5 percent of beds as per records of the Directorate and 107.5 percent in other hospitals.

Sum of shortfall in beds of taluks having beds less than norm.

The location and utilization of existing bed capacity of the remaining 170 Taluka hospitals were studied. On the basis of need a list of 136 hospitals have been identified for expansion of bed strength and 34 selected for rehabilitation. In all 4,987 beds are being added to the 136 Taluka Hospitals. A detailed survey of each institution is presently underway. The survey may result in identifying an additional few hospitals for expansion.

Of the 46 hospitals located in District Headquarters, 31 are general hospitals and 15 are for specific diseases. It has been decided to expand the district hospitals to a minimum bed strength of 400 beds so that 100 beds could be set apart exclusively for women and children. In all 1684 beds are proposed to be added in fourteen district hospitals.

Most of the fifteen hospitals for specific diseases are in a run down condition and need also extensive rehabilitation.

ANNEX 4

NORMS FOR HEALTH CARE SERVICES

Report of the High Level Review Committee

A High Level Review Committee was constituted to examine the recommendations of the different working groups and finalise the norms for services, equipment, physical space and staffing to be adopted for all hospitals at the secondary level. The committee met on March 30, 1995. The members present were:

1. Mr. Gautam Basu, Secretary, DoHFW
2. Mr. Sanjay Kaul, Additional Secretary, DoHFW
3. Dr. Shivakumar Reddy, Deputy Secretary, Medical Education, DoHFW
4. Dr. M. T. Hema Reddy, Director, Health & Family Welfare Services
5. Dr. S. Kantha, Director, Medical Education
6. Dr. P.N. Halagi, Addl. Director (Projects)
7. Dr. Jayakeerthi, Superintendent, Victoria Hospital
8. Dr. G.V. Vijayalakshmi, Jt. Director (Medical)
9. Dr. D. Timmaiah, Jt. Director, (Projects)
10. Mr. D.V.N. Sarma, Chairman, STEM, Bangalore

The committee scrutinised the recommendations of the various working groups. The main conclusions are summarised below.

1. A note of caution was added to the conditions and procedures recommended by Medical, Surgical and Diagnostic Groups. No case should be refused attention. At each level, all cases should be managed depending upon the urgency, severity and immediacy of illness, stabilised and then referred, if necessary, to the appropriate level.

2. Modifications were made to some of the conditions and procedures recommended by individual groups. These changes have been incorporated in the recommendations of the respective groups.

3. Staffing:

   - One post of R.M.O. has been created at the District Hospital to relieve the District Surgeon of routine hospital duties and enable him to oversee the functioning of other secondary level hospitals in the district. For this purpose the District Surgeon should be provided a vehicle.

- The Indian Nursing Council norm of one staff nurse for every five beds has been accepted.
- The office staff has been reduced since computerisation of patient records, inventory of equipment, drugs and supplies and accounts is contemplated.
- Where feasible, kitchen services should be contracted out.
- Laundry services should be contracted out.
- Cleaning services should be contracted out.
- The number of Group D posts is reduced from one for two beds to one for three beds for hospitals with 50 beds or less and one for four beds for hospitals with 100 or more beds.
- The norms for maintenance staff will be finalised after receipt of report of the recently constituted working group on maintenance.

The staffing norms by category of staff and type of hospital as accepted by the Committee is presented at Annexure 1.

4. Equipment:

The recommendations of the working groups were scrutinised and the approved norms for equipment are presented at Annexure 2.

5. Physical Space:

The norms for physical space in terms of number of rooms and area has been finalised by the Working Groups accordingly to Bureau of Indian Standards (BIS) which is presented at Annexure 3. The BIS norms appear to be on the high side. The area of each room has to be fine tuned on the basis of furniture and equipment to be housed. The functional needs should be paramount in deciding the physical space for each facility. For example, it was felt, it was not necessary to provide attached toilets to each medical specialists.

6. Referral System:

A working group has been set-up to develop the referral system and design the requisite forms.

7. In-service Training:

The working groups have recommended updating of clinical skills of medical and paramedical staff. Training in hospital administration has also been indicated. A working group has been constituted to assess the training needs, design course content and work out the training programme for various categories of staff.

Annexure 1
Staffing Norms for District and Sub-district Hospitals

Category	Grade	Bed Strength			
		30	50	100	>250
1. Surgeon	3170-5300	-	-		1
2. Dy. Civil Surgeon (R.M.O.)	2600-4575	-	1	1	1
3. Assistant Surgeon	2375-4450	4	5	8	21
4. Dental Assistant Surgeon	2375-4450	1	1	1	1
5. Nursing supdt. Grade-I	2150-4200	-	-	-	1
6. Nursing Supdt. Grade-II	1900-3700	-	-	1	5
7.Nursing Tutor	1900-3700	-	-	-	5
8. Staff Nurse	1520-2900	6	10	20	60
..9. Physiotherapist	1520-2900	-	-	1	2
10. Pharmacist Grade I	1400-2675	-	1	1	6
11. Pharmacist Grade II	1280-2450	2	2	2	3
12. Sr. Lab Technician	1400-2675	-	1	1	2
13. Jr. Lab Technician	1280-2375	1	1	1	4
14. Jr. Lab Attendants	870-1520	1	1	1	2
15. Refractionist	1280-2375	1	1	1	1
16. Radiographer	1400-2675	-	-	-	2
17. X-Ray Technician	1280-2375	1	1	2	3
18. Dark Room Assistant	840-1340	1	1	1	1
19. Lay Secretary	1900-3700	1	1	1	1
20. Office Superintendent	1720-3300	-	-	1	2
21. Senior Assistant	1280-2375	1	1	2	2
22. Junior Assistant	1040-1900	1	2	2	3
23. Typist-cum-clerk	1040-1900	1	1	1	2
24. Medical Record Technician	1400-2675	-	-	-	2
25. Electrician	1400-2675	-	-	-	1
26. Carpenter	870-1520	-	-	-	1
27. Plumber	870-1520	-	-	-	1
28. Cook	870-1520	1	1	1	2
29. Helper to Cook	840-1340	2	2	2	4
30. Group D	840-1340	10	15	25	50
38. Driver	1040-1900	1	2	2	4
39. Psychiatrist	3300-5300	-	-	-	1
40. Clinical Pyschologist	2375-4450	-	-	-	1
41. Pyschiatric Social worker	1400-2675	-	-	-	1
42. ECG Technician	1280-2375	-	-	-	1
43. Social Worker (Skin VD)	1400-2675	-	-	-	2

Doctors by Specialization

Category	Bed Strength			
	30	50	100	>250
1. Physician	1	1	1	1
2. General Surgeon	1	1	1	1
3. Gynaecologist	1	1	1	1
4. Dental Surgeon	1	1	1	1
5. General Duty Doctor	1	-	-	-
6. Anaesthetist	-	1	1	1
7. Paediatrician	-	1	1	1
8. Optholomologist	-	1	1	1
9. Orhopedic Surgeon	-	-	1	2
10. ENT Surgeon	-	-	1	1
11. Skin Specialist	-	-	-	1
12. Psychiatrist	-	-	-	1
13. Radologist	-	-	1	1
14. Pathologist	-	-	-	1
15. Forensic Expert	-	-	-	1
16. Doctors to assist	-	-	-	3
Total	5	7	10	23

Annexure 2. Furniture and Equipment Norms

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub-district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
I. Imaging Equipment					
1. 500 mA X-Ray	950	-	-	-	(1)
2. 300 mA X-Ray	800	-	1	1	1
3. 200 mA X-Ray	430	1	1	1	1
4. 60 mA X-Ray (mobile)	150	-		1	1
5. Dental X-Ray	60	-	-	1	1
7. Ultra Sound Scanner (Linear Sector)	700	-	-	1	1
II. Electro Medical Equipment					
1. E.C.G.	17	1	1	1	3
2. Cardiac Monitors	25	-	-	-	3
3. Defibrilators	65	-	-	-	2
4. Audiometers	50	-	-	-	1
5. Baby Incubators	20	-	-	-	2
6. Phototherapy Unit	6	-	-	1	2
7. Endoscope Fibre Optic	200	-	-	-	1
8. Operating Microscopes	65	-	-	-	1
9. Cyro Surgery (Delux)	8	-	-	-	1
10 Foetal Monitor	6	-	-	-	1
11. Short wave Diathermy	20	-	-	1	1
12. Ventilators	75	-	-	-	1+1
13. Boyles Apparatus with flou tech	125	-	-	-	1
14. Boyles Apparatus without flou tech	60	-	-	1	1
15. Opthalmoscope	5	-	-	1	2
16. Slit Lamp	21	-	-	-	1
17. Retino Scope	3	-	-	-	1
18. Perimeter	6	-	-	-	1
19. Emergency Resuscitation Kit	20	1	1	1	2
20. Baby Emergency Resuscitation Kit			1	1	2
21. Delee Mucous Asprator		20	30	60	100
22. Sigmoido Scope	2	-	-	-	1
23. Head Light	1	-	-	1	2
24. Pulse Air Tonometer	5	-	-	-	1
25. AMC Equipment (2 Monitors, 1 Ventilator, 1 Defibrillator,A/C)	250	-	-	-	1
26. Radiant Heater (4 Kw)	6	-	-	-	1
27. Cryo surgery (Basic)	5	-	-	-	1
28. Pulse Oxymeter	100	-	-	-	1
29. Blood Gas Analyser	450	-	-	-	1
III. Pneumatic, Hydraulic & Steriliztion Equipment					
1. Dental Unit	28	1	1	1	1
2. Dental Chair	14	1	1	1	1
3. Air rotor	21	-	-	1	1
4. Operation Table (ordinary)	8	1	1	1	2
5. Operation Table (Hydraulic)	35	-	-	1	4
6. Autoclave HP (Horizontal)	120	1	1	1	2
7. Autoclave HP (Vertical)	30	1	1	1	2
8. Autoclave with Burners 2 bin	6	1	1	-	-

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub-district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
9. Shadowless lamp (mobile)	8	1	1	2	6
10. O.T Lights (Shadowless)	45	1	1	2	6
11. Focussing lights (Mobile) Flurotic	1	1	1	1	1
12. Suction Apparatus (High Vacuum (MTPL)	8	1	1	1	4
13. Suction Apparatus (Electrical)	5	1	2	3	4
14. Foot Suction Apparatus	1	1	2	2	2
15. Vacuum Extractors	2	1	1	2	2
16. Instrument Sterilizer	3	3	5	10	20
17. Diathermy Machine	12	-	-	1	2
18. Gynaec electric cautery	1	1	1	2	4
19. Automist/Dehumidifier	5	1	1	2	3
20. Dental Lab (Bath, Motor, Lathe)	20	-	-	-	1
IV. Laboratory Equipment					
1. Microscopes (Binocular)	9	1	1	2	4
2. Chemical Balances	6	-	-	1	1
3. Simple Balances	1	1	1	1	1
4. Photo electric Calorimeter	8	-	-	1	1
5. Flame Cell Photometer	18	-	-	1	1
6. Spectro Photometer	22	-	-	-	1
7. Auto analyser	40	-	-	-	1
8. Micro Pipettes	5	-	-	-	1
9. Water Bath	3	1	1	1	1
10. Hot Air Oven	8	1	1	2	2
11. Lab. Incubators	8	-	-	1	1
12. Distilled Water stills	3	-	-	1	1
13. Centrifuges	4	1	1	2	3
14. Hot Plates	2	-	-	1	1
15. Rotor/Shaker	2	-	-	-	1
16. Counting Chamber	1	1	1	1	1
17. PH meter	15	-	-	-	1
18. Glucometer	6	1	1	1	1
19. Hemoglobin Meter	1	1	1	2	4
20. Microtom	12	-	-	-	1
21. Oven (Wax embedding)	8	-	-	-	1
22. Tissue Processor	70	-	-	-	1
23. Quick Test Kit for ASLO, Titre, ESR			2	4	10
24. Timer stop watch	0.7	1	1	1	1
25. Alarm clock	0.4	-	-	1	1
V. Refrigerator & A/C					
1. Refrigerators 300 ltrs.	20	1	1	2	4
2. A/C machines with Stabilizer	28	-	1	1	8
3. Water Coolers	15	1	1	1	2
4. Two body mortuary (Cold Storage)	100	-	-	-	2
VI. Hospital Plants					
1. Generator 5 KVA	100	1			
2. Generator 15 KVA	150		1		
3. Generator 50 KVA	200			1	
4. Generator 62.5 KVA	250				2
5. Hot water Systems (Solar unit)	20	1	1	1	3

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub-district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
VI. Hospital Plants Continued					
6.Pirolator	50	-	1	1	-
7. Incinerator 5KW	70	-	-	-	1
VII. Administration					
1. Typewriters	5	1	1	2	4
2. Photocopier	65	-	-	-	1
3. Cyclostyling Machine	20	-	-	1	1
4. Intercoms (15 lines)	80	-	-	1	-
5. Intercoms (40 lines)	200	-	-	-	1
6. Fax Machine	30	-	-	-	1
7. Telephone (External lines)	11	-	1	2	4
8. Library (Facility)	5	-	-	-	1
VIII. Transport					
1. Ambulance	350	1	1	1	2
IX. Surgical Instrument Packs					
1. D.D. & C	1.2	2	2	2	4
2. M.T.P.	1.1	2	2	2	4
3. Cervical Biopsy	0.7	1	1	2	4
4. Evacuation	0.55	1	1	1	2
5. Delivery	1	2	2	4	4
6. P.N.Strilization		-	2	4	4
7. Episotomy	0.7	2	2	4	4
8. Venisection	0.8	2	2	4	4
9. Copper T	0.4	-	-	-	-
10. Caesarean Section	2	-	1	2	4
11. Incision & Drainage	1	2	2	4	4
12. Vaginal Hysterectomy	3	-	-	2	4
13. Abdominal Hysterectomy	5	-	-	2	4
14. Vagotomy	2.5	-	-	1	2
15.Appendectomy	2.5	-	-	1	2
16. Hydrocele	1.2	-	-	1	2
17. G.J.	2.5	-	-	1	2
18. Hemorrhoidectomy	2.7	-	-	1	2
19. Suture Removal	0.4	1	1	2	4
20. Suturing Tray	0.9	1	1	2	4
21. L.P. Tray	0.45	1	2	3	8
22. Cholecystectomy	0.8	-	-	-	2
23. Thyroid	3.0	-	-	-	2
24. Catherization Tray	0.1	1	2	4	8
25. I.M.Nailing	1.0	-	-	1	2
26. S.P. Nailing	1.5	-	-	1	2
27. Dynamic Comression Plating	3.5	-	-	1	2
28. A.M.Prosthesis	1.5	-	-	-	2
29. Dynamic Hip Screw Fixation	10.5	-	-	1	2
30. Fixation of Radius & Ulna	0.25	-	-	1	2
31. Cataract operation	5.8	-	1	2	4
32. Needling & Cataract Evacuation	6.0	-	-	2	4
33. Iridectomy	1	-	-	2	4
34. Iridenclisis	2	-	-	2	4

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub-district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
35. Extra Capsular Operation	2.25	-	-	2	4
36. Chalazon	0.67	-	-	2	4
37. Tarsorraphy	0.86	-	-	2	4
38. Enucleation	1.0	-	1	2	4
39.Probing of Lacrymal Passages	0.2	-	1	2	4
40.D.C.R	0.35	-	-	2	4
41.Lachrymal Sac Extension	0.35	-	-	2	4
42.Trabeculectomy	3.3	-	-	2	4
43.Pterygium Excision	0.86	-	-	2	4
44.Entropion Correction	1.25	-	-	2	4
45.Foreign Body Cornea	0.55	-	-	2	4
46.Foreign Body in A.C.	1.35	-	1	2	4
47.Conjectival Cyst Excision	0.9	-	-	2	4
48.Ear Examination	1.7	-	-	2	4
49.Mastodectomy	10.	-	-	2	4
50.Macro ear Set Myringo, Tympano, Stepedo Plasty	23.0	-	-	2	4
51. Nasal Set SMR Septoplasty Polypectomy	9.8	-	-	2	4
52. D.N.S	7.0	-	-	2	4
53. Rhinoplasty	6.8	-	-	2	4
54. Adeno Tonsillectomy	7.5	-	-	2	4
55. Tracheostomy	0.4	1	1	2	4
56. Endo Laryngea Micro Surgery	16.5	-	-	-	2
57. ENT General	1.6	1	1	2	4
58. General Anesthesia Kit	4.0	-	1	2	4
59. General Orthopaedic Kit	20.0	-	1	2	4
60. Dental Kit	5.0	1	1	2	3
X. Minor Equipment					
1. X-Ray Viewing Box	1.5	1	2	5	10
2. Developing tanks (X-Ray)	0.75	1	1	2	4
3. Safe Light X-Ray Dark Room	0.25	1	1	1	2
4. Cassettes X-Ray	0.40	1	1	2	4
5. Intensifying Screen (various)	2.0	1	1	2	4
6. Lead aprons	2.6	1	1	2	4
7. Lead Protection Screen	7.5	1	1	1	2
8. Chest Stands X-Ray	0.9	1	1	1	2
9. Stethescope		2	2	2	4
10. B.P.Apparatus	0.5	4	6	10	30
11. BP Apparatus 43 size cups, infant, new born child		-	1	2	3
12. Transcutaneous Billirubinometr		-	1	2	3
13. Digital Thermometr		-	1	4	8
14. Weighing machine Adult	0.6	1	2	4	6
15. Weighing Machine Infant	0.6	1	2	4	6
16. Infra-red Lamps	0.4	1	1	2	3
17. Oxygen Cylinders	2.8	9	30	30	60
14. Nitrogen cylinders	2.8	-	4	6	12
18. Regulator & Flowmeter for medical Gas	1.5	1	5	10	20

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub-district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
19. Standing BP Apparatus		-	-	-	4
20. Ambu Bags	0.6	1	2	2	4-2
21. Hot Plate Domestic	1.2	1	2	3	6
21. Emergency Lamp	1.0	1	2	4	10
23. Fire Extinguishers	1.5	2	4	6	8
24. Laryngoscope	0.6	1	1	2	6
25. Baby Laryngoscope with 3 size blades		-	1	2	4
26. Otoscope	0.4	1	1	2	4
27. Universal Bone drill	1.2	-	-	1	2
XI. Furniture & Other Equipment					
1. Examination Table	1.4	4	6	10	20
2. Delivery Table	1.25	1	2	3	4
3. Foot steps	0.6	4	6	10	20
4. Bedside Screen	0.5	4	6	10	20
5. Revolving Stool	0.25	4	6	10	20
6. Arm Board Adult & Child	0.2	4	6	10	20
7. Saline stand	0.85	4	10	20	40
8. Wheel Chair	1.5	1	2	3	10
9. Emergency Recovery Trolley	5.5	-	1	2	4
10. Stretcher on Trolley	2.9	1	2	3	6
11. Oxygen Trolley	0.3	2	4	6	10
12. Height Measuring stand	0.6	1	1	2	4
13. Fowler Bed	5.2	-	-	4	8
14. Iron Cot	1.25	30	50	100	X
15. Baby Cot	1.8	-	2	10	20
16. Bedside Locker	1.25	30	50	100	X
17. Dressing trolley	1.65	1	2	4	8
18. Mayo's Trolley	0.9	1	2	4	8
19. Instrument Cabinet	4.25	1	2	4	10
20. Instrument Trolley	1.6	1	1	2	4
21. Linen Trolley	1.1	-	1	1	4
22. Kick Bucket	0.55	5	10	20	40
23. Attendant Stool	0.25	30	50	100	X
24. Traction System	0.5	-	-	2	4
25. Postmortem Table	4.0	-	1	1	2
26. Wash Basin	0.4	6	10	20	50
27. Instrument Tray	0.5	4	6	15	30
28. Chairs	0.45	15	30	50	100
29. Wooden Tables	1.6	10	20	30	50
30. Steel Cupboard	2.0	4	10	15	50
31. Swab Rack (OT)	0.8	1	2	2	4
32. Fracture Table	6.6	-	-	1	2
33. Blood Donor Table Wooden	4.0	-	-	1	2
34. Mattress	1.2	40	60	120	1.1*X
35. Pillows	0.1	40	60	120	1.1*X
36. Wooden Benches	2.5	8	12	20	40
37. Patella Hammer	0.1	1	2	3	10
38. Tongue Depressor	0.03	5	10	15	30
39. Oxygen Mask	0.13	2	4	6	10

Equipment	Unit Price Rs. 000s	Community Hospitals		Sub-district Hospitals	District Hospitals
Bed Strength		30	50	100	X>250
40. Torch Light	0.05	4	6	10	20
41. Medicine Cabinet	2.0	2	2	4	10
42. Side Rails	0.3	2	2	4	8
43. Bucket Galvanized	0.12	5	10	20	100
44. Bed Pans & Urinals	0.15	6	10	20	50
45. Bowls	0.10	6	10	20	50
46. Kidney Tray	0.08	6	10	20	50
47. Racks	0.25	4	10	20	40
48 Patient's Attendant Cots	1.0	-	-	10	20
49. Wooden Benches		10	15	30	60
50. Bedside Attendants Chair		5	10	20	50
51. Baby Mask Various Sizes			2	4	6
52. Pleural Aspiratio Set B-Way			3	6	10
53. Exchange Transfusion Set			-	3	6
54. Nebulizer			1	2	4

Annexure 3

Working Groups' Recommendations for Space

	Community		Sub-district		District	
	30/50 Beds		100 Beds		250 Beds	
	Rooms	Area	Rooms	Area	Rooms	Area
	No.	Sq.m.	No.	Sq.m.	No.	Sq.m.
OPD						
1. Entrance Hall (with Counters for enquiry, cash and records)	1	28.0	1	56.0	1	98.0
2. OPD Medical Record Room	1	14.0	1	28.0	1	35.0
3. Lavatories	2	17.5	2	28.0	4	70.0
4.1 (a) Consultation Rooms: Medical	1	17.5	1	17.5	1	17.5
4.1 (b) ECG Room	-	-	-	-	1	14.0
4.2 (a) Consultation Rooms: Surgical	1	17.5	1	17.5	1	17.5
4.2 (b) Treatment and Dressing /Minor Surgery	1	10.5	1	10.5	1	14.0
4.3 (a) Consultation Rooms: Gynaecology & Obstetrics	1	17.5	1	17.5	1	17.5
4.3 (b) Endoscopy Room with Toilets	-	-	-	-	1	20.0
4.4 (a) Consultation Rooms: Dental	1	17.5	1	17.5	1	17.5
4.4 (b) Dental Hygienist	-	-	-	-	1	14.0
4.4 (c) Dental Workshop	-	-	-	-	1	17.5
4.5 (a) Consultation Rooms: Paediatrics	-	-	1	17.5	1	17.5
4.5 (b) Treatment & Dispensing	-	-	-	-	1	14.0
4.5 (c) Immunization	-	-	1	14.0	1	17.5
4.6 (a) Consultation & Examination Eye Clinic	-	-	1	17.5	1	28.0
4.7 (a) Consultation & Examination: ENT	-	-	1	17.5	1	17.5
4.7 (b) Audiometric Room	-	-	-	-	1	14.0
4.8 (a) Consultation Rooms: Orthopaedic Clinic	-	-	1	17.5	1	17.5
4.9 (a) Consultation Rooms: Skin & STD	-	-	-	-	1	17.5
4.9 (b) Treatment Room	-	-	-	-	1	17.5
4.9 (a) Consultation Rooms: Psychiatry	-	-	-	-	1	17.5
4.9 (b) Social Worker	-	-	-	-	1	8.5
5. Waiting Rooms	2	14.0	3	21.0	4	28.0
6. Central Injection Room	1	9.0	1	9.0	1	14.0
7. Physiotherapy: Hall & Treatment	-	-	-	-	1	55.8
8. (a) Pathology: reception, Sample collection, waiting area	1	21.0	1	28.0	1	35.0
8. (b) Specimen disposal and sluice room	1	9.0	1	13.0	1	15.0
8. (c) Laboratory & Autoclave room	1	12.0	1	15.0	1	20.0
9. (a) Pharmacy	1	17.5	1	17.5	1	17.5
9. (b) Pharmacy Store	1	14.0	1	28.0	1	42.0
Rdiology / Radio Theraphy						
10. (a) Radiology Reception Counter	-	-	1	10.5	1	14.0
10. (b) Radiography	1	17.5	1	17.5	2	17.5
10. (b) Film Developing & Processing	1	4.5	1	4.5	1	4.5
10. (c) Contrast Study	-	-	-	-	1	4.5
10. (d) Store	1	4.5	1	4.5	1	4.5
10. (e) Radiologist Room	-	-	-	-	1	10.5
10 (f) Technician's Room	1	7.0	1	7.0	1	10.5
10. (g) Trolley bay	-	-	-	-	1	4.5

	30/50 Beds		100 Beds		250 Beds	
	Rooms	Area	Rooms	Area	Rooms	Area
	No.	Sq.m.	No.	Sq.m.	No.	Sq.m.
10. (h) Switch room	-	-	-	-	1	4.5
10. (i) Janitors room	-	-	-	-	1	2.3
11. (a) Radio Therapy: Cobalt Theraphy					1	46.5
11. (b) Radiotherapist's room					1	15.0
11. (c) Physicist room with lab			1	10.5	1	22.5
11. (d) Mould room					1	15.0
11. (e) Simulator Room					1	35.0
11. (f) Treatment Planning System					1	9.0
11. (g). CT Scan					1	21.0
11. (h) Ultra Sound room			1	10.5	1	10.5
Labour/OT						
16. Preparation Room with Toilet			1	10.5	1	14.0
17. (a) Labour Room: Clean	1	21.0	1	28.0	1	42.0
17. (b) Labour Room: Septic			1	15.0	1	21.0
17. (c) Labour Room: Eclempsia	-	-	-	-	1	14.0
17 (d) Baby Reception & Resusciation Area	1	7.0	1	10.5	1	10.5
18. OT Major	i	35.0	2	35.0	3	35.0
19. OT Minor	1	28.0	1	28.0	2	28.0
20. (a) Changing Room with Toilet: Doctors (M &F)	2	10.5	2	10.5	2	10.5
20. (b) Changing Room with Toilet: Other Staff (M &F)	2	10.5	2	10.5	2	10.5
21. Sterilization	1	10.5	1	10.5	2	10.5
22. Gas Cylinder Storage	1	10.5	1	10.5	1	10.5
23. Scrub Area	1	7.0	1	7.0	2	10.5
24. Recovery Room	1	14.0	1	21.0	2	28.0
25. (a) ICU (5 Beds)	-	-	-	-	1	52.5
25. (b) Nursing station					1	10.5
25. (c) Sluice Room					1	7.0
Wards						
26. Duty Doctors Room	-	-	1	17.5	2	17.4
27. Nurses Station	2	17.5	4	17.5	8	17.5
28. Wards (each with 12 beds and Toilet Block)	4	120.0	8	120.0	20	120.0
29. Special Ward	2	14.0	4	14.0	10	14.0
30. Treatment Room	4	10.5	8	10.5	20	10.5
31. Ward Store	4	10.5	8	10.5	20	10.5
Administration						
32. Medical Suerintendent	1	17.5	1	17.5	1	17.5
33. Nusring Superindent	1	10.5	1	10.5	1	10.5
34. Admin Officer	1	10.5	1	10.5	1	10.5
35. Staff	1	31.5	1	42	1	73.5
Hospital Services						
36. Central Sterilization						
36. (a) Washing & Cleaning	1	21.0	1	28.0	2	21.0
36. (b) Autoclave	1	14.0	1	17.5	1	21.0
36. (c) Sterile Store	1	14.0	1	17.5	1	28.0
37. Dietary Service						
37. (a) Cooking area	1	28.0	1	35.0	1	56
37. (b) Store	1	10.5	1	10.5	1	10.5

	30/50 Beds		100 Beds		250 Beds	
	Rooms	Area	Rooms	Area	Rooms	Area
	No.	Sq.m.	No.	Sq.m.	No.	Sq.m.
38. Laundry						
38. (a) Dirty clothes receiving	1	10.5	1	14.0	1	21.0
38. (b) Clean Clothes Storage Area	1	10.5	1	14.0	1	21.0
39. General Store	1	21.0	1	35.0	1	60.0
Mortuary						
40. (a) Walk in Cooler	-	-	-	-	1	14.0
40. (b) Postmortem Area	1	14.0	1	17.5	1	21.0
40. (c) Doctors Office	-	-	-	-	1	17.5
Total Area Sq.m.		1338		2379		5393
Casualty (Optional at 30/50 bed hospitals)						
Examination and Treatment Cubicles	1	10.5	2	10.5	4	10.5
X- Ray Room with Dark Room	1	21.0	1	28.0	1	35.0
Operation Theatre	1	21.0	1	21.0	1	35.0
Instrument Sterilixzation	1	7.0	1	7.0	1	10.5
Scrub up	1	7.0	1	7.0	1	10.5
Dirty Wash	1	7.0	1	7.0	1	10.5
Resusciation Room	1	21.0	1	35.0	1	63.0
Nursing Station with Store	1	7.0	1	10.5	1	10.5
Nurses Retiring Room	1	10.5	1	10.5	1	14.0
Duty Doctors Room	1	10.5	1	10.5	1	14.0
Total Casualty Area Sq.m.		112		147		231

ANNEX 5

SCOPE FOR COST SHARING IMPROVEMENT

STRENGTHENING OF SUSTAINABILITY OF HEALTH CARE SERVICES

1. CURRENT STATUS OF USER CHARGES

The Government of Karnataka has a system of levying charges for diagnostic services, treatment and usage of wards in the hospitals managed by it. The last revision of these user charges was made in 1988 by order No: HFW 126 SMM 86 dated March 10, 1988.

There are other types of charges levied e.g. certificates for physical fitness, wounds etc. Fifty percent of the charges collected are retained by the government and the balance given to the doctor issuing the certificate. Charges for the issuance of such certificates were fixed last in 1946 and have not been revised to date

The user charges are to be collected and remitted to the treasury. Neither the hospital collecting the charge nor the Department of Health has access to the user charges collected. As a consequence, there is no incentive to collect user charges. The average collections of user charges per year during 1990-93, amounted to Rs. 107 million. Approximately 40 percent or Rs. 41 million is on account of issuance of certificates and the balance amount of Rs. 66 million on account of ward charges and charges for surgery and investigations. In 1992-93 the collection accounted for 3 percent of the expenditure of the health department.

No charge is levied on outpatients. The registration charges which used to be levied earlier have been discontinued.

Inpatients with annual family income of below Rs. 8,001 are exempted from paying charges for any service as they are considered to be economically weaker sections. The patients with family income of over Rs. 8,000 and admitted in general wards are charged a nominal amount of Rs. 2 per day. There are charges for special wards, graded according to the number of beds in such special wards, the maximum charge being Rs. 30 per day for a single bed in special ward with basic diet included.

A schedule of rates exist, specifying fees for different services. Those admitted in special wards irrespective of income and those with family income of over Rs. 20,000 admitted in general wards have to pay the full charge as listed. Those admitted in general wards and with family income of Rs. 8,001 to 20,000 per annum have to pay 50 percent of the charges while those with income below are exempted from all charges.

The charges for issuance of certificates are low, when one considers the present day cost of living. For example, the charge for issuing certificate for physical fitness is Rs. 5. There is justification for substantial revision of these charges. Increasing the charges especially for wound certificates does not affect the economically weaker sections since the certificates are collected by the police without paying any charge when a complaint is lodged by them with the police.

2. OBJECTIVE OF STRENGTHENING OF SUSTAINABILITY

The appropriateness of adopting user charge principles and imposing user fees depends on the type of service provided. Hospital services are mostly patient related curative services. There is a scope to levy fees or charges on curative services provided a mechanism exists to adjust fees depending on the patients ability to pay. Studies have shown that imposition of user fees accompanied by improvement in quality can lead to increased utilisation because of the switching effect i.e.—shift from private providers to Government facilities. However, the additional revenues generated by levy of user fees may not be adequate to cover fully the expenditure in improving quality through better facilities in terms of equipment and drugs.

The argument for levy of user fee is based on efficiency. If no user fee is imposed there will be an "excess demand" for services especially hospital beds. Government hospitals are crowded and often the resourceful but the undeserving people get free access, whereas the poor have to incur " transaction costs" to get treatment or a hospital bed. Graded cost recovery from the non-poor is expected to restrict demand for beds thereby releasing beds for the poor. Thus, user fee may be a step in restoring equity; the poor may benefit proportionately more than the non-poor.

Prescription or user fees may only slightly affect the demand negatively for health services because demand for inpatient and outpatient care is highly inelastic. However, consumers will be more responsive to the quality of care, time costs and the relative prices of alternative types of care givers. Prescription or user fee will augment resources for the health sector and should, therefore, lead to improvements in supply both in qualitative and quantitative terms. Sustainability would also be promoted to a large extent because the revenue realised would finance a portion of the operational costs thereby relieving the budgetary constraint. Cost recovery would result in improvements in the quality of care if the resources generated internally by a hospital are ploughed back for improving the availability of drugs and equipment in that hospital.

To ensure a long term development of the health care delivery system it will be more and more important to strengthen the cost sharing in the public health sector. The main objectives are:

- Generate additional revenues for improving the quality of care at secondary level facilities and at primary level facilities.

- Encourage patients to use preventive and primary level facilities which will continue to provide services free.

- To force people to become more responsible for their own health care by sharing the cost of curative services.

3. STRATEGIES TO IMPROVE COST SHARING

3.1 Raising Revenue through User Charges

The ethical and social question really is: should the government provide medical services free of charge to everyone or only to the poor? It may appear rational to expect the government to provide only for the poor but this also has a disadvantage. Typically, targeting has its own share of practical and administrative difficulties. Apart from incurring high administrative costs, several schemes designed for the poor have left out significant proportions of the poor and perhaps some undeserving ones have got included. Exclusion of the wealthy and middle income groups can also lead to erosion of political support for the package and therefore, lead to decreased funding. It is therefore to be recognised that imposition of user charges has to be approached with a great deal of care and caution.

The National Sample Survey data shows that 56 percent of the patients from rural areas and 46 percent from urban areas admitted to general free wards in government hospitals, are from middle and upper classes. Either the better off patients are understating their income to get free services and/or there are not adequate special and paying general wards in government hospitals. Currently, the government policies do not encourage spending government resources in creating special wards.

A two-day workshop of District Surgeons and Specialists working in Secondary Level Hospitals was organised in May 1994. The workshop recommended, among other things, that in order to raise additional resources through user charges, at least one third of the beds in government run hospitals should be converted over time into fee paying general and special wards. Admission to general free wards might be restricted to those who are poor to prevent the non-poor from enjoying free services. As a step towards this, one third of the proposed increase of 3500 beds in district, sub-district, and Taluka hospitals will be planned as special wards. The special wards then will account for 20 percent of total beds in these hospitals. A moderate charge of Rs. 50 per day may be levied to recover a major part of the current average cost excluding staff salary, of servicing a bed per day, which is estimated at Rs 70. Some of the beds in special wards could be reserved for the public sector, private sector and co-operative institutions located in the district against a fixed annual payment so that availability of special ward to their employees is assured. An attempt will be made to obtain administrative and political clearance for this from the Government of Karnataka.

A nominal registration fee say of Rs. 2 for each outpatient and Rs 5 for inpatients could be introduced. The schedule of charges should be reviewed and should be related to cost of such charges. Waiving of charges should be on criteria other than income as declared by the patient, to prevent undue advantage taken by the non-poor.

There is also a potential for raising resources through a scheme of pre-paid health care plans through organisations or co-operatives which supply inputs for agriculture and dairy and also undertake collection, processing and marketing of produce. Workers in the organised sector could also be covered. The hospitals could also offer health insurance policies.

The fees for issuance of certificates need to be enhanced substantially. The charge for issuing physical fitness certificate should be raised from Rs. 5 to Rs. 100 and similar increases could be effected for other certificates.

The receipts from certificates can go up from Rs. 40 million to 800 million if the suggested charges are implemented. Creation of 3600 beds in special wards of sub-district hospitals and charging Rs. 50 per day would yield over Rs. 50 million at 80 percent bed occupancy. Introduction of registration charges as indicated is expected to yield nearly Rs. 20 million at the current level of outpatients and inpatients treated in government hospitals.

It is proposed to engage a consultant to assess the present arrangement, review the existing pattern of user charges throughout the State and suggest to Government a revised schedule consistent with the present needs.

3.2 Strengthening of Reporting and Monitoring System

With the revision of the fee structure an extensive programme will be developed with the aim to implement the necessary collection, accounting, reporting and monitoring system. As basis for decision making in DHFW a comprehensive survey in the Gulbarga Division will be conducted with emphasis on the following:

- Survey to assess the ability of patients to pay for services provided in public hospitals and the scale of fees.
- Perception of patients on the introduction of fees for medical services in return for quality patient care.
- Assessment of teaching and autonomous institutions in the area of cost sharing with special emphasis on the adaptability of the existing system to government hospitals.
- Assessment of patient fees and quality of services provided by private hospitals.

Based on the survey, the relevant documentation for strengthening of cost sharing will be developed. For each hospital, a manual for cost sharing will be developed which will provide the terms and references whereby all necessary information on fee collection will be provided and this will include the following:

- A guideline on charges for certificate, registration, consultation, diagnostic procedures,ward charges, operation, medication etc.
- Waivers and exemptions on charges for different categories of the population.
- Strict accounting procedures and documentation for every level of the health care delivery system.
- Reporting structures

Based on the information contained in the manual which will be made available to all districts, a training workshop will be held to inform and train the respective staff in the hospital on the procedures set out in the manual and how to implement the system in an equitable manner.

Parallel to the above manual, a monitoring system will be developed with the following aim:

- Identification of indicators per hospital by category and district
- Revenues generated per facility
- Assessement of how income generated is being spent in the district (Development fund)
- Impact on quality of care
- Impact on patients
- Impact on services

The monitoring and evaluation programme shall ensure a balanced approach to cost sharing measurements.

3.3 Autonomous Institutions

The State has four Super Speciality institutions which provide high quality care, located in Bangalore. These institutions are:

1. Kidwai Memorial Institute of Oncology
2. Jayadeva Institute of Cardiology
3. The Indira Gandi Institute of Child Health
4. The Sanjay Gandhi Accident and Rehabilitation Institute

These institutions have been "autonomous" and are not bound by Govt. regulations. They are managed by a Governing Body, which includes experts, the Secretaries of Finance and Health besides the Health Minister and the Minister of Medical Education. The Chief Minister heads the Governing Council.

It is significant to note that apart from a nominal grant-in-aid towards salaries and some miscellaneous expenses received from the State Govt, these institutions have been structured to raise resources through user charges. The Kidwai and Jayadeva Institutions have been quite successful in levying user charges both for diagnostic as well as inpatient services.

This kind of restructuring will enable the State Govt. to devote greater attention and resources to primary and secondary level health care. The entire revenue realised by the autonomous institutions through "user charges" is retained by them and used for the upkeep and maintenance of the facilities.

4. DEVELOPMENT FUND

Introduction of measures to augment resources will not automatically raise the level of infrastructural work unless the concerned institution is in a position to reinvest a substantial portion on the hospital. Ideally, each secondary and tertiary level hospital should establish a "Development Fund" and open a Bank account where the collections from user charges would be remitted.

All hospitals should also be entitled to receive donations from philanthropic organisations and individuals, undertakings in the private and public sector etc. and credit to its "Development Fund". The money can then be used for undertaking civil works, purchase of equipment, drugs, hospital supplies, etc.

However, it may not be practicable for each hospital to open a bank account. It is therefore proposed to create a State Level Hospital Fund. All amounts realised as receipts from patients and other fees collected would be accounted for in this fund. Based on the remittances, Health & Family Welfare Department would release, on a quarterly basis, the estimated collections during the quarter as an additional amount to its own departmental budget.

Health and Family Department will set up at the District level, a District Hospital Development Committee with the Deputy Commissioner as its Chairman. The Development Committee will be permitted to open a bank account. This committee would be entitled to receive donations from philanthropists individuals, public sector etc., and credit such donations to its bank account. Every quarter based on the amounts released from the State Level Fund, the Health and Family Welfare Department will release money to the District Hospital Development Committees in the form of grant-in-aid, based on user charges collected.

The District Committee will comprise the following members.

1. Deputy Commissioner of the District	-	Chairman.
2. Chief Executive officer, Zilla Panchayat	-	Member.
3. District Surgeon	-	Member.
4. District Health & F.W. Officer	-	Member.
5. Executive Engineer, P.W.D	-	Member.
6. Concerned Executive Engineer, Z.P	-	Member.
7. Concerned Superintendent of the Hospital	-	Member.

The amount received by the Development Committee both through donations and through grant-in-aid will be used for undertaking civil works, purchase of materials, drugs, hospital supplies etc., in respect of hospitals based on collections made and the needs of each institution.

5. PROJECT SCOPE

The project component in terms of improvement of cost sharing will apply for the whole state of Karnataka. Cost for strengthening and developing cost sharing is estimated as follows:

	in IR
Local consultant fees for development of cost sharing	2,500,000
Training workshops including allowance and travel expenses for trainees	1,500,000
TOTAL	4,000,000

ANNEX 6

CONTRIBUTION BY THE GOVERNMENT OF KARNATAKA

CONTRIBUTION BY THE GOVERNMENT OF KARNATAKA

The physical upgrading of the hospital facilities by the Government of Karnataka will improve and expand the operational facilities such as staffing, increasing the budget allocation and to implement the structure to maintain the facilities. All renovated facilities will be sanctioned in accordance with the High Level Review Committee recommendation related to staffing and services provided.

In the first phase of the project, 30 facilities will be upgraded and an additional 800 beds will be added, whereby some hospital facilities will be completed before the end of the project. In the third year 200 beds will be available and in the fourth year a further 200 beds. For the 600 beds, an additional recurring cost will be provided. The following summarizes the contribution of the Government:

- ***Salary of Hospital Staff***

The salary cost for each additional hospital bed per year is IR 60.000. The government will provide for two years of the project period the respective salary.

IR 60.000 X 600 beds	IR 36,000,000

- ***Salary of Maintenance Staff***

The maintenance staff for the four workshops will be approximately 50 persons based on a average salary of IR 50.000 per year. The workshops will operate for two years.

50 X 50.000 x 2 years	IR 5,000,000

- ***Drugs and Chemicals***

The Working Committee for Drugs and Supplies has examined the present provision for Drugs and Chemicals and found it to be inadequate. Instead of allocating the budget on the basis of the population of the catchment area as is done at present it has been recommended that provision be made in the budget on the basis of beds at the following rates:

HOSPITAL TYPE AND BED STRENGTH OF HOSPITAL	AMOUNT PER BED AND YEAR (IR)
	Proposed
CHC 30 Beds	7,500
Gen. Hosp. 50 Beds	9,000
Gen. Hosp. 100 Beds	10,500
Gen. Hosp. ≥250	12,000

The project comprises mainly 50 bed or 100 bed hospitals therefore the amount for each new bed is assumed at IR 8,000.

IR 10,000 X 600 beds	IR 6,000,000

- *Diet and other Expenses*

For diet and other expenses the amount required for each new hospital bed will be approximately IR 7,000.

IR 7,000 X 600 beds	IR 4,200,000

- *Maintenance*

The provision for maintenance of secondary health care facilities has been very limited and was far below the requirement. The Government of Karnataka will therefore implement allocation for maintenance per year based on hospital category as shown in the table below.

TYPE OF HOSPITAL	PROVISION PER HOSPITAL PER YEAR IN IR.
30 bed Hospital	135,000
50 bed Hospital	225,000
100 bed Hospital	450,000
District Hospital	2,025,000

The project comprises mainly 50 bed or 100 bed hospitals. Therefore, the amount for each renovated or upgraded hospital is assumed at IR 350,000.

IR 350,000 X 30 facilities	IR 10,500,000

- *Project Management*

The contribution for project management (e.g. manpower, salary, travel expenses) is estimated at IR 2,000,000 per year which amounts to IR 8,000,000 for the project period.

- *Summary of Contribution by Government*

The total amount contributed by the Government amounts to IR 70.0 million. The various items are listed below.

	in IR
Salary of hospital staff	36,000,000
Salary of maintenance staff	5,000,000
Drugs and chemicals	6,000,000
Diet and other expense	4,200,000
Maintenance	10,500,000
Project management	8,000,000
TOTAL	69,700,000

The above mentioned contribution does not include additional recurrent cost for staffing in facilities which will be renovated. Most of the renovated facilities will also be provided with additional staffing and higher allocation for drugs.

ANNEX 7

SCOPE FOR IMPROVEMENT ON MAINTENANCE

1. INTRODUCTION

In recent years, the Government of Karnataka has invested in the development of health care facilities at the primary and secondary health care level. The renovation period for major repairs of building and equipment is very short because there is no proper maintenance. The lack of maintenance is because of an insufficient maintenance budget, lack of facilities and manpower. Execution of maintenance work is also hampered by bureaucratic procedures organisation wide. Presently only district hospitals have a budget for maintenance and all other maintenance requests have to follow a complicated and bureaucratic way to get the approval and execution for any maintenance work. The improvement on the maintenance work will not only be pending on the funds, facilities and manpower but will also require an improvement on the procedures in making the funds available

2. OBJECTIVE

With the implementation of the upgrading of secondary health care facilities by the KfW project and the World Bank project, the whole state of Karnataka will be covered and both projects intend to improve the maintenance capabilities for the public sector. Financed by the World Bank project, the implementation of training facilities in Bangalore for biomedical engineering is foreseen. Besides the establishment of training facilities, maintenance facilities at division level will be established.

The KfW project will be similar to the World Bank project and is to establish maintenance facilities at division level. The aim is as follows:-

- To install, commission, maintain and service medical equipment for diagnostic, monitoring, analysis and therapy.
- To maintain and service heating, ventilation and air conditioning systems and power systems.
- Provide expert technical services/advice on the purchase of equipment, spares and service contracts
- Organize training for technicians and users
- Modify existing equipment if required
- Maintain records for administration and management of decision making processes
- To establish and monitor external maintenance contracts

3. REQUIREMENTS

To achieve the above mentioned objective the establishment of workshop facilities in each of the district hospitals in Gulbarga, Bellary, Raichur and Bidar is proposed whereby the district hospital workshop will also provide maintenance to the other hospitals within the district. At a later stage the DHFW can expand the maintenance facilities to Taluka level hospitals.

3.1 Organizational Requirements

The district hospital workshop will be provided with a budget for the district hospital and also for the other hospitals. All maintenance and repair work for medical equipment and engineering works will be executed and decided at district level. The limit for a single repair work will be Rs 20,000 for the District Hospital, Rs 10,000 for the Taluka Hospital (General Hospital) and Rs 5,000 for the Community Health Centre. Above this limit, approval from the DHFW will be required.

The workshop will administrate the maintenance work for all respective facilities and prepare the annual budget and will propose external maintenance contracts.

3.2 Manpower requirement

The maintenance concept is designed for repair work of medical equipment and electrical and mechanical works in the hospital. The staffing for the hospital workshop will take charge for all hospitals in their respective district. It is foreseen that the teaching hospitals will be provided with more staff at the standard district hospitals. In the following table the respective staff for teaching and district hospitals is indicated:

STAFF CATEGORY	TEACHING HOSPITAL	DISTRICT HOSPITAL
Head Maintenance Unit	1 Biomedical engineer "C"	1 Biomedical engineer "B"
Department head	2 Biomedical engineers "B"	1 Biomedical engineer "A"
Technical staff	2 Biomedical technicians 2 Electronic technicians 1 Electrical technician 2 General technicians 1 Mechanical technician	1 Biomedical technician 1 Electronic technician 1 Electrical technician 1 General technician 1 Mechanical technician
Administration staff	1 Office superintendent 1 Typist/Computer operator 1 Clerk	1 Office superintendent 1 Typist/Computer operator 1 Clerk
TOTAL STAFF	14	10

Within the Gulbarga Division the hospitals in Bellary and Gulbarga are teaching facilities and the GH in Raichur and Bidar are confined as district hospitals. The total number of staff required for the Gulbarga Division will be 48.

3.3 Facility Requirement

The requirement of facilities are related to building (civil works and engineering services) and equipment for the new workshops.

- *Building*

The teaching hospital in Gulbarga will require a workshop building with approximately 200 sqm including workshop area, stores and space for the administration. The district hospitals will require 150 sqm for the same function. The principle functional layout is enclosed in ANNEX 7.1. The final design will be prepared by architects appointed by the Project Management Team.

- *Equipment*

The workshop will be fully equipped with workshop equipment and furniture in accordance with the function. The respective equipment is shown in the Table below

The final specification of the required equipment will be prepared in the initial project phase after the basic design of the workshop has been developed.

EQUIPMENT CATEGORY	TEACHING HOSPITAL	DISTRICT HOSPITAL
Digital storage oscilloscope (100 MHz)	yes	yes
Dual channel oscilloscope (100 MHz)	yes	yes
Dual channel oscilloscope (20 MHz)	yes	yes
Regulated power supply	yes	yes
Signal generator	yes	yes
Leakage test set-up	yes	yes
Digital multimeter	yes	yes
Analog multimeter	yes	yes
Diathermy calibration set up	yes	no
Temperature controlled station	yes	yes
Electronic tool kit	yes	yes
Electrical tool kit	yes	yes
Foreman tool kit	yes	yes
Work bench	yes	yes
Insulation tester	yes	yes
Drill	yes	yes
Vise	yes	yes
Grinder	yes	yes
Storage equipment	yes	yes
Office furniture	yes	yes
Computer and office equipment	yes	yes

- *Vehicle*

To serve all main hospitals within the district, the district maintenance unit will be provided with a jeep and basic repair tools. The vehicle will be used to organize the maintenance services of the hospital outside of the district hospital.

4. SCOPE OF THE WORKSHOP

The main scope of the workshop will be to maintain and service the medical equipment for patient monitoring, X-ray and laboratory equipment, diagnostic and OT-equipment. The second group of equipment is related to refrigeration sterilization, laundry and kitchen. The workshop team will also be responsible for engineering facilities for power supply, standby power supply, air-condition, water supply and disposal. The overview of in-house maintenance and services which shall be provided from external sources is enclosed in ANNEX 7.2.

The maintenance unit shall have a role in commissioning of new equipment, preparation on specification, evaluation of equipment functions, ordering of spare parts and development of maintenance budget and policy.

The unit shall be responsible for the establishment of external maintenance contracts and supervise the execution of such contracts. Repair work required from external sources shall be approved, guided and controlled by the maintenance unit.

The administrative duties shall include upkeeping of the equipment records from the purchase up to the disposal of the equipment, recording of all maintenance work executed and collect data on the respective repair-work and spending for each of the hospitals. Equipment audit, performance reports, standard proforma shall be prepared and circulated.

Training for biomedical engineering will be established in Bangalore which will be financed by the World Bank. Special equipment related training for technicians will be set up at the teaching hospital workshop. This workshop will also organize equipment related user training. ANNEX 7.3 describes the staff category which shall be trained on certain equipment.

5. PROCEDURES FOR MAINTENANCE AND REPAIR

With the set up of the maintenance facilities, the unit shall organize an inventory of all medical equipment and installation for all relevant hospitals. All new equipment provided by the project shall be registered with the maintenance unit. The unit shall produce a card or form for each of the equipment. For all new equipment, a complete history shall be maintained.

Requisition forms for repair should be available at all hospitals. At the time of failure or apparent damage, a request shall be made to the maintenance unit and the repair staff will repair and if it is not possible in their capacity, the relevant external agencies shall be organized. If the repair amount exceeds certain cost levels then approval should be obtained.

Equipment record card shall form the key reference to all service functions. The unit will establish and maintain required service and repair documents. For all service and repair work, a record shall be established which indicates for each procedure time spent, spare part and material used.

A computerized maintenance information system shall be implemented in each of the workshops and will be pending on the overall concept which will be finally implemented in all respective hospitals in Karnataka.

6. BUDGET REQUIREMENT FOR MAINTENANCE

Besides the cost for the operation of the workshop which will be mainly staff salary (the total operational cost for each workshop will be approximately Rs 500,000 per year)

It will be necessary to allocate an amount for maintenance. As an indication it can be assumed that the amount required for each hospital bed per year is approximately Rs 5,000 (assuming the investment cost per hospital bed is Rs 250,000 and the maintenance amount per year is 2%). For CHC this amount will be less and for general hospitals and district hospitals it may be above Rs 5,000. On average each district operates about 2,000 hospital beds which means that for each district Rs 10.0 million maintenance budget is to be allocated. From the budget 80% shall be dedicated to the district level and only 20% of the maintenance budget shall be administered by the DHFW mainly for major repairs and for unforeseen circumstances.

7. COMMITMENT FROM THE GOVERNMENT OF KARNATAKA

For the successful implementation of the maintenance concept, the Government of Karnataka assures that the following changes will be implemented in the first two years of the project:

- The workshop will be established at the district hospital level and the responsibility of the workshop will be to undertake maintenance work for all hospitals including CHCs within the district.

  The District Surgeon will be responsible for the workshop and the utilization of the maintenance budget spent in the district.
- The DHFW will implement the respective directive relating to the responsibility and organizational procedures for the handling of the maintenance related to medical equipment and engineering installation. The directive shall also cover the responsibility of DHFW for the maintenance of building.
- The DHFW is committed to provide at least 50% of the required amount (indicated in clause 6) for maintenance.
- The DHFW will sanction the required post in clause 3 and provide the operational budget to operate the workshop.

8. PROJECT BUDGET FOR MAINTENANCE

Within the project, building facilities, workshop equipment, initial spare parts and user training will be financed. The workshop will be established at the teaching hospital in Gulbarga and at the three district hospitals in Bidar, Bellary and Raichur.

- *Building Facilities*

The workshop in Gulbarga will require 200 sqm and each of the three district hospital workshops need 150 sqm. In total 650 sqm of new building space will have to be built. Based on building cost of Rs 4,000 per sqm the total cost for building will be Rs 2.6 million.

- *Equipment Cost and Vehicles*

Similar to the building cost, the workshop equipment including tools for Gulbarga Division will be Rs 900,000 and for the three district workshops Rs 600,000. Each workshop will be provided with a jeep at the cost of Rs 250,000 each. The total amount for equipment and vehicles will be Rs 3.7 million.

- *Initial Spare Part Supply*

Initial supply for the maintenance workshop will comprise standard spares for medical equipment and consumables which will be defined at a later stage. The amount reserved for each workshop will be Rs 300,000 each amounting to Rs 1.2 million.

- *User Training*

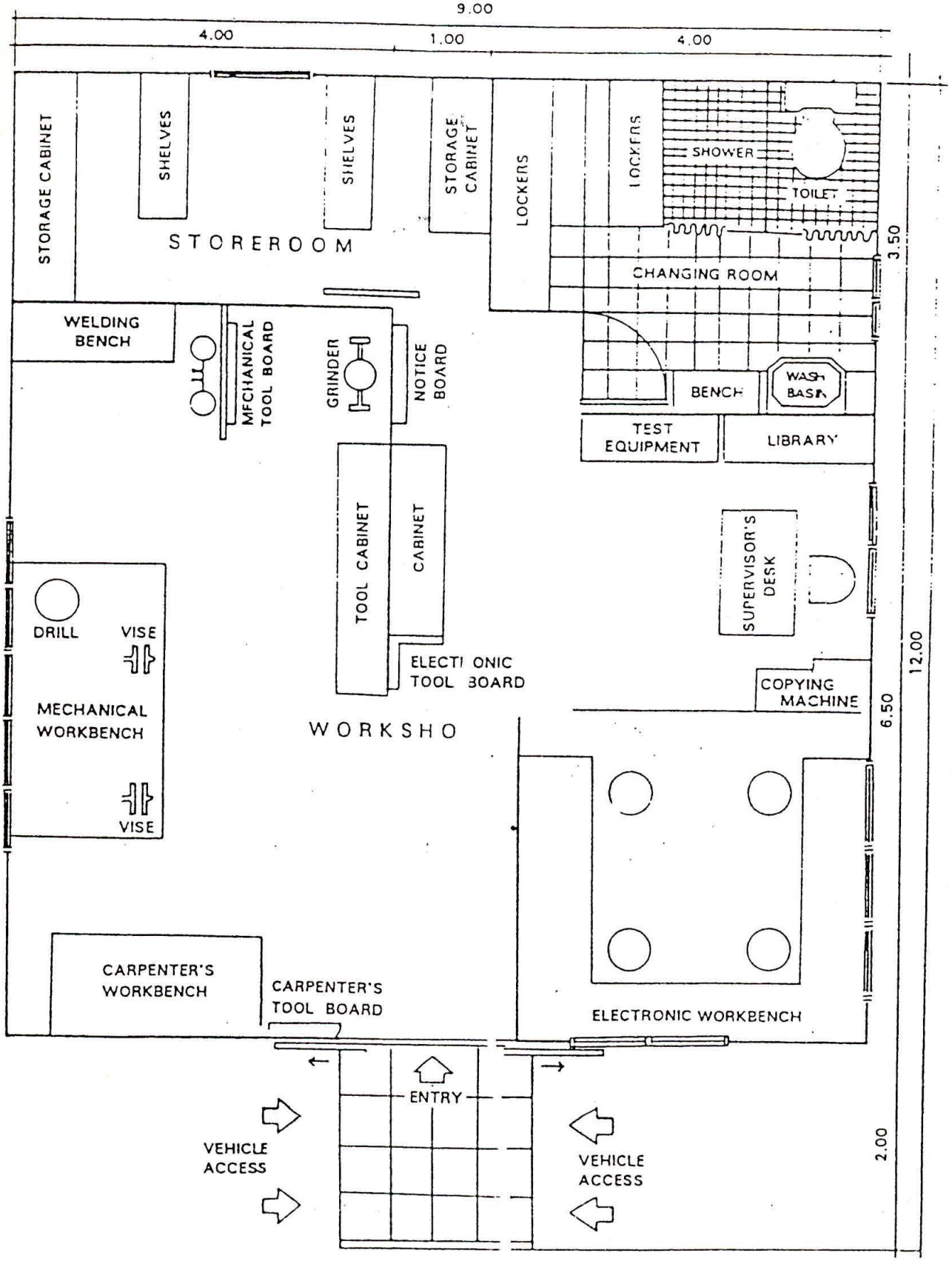
The user training will be established jointly with the World Bank project and Rs 500,000 will be allocated to cover transport allowance and cost for trainer.

- *Summary For Maintenance Workshop*

The TABLE below summarizes the budget for the implementation of the maintenance component in the first phase.

	in Rs
Building cost	2,600,000
Equipment cost	2,700,000
Vehicles	1,000,000
Spare parts	1,200,000
Training	500,000
TOTAL	8,000,000

ANNEX 7.1



TYPICAL LAYOUT for a WORKSHOP

1:60 MTS.

0 1 3 METERS

ANNEX 7.2

MAINTENANCE ARRANGEMENTS

First-line maintenance by in-house technical staff	Minor attention by in-house staff (other work contracted-out locally)
500mA X-ray system 300mA X-ray system 100mA X-ray system Chest stand. X-ray 60mA mobile X-ray system Dental X-ray system Ultrasonic scanner, linear U/sonic scanner. linear sector Defibrillator (with recorder) Endoscope. fibre-optic Operating microscope Ventilator. adult Emergency resuscitation kit Acute Medical Care system Dental Chair Aerotor (turbine & compressor) Ultrasonic dental scaler Dental lab. : bath, motor etc Operating table, hydraulic pH meter Glucometer Blood-gas analyser Generators (various) Incinerators Hot water systems (solar) Gas regulators & flowmeters Sewing machine	Tables (various) Beds (various) Foot steps Beside screen Stools (various) Saline stand Wheel chair Emergency/recovery trolley Stretcher on trolley Oxygen cylinder stand/trolley Height measuring stand Cots (various) Beside locker Trolleys (various) Cabinets (various) Traction system Chairs (various) Racks (various) Steel cupboard Wooden bench

Fully contracted out services	
Anaes. m/c (with FloTec) Anaes. m/c (without FloTec) Pulse Oximeter Oxygen cylinder Nitrous oxide cylinder Ambulance Hearse Pick-up	Typewriter Photocopier Roneo m/c Intercoms Fax machine Telephones Fire extinguishers

ANNEX 7.3

ELEMENTS OF EQUIPMENT TRAINING PROGRAMMES FOR DIFFERENT CADRES

Subsequent to the November 1993 Workshop which revised the equipment norms for APVVP Community (30-50 bed), Area (75-100 bed) and District (200-350+bed) hospitals, it will be necessary to ensure that all users of technology and plant installed in APVVP facilities can meet their obligations as spelt out in the policy paper.

This can be accomplished by incorporating appropriate 'technology modules' into the clinical training programmes being planned. A lis of what should be covered is given in Table 2 below for the different cadres.

TABLE 2 : EQUIPMENT TRAINING FOR OPERATION & SIMPLE CARE

Doctors only	Doctors & Nurses
Audiometer	Cardiac monitor
Endoscope, fibre-optic	Defibrillator (with recorder)
Operating microscope	Phototherapy unit
Cryo Surgery, basic	Radiant heater, 4KW
Cryo Surgery, de-luxe	S-Wave electro-physio unit
Ventilator, adult	Emergency resuscitation kit
Anaesthetic m/c (with FloTec)	Sigmoidoscope, rigid, adult
Anaes.m/c (without FloTec)	Acute Medical Care equipment
Pulse Oximeter	Oxygen masks, with regulator
Opthlamoscope	B.P. machine
Slitlamp with table	Oxygen cylinder
Retinoscope	Nitrous oxide cylinder
Perimeter	Gas regulators & flowmeters
Pulse air tonometer	Ambu-bag
Dental unit	Laryngoscope(adult & child)
Otoscope	
Universal bone drill	

Table 1 (cont'd)

Full maintenance and repair by in-house technical staff

ECG machine (12-lead)	Incubator, laboratory
Cardiac monitor	Water still
Audiometer	Centrifuge (electrical)
Phototherapy unit	Centrifuge (haematocrit)
Radiant heater	Hot plate, laboratory
Cryo Surgery systems	Rotor/shaker (laboratory)
S-W electro-physio unit	Haemocytometer
Opthlamoscope	Haemoglobin meter
Slitlamp with table	Microtome
Retinoscope	Oven, wax-embedding
Perimeter	Tissue Processor
Sigmoidoscope, rigid, adult	Lovibond comparator
Pulse air tonometer	Refrigerators (various)
Dental unit	Air conditioner w/stabiliser
Operating table, ordinary	Water cooler, 60/120 litres
Autoclave HP (various)	2-body mortuary (cold store)
Shadowless lamp, OT, mobile	Oxygen masks, with regulator
OT lights, ceiling(shadowless)	Torch light
Focusing lights, OT (mobile)	Surgical instruments
Suction m/c (high vacuum MTP)	X-ray viewing box
Suction apparatus, electrical	Developing tanks (various)
Foot suction apparatus	Safelight, X-ray darkroom
Vacuum extractor	Cassettes, X-ray, various
Steriliser, instrument	Intensifying screen, various
Electro-surgery machine	Lead protection screen
Cautery set, electric (Gynae)	B.P. machine
Automist (OT fumigator)	Weighing scale, adult
Microscope, binocular	Weighing scale, infant
Chemical balance,analytical	Infra-red lamp (Physiotherapy)
Simple balance	Ambu-bag
Photo-electric colorimeter	Angle-poise lamp
Flame photometer	Hot plate, domestic
Spectrophotometer	Emergency lamp
Micro Pippette	Laryngoscope (adult & child)
Water bath	Otoscope
Hot air ovens	Universal bone drill

Nurses only

Operating table, hydraulic
Autoclave, HP, (horiz.& vert.)
Autoclave, electrical,
Shadowless lamp, OT, mobile
OT lights,ceiling (shadowless)
Focusing lights, OT (mobile)
Suction (high vacuum MTP)
Suction apparatus, electrical
Foot suction apparatus
Vacuum extractor
Steriliser, instrument
Electro-surgery machine
Cautery set, electric (Gynae)
Automist (OT fumigator)
Weighing scale, adult
Weighing scale, infant
Infra-red lamp (Physiotherapy)
Emergency lamp
Fire extinguishers (various)

Operating Theatre Assistants

All surgical instrument packs
Operating table, hydraulic
Autoclave, HP, (horiz.& vert.)
Autoclave, electrical,
Shadowless lamp, OT, mobile
OT lights,ceiling (shadowless)
Focusing lights, OT (mobile)
Suction (high vacuum MTP)
Suction apparatus, electrical
Foot suction apparatus
Vacuum extractor
Steriliser, instrument
Electro-surgery machine
Cautery set, electric (Gynae)
Automist (OT fumigator)
Weighing scale, adult
Weighing scale, infant

Biochemists, Lab Technicians & Attendants

Microscope, binocular
Chemical balance, analytical
Simple balance
Photo-electric colorimeter
Flame photometer
Spectrophotometer
Micro Pippette
Water bath
Hot air oven
Incubator, laboratory
Water still
Centrifuge (electrical)
Centrifuge (haematocrit)
Hot plate, laboratory
Rotor/shaker (laboratory)
Haemocytometer
pH meter
Glucometer
Haemoglobin meter
Microtome
Oven, wax-embedding
Tissue Processor
Blood-gas analyser
Lovibond comparator

Radiographers & Darkroom Assistants

500mA X-ray system
300mA X-ray system
100mA X-ray system
60mA mobile X-ray system
Dental X-ray system
Radiation protection
Ultrasonic scanner, linear
U/sonic scanner, linear sector
ECG machine (12-lead)
X-ray viewing box
Developing tanks (various)
Safelight, X-ray darkroom
Cassettes, X-ray, various
Intensifying screen, various
Chest stand, X-ray

Drivers Ambulance Hearse Pick-up	**Office staff** Photocopier Roneo m/c Intercoms Fax machine Telephones
Plant attendants Generators (various) Incinerators Hot water system (solar)	**Tailors** Sewing machine

ANNEX 8

PROJECT MANAGEMENT

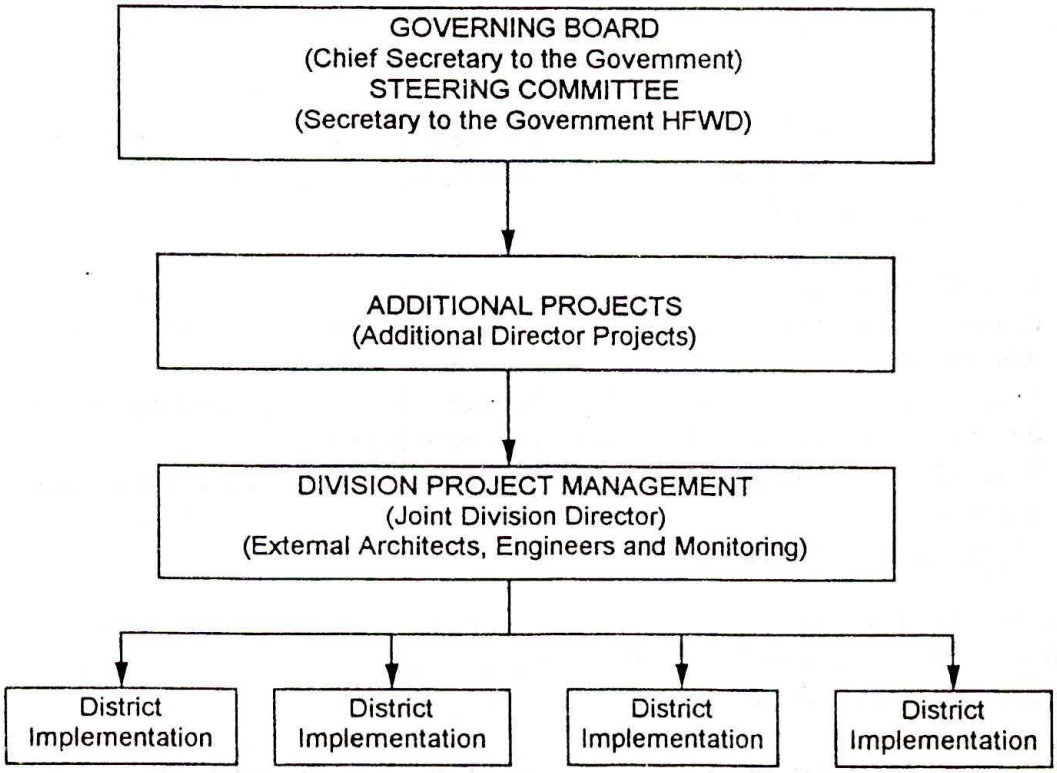
1. THE PROJECT MANAGEMENT STRUCTURE

The project management shall be based on the following principles:

- The project management team will be at division and district level
- All required design, engineering and supervision will be tendered and provided by the private sector
- All civil works and engineering works will be tendered at district level
- All supply of equipment will be tendered locally
- An independent project manager will be appointed by the government to assist the project management team at division level in the execution of the project.

For the implementation of the project, three project bodies will be formed. At the APEX of the project management structure, the "Project Governing Board" headed by the Chief Secretary will be constituted. The project management Steering Committee will be formed which will be headed by the Secretary to the Government, Health and Family Welfare Department. The "Project Committee" headed by the Additional Director, Projects which is in-charge for all special projects in the state will handle all project overall relevant issues. At working level, the Divisional Project Management will be installed. The principle project structure is indicated in CHART 1.

CHART 1: PROJECT MANAGEMENT STRUCTURE



The Governing Board for the project will consist of the following:

1)	The Chief Secretary to the Government	Chairman
2)	Representative of the Government of India	Member
3)	The Secretary to the Government, Finance Department	Member
4)	The Secretary to the Government, HFWD	Member
5)	The Secretary, Planning Department	Member
6)	Additional Secretary HFWD	Member
7)	The Director of HFWD	Member
8)	The Additional Director (Projects)	Secretary

The Governing Board will meet twice a year if necessary. The board will make required policy decisions and appoint personnel in the other project bodies. The board will be assisted by the Steering Committee which will furnish reports from time to time to the Governing Board for ratification of action if taken. The Steering Committee shall consist of the following Members:

1)	The Secretary to the Government, HFWD	Chairman
2)	The Secretary to the Government, Finance Department	Member
3)	The Secretary, Planning Department	Member
4)	The Director of HFWD	Member
5)	The Additional Director of HFWD	Member
6)	Project Director	Member

The Steering Committee shall meet as often as necessary but at least once in every three months. The Steering Committee shall generally administer, execute and evaluate the project and in particular exercise the following function:

- Review the progress of the project, including construction of building and supply of equipment and ensure that the project is implemented in accordance with the terms of Agreement between the Government of Karnataka and KfW.
- Review of reports furnished by the Project Director from time to time and issue such directions as are necessary for implementation of the project.
- Take all policy decisions and other steps which may be required for a successful project implementation.
- Approval of the annual budget.

The Additional Director Projects, is in-charge of all special projects within the DHWF in the state and provides the overall technical assistance to the project and is coordinating all project activities relating to policy.

The responsibility for the implementation of the project rests with the Division Project Management which will be located at Gulbarga Division. The project team will be headed by the Project Director who will be nominated by the government and will be responsible for all relevant

activities related directly to the project and he will be assisted by the DHO of the respective districts. A member of the Public Works Department will coordinate all activities related to the department (approvals and documentation). The Project Team will consists of:

1)	Division Director for Gulbarga Division Project	Project Director
2)	Health services consultant	Perman. Member
3)	Public Works Department	Tempor. Member
4)	Architect	Perman. Member
5)	Civil Engineer	Perman. Member
6)	Medical equipment engineer	Perman. Member
7)	Mechanical and electrical engineer	Perman. Member
8)	Draftsman	Perman. Member
9)	Project accountant	Perman. Member
10)	District Health Officer	Tempor. Member
11)	Clerks	Perman. Member

The Division Project Management Team will consists of Members from the Government at Division Level and experts or consultants from the private sector. The following activities will be handled by the Divisional Project Management Team:

- Detailing project components in consultation with the Additional Director (Projects).
- Development of terms of reference for external architects, engineers for each district and for the project monitors and submit proposals for appointing the external architects, engineers.
- Tendering of all works and supply in accordance with the guidelines of KfW and prepared by the external project team.
- Verifying of all tender evaluation and approval of all contracts up to a value of Rs 5.0 million. Contracts above Rs 5.0 million have to be approved by the Additional Director (Project).
- Releasing of all payment in relation to the project and respective contracts.
- Preparation of annual and quarterly budget.
- Monitoring of progress of all activities for each project component.
- Providing feed back to the Additional Director (Projects) and preparation of monthly reports in respect of project progress and financial utilization.

The external project team recruited from the private sector will be appointed by the Government and will consist of:

1)	Architects	for each district
2)	Civil Engineers	for each district
3)	Mechanical and Electrical Engineers	for each district
4)	Medical Equipment Consultants	for the project

Architects and Engineers will be nominated for each district and the equipment consultant will be responsible for the total project scope.

Besides the design and engineering (basic design, detailed design and all relevant professional services) the external team will also be responsible for the following:

A) FOR CONSTRUCTION and ENGINEERING WORKS

The civil and engineering works will be based on the prepared concept development. The necessary activities are listed below:

- Preparation of design and engineering for each of the facilities including obtaining all relevant approvals.
- Preparation of construction plans and details necessary for bidding, specification for buildings and engineering works, materials, technical installation, interior finishing as well as site installation, external works and landscaping.
- Preparation of all Tender documents (condition for bidding and terms of contract)
- Evaluation of tender by assessment of bidder and bidder track record and tender price analysis.
- Confirmation of tender evaluation and preparation of contract documents
- Construction supervision by review of the construction programme and all relevant contract details
- Approval of drawings and specifications prepared by the contractors including preparation of site diary
- Preparation of quarterly reports

B) FOR SUPPLY

The supply for the project includes vehicles, medical equipment and other medical supplies.

- Preparation of the final list of quantities for all supply categories for the project period of three years.
- Definition of quantities delivered to each of the district hospitals per year
- Preparation of specification for medical equipment, medical consumables
- Elaboration of cost estimation for each supply category and development of budget schedule.
- Development of procurement procedures and logistic framework for each of the supply items
- Preparation of principle tender document in accordance with the guidelines for procurement of KfW and definition of bidding procedures.
- Monitoring of evaluation of offers with respect to technical and financial aspects and competitiveness.
- Verifying tender evaluation and submission of proposal
- Monitoring of execution of contracts including provisional and final acceptance.

The Division Project Team will be assisted by an external Monitoring Team which will also be appointed by the Government and will be in-charge of:

- Certification of all tender evaluation
- Certification of contracts to be awarded for construction and engineering works
- Certification of contracts to be awarded to suppliers
- Certification of all payment released to contractors
- Overall monitoring of project progress and preparation of quarterly reports.

2. METHODS OF TENDERING

The methods of tendering will be based on the procurement guidance .of KfW for local competitive bidding which includes the following steps:

- Notification (Prequalification)
- Issue of bidding documents (terms of bidding, terms of contract, quantity and quality of supply)
- Submission of bids
- Public opening of bids
- Evaluation and selection of lowest evaluated bid based on qualification criteria
- Contract award
- Contract performance

3. PROJECT MANAGEMENT FACILITIES

For the project implementation, facilities will be established in the Gulbarga Division for the Division Project Management comprising of:

- Project office of approximately 200 sqm
- Office equipment including furniture, computer, printer, drawing facilities and copy machine
- Office infrastructure such as telephone and fax

The Division Project Team will be supported with three cars to ensure a proper project coordination and implementation.

4. MID-TERM REVIEW

After the third year of the project, a mid-term review will take place. The main scope of the mid-term review will be to evaluate the project implementation in respect of:

- Project costing
- Project schedule
- Quality of work
- Staffing of facilities which have been upgraded
- Utilisation of facilities
- Implementation of cost sharing measurements

In addition, the mid-term review will evaluate the principle requirement of upgrading and renovations of district hospital and other secondary healthcare facilities which have not been included in the first phase.

As part of the mid-term review, a project proposal for the second phase shall be developed including the cost estimation and project schedule.

The mid-term review will be executed by an independent consulting team which will be engaged based on an international tender tendered by KfW.

5. PROJECT MANAGEMENT BUDGET

The project management budget does not include the fees for design, engineering and supervision which is incorporated in the cost of upgrading.

- ***Manpower***

The Division Project Management Team will be paid from the project management budget. The salary will only be provided for the permanent team members.

in IR

No.	MEMBER OF PROJECT TEAM	TOTAL SALARY
1	Project Director	600,000
1	Health Services Consultant	500,000
2	Architect	1,000,000
2	Civil Engineer	800,000
2	Medical Equipment Engineer	800,000
5	Mechanical and Electrical Engineer	2,000,000
5	Draftsman	900,000
2	Project Accountant	500,000
6	Clerks	900,000
	TOTAL	8,000,000

- *Office and Equipment*

This cost item includes rental for a 200 sqm office space with all necessary facilities for the operation of the project such as furniture, computers, printer, drawing facilities, copy machine and infrastructure (telephone, fax, generator). The amount for equipment is calculated at Rs 1,000,000.

- *Office Operation And Travel Expenses*

This item also comprises the cost for office operation such as cost of energy, petrol, travel expenses and office stationary. The cost is assumed at Rs 20,000 per month which amounts to Rs 960,000.

- *Vehicles*

For the project execution, 8 vehicles will be supplied at the cost of Rs 250,000 each amounting to a total of Rs 2.0 million.

- *Project Monitoring*

The project monitoring team will be formed from independent experts for procurement, supervision of construction and medical equipment planning. For the budget it has been assumed that 36 man-months of local consultant and 12 man-months of foreign consultants have been foreseen. The total amount for monitoring is indicated in the table below and amounts to Rs 22,360,000.

in Rs

ITEM	COST
72 man-month local consultant	2,160,000
24 man-month foreign consultant	13,200,000
Local travel expenses	1,000,000
International travel expenses	6,000,000
TOTAL	22,360,000

- *Mid-term Review*

The mid-term review will be conducted by external and local consultants and will be for a duration of 2 months. The amount estimated for this mid-term review is Rs 5,000,000.

- *Total Project Management Cost*

The total cost for the project management amounts to Rs 39,320,000 which is equivalent to DM 1,787,000.

Summary Project Management

	in iR
MANPOWER	8,000,000
OFFICE EQUIPMENT	1,000,000
OFFICE OPERATION AND TRAVEL EXPENSES	960,000
VEHICLES	2,000,000
PROJECT MONITORING	22,360,000
MID-TERM REVIEW	5,000,000
TOTAL	39,320,000

ANNEX 9

SELECTION OF FACILITIES FOR UPGRADING AND RENOVATION

THE SELECTED FACILITIES

The basis for the selection of facilities for upgrading are described herewith by district and taluka. It should be noted that selection was confined to data and other information that were provided by the state or district health authorities. The information was verified by the survey team at each of the sites. In accordance with the survey team's findings, the scope of services for upgrading was changed in some cases. Thus, the final report may differ from the Stage Report submitted beginning of May 1995 as the survey will be completed at the end of May 1995.

Although the upgrading is described in terms of bed capacity, it must be noted that bed capacity corresponds with other facilities, such as number of professional staff including medical specialists and range of services offered.

In the following section, the socio demographic indicators and data related to existing beds may differ from data in the previous section. The information provided in the section below are the most recent figures from district statistics which were collected within this year.

1. BIDAR DISTRICT

Bidar District located in the far north of the State of Karnataka is an important centre for pilgrims who are devotees of Guru Nanak. The total population of 1,255,799 is the smallest in comparison with the districts in the Gulbarga Division and is divided into 5 talukas. The urban population is only about 10% and as in all other districts in this Division, the majority of the population is comprised of agricultural workers.

TABLE 1: Socio Demographic Indicators Bidar District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Bidar	n.a.	n.a.	n.a.	n.a.	n.a.	1,255,799
TK Bidar	27.4	8.8	50.96	71.0	1.8	223,436
TK Aurad	27.6	8.5	39.50	72.0	1.8	210,040
TK Bhalki	29.5	8.8	46.47	72.1	2.4	196,042
TK Humnabad	28.2	8.7	42.87	72.0	2.1	201,378
TK Kalyani	28.3	8.9	42.95	72.3	2.0	203,592

Although the literacy level in the district is above the Division average, the birthrate is one of the highest in comparison with all districts in the state.

Within the first phase of the project scope, four hospitals will be upgraded and an additional 140 beds provided. The CHC in Mannekahalli will be renovated in the second phase. Besides Raichur, Bidar District has the lowest ratio of population per secondary level hospital bed in Karnataka. The ratio of population per bed will be reduced from the present 2,970 to 2,230. The distribution of secondary level hospital beds is shown in TABLE 2 below.

TABLE 2: Health Services Facilities Bidar District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Bidar	36	268	7	423	140	7	563
TK Bidar	6	58	2	283	-	2	283
TK Aurad	7	62	1	20	30	1	50
TK Bhalki	8	40	1	30	70	1	100
TK Humnabad	7	52	2	60	20	2	80
TK Kalyani	8	56	1	30	20	1	50

The district map is shown in the opposite page which indicates the location of the health care facilities.

- *Humnabad Taluka*

This taluka, located in the south bordering Gulbarga District, has a population of 201,378. The birth rate, maternal mortality rate and female literacy are less favourable compared to the state average.

At present, there is one 30 bed CHC in Mannekahalli where the buildings are in good condition but inadequately provided with medical equipment. The renovation of the CHC only applies for medical equipment. The 30 bed GH located in Humnabad, the taluka headquarters with a town population of 25,200 will be upgraded to a 50 bed sub district hospital. The total number of secondary level hospital beds in this Taluka will increase from 60 to 80 beds.

- *Aurad Taluka*

Aurad Taluka (population 210,040) is located in the north of the district bordering the states of Andhra Pradesh and Maharashtra. The female literacy rate here at 39.5% is the lowest in Bidar district and among the lowest in the state. Most of the other socio demographic indicators are also below the average of the state.

It is proposed that the only existing GH in the taluka headquarters of Aurad wich presently has 20 beds will be upgraded and further 30 beds with all required hospital facilities will be added. The upgrading to a 50 bed sub district hospital will provide health care services to a large area in the north of the taluka and the secondary health care facilities in this taluka will have a total of 50 beds in comparison with the present 20 beds.

- *Bidar Taluka*

Bidar taluka has a population of 323,436. The literacy rate (51%) of this area is the highest among the five talukas and higher than the average for Karnataka. The total number of beds of 283 consists of a 50 bed maternity hospital and the 233 bed district hospital. The renovation of the district hospital will be considered for the second phase of the project.

- *Bhalki Taluka*

The population of this taluka is 196,042. Bhalki appears to have the highest birth rate and maternal mortality rate in the district.

Only one secondary level facility is presently established. The GH in Bhalki (population of 26,860) is provided with 30 beds. Since Bhalki is located in the centre of the district the hospital is also serving neighboring talukas and the occupancy rate is one of the highest in the taluka. It is proposed to upgrade the GH Bhalki to a 100 bed sub-district hospital which will increase the total nuber of beds from the present 30 to 100 beds.

- *Kalyani Taluka*

In Kalyani taluka, with a population of 203,592, the upgrading of the taluka headquarters, hospital in Basavakalyan (population of 42,750) is proposed. The hospital is sanctioned as a 50 bed sub district hospital but only 30 beds are available at present. In the scope of upgrading, an additional 20 beds including the required functional modification will be provided. With the implementation of the project, the total number of hospital beds will increase from the present 30 to 50 beds.

2. RAICHUR DISTRICT

Raichur district is bordering the districts of Gulbarga (in the north) and Bellary (in the south). The district population of 2.3 million has the highest ratio of population per bed in the state of Karnataka. The district with 78% comprising of rural population is one of the poorest and is typical for the region with the majority of the population working as agricultural labourers. The literacy levels for all talukas in this district are lower than the state average.

TABLE 3: Socio Demographic Indicators Raichur District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Raichur	26.2	8.5	35.96	73	3.61	2,309,887
TK Devandurga	24.0	8.8	21.61	79	4.26	176,889
TK Gangawati	21.0	8.4	36.25	71	3.71	255,551
TK Koppal	21.5	8.6	42.39	70	3.13	207,111
TK Kushtagi	26.3	8.8	35.34	72	3.79	189,891
TK Lingsugur	20.9	8.5	35.19	72	3.27	211,096
TK Manavi	24.7	8.9	29.14	81	4.19	241,193
TK Raichur	21.2	8.3	43.62	69	3.89	201,295
TK Sindhnur	20.5	8.8	34.48	72	3.58	240,383
TK Yelbarga	24.4	8.1	39.10	71	3.75	196,080

Within the first phase of the project scope, six hospitals will be upgraded and an additional 237 beds provided. Raichur District has the lowest ratio of population per secondary level bed in Karnataka. The ratio of population per bed will be reduced from the present 5,420 to 3,620. The distribution of secondary level hospitals is shown in TABLE 4 below.

There are plans to build a 500-bed district hospital financed by the OPEC Fund. However, the construction work has not begun yet. With the establishment of the OPEC financed hospital the ratio of population per bed will be further reduced to 2,030.

TABLE 4: Health Services Facilities Raichur District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Raichur	69	414	13	425	213	13	638
TK Devandurga	5	30	1	30	20	1	50
TK Gangawati	10	60	3	42	70	3	112
TK Koppal	9	54	1	17	33	1	50
TK Kushtagi	6	36	1	30	20	1	50
TK Lingsugur	10	60	2	56	50	2	106
TK Manavi	9	54	1	30		1	30
TK Raichur	6	36	1	130	-	1	130
TK Sindhnur	8	48	1	30	20	1	50
TK Yelbarga	6	36	2	60	-	2	60

The district map is shown in the opposite page which indicates the location of the health care facilities.

- *Devadurga Taluka*

Devadurga, with a population of 176,889, is served by a 30 bed GH at the taluka headquarters in Devadurga town with a population of 14,959. Based on the available data, this taluka has one of the highest IMR, MMR and the lowest literacy level in the district and state.

No other secondary level facility is available in this taluka. Thus, the GH in Devadurga will be converted to a 50 bed sub district hospital.

- *Gangawati Taluka*

This taluka has the highest population in the district (255,551). There is one GH with 30 beds at the taluka headquarters in Gangawati with a population of 64,843 In the taluka two facilities are sanctioned as CHCs in Kanakagiri and Kortgi but presently still serving as PHCs with 6 beds.

Gangawati one of the main towns in Raichur District with a steadily increasing population and will require upgrading to a 100 bed sub district hospital. This will improve the total number of beds in the taluka from 42 to 112 beds.

- *Manvi Taluka*

This taluka with a population of 241,193 is one of the most populated talukas in the district. The data shows that Manvi is the most disadvantaged in terms of IMR, MMR and literacy in the district.

The CHC in Manvi (population 28,080) serves as the taluka secondary health care facility. Manvi is located close to Raichur and patients are using the district hospital. The present utilization of the hospital does not demand upgrading but the hospital should be renovated in the second phase.

- *Koppal Taluka*

In contrast to Manvi, Koppal has more favourable IMR, MMR and literacy rates in the district. The population of 207,111 is served by a 17 bed GH in the taluka headquarters. Koppal town has a population of 44,602 which also serves as a sub-district centre. An additional 33 beds (total 50 beds) has been sanctioned with the building renovations not started yet. The GH will be upgraded to a 50 bed sub district hospital. The total number of secondary level facilities in this district will be 50 beds.

- *Kushtagi Taluka*

With a population of 189,891, the GH at the taluka headquarters provides only 30 beds. Kusthagi has a relatively small population (14,650) but located on two main roads the hospital will require improvement to a 50 bed sub district hospital. The final total number of secondary hospital beds in this taluka will be 50 beds.

- *Lingsugur Taluka*

The population of the taluka is 211,096. Lingsugur located in the central part of the district has a population of 21,330. There are two hospitals in the taluka, one GH in Lingsugur and one sanctioned CHC in Mugal which is not upgraded yet and serves as a PHC. The GH in Lingsugur will be converted to a sub district hospital with 50 beds. The total number of beds will be raised to 56 beds from the present 36 beds.

- *Raichur District*

Raichur town with a population of 170,580 represents 75% of the population of the Raichur Taluka. The district hospital with only 130 beds is one of the smallest in the state of Karnataka. The building of a new 250 bed hospital financed by OPEC is in the preparatory stage but no final agreement between the Government and Opec has been achieved. The renovation of the existing district hospital will take place in the second phase.

- *Sindhnur Taluka*

Sindhnur is the second largest taluka in the district (population 240,383). In terms of IMR, MMR and literacy, this taluka fares about average for the district. Birth rate, on the other hand, is lower.

The GH in Sindhnur (population 44,380) is the only secondary health care facility that will be extended to a 50 bed sub-district hospital. The central location of this town makes for a suitable referral centre for other areas in the taluka. Based on the upgrading of the hospital the capacity will increase from 30 to 50 beds.

- *Yelbarga Taluka*

Yelbarga Taluka located in the south of the district has a population of 196,080. The CHC Kuknoor (30 beds) is providing secondary health care. The GH in the taluka headquarters sanctioned as a 30 bed GH which was completed last year is proposed to be upgraded to a 50 bed sub-district hospital. The supply of equipment will be in the second phase. The CHC in Kuknoor shall be renovated in the second phase of the project.

3. BELLARY DISTRICT

Bellary District located in the south of the Gulbarga division has a population of 1,890,000. In comparison to the other districts in the division, Bellary is the most advanced district. Most of the socio demographic indicators are above the division level. The urban population comprises approximately 35 % and is the highest in the division.

TABLE 5: Socio Demographic Indicators Bellary District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Bellary	n.a.	n.a	n.a.	n.a.	n.a.	
TK Bellary						
TK Hadagalli						
TK	27.8	8.6	36.4			140,280
Hagaribommana.	25.0	8.0	40.0	60.0	4	146,778
TK Harpanahalli	27.5	6.2	41.9	85.2		312,788
TK Hospet	26.0	9.0	45.0	79.0	4	
TK Kudligi						
TK Sandur	30.0	8.9	39.3	79.0	2	198,635
TK Siruguppa						

In Bellary, there is a teaching hospital with 210 beds and the district hospital is also a medical college with 512 beds at present. Six facilities have been selected for renovation or upgrading and the conversion of four GH to 50 bed sub-district hospitals. Two hospitals will be renovated whereby the sub-district hospital with 94 existing beds will be the largest hospital to be renovated in the first phase. The total number of new beds is 96 as described in TABLE 6 below. The ratio of population per bed will improve from 1,870 to 1,710 after the first phase.

TABLE 6: Health Services Facilities Bellary District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Bellary	72	260	10	1,009	96	10	1,105
TK Bellary	18	42	2	722	-	2	722
TK Hadagalli	8	20	1	30	20	1	50
TK Hagaribommanahalli	6	28	1	30	-	1	30
TK Harappanahalli	13	48	1	34	-	1	34
TK Hospet	9	32	1	94	R	1	94
TK Kudligi	8	36	2	69	1R+26	2	95
TK Sandur	4	20	1	30	20	1	50
TK Siruguppa	6	54	1	20	30	1	50

The district map is shown in the opposite page which indicates the location of the health care facilities.

- *Bellary Taluka*

As mentioned above, Bellary (town population of 245, 400) has one teaching hospital and the district hospital has a total of 722 beds. The very urgent renovation of the district hospital will take place in the second phase of the project.

- *Hagaribommanahalli Taluka*

In this taluka with a population of 140,280 only one GH is available. Although sanctioned as a 30 bed GH, this facility in Hagaribommanahalli (population 15,000) has only 10 beds. It is proposed to renovate this facility and to add the remaining 20 beds and is planned for the second phase.

- *Huvinna Hadagali Taluka*

This taluka located in the south-west has a population of 250,560. The 30 bed GH at the taluka headquarters (population 18,700) is fully functional. As the only facility in the taluka, the hospital will be extended to a 50 bed sub-district hospital.

- *Hospet Taluka*

This taluka, in the central part of the district, has a large population (312,788). Hospet (town population 134,800) is an important town with railway and state highway connections to other areas. It is in close proximity to the Tungrahadra Dam, one of the largest irrigation dams in South India. The hospital is well utilized but with the upgrading of hospitals in the neighbouring talukas the renovation of this facility will be sufficient.

- *Sirugupa Taluka*

Sirugupa taluka is located in the northern corner of the district and has a population of 198,635. The GH at the taluka headquarters (population 31,400) is only provided with 20 beds. Within this project, the GH will be upgraded to a 50 bed sub-district hospital.

- *Kudligi Taluka*

In Kudligi, south of Hospet, one GH at taluka headquarter and one CHC in Chikkajogihalli is established. The GH in Kudligi is only provided with 24 beds but will be upgraded to a 50 bed sub-district hospital. The CHC in Chikkajogihalli (a small town) is sanctioned with 50 beds and 45 beds are existing. This facilitiy, which is in unsatisfactory condition, shall be renovated in the first phase. This raises the number of secondary level hospital beds from 69 to 95 beds.

- *Sandur Taluka*

Sandur (town population 9,800) is located between Bellary and Kudligi. This district is not a highly populated district and is provided with a 30 bed GH. It is proposed that the facility will be renovated and if necessary upgrading will be planned for the second phase.

- *Harappanahalli Taluka*

Harappanahalli Taluka with a population of 146,800 boardering the Chitradurga District is provided with a 34 bed GH. This hospital which is well utilized, is located at the taluka headquarter (population 34,150). The present utilization rate is average and the renovation or upgrading shall take place in the second phase of the project.

4. GULBARGA DISTRICT

The Gulbarga district, headquarters of the division is the largest and most populated district (2,582,000). Gulbarga is similar to Bellary District and is one of the more urbanised districts in the state but workers in the agricultural sector are the majority in the distict.

TABLE 7: Socio Demographic Indicators Gulbarga District

	BIRTH RATE	DEATH RATE	LITERACY	IMR	MMR	POPULATION
District Gulbarga	32.3	9.2	34.2	73.0	3.3	2,582,169
TK Aland	33.1	9.1	29.9	73.0	3.0	234,270
TK Afzalpur	30.0	10.0	25.5	74.0	3.6	150,856
TK Chincholi	33.0	10.5	36.4	73.5	2.9	189,161
TK Chitapur	32.5	10.0	24.7	74.0	2.7	234,015
TK Gulbarga	30.0	9.0	30.3	71.0	2.7	219,845
TK Jevargi	32.0	9.0	25.7	72.0	3.0	188,707
TK Sedam	33.0	10.0	24.5	73.0	3.1	139,885
TK Shahapur	33.3	10.0	33.0	73.0	3.1	208,417
TK Shorapur	32.5	9.2	44.4	74.0	3.0	247,079
TK Yadgir	33.0	9.1	30.6	73.5	3.0	216,742

The main district hospital in Gulbarga with 750 beds also serves as a teaching hospital. In Gulbarga, five facilities have been selected for upgrading and another four hospitals for renovation. The total number of new beds proposed is 154 as shown in TABLE 8 below. The ratio of population per hospital bed will be reduced from 2,290 to 2,020.

TABLE 8: Health Services Facilities Gulbarga District

	PHC's		ACTUAL CHC's/GH's		NEW BEDS	FUTURE CHC's/GH's	
	NO.	BEDS	NO.	BEDS	NO.	NO.	BEDS
District Gulbarga	83	529	17	1,126	154	17	1280
TK Aland	11	66	3	36	20+1R	3	56
TK Afzalpur	6	36	1	6	44	1	50
TK Chincholi	9	54	2	60	20	2	80
TK Chitapur	7	72	4	57	2R	4	57
TK Gulbarga	8	48	1	751	-	1	751
TK Jevargi	8	48	1	30	20	1	50
TK Sedam	4	25	2	56	-	2	56
TK Shahapur	9	54	1	50	1R	1	50
TK Shorapur	9	54	1	30	-	1	30
TK Yadgir	12	72	1	50	50	1	100

The district map is shown in the opposite page which indicates the location of the health care facilities.

- *Aland Taluka*

Aland taluka, with the second largest population of 234,270 is located in the north-west of the district. Two CHCs are sanctioned but only one CHC in Madanahippargi is provided with 30 beds. The other CHC in Nimbarga has only 6 beds existing. One GH with 30 beds is presently available in Aland (town population 26,560) which is proposed for upgrading to a 50 bed sub-district hospital.The CHC in Madanahippargi will be renovated. The capacity of secondary level beds will increase from 66 to 86 beds.

- *Afzalpur Taluka*

In Afzalpur taluka (population 150,856), one GH at the taluka headquarters has been sanctioned as a 30 bed GH but only has six beds at present wherby the building for the 30 bed hospital is in existence. This facility will be upgraded to a 50 bed sub-district hospital. The total number of beds will increase from 6 to 50 beds to serve the western region of this district.

- *Chincholi*

The taluka located in the far north-east of the district with a population of 189,161 is one of the most populated.

Presently, one CHC in Gaddakeshwar with 30 beds and one GH with 30 beds in Chincholi town (population 10,580) are present. It is proposed to upgrade the GH at the taluka headquarter to a 50 bed sub-district hospital which will increase the total number of beds from 60 to 80. The CHC in Gaddakeshwar will be renovated if necessary in the second phase.

- *Chitapur Taluka*

One of the larger talukas in the central region of the district, Chitapur has a population of 234,015. Four facilities are sanctioned as secondary level hospitals. The GH in Chitapur has 8 beds, the CHC in Hebbal (21 beds), the CHC in Kalgi (8 beds) and the CHC in Shahbad (20 beds). The GH in Chitapur which only has 8 beds is under renovation financed by the state. The CHC in Kalgi and the CHC in Shahbad will be renovated and the required functional units added. The CHC in Hebbal will be renovated in the second phase.

- *Sedam Taluka*

The taluka of Sedam (population 139,885) is on the railway line to Hyderabad. The town of Sedam (town population 23,270) is thus an important stop-over. The 50-bed sub-district hospital is presently well utilized and the condition of the facility does not need urgent renovation. The renovation or upgrading will take place in the second phase. In addition to

this sub-district hospital, the taluka is also served by a CHC in Mudhol which is foreseen for renovation in the second phase.

- *Shahapur Taluka*

In the southern region, Shahapur has a population of 208,417. It is served by the 50 bed sub-district hospital at the taluka headquarters (town population 24,740). The hospital is proposed for renovation.

- *Shorapur Taluka*

Also in the south, Shorapur has only one GH with 30 beds at the taluka headquarters with a population of 30,590. Presently construction is in progress and therefore no provision is made within the first phase of this project.

- *Jevargi Taluka*

The taluka located in the centre of the district with a district population of 188,000 is served by a 30 bed GH at the taluka headquarter. The facility needs urgent upgrading to a 50 bed sub-district hospital.

- *Yadgir Taluka*

Yagdir taluka in the south east of the Gulbarga district has a population of 216,000. Two facilities are providing secondary level health care. The CHC in Gurumatkal is sanctioned as a 30 bed hospital but the implementation has not taken place yet. The sub-district hospital in Yadgir has 50 beds and is presently well utilised The hospital will be upgraded to 100 beds.

ANNEX 10

DELEGATION OF ADMINISTRATIVE AND FINANCIAL POWER

DELEGATION OF ADMINISTRATIVE AND FINANCIAL POWERS

Description of Powers	A		B		C		D	
Description Powers	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
1. To approve the list of candidates for training Radiographers, Health Inspectors and other Categories subject to the number of Candidates and rates of stipends fixed by Government	Full power	Full Power	Full Power	Full Power	Nil	Full Power(Subject to Approval)	-	-
2. (a) To depute the staff of the Maximum pay of whom and below for Service under local bodies under the foreign services rules K.C.S.R.s. to Commercial under takings.(1)In place of Rs.2175/- the current maximum pay of the related post i.e., Class-I Junior Scale/Grade is replaced).	Three Years	Three Years	Three Year (Non-Gazetted)	Three Year (Non-Gazetted)	-	-	-	-
(b) To depute for Training within India, for Course not exceeding Ninety Days (Both Gazetted Staff and Non-Gazetted Staff).	Full Power	Full Power	-	-	-	-	-	-
3. To Sanction the Deputation of Non-Gazetted staff on Temporary Duty within the state.	One year	One Year	Six Month(Tech.Staff)	Six months(Tech.Staff)	One Month	One Month	-	-
4. (a) To appoint Part-Time Teachers and other staff against sanctioned part- time posts.	Full Power	Full Power	Full Power	Full Power	-	-	-	-
(b) To appoint during epidemics when there is urgent necessary and there is no time to obtain sanction of Govt. Medical Officer with a Peon for each Officer of sanctioned scale of pay & Allowance plus an appointment being sent to Government simultaneously.	Six post at a time Subject to ratification of Govt. thereafter.	Six Post at a Time Subject to ratification of Govt. thereafter	Four Posts at a time (Subject to ratification by Govt., thereafter).	Nil	2 Posts			
(c) To appoint wardens & Asst., Wardens of Hospitals.	Full Power	Full Power	Full Power	Full Power	Nil	Full power (subject ratification by DHS & ADHS.	-	-
5. To Sanction Expenditure on (a) Funeral Expenses as per Scale Laid Down	Full Power	Full Power	Full Power	Full Power	Full Power	Full Power	Full Power	Full Power
(b) Public Lectures & Demonstrations	Rs.500/-each time	Rs.5000/-each time	Rs.300/- each time	Rs.3000/- each time	Rs.50/-each time	Rs.500/- each time	Rs.50/- each time	Rs.500/- each time.
(c) Demmurage and welfare charges provided they are not caused by the negligence of any Govt. servant.	Full Power	Full power	Rs.750/- each time	Rs.2500/- each time	Rs.150/- each time	Rs.2000/- each time	Rs.100/- each time	Rs.500/-each time.
(d) Purchase of X-Ray Photo Films	Full Power	Full Power	Full Power	Full Power	Full Power	Full Power	Full Power	Full Power
(e) Maintenance of frogs, rabbits, dogs, rats, white rats and other animals required for experiments in Medical Colleges and other institutions.	Full Power	Full Power	Rs.10,000/- each time	Rs.10,000/- each time	Rs.2500/- each time	Rs.5000/- each time	-	-

(f) Supply of shoes to the inmates of Mental Hospital, TB & CD Hospital and Leprosy Institutions per year.	i)Rs.100/- for each pair of shoes per inmate. ii)Rs.40/- for each pair of chappal per inmate	i)Rs.250/-for each pair of shoes per inmate. ii)Rs.150/- for each pair of chappal per inmate	i)Rs.100/- for each pair of shoes per inmate ii)Rs.40/- for each pair of chappal per inmate	i)Rs.200/- for each pair of shoes per inmate. ii)Rs.150 for each pair of chappal per inmate	i)Rs.100/- for each pair of shoes per inmate. ii)RS.40/- for each pair of chappal per inmate	Rs.250/- for each pair of shoes per inmate. ii)Rs.150/- for each pair of chappal per inmate	i)Rs.100/- each pair of shoes per inmate ii)Rs.40/- for each pair of chappal per inmate	i)Rs.250/- each pair of shoes per inmate. ii)Rs.150/- for each pair of chappal per inmate
5. Measures for control of Plague & other under the following heads: i)Construction & repairs of segregation camps & Hospitals. ii)Purchase & carriage of Medicines iii)Dietary Charges. iv)Disinfection charges. v)Bedding and clothing. vi)Other incidental expenditure in plague camps.	Full Power	Full Power	Rs.5000/-	Rs.10,000/-	Rs.2,500/-	Rs.5000/-	-	Rs.1000/-
6. To sanction the purchase of the following without reference to the Stores Purchase Department but following the purchase rules and purchasing from Govt., under takings wherever available:								
(a) Diet articles	Full Power	Full Power	Full Power	Full Power	Rs.10,000/- per annum	Rs.10,000/- per annum	Rs.3,000/-per annum	Rs.3,000/- per annum
(b) Linen,Bedding & Clothing	Full Power	Full Power	Full Power	Full Power	Rs.50,000/-per annum	Rs.1.0 lakh per annum	Rs.10,000/- per annum	Rs.10,000/- per annum
(c) Utensils & crockery and other equipment items.	Full Power	Full Power	Rs.25,000/- per annum	Rs.50,000/- per annum	Rs.10,000/- per annum,	Rs.25,000/- per annum	Rs.3,000/- per annum	Rs.5,000/- per annum
(d) Photographic materials/Exhibition materials:	Full Power	Full Power	Rs.10,000/- per annum	Rs.20,000/-per annum	Rs.2,500/- per annum	Rs.10,000/- per annum	Rs.1,000/- per annum	Rs.1,000/- per annum
(e) Medicines & Drugs not suitable in Medical Stores or Rate Contract and required urgently.	Rs.20,000/- each time	Rs.15 lakhs per annum	Rs. 15,000 each time	Rs.5 lakhs per annum	Rs. 5,000 each time	Rs.2 lakhs per annum	Rs.2,500/- each time	Rs.1 lakh per annum.
(f) Instruments, furniture & other equipment required urgently. i)Colleges and teaching Institutions	Rs.40,000/- each time	Rs.15 lakhs per annum	Rs.20,000/- each time	Rs 5 lakhs per annum	Rs.2,500/- each time	Rs.2 lakhs per annum	Rs.100/- each time	Rs.1 lakh per annum
ii) Other Institutions	Rs.25,000/- each time	Rs.50,00/- each time	Rs.10,000/- each time	Rs.25,000/- each time	Rs.2,500/- each time	Rs.10,000/- each time	Rs.500/- per annum	Rs.5,000/- per annum.
(g) Herbs and other Pharmacy necessaries.	Full Power	Full Power	Rs.10,000/- each time	Rs.25,000/- each time	Rs.500/- each time	Rs.5,000/- each time	-	-
(h) Other items of Hospital necessaries.	Full Power	Full Powers	Rs.10,000/- each time	Rs.25,000/- each time	Rs.1,000/- each time	Rs.5,000/- each time	-	-
7. Glassware, Chemicals & Acids & other Laboratory "necessaries" i) Colleges	Full Power	Full Powers	Rs.10,000/- each time	Rs.25,000/- each time	Rs.3,000/- each time limited to Rs.15,000/- pr annum	Rs.5,000/- each time limited to Rs.50,000/- per annum	Rs.250/- each tune limited to Rs.1,500/- per annum	Rs.1,000/- each time limited to Rs.5,000/- per annum.

ii) Other Institutions	Full Powers	Full Powers	Rs.5,000/- each time limited to Rs.30000/- per annum	Rs.10,000/- each time limited to Rs.50000/- per annum	-	Rs.5,000/- each time limited to Rs.20000/- per annum	-	Rs.1,000/- each time limited to Rs.5000/- per annum
To sanction expenditure on fixing replacement of parts and servicing or repairs of: (a)X-Ray & other machines	Full Power	Full Powers	Rs.50,000/- each time	Rs.1 lakh each time	Rs.25,000/- each time	Rs.50,000/- each time	Rs.1,000/- each time	Rs.5,000/- each time.
(b) Sterilisers, Microscopes & other equipment /Refrigerators.	Full Powers	Full Powers	Rs.10,000/- each time	Rs.20,000/- each time	Rs.5,000/- each time	Rs.10,000/- each time	Rs.1,000/- each time	Rs.2,500/- each time
(c) Bedding / Clothing / Cots / Lockers / Equipment	Full Power	Full power	Rs.2,000/- each time	Rs.25,000/- each time	_	Rs.10,000/- each time	-	Rs.1,000/- each time
(d) Repairs of Buildings/Furniture etc.,	Full Powers	Full Powers	-	Rs.50,000/- (vide Rule 55 of MCE)	-	Rs.30,000/-(vide rule 55 of MCE)	-	Rs.5,000/-
(e) Clothes and Time Pieces	Full Power	Full Powers	Full Powers	Full Powers	Rs.100/- each time	Rs.1000/- each time	Rs.100/- each time	Rs.500/- each time
8. To accept gifts & donation from Public or Institutions for institutions under the control of the Department.	Full Power	Full Powers	Full Powers	Full powers	Full Powers	Full powers	Full powers	Full powers
9. To sanction expenditure out of poor funds of Hospitals.	Full Power	Full Powers	Full powers	Full powers	Rs.500/- each time	Rs.1000/- each time	Rs.50/- each time	Rs.100/- each time
10. To get forms etc., not supplied by Govt., Press printed by Private Presses	Full Power	Full Powers	Rs.10,000/- each time	Rs.25,000/- each time	Rs.5,000/- each time	Rs.10.000/-each time	-	Rs.1000/-
11. To sanction subscription to daily newspaper.	Full Power	Full powers	Full Powers	Full powers	Full powers	Full Powers	Full powers	Full powers
12. To condemn Time-barred drugs and to order their disposal.	Full Power	Full Powers	Rs.10,000/-	(Proposed full powers to the extent of the powers to purchase these items)				
13. To refund fees paid by stipendaries who have been awarded full free-ships & half freeships claimed during the same or the following year as per rules	Full power	Full Powers	Full powers	Full powers	Full power	Full power	-	-
14. Supply of uniform as per prescribed scales	Full power	Full power	Full power	Full Power	Full power	Full power	-	-
15. Issue of Essentiality certificate for going abroad at ones own cost for Medical Treatment.	Full power	Full power	Full power joint Director (Medical) & Divl.Jt.DH & FWS	Full power Joint Director (Medical) & Divl. Jt. DH & FWS	-	Full power	-	-

16. To condemn linen which have become unservicable by their fair wear and tear and to order their disposal.	Full powers to the extent of the powers to Purchase these items.							
17. To condemn books, instruments equipment, furniture, glassware etc.,								
18. Medical Journals (Library)	Full power	Full power	-	Full power	-	-	Full power	-
19. To depute staff for instruction Seminar, work shops, training or any course:(within the state)	Full power	Full power	-	Full power	-	-	Full power	-
(b) Outside the state within India.	Full power	Full power		-	-	-	-	-
20. Purchase of production of films 16 or 35 mm.		Full power		3.00 lakhs per annum			25,000/- p.a	
21. Production of Video film/Print		Full power		Full power			-	
22. Exhibition i.e.,/Mysore Dasara Major Exhibition programme:		5.0 lakhs		Rs.1 lakh p.a			Rs.50,000/- p.a	
23. Condemn of vehicles		Full power		-			-	
24. Printing of Forms/Publicationreports/Manual/guidelines		Full power		Rs.50,000/- p.a			Rs.50,000/- p.a	
25. Financial Assistance provisional organisation & scientific like,IMA		Rs.50,000/- each time		-			-	

Explanatory Notes:

A - Director of Health & Family Welfare Services/Director of Medical Education/Adl. Director (FW & MCH)

B - Joint Director/Divisional Joint Director/Principal of Medical/Dental Colleges, Superintendent of teaching Hospitals/Chief Admin. Officer/ Director Minto) R.I. Optalmology, Joint Director, GMS/Joint Director, Vaccine Institute, Belgaum, Joint Director, PHI Bangalore, Joint Director TB, Bangalore.

C - Deputy Director/Dist. Health & Family Welfare Officer/Dist. Surgeon/Dy.CMO/Senior Specialist)/Principal of Health & FW Training Centre/College of (Nursing)/Administrative Officers, Deputy Director (NMEP)/Deputy Director/Health Officer (SSI Unit)/Medical Officer (Leprosy Hospital)

D - Heads of Institutions of General Hospital/Primary Health Centre/Primary Health Units/Senior Medical Officer Specialist/Duty Medical Officer Specialist/Duty Medical Officer/Dist.Lep.Unit Specialist/Lay Secretaries, Gazetted Assistant/DLO/Dist. T.B. Centre.

ANNEX 11

CONTACT ADDRESSES OF DEPARTMENT HEALTH AND FAMILY WELFARE

Contact Address of Department Health & Family Welfare

1. Mr. B. Eswarappa I.A.S.
Secretary to Government,
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2. Dr. S. Subramanya I.A.S.
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PHI Building, Seshadri Road,
Bangalore -560 001, India.

Tel : 2277391

3. Dr. M.T. Hema Reddy,
Director,
Directorate of Health & Family Welfare Services,
Bangalore -560 009, India.

Tel : 3364541

4. Dr. Krishnaswamy,
Additional Director I/c, KHSDP,
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Seshadri Road, K.R. Circle,
Bagalore -560 009, India.

Tel: 2276356

5. Dr. Gundappa,
Additional Director,
KSLHCF (KFW), Gulbarga.

6. Dr. D. V. N. Sarma,
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