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Prefeasibility Report for setting up a District Geriatric Care Centre

Karnataka Infrastructure Development
Department
and
Ministry of Health & Family Welfare, Government
of Karnataka

Submitted by



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Submitted to

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Executive Summary

India is undergoing an epidemiologic and demographic health transition; the average life expectancy of Indians has increased over the years on account of advancement in medical technologies, penetration of better healthcare facilities, better education & living conditions, increased per capita income and better affordability for services. Consequently the percentage of elderly people (above 60 years) has increased from 5.3% of the total population during 1971 to 6.9% in 2001. As per the 2010 census projection the old aged population was 7.5% of India's population. India has thus acquired the label of "an ageing nation" as per the classification of United Nations.

Karnataka state, with a population of 61.1 million, amount to 5.05% share of India's population and is the 9th biggest state in the country in terms of population. The projected numbers of 'Census India 2010' revealed that Karnataka had 7.9% 60+ aged population and stood 7th in India in terms of percentage of old age population. The urban proportion (8.4%) of aged population in Karnataka is more than the corresponding rural share (6.9) and female old age population was about 0.6 percent more than males.

The increasing number of elderly persons has a direct impact on the demand for health services due to the consequent rise in degenerative diseases of aging and changing life style. Elderly people suffer from both communicable as well as non-communicable diseases; further, this is compounded by impairment of sensory functions like vision, hearing, and stability management. Poor life style, decline in immunity as well as age-related physiologic changes lead to an increased burden of communicable diseases in the elderly. In the population over 70 years of age, more than 50% suffer from one or more chronic conditions. The rapid urbanization and societal modernization has also brought in its wake a breakdown in family values and the framework of family support, resulting in economic insecurity, social isolation, and elderly abuse leading to a host of psychological illnesses.

This demands a timely initiative in this direction by the policy makers to arrange and mobilize additional resources for the geriatric population. At the same time, it emerges as a challenge and major responsibility of health care providers in India. However, there is an acute dearth of specialized geriatric care units in hospitals or as standalone centres in the state. So GoK aims at setting up such geriatric clinics in three district hospitals on CSR mode. The venture is not for generating profits but for serving the underserved geriatric population of the state of Karnataka.

The geriatric clinic cum ward will provide both outpatient and inpatient care with 10 beds. Clinical lab and physiotherapy unit will be attached with the clinic to provide the much-needed service to the patients. Doctors trained in geriatric medicine will operate the clinic along with the support of trained nurses. A single company or a group of corporate shall sponsor the clinic and it is preferable that the clinic is operated by an NGO with experience in community healthcare service delivery.

However after doing the detailed project appraisal and financials it was found that setting up a geriatric care centre in district hospital on CSR mode is not a feasible proposition. Pushing this model

under the prevailing framework of PPP will have critical limitations as both the concepts, by definition and nature, are completely different. So it is suggested that project of this nature should be taken up on **BOT (Annuity) Model** of PPP. For that to attract technically sound and financially capable private players, this project has been redesigned as per prescribed PPP framework. It is also suggested that one private player should be selected for the proposed three Geriatric care centers as it will elicit interest in good private healthcare service providers.

The selected private player will be responsible for building the basic infrastructure, bringing in necessary equipments for its operation and maintenance to achieve service level outcomes desired by GoK and citizens of Karnataka. The Project will be implemented under a Concession Agreement (CA) entered into between GoK and Private Service Provider selected at the end of a competitive and transparent bidding process. The period of the Concession Agreement will be 20 years from the Effective Date of the contract. Geriatric care centre will be transferred back to GoK at the end of concession period.

The financial projections of this PPP model indicate that an Annual Viability Grant of Rs. 44.75 lakh is required in the base case to achieve a target pre-tax Project IRR of 20%. For 12% pre-tax Project IRR this grant will reduce to Rs. 42.50 lakh. The annual cash outgo for Government of Karnataka in year 1 will be Rs. 111.94 lakh which includes annuity and charges for providing free healthcare services to BPL patients. Patients carrying state government approved BPL card will be eligible for free service.

The Geriatric care centers shall adhere to the entire existing medico legal norms and shall establish detailed standard operating procedures for treatment and management of elderly patients. These projects shall be verified for its success and ability to meet the specified objectives at the end of every year. Upon successful achievement of the objectives, these projects may be replicated across the state following the same model or modifying it as per the requirement.

The provision of this service would certainly influence the social fabric of the state by providing medical care and social attention to its vulnerable population.

Chapter 1 – Introduction

1.1. Project idea

1.1.1. Basis for selection of this project

United Nations has classified societies broadly into 'young' (4% or less of those aged 60+), matured (4-7%) and "ageing" (7% and above). In developed countries, the geriatric age group is taken as 65 years and above. However in India, it is taken as 60 years and above as per the recommendations of W.H.O. for developing countries. Lately the elderly have become the focus of attention in developing countries because of their increasing number and deteriorating health conditions.

The average life expectancy of Indians has increased over the years on account of advancement in medical technologies, penetration of better healthcare facilities, better education & living conditions, increased per capita income and better affordability for services. Average life expectancy rose from around 30 years in 1947 to 65.48 years in 2011¹. The percentage of elderly people (above 60 years) has increased from 5.3% to 5.7% of the total population during 1971 to 1981 and went up to 6.9% in 2001. As per the 2010 census projection the old aged population was 7.5% of India's population, old age males constituted 7.2% of total male population and old age females 7.8% of the total female population. India has thus acquired the label of "an ageing nation" with 7.5% of its population being more than 60 years old. According to estimates made by the technical group on Population Projections, the likely number of the elderly by the year 2016 will be approximately 10% of entire population.

The increasing number of elderly persons will have a direct impact on the demand for health services due to the consequent rise in degenerative diseases of aging and life style. This demands a timely initiative in this direction by the policy makers to arrange and mobilize additional resources for this. At the same time, it emerges as a challenge and major responsibility of health care providers in India.

The Government of Karnataka in its commitment to improve the health and well-being of the people has provided extensive resources to public health facilities. However, as of now, the state is limited of its resources to provide thrust to geriatric care. GoK wishes to plan cost effective, need based and community friendly approach for comprehensive health care delivery to the large geriatric population.

Hence, to cover this gap in the availability of specialized and dedicated services to aged population, state authorities chose this project. This project is being proposed on CSR basis to invite companies to come forward and contribute towards the welfare of the society.

¹ Source: World Bank

1.1.2. Why separate Geriatric care centre?

Geriatric Illness: The old age people are more susceptible to chronic diseases, physical inability, and mental inabilities, which depend on the social values as well. Due to deteriorating physical conditions their body is more prone to illness which is multiple and chronic in nature. People have wrong perception that ailments are part of old age and they accept the sufferings and the physical trouble even though they are curable, so this results in neglecting the health conditions.

A study brought out the fact that most of the elderly patients, especially who come from a rural background, are also smokers and alcoholics. It is shown that among the population over 60 years of age, 10% suffer from impaired physical mobility and 10% are hospitalized at any given time, both proportions rising with increasing age. In the population over 70 years of age, more than 50% suffer from one or more chronic conditions. The chronic illnesses usually include hypertension, coronary heart disease, and cancer.

According to Government of India statistics, cardiovascular disorders account for one-third of elderly mortality, respiratory disorders account for 10% mortality while infections including tuberculosis account for another 10%. Neoplasm accounts for 6% and accidents, poisoning, and violence constitute less than 4% of elderly mortality with more or less similar rates for nutritional, metabolic, gastrointestinal, and genito-urinary infections.

An Indian Council of Medical Research (ICMR) report on the chronic morbidity profile in the elderly, states that hearing impairment is the most common morbidity followed by visual impairment. However, different studies show varied results in the morbidity pattern. A study reported decreased visual acuity due to cataract and refractive errors in 57% of the elderly followed by pain in the joints and joint stiffness in 43.4%, dental and chewing complaints in 42%, and hearing impairment in 15.4%. Other morbidities were hypertension (14%), diarrhea (12%), chronic cough (12%), skin diseases (12%), heart disease (9%), diabetes (8.1%), asthma (6%), and urinary complaints (5.6%). A similar study observed that as many as 87.5% had minimal to severe disabilities. The most prevalent morbidity was anemia, followed by dental problems, hypertension, chronic obstructive airway disease (COAD), cataract, and osteoarthritis. A study on ocular morbidities among the elderly population found that refractive errors accounted for the highest number (40.8%) of ocular morbidities, closely followed by cataract (40.4%) while other morbidities included aphakia (11.1%), pterygium (5.2%), and glaucoma (3.1%). In another community based study conducted in Delhi, it was found that problems related to vision and hearing topped the list, closely followed by backache and arthritis.

Non-Communicable Diseases: It is observed that irrespective of socio-economic status, non-communicable diseases requiring proper care are observed among the old aged. These diseases mostly result in disabilities that deter the normal life style of elderly. In addition, the treatment of these diseases is costly thereby making it difficult for dependent older people to get health care.

The National Sample Survey 2004 reported that:

- The burden of morbidity in old age is very high
- Non communicable diseases are extremely common in older people irrespective of their socio-economic conditions
- Disabilities are very common among the old people which restricts them to do their day to Day activities

As per the NSS survey of 2004, the prevalence and incidence of diseases and the hospitalization rates are much higher in old aged people than in the total population. It is also observed that 8% of the elderly people are confined to their bed. This percentage increased to 27% for people older than 80 years.

Geriatric Mental Health Problems: Another important area is the mental condition of the old aged people. People of all ages feel sad or depressed but it is observed that the degree of depression increases with increase in age. In India, the suffering of elderly by metal disorders is under-reported because the elderly do not go for a regular check-up to a hospital and the common mental disorder observed is dementia. Dementia is defined as the global deterioration of individual's intellectual, emotional, and cognitive faculties in a state of impaired consciousness.

World health survey of Karnataka conducted in 2003 found that 50.6% of the total population in the age group of 60-69 years is depressed, in the age group of 70-79 years 66.5% of them feel depressed and 27.8% of the total population in the age group of 80+ years feel depressed. (World Health Survey, Karnataka)

Social & cultural impact on health: The elder people after retirement restrict their activities resulting in limited usage of their mental ability, and slowly confine themselves to the house and even reduce their physical activity. It is deeply rooted in the Indian mind that old age is the age of ailments and the elderly consider many of the health issues that can be cured as natural and inevitable. There is a perception in the society that aged people should their living habits especially their diet by eating less, sleeping more and developing religious interest. However, due the lack of physical activity, absence of work and irregular sleeping habits health issues arise.

In the past traditional families were the key institutions that provided psychological, social, and economic help to the family members. The elders in the family were respected and approached for advice and were taken care of. However, with urbanization and modernization nuclear families are not able to support the aged family members; this has put a great social strain on the healthcare of the elderly.

The rapid urbanization and societal modernization has brought in its wake a breakdown in family values and the framework of family support resulting in, economic insecurity, social isolation, and elderly abuse leading to a host of psychological illnesses.²

Limited supply of Medical and Para Medical Personnel Trained in Geriatric Medicine : Madras Medical College in Chennai is the only college in India offering an M.D course in Geriatrics and the number of MD Geriatrics seats is limited to three per year. There are no other formal training centres for geriatric care and hence there is a dearth of availability of medical and paramedical geriatric specialists. The Government hence under the NPHCE, had issued orders to extend the reach of medical care for the elderly in all the levels of the healthcare – tertiary, secondary, and primary. Government also has planned the Inclusion of geriatric course in the syllabus of medical courses and courses for nurse.

Other Issues in Geriatric Care

The other key issues in geriatric care is as follows,

- Non availability of hospital care
- Financially dependent on children and relative
- Failing health
- Isolation
- Lack of preparedness
- Transportation Issues
- Absence of social security
- Difficult to get continuum care
- Proper referral mechanism is not available
- Disabilities in the old age cause difficulty in doing their day-to-day activities.

Need for Geriatric Healthcare centers in Karnataka

Considering the high cost of medicines and longer duration of treatment of these NCDs & chronic diseases, there is an urgent need to develop separate Geriatrics units to improve the scientific knowledge and quality of healthcare provided to our elderly.

Besides this, the healthcare needs of population less than 60 years of age in Karnataka are huge. In spite of the provision of extensive resources, public healthcare system is still inadequate and under enormous pressure due to the epidemiologic, demo-graphic and health transition in the state. This leads to the predicament of choosing priorities to serve younger or elderly population. Typically, hospital stay of an elderly is more than the younger one, so admitting elderly patients' means longer average length of stay and less bed turn over resulting in blocking hospital beds for longer duration; this leads to further hospital bed crunch. Hence, the most cost-effective option for the state healthcare system will be to

² Source: Ingle GK, Nath A. Geriatric health in India: Concerns and solutions. Indian J Community Med 2008;33:214-8

invest resources in younger population. Moreover, in the era of quality improvement in public healthcare system, GoK would like key performance indicators (KPIs) like Average length of stay, bed turnover rate, death rate etc. of public hospitals to be at par with national average.

Under the National Programme for Healthcare of the Elderly (NPHCE) five districts Tumkur, Chikmagalur, Shimoga, Kolar and Udupi are being provided with a geriatric unit with an 80% funding by the central government and 20% share by the state government. The state government on its part is setting up geriatric clinics cum wards in five districts. It is imperative that a geriatric unit serves the other districts.

To address these medical issues of vulnerable old age patients, establishment and operation of special geriatric clinics in District Hospitals on CSR mode by capable institutions was thought of by GoK. The geriatric clinic will provide day-to-day outpatient and inpatient services for geriatric patients apart from special clinics for specific ailments. The centre will be operated by dedicated staff including doctors, nurses, hospital attendants and cleaning staff and will rely on the district hospital infrastructure for laboratory, diagnostic, ambulatory and referral service. These geriatric clinics will be attached with the Gulbarga, Uttara Kannada and Dakshin Kannada districts of Karnataka.

The rationale for establishing geriatric care centres is not only from the number of patients requiring care but also from the fact that there are no dedicated centres for the specialised medicine. The specialty calls for an integrated and holistic approach to medical care as the mental psyche, physical ability, curing capability, responsiveness of the body to medicines and financial capability of the patients is delicate as well.

1.1.3. Why CSR for this project?

In the section 5.6 of the Karnataka Integrated State Health Policy 2004, Karnataka government has proactively identified the potential role of private sector in the healthcare delivery to the public. Few goals declared in the policy also highlight the GOK's intent for PPP:

1. To establish **equity in delivery of quality health care.**
2. To **encourage greater public private partnership** in provision of quality health care in order to better serve the underserved areas.
3. To **strengthen health infrastructure.**

State government with the help of central government has already made efforts to tackle the problem of geriatric care by launching policies such as the National Policy on Older Persons (NPOP), National Programme for Healthcare of the Elderly (NPHCE), National Old Age Pension Program, etc.

However, the State faces following challenges in making the Geriatric care services available in public hospitals:

1. Meager budget, lengthy procedures, and irregular payment for above stated national programmes, it is becoming increasingly difficult for government to run these initiatives smoothly within its limited fiscal space.
2. Deteriorating infrastructure of the already existing public healthcare institutions increases the cost of providing service to elderly population.
3. Human resource constrains in the public sector and inadequate training, accountability and motivation restricts the service delivery capability.
4. Delay in reporting of problems in the hard & soft healthcare infrastructure lead to bigger and un-reparable problems.

GOK is evolving its role from that of provider to that of a regulator to ensure fair and transparent healthcare delivery to its citizens. This transformation requires the government to not only provide a transparent governance system but also partner with private organizations.

So the need to bring in extra resources, to adopt better management practices and to have technical capacity for better service efficiencies drive the case for partnership with private organizations.

Governments look increasingly into private partnership to,

1. Provide health care services and its effective operation by tapping the expertise of the private sector while maintaining affordable tariffs.
2. Mobilize private capital to speed up the delivery of infrastructure and services and eliminate subsidies.
3. Higher quality of services
4. Access to specialized skills
5. Access to best practices

The Government of Karnataka is proposing the project under CSR because,

1. It caters to the underserved patient population
2. It is an ideal candidate which can qualify as a CSR mandate
3. Promotes the corporate to participate in the healthcare needs of the society
4. Creates awareness among the public on the healthcare needs of the elderly
5. Brings in trained, dedicated and efficient medical manpower to serve the geriatric patients

1.1.4. Objectives of the project

This project has been selected with following specific objectives in view:

1. To enhance scope and service capabilities of public hospitals

2. Provide services to rapidly increasing elderly population of the state at their nearest possible location
3. To improve quality medical care penetration in the state
4. To develop the training capabilities of public hospitals for knowledge and skill up-gradation of medical human resource about specialized geriatric care

1.2 Approach & Methodology, studies, surveys including data collection, analysis

Approach

The approach to the project involved a deep understanding and analysis of,

1. Geriatric population of India and Karnataka
2. Analysis of the problems faced by geriatric patients
3. Analysis of the existing facilities in the selected district hospitals
4. Determination of the needs of a geriatric care clinic
5. Analysis and cost estimation of a district level geriatric clinic
6. A snapshot of CSR activities in healthcare

Methodology

IMaCS conducted the analysis through both primary and secondary studies, the primary analysis involved,

1. Study of the district hospitals and analysis of the facilities' workload
2. Study of established geriatric OP and IP facilities of Madras Medical College, Chennai

The secondary analysis involved,

1. Analysis of the population pattern in the country
2. National Programme for Healthcare of the Elderly (NPHCE),
3. Study of geriatric policies in selected countries
4. Analysis of literature related to geriatric problems and care

1.3 Study of earlier reports or policies in this sector in India/World

India is the home to second largest 60+ populations in the world behind China and the trend is to remain till 2025. It is observed that in India more percentage of old aged people are from rural areas than from urban hence the delivery of medical services is even more challenging. Other observations are 30% of the elderly are below poverty line, more percentage of the old aged people are females and the percentage of older-old (above 80 years) is increasing. These observations are not confined only for

India alone but for most countries in the world, this has led to evolution of host of policies and actions agendas, the policies of Europe and Japan, the fast ageing nations are presented here,

1.3.1 Policies for Geriatric Care in Europe

Europe has the highest median age population in the world and this is continuing to increase. Currently the life expectancy for the 53 countries in the European region is over 72 years for men and over 80 years for women.

The population projections in Europe indicate that the number of old aged who are 65 years and above will double during the period 2010 and 2050. This increase in population growth rates and the increase in life expectancy are leading to higher old-age dependency ratios. To bridge the gap between the need and the available health services to the elderly World Health Organization Europe initialised policies and priority interventions for healthy aging.

Five Priority Interventions for Europe:

WHO Regional office Europe envisages working with countries at various levels of government to design and implement five priority interventions:

- 1) Prevention of falls
- 2) Promotion of physical activity
- 3) Influenza vaccination of old people and prevention of infectious diseases in health care settings
- 4) Public support to informal care giving with a focus on home care including self help
- 5) Geriatric and gerontological capacity building among the health and social care workforce.

Prevention of falls: The risk of falls increases with age and in Europe about 30% of the people above 65 years and 50% of those above 80 years fall every year. Older women are more prone to fall than older men as they have less muscle strength and more likely to have osteoporosis. In old age fall related injuries are likely to be more severe and cause long lasting illness, hospital stays or fatal complications. Fall related injuries incur considerable costs for hospital admissions and rehabilitation interventions.

By raising awareness of risk factors, exercise programmes, physical therapy and balance retraining can reduce falls and number of injuries per fall. Many countries have programmes for home safety assessments and modification by trained professionals that can reduce falls. More specialized prevention measures for high-risk groups of older people have also been designed, such as wearing of hip protectors.

Promotion of Physical Activity: A regular moderate physical activity promotes mental, physical and social well-being and helps prevent illness and disability. For older people, physical activity is beneficial not only because it prevents diseases but also it lowers the risk of injuries, improves mental health and cognitive function, and enhancing social involvement.

The age-related muscle loss amounts to 30-50% by the age of 80. Age related muscle loss in Europe currently affects over 40% of men in European Region aged 70-79 and over 50% of women.

National policies and plans on physical activity usually comprises multiple strategies aimed at raising public awareness, creating supportive environments for physical activity to take place and supporting individuals to make a change. These policies also reduce the health care costs, make the cities livable and attractive, reduce air pollution, and revitalize the environment.

Influenza vaccination of old people and prevention of infectious diseases in health care settings:

Influenza is an acute viral infection of the respiratory tract that spreads easily from person to person. Influenza virus caused epidemics in the WHO European regions during the winter months.

Influenza causes life-threatening complications including pneumonia and bronchitis or exacerbation of underlying conditions resulting in hospitalization and death. Older people are vulnerable to develop severe disease, which may result in prolonged and costly rehabilitation and recovery.

WHO took up an initiative to vaccinate people who are at risk at developing severe disease, including elderly every year before influenza season begins, the vaccination also reduces direct medical costs.

Public support to informal care giving with a focus on home care: Older people need support with the activities of daily living. The growing prevalence in dementia will further increase the demand for support. In the European countries, the informal caregivers (mostly women) provide most of the care. Public support for informal care giving is one of most important public policy measures for the future sustainability of health and social care in aging population. Care is needed when there are multiple disorders and requires a combination of acute care, rehabilitation, chronic disease management, social care, dementia care and finally palliative care.

Public funding of long-term care is provided through institutions. In some European countries, long-term care provided at home is seen as a preferred and cost-effective alternative to care provided in a nursing home or other facility.

Geriatric and gerontological capacity building between the health and social care workforce: Over the past 20 years, Europe had substantial growth in geriatric education. It became a recognized specialty in medical schools and colleges. Forty-Seven countries in Europe showed 40% overall increase in geriatric seats and under-graduate and post-graduate teaching activities increased by 23% and 19% respectively. However, the growing number of very old people requires further strengthening of capacity for training of geriatrics and gerontology.

To bridge this gap WHO regional office corporate with collaborates such as European Commission and the Organization for Economic Corporation and the Development in the international monitoring of the health and social care workforce.

1.3.2 Policies for Geriatric care in Japan

Japan has the highest average life expectancy with 79 for Males, 86.1 years for female and 82.6 overall, making them the country with greatest longevity. With the increase in life expectancy and reduction in live birth rate, population aging has increased rapidly. The population projections indicate that by 2025, 27.4% will be more than 65 years of age and the number of elderly who will be bed-ridden, has

dementia or other difficulties, and in need of support will increase to 5.2 million. Some of the policies Japan has for the healthy elderly are mentioned below:

The Welfare law for the elderly: This was introduced in 1963 and this law provides homes for the elderly, home care aid services, respite care and other similar services by using the funds from taxes of the Central and local government. Earlier the services could just be availed by low-income elderly who do not have anyone to care of, currently the coverage is expanded, and it covers any elderly person who needs long term care.

The fees is collected based on their income level, it could be completely free or sometimes 100% can also be charged. In actual practice, providing services to low income earners is given priority over the middle-income earners.

The Health Service System for the Elderly: The facilities provided under the Welfare law for the elderly were not a sufficient to meet the rapid increase in demand as the aging of the population progresses. Under *The Health Service System for the Elderly* started in the year 1982, the hospitals came forward to offer living space for the elderly people in need of care. In Japan everyone is covered under insurance plan for medical services, therefore, people can visit any hospital of their choice irrespective of their income status. The elders get the insurance coverage by paying a smaller co-payment (5% of the medical expenses) compared to the other people. Because of these policies, the average length of stay in Japan (33.7 days in 1995) General hospitals is much longer than in other countries.

The two policies, Welfare System for the Elderly and the Health Service System for the Elderly provide the Long-term care services for the elderly in Japan.

The Gold Plan: Recognizing that family care giving for those elderly people in need of care was becoming increasingly difficult, the Japanese government developed and implemented the Gold Plan in 1989, which defined specific goals to be achieved over a ten-year period ending in 1999. These goals included numerical targets for facilities and workers in the field of long-term care for the elderly.

The municipal governments implemented the gold plan system within their prefecture and formulated a specific action plan for the development of a service infrastructure based on the results of the survey. Subsequently, however, while in the process of creating action plans at local levels, it became apparent that the target levels specified in the Gold Plan were not sufficient to meet the needs of the people. Therefore, in 1994, the Japanese Government revised the Gold Plan and formulated the New Gold Plan by raising the numerical targets.

Public Long -Term Care Insurance System: While the development of the service infrastructure progressed based on the Gold Plan, Japan faced the challenge of deciding how to share the burden of the rapidly increasing long-term care expenses in the society. The answer to this challenge is the public long-term care insurance system. The following three points are the major factors in the background of the introduction of the public long-term care insurance system.

One of the factors was the need to ensure a stable revenue source. Since the launch of the Gold Plan, general tax revenue has been used to fund the infrastructure development for "welfare-" related long-term care services under the welfare system for the elderly, and insurance funds have been used to fund the infrastructure development for "medical care-" related long-term care services under the medical care insurance system. However, it was expected that ensuring the necessary financial sources in response to the future rapid aging of the population would be difficult, because each of these systems does not focus on long-term care. People became more aware that a stable financial source should be secured for the future, while the issue of elder care was one of the most worrisome factors in post-retirement life.

Another aspect to consider is the criticism raised against the conventional allocation system. Today, municipal governments provide home care services, such as home care aid and day care services, and facility services, such as nursing homes, as a part of the "welfare" system.

The third aspect is the deterioration in the fiscal situation of medical care insurance caused by the long-term hospitalization of elderly patients in need of care. Many elderly people in need of care avoid using the welfare system because of various restrictions on the use of services as well as the restricted quantity of services. Instead, they often use the more readily accessible medical care insurance system (the Health Service System for the Elderly) where they opt for a long stay in hospitals. In short, elderly people who should be in special nursing homes, which are less costly, or who should receive services at home, are staying in more costly hospitals.

1.3.3 Policies for Geriatric care in India

To promote the health, well-being, and independence of senior citizens around the country, the government has launched various schemes and policies for older persons over the years. Some of these programmes are enumerated below.

NPOP (National Policy for Older Persons): The central government came out with the National Policy for Older Persons in 1999 to promote the health and welfare of senior citizens in India. This policy aims to encourage individuals to make provision for their own as well as their spouse's old age. It also strives to encourage families to take care of their older family members. The policy enables and supports voluntary and non-governmental organizations to supplement the care provided by the family and provide care and protection to vulnerable elderly people. Health care, research, creation of awareness and training facilities to geriatric caregivers have also been enumerated under this policy. The main objective of this policy is to make older people fully independent citizens.

The National Policy seeks to assure older persons that their concerns are national concerns and they do not live unprotected, ignored, or marginalized. The goal of the National Policy is the well-being of older persons. It aims to strengthen their legitimate place in society and help older persons to live the last phase of their life with purpose, dignity and peace. The Policy visualizes that the State will extend support for financial security, health care, shelter, welfare, and other needs of older persons, provide protection against abuse and exploitation, make available opportunities for development of the

potential of older persons, seek their participation, and provide services so that they can improve the quality of their lives.

This policy has resulted in the launch of new schemes such as-

1. Strengthening of primary health care system to enable it to meet the health care needs of older persons
2. Training and orientation to medical and paramedical personnel in health care of the elderly
3. Promotion of the concept of healthy ageing
4. Assistance to societies for production and distribution of material on geriatric care
5. Provision of separate queues and reservation of beds for elderly patients in hospitals
6. Extended coverage under the Antyodaya Scheme with emphasis on provision of food at subsidized rates for the benefit of older persons especially the destitute and marginalized sections

The national policy stressed on setting up of geriatric wards in all hospitals, training of medical and paramedical personnel in Geriatrics at all levels of health care and promotion of research on ageing. Till now, the national policy has been partly implemented in the eleventh five-year plan. Some centres in our country are doing outstanding work in geriatrics. At Chennai Medical College there is a full-fledged Geriatric Medicine Department with 35 beds as well as a Geriatric Surgery Department. At A.I.I.M.S New Delhi, Geriatric services are available and it has got a geriatric clinic for a long period. Ram Manohar Lohia Hospital and Safdarjung Hospital at New Delhi are also providing geriatric wards. Besides Dr. S.N. Medical College and Hospital at Jodhpur, Institute of Medical Sciences, B.H.U. at Varanasi, G.S. Medical College and KEM Hospital at Mumbai and Government Hospital, Trivandrum have facilities for geriatric care. Amrithanandamayee Institute of Medical Science at Kochi, Kerala has got comprehensive geriatric services. At Kolkata, the first geriatric clinic in this part of the country started functioning at Calcutta Medical College from 04.08.2001. There are geriatric clinics at S.S.K.M Hospital, Kolkata and national Medical College, Kolkata also.

Simultaneously Government of India also developed training modules for medical college's teachers in Medicine and P.S.M. (as Trainer's) who will in turn train the doctors in primary and secondary health care setup.

Ministry of Health and Family Welfare Government of India in 2006 decided that the Geriatric Service at the tertiary care setting should ideally have daily OPDs special clinics like memory clinic, day-care centres and facilities for in-patient care, long term care and community services. Policy makers also agreed to use National Rural Health Mission (NRHM) as a platform to disseminate old age care at the primary level. For this purpose the Accredited Social Health Activist (ASHA) and the Anganwadi Worker (AWW) could be trained to look after the problems of the elderly in addition to their maternal and child health duties.³

³ Source: Ingle GK, Nath A. Geriatric health in India: Concerns and solutions. Indian J Community Med 2008;33:214-8

The ***Integrated Programme for Older Persons*** is a scheme that provides financial assistance up to 90 per cent of the project cost to non-governmental organizations or NGOs as on March 31, 2007. This money is used to establish and maintain old age homes, day care centres, Mobile Medicare units and to provide non-institutional services to older persons. The scheme also works towards other needs of older persons such as reinforcing and strengthening the family, generation of awareness on related issues and facilitating productive ageing.

Another programme of the government is the ***Scheme of Assistance to Panchayati Raj Institutions***, voluntary organizations, self-help groups for the construction of old age homes, and multi service centres for older persons. This scheme provides a one-time construction grant.

Central Government Health Scheme

Senior citizens and retired personnel who have worked in Central Government bodies are assured of their health care needs through the Central Government Health Scheme or CGHS. This scheme for pensioners provides medical assistance to retired central government officials along with their dependents, freedom fighters and widows of government officials. The CGHS Scheme also covers Delhi police personnel, retired judges of the Supreme Court, Parliament secretaries and their families.

The Central Government Health Scheme offers health services through Allopathic and Homeopathic systems as well as through traditional Indian forms of medicine such as Ayurveda, Unani, Yoga and Siddha. These medical facilities are provided through dispensaries and polyclinics. Chief medical officers and medical officers operate these dispensaries and are responsible for the smooth functioning of the scheme.

The main components of the scheme are dispensary services including domiciliary care, specialist consultation facilities, X-ray, Electro Cardiogram (ECG), laboratory testing, hospitalization, purchase and distribution of medicines and provision of health education.

The ***National Mental Health Programme*** focuses on the needs of senior citizens who are affected with Alzheimer's and other dementias, Parkinson's disease, depression and psycho geriatric disorders.

NPHCE in India: To address all these issues and the needs of growing old aged population the Ministry of Health and Family Welfare launched NPHCE – National Programme for Health Care of the Elderly. The programme is implemented in 21 States and Union Territories starting from 2010. The programme covers all the verticals of Indian Public Healthcare. At the tertiary level eight regional medical institutions have been identified to implement the programme, under secondary level 80 district hospitals, 800 CHC's and sub-divisional hospitals have been identified and under primary level 20,000 sub-centers and PHC's have been identified.

The NPHCE is an articulation of the International and national commitments of the Government as envisaged under the UN Convention on the Rights of Persons with Disabilities (UNCRPD), National Policy on Older People (NPOP) adopted by the Government of India in 1999 & section 20 of "The

maintenance and welfare of Parents and Senior Citizens Act, 2007” dealing with provisions for medical care of senior citizens.

UN Convention on the Rights of Persons with Disabilities (UNCRDP): UNCRPD is an international instrument that provides persons with disabilities the same human rights that everyone else enjoys. It marks a radical shift in defining and understanding disability - it moves from a medical/social perspective to a human-rights based approach.

India ratified UNCRPD on 1 October 2007. India was the seventh country in the world and the first significant country to do so. The ratification of UNCRPD was a direct result of the advocacy by NCPEDP and Disabled Rights Group (DRG).

Chapter 2 - Sector Profile

2.1. An Overview

As per Census 2011 results, India's population is 1.21 billion with 0.62 billion males and 0.58 billion females. Total absolute increase in population during the decade 2001-2010 is 18.15 crores. Population growth during the decade remained 17.64 percent. The sex ratio is 940 (females per 1000 males). Annexure 1 gives the state wise population and its percentage share of Indian population.

The age composition by broad age groups for the year 2010 at the National level is shown below in Table 2.1. The percentage of elderly population (60+) in India is 7.5% of the total population. It is observed that the Male-Female differences in the age distribution of population are negligible except in the combined age group of 0-14 and 60+ & 65+. In the age group 0-14, Male population is about one percent more than Female, whereas in the age group 60+ as also 65+, percentage of Female is 0.6 percent more than Male. The old age population is almost equally distributed across the urban and rural areas; rural old aged population is 7.5% of the total and urban old aged population is 7.3% of the total.

Table 1: Percentage Distribution of Population by age group to the total Population by sex and Residence, India 2010

Residence	Sex	Broad Age Group (years)							
		0-4	5-9	10-14	0-14	15-59	60+	15-64	65+
Total	Total	10	10	10.9	30.9	61.6	7.5	64.1	5
	Male	10.2	10.2	11.1	31.5	61.4	7.2	63.9	4.7
	Female	9.8	9.8	10.7	30.2	61.9	7.8	64.4	5.3
Rural	Total	10.6	10.3	11.5	32.4	60	7.5	62.5	5.1
	Male	10.8	10.5	11.7	33.1	59.7	7.2	62.2	4.7
	Female	10.4	10.1	11.3	31.7	60.4	7.9	62.9	5.4
Urban	Total	8.4	9.1	9.3	26.7	65.9	7.3	68.5	4.8
	Male	8.5	9.2	9.5	27.3	65.7	7	68.2	4.5
	Female	8.2	8.8	9	26.1	66.2	7.7	68.7	5.2

Source: Census India 2010 – Vital Statistics

Percentage of aged persons (60 years and above) for India and bigger States by sex and residence is given below in Table 2.2. At the National level, percentage of aged (60+) population is 7.5. It is observed that Kerala, Himachal Pradesh, Tamil Nadu, Maharashtra, Punjab, Orissa, Karnataka, Andhra Pradesh, Jammu & Kashmir, Gujarat, and West Bengal have higher percentage of old age people (> 7% of the total state population) than the other states.

Composition of 60+ aged female populations is higher in all of the bigger States except Assam, Bihar and Jammu & Kashmir. In rural areas, the population in the age group 60+ constitutes 7.3 percent of the total population. Variation in aged population in urban area ranges from 4.8 percent in Delhi to 11.8 per cent in Kerala. The urban proportion of aged population in most of the States is more than the

corresponding rural share except for Assam, Delhi, Haryana, Jammu & Kashmir, Jharkhand, Kerala and West Bengal.

Table 2: Percentage of population in the age group of 60 years and above to the total population by sex and residence, India and bigger states, 2010

India and Bigger States	Total			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
India	7.5	7.2	7.8	7.5	7.2	7.9	7.3	7	7.7
Andhra Pradesh	7.7	7.1	8.4	8.3	7.8	8.9	6.4	5.5	7.3
Assam	5.5	5.6	5.3	5.3	5.5	5.2	6.3	6.5	6.1
Bihar	6.4	6.4	6.3	6.4	6.5	6.3	6	5.9	6.1
Chhattisgarh	6.5	5.9	7.1	6.6	5.9	7.3	6	5.9	6.2
Delhi	5.7	5.4	6	4.8	4.5	5.1	5.8	5.5	6.2
Gujarat	7.5	6.8	8.3	7.8	7	8.6	7	6.3	7.8
Haryana	6.1	5.3	6.9	5.9	5	6.9	6.5	6.1	7
Himachal Pradesh	10.1	9.9	10.3	10.3	10.1	10.5	8.2	8.1	8.3
Jammu & Kashmir	7.7	7.9	7.6	7.6	7.7	7.4	8.4	8.3	8.5
Jharkhand	5.9	5.6	6.2	5.9	5.5	6.3	6	6	5.9
Karnataka	7.9	7.6	8.2	8.4	8.1	8.8	6.9	6.6	7.2
Kerala	11.8	11	12.6	11.8	11	12.6	11.9	11.1	12.7
Madhya Pradesh	6.7	6.4	7	6.7	6.4	7.1	6.6	6.6	6.5
Maharashtra	9.2	8.7	9.7	10.2	9.5	10.8	7.9	7.5	8.2
Orissa	8.7	8.5	8.9	8.9	8.7	9.1	7.5	7.5	7.5
Punjab	8.9	8.4	9.4	9.5	9.1	10	7.9	7.4	8.4
Rajasthan	6.8	6.2	7.4	6.8	6.3	7.4	6.8	6.1	7.5
Tamil Nadu	10	9.6	10.3	10.4	10.1	10.8	9.4	9.1	9.7
Uttar Pradesh	6.4	6.2	6.5	6.5	6.3	6.7	5.9	5.8	6
West Bengal	7.5	7.4	7.5	6.8	6.6	7	9.3	9.6	8.9

Source: Census India 2010 – Vital Statistics

2.2. Regional profile

Karnataka state, with a population of 61.1 million, amount to 5.05% share of India's population. Males constitute 31.1 million and females 30 million of the state populace. In absolute terms, the inhabitants has increased by 8.2 million person during the decade 2001-2011 and in terms of percentage it has registered a decadal growth of 15.67 percent which is below the national average of 17.64. Karnataka is the 9th biggest state in the country in terms of population.⁴

⁴ Source = Census 2011

Out of state's 30 districts, Bangalore Urban with its share of 15.69 percent population is the most populous district in Karnataka. Belgaum with a share of 7.82 percent occupies the second place followed by Mysore (4.90), Tumkur (4.39), Gulbarga (4.20) and Bellary (4.14) districts. Kodagu with a population of just 0.55million is the least populous district in the state, preceded by Bangalore Rural district with 0.98 million. Except for these two districts in the state, all other districts have more than one million populations.

The district wise population for Karnataka is given in Appendix 2. As evident from this table, Uttar Kannada, Dakshina Kannada and Gulbarga contribute 33.89% of Karnataka's population.

Government of India is yet to declare 'Percentage distribution of population by age group to the total Population by sex and residence' tables based on census 2011 results. As per 2001 census, Karnataka had 7.2% to the total population of India with age more than 60 years.

The 2001 age wise population of Karnataka is given in Table 2.3:

Table 3: Percentage distribution of Karnataka population by age group in 2001

Age-group	Population (000')			Percentage to total		
	Males	Females	Persons	Males	Females	Persons
0-4	2717	2626	5343	10.1	10.1	10.1
5-9	2881	2756	5637	10.7	10.6	10.7
10-14	3031	2851	5882	11.3	11	11.1
15-19	2856	2617	5473	10.6	10.1	10.4
20-24	2538	2400	4938	9.4	9.2	9.3
25-29	2225	2245	4470	8.3	8.7	8.5
30-34	1997	2042	4039	7.4	7.9	7.6
35-39	1854	1829	3683	6.9	7	7
40-44	1660	1530	3190	6.2	5.9	6
45-49	1407	1244	2652	5.2	4.8	5
50-54	1092	999	2091	4.1	3.8	4
55-59	810	806	1616	3	3.1	3.1
60-64	649	696	1345	2.4	2.7	2.5
65-69	499	553	1052	1.9	2.1	2
70-74	395	447	841	1.5	1.7	1.6
75-79	186	187	373	0.7	0.7	0.7
80+	100	125	225	0.4	0.5	0.4
Total	26899	25952	52851	100	100	100

Source: Census 2001

Census officials in 2001 gave following 'above 60 years age population projection for Karnataka',

Table 4: Population projections of old aged people (60+, 70+ and 80+ years) in Karnataka based on census 2001

	2001	2006	2011	2017	2021	2026
60 and Above						
Number (in 1000's)	3836	4553	5464	6650	8075	9680
Percentage to the total population	7.2	8.2	9.3	10.7	12.4	14.5
70 and Above						
Number (in 1000's)	1439	1866	2287	2723	3322	4125
Percentage to the total population	2.7	3.4	3.9	4.4	5.1	6.2
80 and Above						
Number (in 1000's)	225	339	571	742	924	1111
Percentage to the total population	0.4	0.6	1	1.2	1.4	1.7

Source: Census 2001

However results of 'Census India 2010' revealed that Karnataka had 7.9% to the total population of India with age more than 60 years in 2010. Data shown in Table 2.2 clearly depicts that Karnataka stands 7th in India in terms of percentage population in the age group 60 and above in the country. The urban proportion (8.4%) of aged population in Karnataka is more than the corresponding rural share (6.9). It is observed from the above table that there had been significant Male-Female differences in the distribution of aged population both in urban and rural Karnataka. Female population was about 0.6 percent more than males.

2.2.1. Business prospect in Healthcare sector of Karnataka:

Karnataka, as far as state's performance in healthcare and creating conducive environment for business growth in healthcare is concerned, has always been at the forefront of it.

In December 2007, Bangalore ranked 2nd among the 593 districts in the country in terms of existence of health facilities. Bangalore rural district stood at an impressive 67. 10 districts in Karnataka have below-100 ranking as shown in the table below:

Table 5: Ranking of districts of Karnataka on the basis of existence of Health Facilities

District	Rank
Belgaum	211
Bellary	247
Bidar	243

Bijapur	302
Chikmagalur	52
Chitradurga	135
Dakshina Kannada	47
Davangaere	114
Dharwad	112
Gadag	194
Gulbarga	333
Hassan	39
Haveri	146
Kodagu	72
Kolar	81
Koppal	339
Mandya	95
Mysore	80
Raichur	355
Shimoga	46
Tumkur	101
Udupi	35
Uttara Kannada	99

According to McKinsey survey report, commissioned by the Confederation of Indian Industry in March 2011, Karnataka's GDP grew at 8.7% between 2005 and 2010. The report predicts South India could spearhead the country's growth over the next few years with its GDP projected to hit \$500 billion by 2016 and close to \$650 billion by 2020.

GOK's intense focus on providing quality healthcare to the state population, its proactive approach on PPP model, increasing per capita income and provision of insurance coverage to aged population makes Karnataka an ideal place for investment in healthcare segment.

2.3. Key Issues

The key issues for setting up Geriatric care centre are:

1. The percentage of elderly population is continuously increasing thus the demand of geriatric healthcare services.
2. Poor physical infrastructure and resource crunch in the existing public healthcare system limit further increase in scope of service availability.
3. Poor health indicators, non fulfillment of MDG targets and inadequacy of available basic healthcare services like MCH, Immunization etc. takes more attention and share from limited resources putting geriatric care at the back burner.
4. High cost of medicines and longer duration of treatment constitute a greater financial burden
5. Financial dependence of elderly population on younger one who finds it extremely difficult to juggle careers, children and parents needing constant medical attention.
6. Absence of social security and proper referral mechanism
7. High Out Of Pocket (OOP) expenditure on healthcare in India. The WHO's World Health Statistics 2012, says almost the common man paid 60% of total health expenditure in India from his own pocket. As per its estimations, 3.2% Indians would fall below the poverty line because of high medical bills with about 70% of Indians spending their entire income on healthcare and purchasing drugs. The Planning Commission too accepts that OOP to pay for healthcare costs is a growing problem in India.
8. Lack of availability of separate and specialized comprehensive healthcare to senior citizens in the state
9. Lack of interest among medical fraternity in geriatric care specialization; all levels of medical human resource including doctors find other specialization more lucrative and promising than geriatric medicine where the remuneration is limited
10. Lack of facilities in the state to train and develop human resource for provision of specialized geriatric care services, medical rehabilitation and therapeutic interventions to elderly population
11. Lack of interest of the private sector, which doesn't see it a commercially viable business prospect.

Chapter 3 - Market Assessment

3.1. Industry Outlook

In India there are approx. 12000 hospitals comprising of about 7 lakh hospital beds. Most of the hospital beds are under government sector. There has been tremendous growth in recent years in hospitals under private sector. The elderly population approaches hospitals mostly during acute illness depending upon physical and financial accessibility. A fractured hip, pneumonia, stroke or heart attack may necessitate immediate professional attention.

Problems in these hospitals are that most of these hospitals have no geriatric wards fulfilling the specific requirements and needs of geriatric patients. Keeping in view the delay in convalescence of the geriatric patient, once a patient is admitted, beds are occupied for a long time and thus hospital are also hesitant to admit such patients because they are economically limited. Also these hospitals are not designed to provide long term care so as soon as the patient's condition improves he or she is sent home, and are looked after by relations. So there is an acute dearth of specialized geriatric care units in hospitals or as standalone centres.

3.2. Opportunities and demand projections

IMaCS analyzed the population trends of India and Karnataka given in the previous chapter. Based on the census 2011 population of selected districts, current demand of IPD beds for elderly patients was calculated for each district based on WHO guidelines. Analysis for district **Gulbarga** is as given below,

Table 6: Current hospital bed requirements for Geriatric patients in Gulbarga district based on WHO guidelines

Current hospital bed requirements for Geriatric patients in Gulbarga district	
Percentage of population in the age group of 60 years and above in Gulbarga district	7.90%
Admissions per year per 1000 population: Direct population	16.50%
Admissions per year per 1000 population: Indirect population	5.50%
Average length of stay in days	10
Occupancy rate desired	85%
Population of Gulbarga Metropolitan area as per Census 2011 (Direct Population)	541617
Population of rest of the district as per Census 2011 (Indirect Population)	2023275
Population in the age group of 60 years and above in Gulbarga Metropolitan area	42788
Population in the age group of 60 years and above in rest of the district (Indirect Population)	159839
Admissions per year from direct population	7060

Admissions per year from indirect population	8791
Total admissions per year	15851
Total bed days per year (Total admission X ALOS)	158511
Total bed days per day with 100% occupancy	434
Total bed days per day with 85% occupancy	511

Adapted from the book; Principles of Hospital Administration & Planning, 2nd edition by BM Sakharkar; JAYPEE Publishers

Above calculations, project the current demand of 511 hospital beds exclusively for elderly population in Gulbarga district.

Analysis for district **Uttar Kannada** is as given below,

Table 7: Current hospital bed requirements for Geriatric patients in Uttar Kannada district based on WHO guidelines

Current hospital bed requirements for Geriatric patients in Uttar Kannada district	
Percentage of population in the age group of 60 years and above in Uttar Kannada district	7.90%
Admissions per year per 1000 population: Direct population	16.50%
Admissions per year per 1000 population: Indirect population	5.50%
Average length of stay in days	10
Occupancy rate desired	85%
Population of Uttar Kannada Metropolitan area as per Census 2011 (Direct Population)	81,427
Population of rest of the district as per Census 2011 (Indirect Population)	1,355,420
Population in the age group of 60 years and above in Uttar Kannada Metropolitan area	6433
Population in the age group of 60 years and above in rest of the district (Indirect Population)	107078
Admissions per year from direct population	1061
Admissions per year from indirect population	5889
Total admissions per year	6951
Total bed days per year (Total admission X ALOS)	69507
Total bed days per day with 100% occupancy	190
Total bed days per day with 85% occupancy	224

Adapted from the book; Principles of Hospital Administration & Planning, 2nd edition by BM Sakharkar; JAYPEE Publishers

Above calculations, project the current demand of 224 hospital beds exclusively for elderly population in Uttar Kannada district.

Analysis for district **Dakshina Kannada** is as given below,

Table 8: Current hospital bed requirements for Geriatric patients in Dakshina Kannada district based on WHO guidelines

Current hospital bed requirements for Geriatric patients in Dakshina Kannada district	
Percentage of population in the age group of 60 years and above in Dakshina Kannada district	7.90%
Admissions per year per 1000 population: Direct population	16.50%
Admissions per year per 1000 population: Indirect population	5.50%
Average length of stay in days	10
Occupancy rate desired	85%
Population of Dakshina Kannada Metropolitan area as per Census 2011 (Direct Population)	510,000
Population of rest of the district as per Census 2011 (Indirect Population)	1,573,625
Population in the age group of 60 years and above in Dakshina Kannada Metropolitan area	40,290
Population in the age group of 60 years and above in rest of the district (Indirect Population)	124,316
Admissions per year from direct population	6648
Admissions per year from indirect population	6837
Total admissions per year	13485
Total bed days per year (Total admission X ALOS)	134853
Total bed days per day with 100% occupancy	369
Total bed days per day with 85% occupancy	435

Adapted from the book; Principles of Hospital Administration & Planning, 2nd edition by BM Sakharkar; JAYPEE Publishers

Above calculations, project the current demand of 435 hospital beds exclusively for elderly population in Dakshina Kannada district.

As the number of elderly persons in India and Karnataka are increasing at rapid pace, hospital bed requirements will be more in coming years. IMaCS finds it as a significant business opportunity, which can only grow. Sheer size of Geriatric population in India presents a huge opportunity for health care service providers to extend treatment and care even after discharge from the hospital. This market in India is virtually untapped at present.

These centers will not be only for those who are sick with a debilitating or terminal illness but for all those who need assisted living. Thus, these centers will offer continuous care both in terms of managing day-to-day chores as well as state of the art medical care.



Service providers of this specialized segment have to handle the business sensitively; compassion, kindness and a missionary sense of service delivery must be critical business drivers along with profits.

Chapter 4 - Project

4.1. Description of the Project

In order to cater to the needs of the elderly in Karnataka Government planned to set up District Geriatric Units. The project plan is to set separate Geriatric units in three districts of Karnataka – Uttara Kannada, Dakshina Kannada and Gulbarga under CSR mode (Corporate Social Responsibility).

At inception, each hospital will have one 10-bedded Geriatric care centre. This is in line with the guidelines of NPHCE. In future, if need be, this project will have phased expansions in consultation with the state authorities. Currently this facility is not available in any public hospital of the above districts.



4.2. Description of the site - Gulbarga

Gulbarga district is located in the northern part of Karnataka State. This district is bounded on the West by Bijapur district and Solapur district of Maharashtra state, on the North by Bidar district and Osmanabad district of Maharashtra state, on the South by Yadgir district, and on the East by Ranga Reddy district of Andhra Pradesh state.

- i. **Demographic profile:** District population has gone up by 17.94 percent compared to 2001 population. Following table gives the demographic details of Gulbarga district:

Table 9: Demographic profile of Gulbarga District

Total population	2,564,892
Male	1,307,061
Female	1,257,831
Population growth	17.94%
Density/Km²	233
Proportion to Karnataka population	4.20%
Sex ratio	962
Average Literacy	65.65
Male Literacy	75.11
Female Literacy	55.87
Total Child Population (0-6 years)	352,162
Child Proportion (0-6 years)	13.73%

Source: Census 2011

- ii. **Gulbarga city** is the administrative headquarters of Gulbarga District. Gulbarga is 613 km north of Bangalore and well connected by road to Bijapur, Hyderabad and Bidar. As of the 2011 India census Gulbarga had a population of 532,031. Males constitute 55% of the population and females 45%. Gulbarga has an average literacy rate of 67%, higher than the national average of 59.5%: male literacy is 73%, and female literacy is 60%. In Gulbarga, 13% of the population is under 6 years of age.
- iii. **Gulbarga District Hospital:** Gulbarga has a 400-bedded district hospital and it has a newly built 500-bedded hospital block, which will start operations soon. Before the demolition of the old building, the hospital was a 750 bedded district hospital.

Table 10: The patient load at Gulbarga District Hospital – 2009 to 2011

Year	In-patient load	Out-patient load
2009	16723	380384
2010	18289	357714
2011	18323	349094

Geriatric OPD/ Ward Details of Gulbarga District Hospital:

The hospital used to have a 20-bedded geriatric ward (10 beds for male and 10 beds for female). Due to the demolition of the old building the ward is now not in existence. Out of 20 beds, 15 to 17 beds always used to be occupied (as per earlier census). About 30 to 40 % of the total OPD caseload is Geriatric, and about 75 to 80 geriatric patients undergo inpatient care every month.

Hospital Laboratory and Diagnostic Facilities

The hospital has adequate Radiology and Laboratory services available where the geriatric patients can get the tests done. Major radiology and laboratory equipments available in Gulbarga District Hospital are as follows:

The hospital diagnostics department consists of the following major equipments,

1. 1 300 ma X ray
2. 1 CT scan single slice
3. 1 800 ma X ray
4. 1 500 ma X ray
5. 1 60 ma X ray
6. 1 Ultra Sound
7. ABG Machine
8. Cell counter (Automated haematology analyser)
9. Auto Analyser
10. Semi auto Analyser
11. Urine Analyser
12. Calorie meter
13. Electronic microscope
14. Centrifuge
15. ILR
16. Refrigerators

4.3. Description of the site - Uttar Kannada

Uttara Kannada, also known as North Kanara, is a Konkan district in the Indian state of Karnataka. It is bordered by the state of Goa and Belgaum District to the north, Dharwad District and Haveri District to the east, Shimoga District and Udupi District to the south and the Arabian Sea to the west. The city of Karwar is the administrative headquarters of the district. Uttara Kannada District is one of the biggest districts of our State with abundant natural resources.

Demographic profile: District population has gone up by 6.15 percent compared to 2001 population. Following table gives the demographic details of Uttar Kannada district:

Table 11: Demographic details of Uttar Kannada District

Total population	14,36,847
Male	7,27,424
Female	7,09,423
Population growth	6.15%
Density/Km ²	140
Proportion to Karnataka population	2.35%
Sex ratio	975
Average Literacy	84.03
Male Literacy	89.72
Female Literacy	78.21
Total Child Population (0-6 years)	14,6457
Child Proportion (0-6 years)	10.19%

Source: Census 2011

- i. **Karwar City** is the administrative headquarters of Uttar Kannada District. As of the 2011 India census Uttar Kannada had a population of 81,427. Males constitute 52% of the population and females 48%. Karwar has an average literacy rate of 84.03%, higher than the national average of 59.5%: male literacy is 89.72%, and female literacy is 78.21%. In Karwar, 10.19% of the population is under 6 years of age.
- ii. **Uttar Kannada District Hospital:** District Hospital, Karwar is a 400-bedded 30 yrs old government hospital. The length of stay varies from 3 days to 3 months depending upon the

case. The various specialties available in the hospital are: Medicine, Gynecology, OBG, Pediatric, General Surgery, Orthopedic, Anesthesia, ENT

Table 12: The patient load at Uttar Kannada District Hospital – 2008 to 2010

Year	In-patient load	Out-patient load
2008	2698	85805
2009	2422	117669
2010	2634	86999

Geriatric OPD/ Ward Details of Uttar Kannada District Hospital:

The hospital do not have dedicated geriatric ward. About 30 to 40 % of the total OPD caseload is Geriatric, and about 75 to 80 geriatric patients undergo inpatient care.

Hospital Laboratory and Diagnostic Facilities

The hospital has basic Radiology and Laboratory services available where the geriatric patients can get the tests done. Major equipments available in the radiology and laboratory equipments available Uttar Kannada District Hospital are as follows:

The hospital diagnostics department consists of the following major equipments,

- | | |
|------------------------------------|--------------------------|
| 1. 1 200 ma X ray | 9. Semi auto Analyzer |
| 2. 2 15 ma X ray | 10. Incubator |
| 3. 1 800 ma X ray | 11. Hot air oven |
| 4. 1 100 ma X ray | 12. Weighing balance |
| 5. 1 Ultra Sound | 13. Monocular Microscope |
| 6. 1 500 ma X ray | 14. Centrifuge |
| 7. 300 ma X ray | 15. Syringe Destroyer |
| 8. Erba Smart Lab (Batch Analyzer) | 16. Refrigerators |
| | 17. Water Bath |

4.4. Description of the site – Dakshina Kannada

Dakshina Kannada, also known as South Kanara, is a coastal district in the state of Karnataka in India. It is bordered by Udupi District to the North, Chikkamagaluru district to the Northeast, Hassan District to the East, Kodagu to the southeast, and Kasaragod District in Kerala to the South. The Arabian Sea bounds it on the West. Mangalore is the headquarters of the district.

- iv. **Demographic profile:** District population has gone up by 17.94 percent compared to 2001 population. Following table gives the demographic details of Dakshina Kannada district:

Table 13: Demographic details of Dakshin Kannada District

Total population	2083625
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Male	1032577
Female	1051048
Population growth	9.80%
Density/Km ²	457
Proportion to Karnataka population	3.41%
Sex ratio	1018
Average Literacy	88.62
Male Literacy	93.31
Female Literacy	84.04
Total Child Population (0-6 years)	202670
Child Proportion (0-6 years)	9.73%

Source: Census 2011

- v. **Mangalore** is the administrative headquarters of Dakshina Kannada District. Located 347 km. from Bangalore on the coast, Mangalore, has been a trading centre for several centuries. As per the 2011 India census Dakshin Kannada had a population of 5,10,000 people. Males constitute 50% of the population and females 50%. Dakshina Kannada has an average literacy rate of 88.62%, higher than the national average of 59.5%: male literacy is 93.31%, and female literacy is 84.04%. In Dakshina Kannada, 9.73% of the population is under 6 years of age.
- vi. **Dakshina Kannada District Hospital:** Dakshina Kannada has a 705 bedded district hospital and is attached to the medical college (KMC, Mangalore), an additional 200-bedded Pediatric wing has been donated by Infosys foundation. This wing is named as Regional Advanced Pediatric Care Centre.

Table 14: The patient load at Dakshina Kannada District Hospital – 2006 to 2011

Year	In-patient load	Out-patient load
2006	14935	138857
2007	16512	140910
2008	17263	133569
2009	18094	132618
2010	17173	119741
2011	19435	188212

Geriatric OPD/ Ward Details of Dakshina Kannada District Hospital:

The hospital have a geriatric inpatient care ward of 10 beds with very less bed occupancy rate because of poor infrastructure and most of the cases are admitted in respective care ward e.g.: the Eye disease patients were admitted in Ophthalmology/ post surgical inpatient care ward. About 10 to 20% of the total OPD caseload is Geriatric cases, and about 75 to 80 geriatric patients undergo in patient care every month.

Hospital Laboratory and Diagnostic Facilities

The hospital has adequate Radiology and Laboratory services available where the geriatric patients can get the tests done. Major radiology and laboratory equipments available in Dakshina Kannada District Hospital are as follows:

- | | |
|---|---------------------------|
| 1. 1 300 ma X ray | 8. Semi auto Analyzer |
| 2. 1 CT scan | 9. Urine Analyzer |
| 3. 1 500 ma X ray | 10. Calorie meter |
| 4. 4 portable X ray machines | 11. Electronic microscope |
| 5. 3 Ultra Sound | 12. Centrifuge |
| 6. Cell counter (Automated hematology analyzer) | 13. ILR |
| 7. Auto Analyzer | 14. Refrigerators |

4.5. Case study of Department of Geriatric Medicine, Madras Medical College

Geriatric Healthcare in India being at nascent stage as compared to other medical healthcare services, no case study of a geriatric centre being run on CSR/PPP mode is available in the country. Madras Medical College is standout medical institution in this regard for being the only medical college in the country to run a post graduation course (M.D.) in Geriatric Medicine.

The Department of Geriatric Medicine was started in 1978 by Dr. V. S. Natrajan MD, FRCP, former Professor & HOD to help the needs and destitute elders. MMC is the only college in India with a dedicated Geriatric Medical Department. The outpatient services were started in 1978 to address the physical, mental, and social problems of the elderly. In 1986 a separate ward for General Medicine was started for acute care and rehabilitation. An osteoporosis clinic is conducted every Friday starting from 2003.

MMC is the only college in India offering post-graduate course in Geriatrics (MD – Geriatrics). The college conducts a community based outpatient service at Government Peripheral Hospital, Periyar Nagar once a week.

Services offered in the Department:

Outpatient Services: The outpatient services were started in the Medical College and the Government hospital in 1978. It was started to address the issues of people older than 60years of age. Located in

room 32 in the Government hospital they take care of the social, physical, mental issues of the elderly. The outpatient services are offered 5 days a week from Mondays to Fridays from 8 A.M to 10 A.M.

The department organizes an osteoporosis clinic every Friday to screen osteoporosis. Osteoporosis is thinning of bones and loss of bone density over time. This clinic intends to detect osteoporosis in its early stages and treat it. The department conducts an outpatient service at Government Peripheral Hospital, Periyar Nagar once a week and about 350 patients are being treated there.

In-Patient Services: The in-patient ward has 34 beds of which four beds are reserved for intensive care and 10 beds for the long-term care. The department treats acutely ill elderly patients who have multiple problems. The department also has social and rehabilitation centers.

Community based rehabilitation is also organized at Government Peripheral Hospital, Periyar Nagar once they are treated and there is a need for treatment of chronic diseases they are shifted to the Government Peripheral hospital.

Department of Geriatric Surgery: The Geriatric medical OP service was started in the year 1978. Initially the elderly patients with surgical problems were getting admitted in the Geriatric medical OP but since the number of patients has been increasing a separate Geriatric Surgery Outpatient Services to care the elderly with surgical problems was started.

A separate Geriatric Surgery department was started in the year 1990. The goal of the Geriatric surgical department is to provide comprehensive surgical care like promotional, preventive and curative care with human approach.

Prof. R. Sivaraman the founder became the first professor and Head of the Department. Two Assistant Professors of surgery department were posted to Geriatric surgery by deputation. House surgeons were posted regularly to assist the departmental work. 20 beds were sanctioned for the department and because of local arrangement, the bed strength increased to 25.

32140 outpatients were treated in 2008, and the in-patients treated in the same year are 840.

4.6. Case Study on Help Age India

This Non-profit Organization was started in 1978 registered under the Societies Registration Act of 1860. This organization tries to protect the rights of the elderly in India and through various interventions tries to provide relief to the old aged people.

They affect the lives of the old people by providing services they offer.

- They advocate with National and State Government to introduce the policies that are beneficial to the elderly
- They spread awareness regarding the issues faced by elderly people and better understanding of the concerns of the old aged people

- They help the elderly understand their rights and make them play an active role in the society

Advocacy:

Value Education on Age Care: Helpage India is closely working with schools, academicians, policy makers and school principals and making them include Value education on age care in school curriculums. This will inculcate right values in children and sensitizes them towards elder needs.

Working with Senior Citizen Associations (SCA): Helpage organize seminars with SCAs in various states to advocate them the rights and entitlements of elderly. These seminars are making Government take quick decisions in implementing policies for the elderly and the Maintenance & Welfare of the Parents and Senior Citizens Act, 2007. They are organizing health camps in various states, which will help elderly people to raise their voice against their issues.

Healthcare:

Mobile Medical Units (MMU): Every MMU has a qualified doctor, pharmacist and a social worker. In 2008-09 MMUs did 10 lakh treatments in 19 states. MMUs brings basic healthcare to the doorstep of the elderly. Apart from this, they also provide additional services like giving yoga and meditation classes, shelter assistance, conducting multi-specialty camps, home visits to bedridden elderly and disability aids.

Physiocare: Helpage realized the importance of physio care in the early stages of old age to prevent or delay in disabilities, and now is spreading its wings across the nation.

Palliative Care: With more than 100 community volunteers, palliative care is given by a team of trained professionals when the patient's disease is no longer responsive to curative treatment and life expectancy is short. A 3-year pilot project has been developed in partnership with Indian Association of Palliative Care & Institute of Palliative Medicine, Calicut.

Eye Care: Every year Helpage conducts thousands of free cataract surgeries. It helps the elderly who could not afford to spend money for a simple eye operation. It helps them see their loved ones face again.

Social Protect:

Sponsor – A – Grandparent: Through this initiative Helpage helps many old aged people to live with dignity and respect. They sponsor the old aged people by providing basic ration, daily use articles, clothing and some money to sustain the year.

Elder Helpline: Helpage India started their first elder helpline in Chennai in 2005. Through the helpline, they address the issues of elderly such as isolation, neglect, facilitate emergency responses, provide information on access to various elderly schemes and linkages with the government, police, and give counseling. Currently the elder helpline is active in Hyderabad, Delhi, Cuddalore, Mumbai, Bhopal, Dehradun, Kolkata, Guwahati, Srinagar, Chennai, Patna, Bhubaneshwar and Shimla. They have also planned to launch this in other states.

Livelihood Support: To make the elderly independent and self-sufficient, Helpage launched several micro-credit schemes and income generation plans. This restores the financial stability in the lives of the destitute elderly.

Shelters:

Old age home/Day Care Centers: For all those who do not have a roof for shelter Helpage provides Old age homes, which serve as the elders home. These Day care centers go beyond just providing shelter; it envisions a residential complex for elders who offer broad range of services and comfort beyond just shelter.

Disaster Mitigation:

Relief & Rehabilitation: When disaster strikes it is always the elderly who cannot move to a safe place and hence they get affected. They do not even get the relief material as they get side-lined by younger and more able bodies. Helpage provides rehabilitation to these elders and provides them the relief material for long-term sustainable options. Helpage has run relief and rehabilitation projects post Kashmir and Gujarat earthquakes, Orissa cyclone and floods, 2004 Tsunami and Bihar floods in 2008 among the others.

Other NGO's are the Dignity Foundation, Indian Association of Retired Persons, The Alzheimer and Related diseases Society of India (A.R. D.S.I.) etc. In South Kolkata, the Bethune Institute of Geriatrics Research and Rehabilitation Centre are also doing commendable work at the community level. Apart from these there are numerous old age homes and day-care centres throughout our country

4.7. Case Study on NPHCE

To address all these issues and the needs of growing old aged population the Ministry of Health and Family Welfare launched NPHCE – National programme for Health Care of the Elderly. The programme will be implemented in 21 States and Union Territories starting from 2010. Rupees 288 Crore has been granted for the programme of which 80% i.e. Rs. 248 Crore will be borne by the Central Government and the rest Rs. 48 Crore will be borne by the State Government. The program covers all the verticals of Indian Public Healthcare. Under tertiary level 8 regional medical institutions have been identified to implement the program, under secondary level 80 district hospitals, 800 CHC's and sub-divisional hospitals have been identified and under primary level 20,000 sub-centers and PHC's have been identified.

To achieve this Government proposed to set up District Geriatric Units with dedicated Geriatric OPD and 10-bedded ward in 80-100 District hospitals.

As per NPHCE, the District Geriatric Unit should provide the following package of services:

1. Geriatric Clinic for regular dedicated OPD services to the elderly
2. Facilities for laboratory investigations for diagnosis and provision of medicines for geriatric medical and health problems

3. Ten-bedded Geriatric ward for in-patient care of elderly
4. Existing specialties like General Medicine; orthopedics, Ophthalmology, ENT services etc. will provide services needed by the elderly people
5. Provide services for the elderly patients referred by the PHCs/CHCs etc.
6. Conducting camps for Geriatric Services in PHCs/CHCs and other centers
7. Referral services for severe cases to tertiary level hospitals

The Government selected five districts in Karnataka for the initial implementation of the programme. They are Tumkur, Chikmagalur, Shimoga, Kolar, and Udupi. Apart from these five districts, Government planned to set up separate Geriatric Unit in District Hospitals under CSR mode in three districts – Uttar Kannada, Dakshina Kannada and Gulbarga.

4.8.Components of the project

The project will have following key components,

Out-Patient Department: A clinic (or outpatient clinic or ambulatory care clinic) is a health care facility that is primarily devoted to the care of outpatients. The services that will be offered in this department are:

- Routine outpatient care for geriatric patients
- Palliative care

In-Patient Department: The department where a hospital patient occupies a bed for at least one night in the course of treatment, examination, or observation.

The following services will be offered for the old aged:

- Old aged people who need continuous supervised medical care will be admitted in in-patient ward.
- The 10 bedded ward also has 2 beds reserved for terminal ill patients and 2 beds for bed-ridden patients

Physiotherapy Department:

Basic physiotherapy treatments like Cervical and Pelvic Traction, Trans Electric Nerve Stimulators, UV therapy and Short Wave Diathermy will be made available in the physiotherapy room

Clinical Laboratory:

Basic clinical lab will be available for routine diagnostic tests. Patients requiring high end blood tests or radio-diagnostic investigations will be referred to district hospital.

Besides these facilities, Geriatric centre will also provide following services on predefined days every week;

- Psychiatric services patients who are suffering from depression and other related ailments

- Proper referral system will be made available when there are requirement
- Laboratory and diagnostic services will be availed from the attached district hospital
- Special clinics for osteoporosis, diabetes, dementia clinics, cardiac treatment etc will also be conducted to address the issues of the elderly

The associate components of parking lot and open space for ambulance movement will already be there as a part of the existing hospital infrastructure.

4.9.Planning consideration

1) Building Requirement

The building that will be constructed should have space for the following areas:

1. Geriatric IPD Ward to accommodate 10 beds of which 2 beds are earmarked separately to take care of the bed ridden or home bound old aged patients
2. Geriatric OPD Ward where the old aged people can consult the doctor for any ailments throughout the week
3. Basic clinical lab for routine blood investigations of elderly patients.
4. Physiotherapy Room where the physiotherapy equipments is made available and the physiotherapy procedures are done
5. Examination room where doctor conducts the examination of the patients
6. Waiting hall where there are facilities for the OP
7. Attached toilets for the Geriatric IPD ward
8. Nurse Changing room and Janitor room

It is estimated that at least 2236 sq ft of built up area would be required to house the geriatric ward cum clinic.

2) Machinery and Equipments Requirement

Keeping in mind the ailments the elderly mostly suffer the bio medical equipments required are as follows,

- a) Nebulizer – It is used to administer medication in the form of a mist inhaled into the lungs. It breaks up the medical solution into small aerosol droplets that can be directly inhaled from the mouthpiece of the device.
- b) Glucometer – It is used for determining the concentration of glucose in the blood. The meter reads the small amount of blood on the strip and calculates the blood glucose levels.
- c) Electrocardiography – It is used to measure the rate and regularity of the heartbeats.
- d) Basic clinical lab equipments for routine blood tests.
- e) Non-invasive Ventilator – It is used to assist or replace spontaneous breathing in a person. Air pressure will be created to help the patient breathe.

- f) Short wave diathermy – It is used for the treatment of deep muscles and joints that are covered with heavy soft-tissue mass. It is used for muscle relaxation.
- g) Ultrasound Therapy – It is used to simulate the tissue beneath the skin's surface using high frequency sound waves. This is used to reduce swellings and to massage muscle ligaments.
- h) Cervical traction – It is used for the pain relief of neck muscles
- i) Pelvic Traction – It used to treat fractures, dislocations and long term muscle spasms, to correct or prevent deformities
- j) Transcutaneous Electric Nerve Simulator (TENS) – It uses electric current produced by a device to simulate the nerves for therapeutic purposes. The equipment is connected to the skin using two or more electrodes.
- k) Adjustable Walker – This is really important as the elderly people generally cannot move easily because of knee pain.

3) Furniture Requirement

The furniture needed for each of the rooms is mentioned below:

- a) Geriatric In-patient ward – This will be a 10 bedded ward of which two beds will be for isolation cases and two beds will be for bed-ridden patients. The furniture that should be available in the in-patient ward are,
 - 1. Ten fowlers cot
 - 2. Nine normal mattresses and one alpha bed
 - 3. Ten bed side tables to keep jug of water or their belongings. (one next to each bed)
 - 4. Ten chairs, one each next to the bed for the care takers of the patient
 - 5. Two bedside screens
- b) Geriatric out-patient ward – This room should have
 - 1. Four chairs
 - 2. One table for the doctor
 - 3. Two cupboards – to store the doctors equipment and files
 - 4. One wash basin
- c) Examination Room – The examination room should be closer to the outpatient and in-patient ward so that the elderly need not be moved much in case they should be examined. The room will have:
 - 1. One bed for examining the patient
 - 2. One table next to the bed to keep the equipment that is needed
- d) Physiotherapy Room: This room will have all the physiotherapy equipments. It will also have the following:
 - 1. Two beds
 - 2. One table to put the equipment and the patient files
- e) Clinical Laboratory: Two chairs and one table should be in place in the clinical lab.
- f) Nurse Room: The nurse room should be in a place in the In-patient ward so that all the patients will be under continuous observation. The room should have the following,
 - 1. One table to keep files and books

2. Two chairs facing the ward
 3. One cupboard to keep the medicines
 4. One wash basin
 5. One big table to keep the tray that has patients' medicines on it, one needle cutter and one bin
 6. One crash cart close to the door to move it easily to the patients bed
- g) Waiting room: The waiting room should have 15 chairs.

4) Man Power Requirement

To cater to the needs of the elderly in the society and assist them in their healing process the separate Geriatric unit in the district hospitals should have the following manpower,

1. Doctor in charge/ Medical Officer – This doctor will address the issues of the outpatients who visit every day during the outpatient hours. She/he would also go for rounds in the in-patient ward and interact with the patients to address their issues
2. Nurses – The old people need constant care all the time. We considered 3 shifts per day and 2 nurses per shift making it six nurses in total.
3. Physiotherapist – A trained and a licensed physiotherapist should be available in the district hospital to perform the physiotherapy procedures on the elderly people. One physiotherapist should be there for a 10 bedded district hospital.
4. Counselor – Due to various reasons like isolation, elder abuse etc. old aged people suffer from depression and to handle this, we suggest there should be a counselor in the Geriatric ward of the district hospital
5. Attendants – There should be 2 hospital attendants and 2 sanitary attendants in the Geriatric ward as the elderly need constant care and observation.
6. Nurse In charge/Matron – One matron is needed to assign shifts to the nurses and to keep a check on them
7. Lab Technician – three lab technicians are required to run this facility 24X7.

5) Consumables: For daily operation of the Geriatric ward the consumables would include, medicines, injections, IV fluids, blood transfusion set, I.V Line, gloves, oxygen cylinders, organising health camps etc.

6) Other Costs: Apart from the above infrastructure and operation costs considered, it is expected of the geriatric unit to provide annual training programme in geriatric specialties for its staff members. To promote preventive geriatric healthcare the geriatric unit will be involved in also Information Education and Communication activities.

4.10. Project Design

The district geriatric unit is designed to be as a CSR initiative of capable and willing organisations.

Corporate Social Responsibility (CSR): Corporate social responsibility (CSR, also called corporate conscience, corporate citizenship, social performance, or sustainable responsible business/ Responsible

Business) is a form of corporate self-regulation integrated into a business model to serve the society in a useful way. In most professional companies the CSR policy functions as a built-in, self-regulating mechanism whereby a business monitors and ensures its active compliance with the spirit of the law, ethical standards, and international norms. The goal of CSR is to embrace responsibility for the company's actions and encourage a positive impact through its activities on the environment, consumers, employees, communities, stakeholders and all other members of the public sphere who may also be considered as stakeholders.

Nearly all leading corporate in India are involved in corporate social responsibility (CSR) programs in areas like education, health, livelihood creation, skill development, and empowerment of weaker sections of the society. Notable efforts have come from the Tata Group, Infosys, Bharti Enterprises, ITC Welcome group, Indian Oil Corporation among others.

The 2010 list of Forbes Asia's '48 Heroes of Philanthropy' contains four Indians. The 2009 list also featured four Indians. India has been named among the top ten Asian countries paying increasing importance towards corporate social responsibility (CSR) disclosure norms. India was ranked fourth in the list, according to social enterprise CSR Asia's Asian Sustainability Ranking (ASR), released in October 2009. According to a study undertaken by an industry body in June 2009, which studied the CSR activities of 300 corporate houses, corporate India has spread its CSR activities across 20 states and Union territories, with Maharashtra gaining the most from them.

The project is designed such that a company or group of companies under their programme shall sponsor the geriatric clinic and an NGO healthcare service provider who has prior experience in community healthcare delivery operates the clinic.

Roles and Responsibilities of the Sponsor/Private Partner

The sponsor company/companies shall be responsible for,

1. Providing the necessary building infrastructure
2. Providing the equipment and furniture infrastructure
3. Auditing the centre as per the norms of the organisation for service delivery and expenditure incurred
4. Providing administrative and financial support where necessary

Roles and Responsibility of the Service Provider

1. Recruiting and training manpower for the centre
2. Manning and operating the clinic cum ward
3. Maintaining the supply chain of medicines and consumables
4. Recruiting, training and retaining of man power for the geriatric clinic cum ward
5. Conducting periodic (weekly) health camps and special clinics
6. Co-ordinate with the district hospital for geriatric related cases

Roles and Responsibility of the Government/District Hospital

The Government/District Hospital shall support the geriatric unit by,

1. Providing built up space/vacant space for constructing the clinic
2. Providing laboratory, diagnostic and ambulatory support whenever required
3. Providing food to the in patients from the hospital
4. Providing outpatient/inpatient care using the duty doctors during off duty hours for geriatric clinic doctors
5. Providing a conducive organizational atmosphere for the set up to operate
6. Involving the geriatric unit medical personnel in deciding facility development in the hospital so that the specific considerations of geriatric patients can be taken care of

Chapter 5 - Project Financials

iMaCS follows the total cost concept termed TCO i.e. Total Cost of Ownership while making the financial projections.

5.1 Cost Estimation

The project will be of similar size and stature in all the three districts concerned. If any of the districts have adequate built up area unused the same could be used for setting up the geriatric ward resulting in savings on the building cost, the necessary renovation cost has to be borne as required by the location. However for calculation purposes it is assumed that government will provide land only.

The set-up of the geriatric unit will entail the following,

1. Building of the ward cum clinic to start Geriatric care centre
2. Installation and maintenance of bio medical equipments and furniture
3. Man power cost for operation of the centre
4. Consumables cost for operation of the centre

Under the Infrastructure set up of the project has the following costs considered

- a) Building Cost
- b) Machinery and Equipment cost
- c) Furniture cost

The Operational cost has the following components

- a) Man Power cost
- b) Consumables
- c) Cost of utilities (Power and Water)
- d) Cost of telephone service
- e) Maintenance cost of building and equipments
- f) Contingency budget

Each of the cost components are explained below,

1. Building Cost Estimates:

S.No	Item	Remarks	Product
1	10 Bedded IPD Ward	40*25 feet	1000
2	Waiting area/room	15*10 feet	150
3	Nurse Station	13*10 feet	130
4	Toilets for Nurse	6*10 feet	60
5	Toilets for Doctor	6*10 feet	60
6	3 Toilets (For patients)	6*10 feet	180

7	Physiotherapy room	16*16 feet	256
8	Clinical Laboratory	10*10 feet	100
9	Doctors and Examination Room	18*15 feet	270
10	Nurse Changing Room	10*10 feet	100
11	Janitor Room	6*5 feet	30
	Total Area		2336
	Cost of Development @ Rs 1500/sq ft	1500	3504000
Total Building Cost			3504000

2. Equipment Costs Estimates:

S.No	Item	Quantity	Cost Per Unit	Cost
1	Nebulizer	2	6000	12000
2	Glucometer	2	2000	4000
3	ECG Machine	1	25000	25000
4	Defibrillator	1	10000	10000
5	Non invasive Ventilator	1	10000	10000
6	Ambu Bag	1	2000	2000
7	Short wave diathermy	1	5000	5000
8	Ultrasound Therapy	1	5000	5000
9	Cervical traction (intermittent) set	1	1000	1000
10	Pelvic traction (intermittent) set	1	3000	3000
11	Normal bed for traction	2	8000	16000
12	Biomedical collection setup (4 bin system)	2	2000	4000
13	Lab equipments			20000
14	Tran Electric Nerve simulator (TENS)	1	6000	6000
15	Wheel chair	2	8000	16000
16	Electrical Suction apparatus	1	5000	5000
17	Stretcher Trolley	2	15000	30000
18	Adjustable walker	2	4000	8000
19	Crash Cart	1	15000	15000
20	Invertors for power backup	4	25000	100000
21	Torch	1	500	500
Total Equipment Cost				297500

3. Furniture Cost Estimates:

S.No	Item	Quantity	Cost Per Unit	Product
1	Bedside screens	4	3000	12000
2	Fowler bed with double side stand	10	20000	200000

3	Chairs	34	500	17000
4	Bed side table	10	1500	15000
5	Alpha Bed/Air Bed	2	8000	16000
6	Cupboard for filing and storing	3	15000	45000
7	Table	6	8000	48000
Total Furniture Cost				353000

4. Man-power Cost Estimates:

S.No	Staff	Number	Remuneration	Cost per annum (Rs. Lakh)
1	Doctors	3	25000	3
2	Nurse In charge/Matron	1	20000	2.4
3	Staff Nurses	5	15000	9
4	Physiotherapist	1	15000	1.8
5	Attendant	3	5000	1.8
6	Lab Technicians	3	15000	5.4
7	Sanitary Attendant	2	2500	0.6
Total cost for the manpower (Per year)				24

5. Total Cost Estimates:

S.No	Component	Non Recurring (In Lakhs)	Recurring per annum (In Lakhs)
Capital Cost			
1	Construction of new geriatric ward	35.04	
2	Equipment cost	2.975	
3	Furniture cost	3.53	
Operation Cost			
4	Manpower cost		24
5	Supplies and consumables		12*
6	Power cost		0.36
7	Cost of water for utility		0.12
8	Telephone charges		0.12
9	Maintenance cost of the building		0.05
10	Maintenance cost of equipments		0.05
11	Budget for contingencies		1*
Total		41.545	37.7

**As per NPHCE guidelines*

5.2 Tariff Revenue Stream

Being a project where the objective is to serve the underserved populace it is preferred to give the project on CSR mode. Corporate Social Responsibility (CSR) has been made mandatory in the new Companies Bill 2011, clause 135 wherein every company having net worth of rupees five hundred Crore or more or a net profit of rupees five Crore or more during a financial year shall do some community work to upgrade life quality of the society and make the environment safe. Corporate project their organization's values, mission, vision, theme, and humanitarian approach by picking up CSR projects. Moreover, there are many philanthropists' organizations / individuals currently working in Indian healthcare sector. Therefore, there will not be any dearth of investors for this social cause if "need of having specialized Geriatric care in India" is projected convincingly.

Depending on the availability of sponsors, the project can be operated by,

1. A single company supporting all the costs involved
2. A company spearheading the activities and is supported by other private companies as well
3. A group of companies working in tandem to operate the clinic

Constraints of applying CSR model to this project

After doing the detailed project appraisal and financials in previous sections, IMaCS is of the opinion that setting up a District Geriatric Care Centre on CSR mode is not a feasible proposition. Pushing this model under the prevailing framework of PPP will have critical limitations as both the concepts, by definition and nature, are completely different. Following are the key differences;

1. CSR is supply driven whereas PPP is demand led. Both of them can't gel in one project.
2. CSR by nature is a voluntary activity in which private player works with a motive of philanthropy without seeking any profit whereas PPP model for private player is a strategic move for generating revenue and profits.
3. CSR is non competitive in nature and without any framework to channelize the money and setting up of performance indicators for private player which are necessary components of PPP driven project.
4. CSR, being self driven, is done on one-on-one MoU basis. The scope of competitively selecting technically sound and financially capable private player for this is not part of it. However competitive selection of private player through proper bidding process is essential part of PPP model.
5. Government's ability to enforce responsibilities of private player, monitor his performance and oversight the overall project in CSR model is severely hampered as private player, by default, is expected to do good for the society. So there is no way for mid-term course correction, if need be, for improving the performance to achieve the preset project goals.
6. Inculcating performance indicators in bidding document for selection and monitoring of service providers is very much part of the prescribed PPP framework. This is not the case for CSR driven projects.
7. Given the fact that CSR under the company act is only enacted recently so its rules are still evolving. Hence fitting a project which deals with the health of elderly persons on CSR model will be very challenging.

So we suggest that project of this nature should be taken up on **BOT (Annuity) Model** of PPP. For that we have redesigned this project as per prescribed PPP framework. This will surely attract technically sound and financially capable private players to make it a successful enterprise. This project framework has been described in the following sections.

Chapter 6 - Project Design for PPP model

In order to provide geriatric healthcare centre in Karnataka, government would seek assistance from a private healthcare service provider to fulfill this gap in state healthcare infrastructure.

Inducting a private player on mutually agreed terms and conditions with defined roles and responsibilities is therefore sought for. The boundary conditions for this PPP structure include the following:

1. The Project Assets should vest with the Government of Karnataka and be transferred back at the end of the Concession Period.
2. Fees and charges for various services will be fixed and revised by Government of Karnataka.
3. As part of the PPP contract, GoK will provide land / vacant space within the district hospital premises.

Project structure – Terms and institutional arrangements

The philosophy underlying the proposed PPP model is to secure a comprehensive solution for developing, operating and maintaining the Geriatric Care Centre in District Hospitals of Gulbarga, Uttara Kannada and Dakshina Kannada. The selected private player will be responsible for building the basic infrastructure, bringing in necessary equipments for its operation and maintenance to achieve service level outcomes desired by GoK and citizens of Karnataka. The Project will be implemented under a Concession Agreement (CA) entered into between GoK and Private Service Provider selected at the end of a competitive and transparent bidding process. The period of the Concession Agreement will be 20 (Twenty years) from the Effective Date of the contract. Geriatric care centre will be transferred back to GoK at the end of concession period.

The salient features of the proposed PPP model are described below:

Obligations of GoK

1. Providing vacant space for constructing the clinic
2. Providing ambulatory support, high end laboratory and radio-diagnostic facility to patients whenever required
3. Providing a conducive organisational atmosphere for the set up to operate
4. The GoK will be responsible for monitoring adherence of the Private Operator to all the terms and conditions of the CA including the roll-out obligations and the service delivery obligations
5. The GoK will be responsible for fixing of Tariffs for various services. The GoK will be responsible for making payments periodically to the Private Operator in line with terms specified under the section 'Financial Analysis' below.

Obligations of the Private operator

1. The Private Operator will bring in investment for necessary building infrastructure, Equipments and furniture.

2. The Private Operator shall be responsible for operations and administration of the geriatric care centre, its maintenance and upkeep, provision of all services and adherence to the terms and conditions laid out in the CA.
3. The Private Operator will be responsible for induction, deployment, training and payment of salaries and other benefits to specialists and additional manpower required to provide the services envisaged.
4. The Private Operator should ensure capture of information and medical records for all inpatients and outpatients of the geriatric care centre, maintain and report all operating information to GoK in line with the reporting obligations of the contract.
5. The Private Operator shall raise invoices on GoK for payment in a timely manner and as described under payment terms below.
6. Auditing the centre as per the norms of the organization for service delivery and expenditure incurred.

Components of the project

The project will have following key components,

1. Out-Patient Department
2. In-Patient Department
3. Physiotherapy Department
4. Clinical Lab

This lab will have facility of basic investigations. Since Geriatric care centre will be part of district hospital so patients requiring high end diagnostic tests will be referred to District Hospital.

Project Financials

In order to attract technically sound and financially healthy private player we suggest selecting one player for the proposed three Geriatric care centres to be located in district hospitals of Gulbarga, Uttara Kannada and Dakshina Kannada. Giving these centres to separate private players will not be a sound strategy as it may not elicit interest in good private healthcare service providers.

Chapter 7 - Financial Analysis for Project on PPP model

Financial model – base case scenario

The underlying assumptions for assessment of project viability for the base case scenario and model outputs are summarised below. The projections are done for a period of 20 years.

Revenue Assumptions

The assumptions relating to arriving at revenues are summarized below:

1. Illness occurrence is assumed at 3 times a year of which 30% of direct population and 10% of indirect population are assumed to visit Geriatric care centre for OPD consultations.
2. 8% of patients coming in OPD are assumed to require IPD services.
3. The share of clinical laboratory in OPD visits and IPD patients is 70% and 90% respectively.
4. 15% of OPD patients are expected to attend the physiotherapy unit.

The above assumptions translate to 65,976 OPD, 5278 IPD, 9896 Physiotherapy and 50934 Lab patients in the base year.

Expenditure Assumptions

- These are the same as given on pages 46 to 48.

Summary of base case results, sensitivity and key conclusions

1. The financial projections indicate that an Annual Viability Grant of Rs. 44.75 lakh is required in the base case to achieve a target pre-tax Project IRR of 20% with the above assumptions. For 12% pre-tax Project IRR this grant will reduce to Rs. 42.50 lakh. The projections are summarized in table 15 given on following pages.
2. The annual cash outgo for Government of Karnataka in year 1 will be Rs. 111.94 lakh which includes annuity and charges for providing free healthcare services to BPL patients. Patients carrying state government approved BPL card will be eligible for free service. Private Player will keep the record of these patients along with their BPL card numbers to get the reimbursement from GoK as per predetermined service charges.

Calculations of GoK's base year outgo are given ahead.

Revenue Model and Payment Terms

1. Briefly, the revenues for the Private Player will include the following:
 - a. Fees for Services Provided: The private player will get its revenues from
 - i. OPD consultations
 - ii. IPD services
 - iii. Laboratory
 - iv. Physiotherapy centre

The baseline tariffs for each of these services will be fixed (as per prevailing CGHS rates at the start of the contract) which will be revised upwardly at the rate of 5% per annum.

2. The entire fees for all services provided free to BPL patients will be reimbursed in full to the private player by GoK upon production of invoices by the private player on a monthly basis. These services will be reimbursed at CGHS rates by GoK.
3. *Annuity Grant for Viability Gap:* This will be the Bid variable for the project. The selection of the private partner will be made based on the least annuity quoted by the bidders for the concession period of 20 years. The Annuity Grant will be payable semi-annually with an in-built upwardly revision of 5% in first 10 years and 10% in next ten years.

Table 15: Projections Summary

Population Projections	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32
Above 60 population of Gulbarga District	202,626	205,463	208,340	211,256	214,214	217,213	220,254	223,338	226,464	229,635	232,850	236,110	239,415	242,767	246,166	249,612	253,107	256,650	260,243	263,887	267,581
<i>Gulbarga Metropolitan area (Direct Population)</i>	42,788	43,387	43,994	44,610	45,235	45,868	46,510	47,161	47,821	48,491	49,170	49,858	50,556	51,264	51,982	52,709	53,447	54,196	54,954	55,724	56,504
<i>Rest of the district (Indirect Population)</i>	159,839	162,076	164,346	166,646	168,979	171,345	173,744	176,176	178,643	181,144	183,680	186,251	188,859	191,503	194,184	196,903	199,659	202,454	205,289	208,163	211,077
"Above age 60 yrs" population of DK District	164,606	166,911	169,248	171,617	174,020	176,456	178,926	181,431	183,971	186,547	189,159	191,807	194,492	197,215	199,976	202,776	205,615	208,493	211,412	214,372	217,373
<i>DK Metropolitan area (Direct Population)</i>	40,290	40,854	41,426	42,006	42,594	43,190	43,795	44,408	45,030	45,660	46,300	46,948	47,605	48,271	48,947	49,633	50,327	51,032	51,746	52,471	53,205
<i>Rest of the district (Indirect Population)</i>	124,316	126,057	127,822	129,611	131,426	133,266	135,131	137,023	138,941	140,887	142,859	144,859	146,887	148,944	151,029	153,143	155,287	157,461	159,666	161,901	164,168
"Above age 60 yrs" population of UK District	113,511	115,100	116,711	118,345	120,002	121,682	123,386	125,113	126,865	128,641	130,442	132,268	134,120	135,998	137,901	139,832	141,790	143,775	145,788	147,829	149,898
<i>UK Metropolitan area (Direct Population)</i>	6,433	6,523	6,614	6,707	6,801	6,896	6,992	7,090	7,190	7,290	7,392	7,496	7,601	7,707	7,815	7,924	8,035	8,148	8,262	8,378	8,495
<i>Rest of the district (Indirect Population)</i>	107,078	108,577	110,097	111,639	113,202	114,786	116,393	118,023	119,675	121,351	123,050	124,772	126,519	128,290	130,087	131,908	133,754	135,627	137,526	139,451	141,403

OPD patient attendance (% of direct population)	30%
OPD patient attendance (% of indirect population)	10%

OPD patient volume Projections	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32
OPD Patients from <i>Gulbarga Metropolitan area (Direct Population)</i>	12,836	13,016	13,198	13,383	13,570	13,760	13,953	14,148	14,346	14,547	14,751	14,957	15,167	15,379	15,595	15,813	16,034	16,259	16,486	16,717	16,951
OPD patients from <i>Rest of the district (Indirect Population)</i>	15,984	16,208	16,435	16,665	16,898	17,135	17,374	17,618	17,864	18,114	18,368	18,625	18,886	19,150	19,418	19,690	19,966	20,245	20,529	20,816	21,108
OPD Patients from <i>Dakshina Kannada Metropolitan area (Direct Population)</i>	12,087	12,256	12,428	12,602	12,778	12,957	13,139	13,322	13,509	13,698	13,890	14,084	14,282	14,481	14,684	14,890	15,098	15,310	15,524	15,741	15,962
OPD patients from <i>Rest of the district (Indirect Population)</i>	12,432	12,606	12,782	12,961	13,143	13,327	13,513	13,702	13,894	14,089	14,286	14,486	14,689	14,894	15,103	15,314	15,529	15,746	15,967	16,190	16,417

OPD Patients from <i>Uttara Kannada Metropolitan area (Direct Population)</i>	1,930	1,957	1,984	2,012	2,040	2,069	2,098	2,127	2,157	2,187	2,218	2,249	2,280	2,312	2,344	2,377	2,411	2,444	2,479	2,513	2,548
OPD patients from <i>Rest of the district (Indirect Population)</i>	10,708	10,858	11,010	11,164	11,320	11,479	11,639	11,802	11,968	12,135	12,305	12,477	12,652	12,829	13,009	13,191	13,375	13,563	13,753	13,945	14,140
Total annual OPD	65,976	66,900	67,837	68,786	69,749	70,726	71,716	72,720	73,738	74,771	75,817	76,879	77,955	79,046	80,153	81,275	82,413	83,567	84,737	85,923	87,126
Per day OPD	213	216	219	222	225	228	231	235	238	241	245	248	251	255	259	262	266	270	273	277	281

IPD patient attendance (% of OPD patient volume)	8%																				
IPD patient volume projections	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32
Total annual IPD	5,278	5,352	5,427	5,503	5,580	5,658	5,737	5,818	5,899	5,982	6,065	6,150	6,236	6,324	6,412	6,502	6,593	6,685	6,779	6,874	6,970
Per day IPD	17	17	18	18	18	18	19	19	19	19	20	20	20	20	21	21	21	22	22	22	22

Patient attendance in physiotherapy unit (% of OPD patient volume)	15%																				
Projections of patient volume	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32
Total annual IPD	9,896	10,035	10,176	10,318	10,462	10,609	10,757	10,908	11,061	11,216	11,373	11,532	11,693	11,857	12,023	12,191	12,362	12,535	12,711	12,888	13,069
Per day patient volume in Physiotherapy	32	32	33	33	34	34	35	35	36	36	37	37	38	38	39	39	40	40	41	42	42

Patient attendance in clinical laboratory (% of OPD patient volume)	70%																				
Patient attendance in clinical laboratory (% of IPD patient volume)	90%																				
Average income per patient in clinical laboratory (in Rs.)	125																				
Projections of patient volume	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30	FY 31	FY 32
Lab patients from OPD	46,184	46,830	47,486	48,151	48,825	49,508	50,201	50,904	51,617	52,339	53,072	53,815	54,569	55,333	56,107	56,893	57,689	58,497	59,316	60,146	60,988
Lab patients from IPD	4,750	4,817	4,884	4,953	5,022	5,092	5,164	5,236	5,309	5,383	5,459	5,535	5,613	5,691	5,771	5,852	5,934	6,017	6,101	6,186	6,273

Total annual lab patients	50,9 34	51,6 47	52,3 70	53,1 03	53,8 47	54,6 00	55,3 65	56,1 40	56,9 26	57,7 23	58,5 31	59,3 50	60,1 81	61,0 24	61,8 78	62,7 45	63,6 23	64,5 14	65,4 17	66,3 33	67,2 61
Per day patient volume in Lab	15	16	16	16	16	16	17	17	17	17	18	18	18	18	19	19	19	19	20	20	20

EXPENDITURE RELATED

Capital cost

Building cost for three locations (in lakhs)	105
Equipment cost for three locations (in lakhs)	9
Furniture cost for three locations (in lakhs)	11
Total Capital cost in lakhs	125

Operative cost

Manpower cost for three locations (in lakhs)	72
Supplies and consumables for three locations (in lakhs)	36
Power cost for three locations (in lakhs)	1
Cost of water for utility for three locations (in lakhs)	0
Telephone charges for three locations (in lakhs)	0
Maintenance cost of the building for three locations (in lakhs)	0
Maintenance cost of equipments for three locations (in lakhs)	0
Budget for contingencies for three locations (in lakhs)	3
Total Operative cost	113

Assumptions

Annual Escalation of Manpower expenditure	5%	%
Annual Escalation of Expenditure (other than Manpower)	5%	%
Increase in annual grant	5%	%

REVENUE RELATED

Assumptions

Frequency of Escalation - once every	1	years
Escalation Rate for Services	10%	%

Revenue source

OPD charges	50	Rs.
IPD charges	50	Rs.

Charges for physiotherapy services	50	Rs.
Charges for Clinical Lab services (revenue per patient)	125	Rs.

Based on CGHS BENGALURU 2010 RATES

Cash Flow:

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
INVESTMENT																						
Capital investment (in lakhs)		125																				
VIABILITY SUPPORT																						
Annuity Grant		44.75	47	49	52	54	57	60	63	66	69	76	84	92	102	112	123	135	149	164	180	
OPERATING REVENUE												Project Year										
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Revenue from OPD patient (in Lakhs)	33	33	34	34	35	35	36	36	37	37	38	38	39	40	40	41	41	42	42	43	44	
Revenue from IPD patient (in Lakhs)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Revenue from Patient in physiotherapy unit (in Lakhs)	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6	6	6	7	
Revenue from Patient in clinical lab (in Lakhs)	64	65	65	66	67	68	69	70	71	72	73	74	75	76	77	78	80	81	82	83	84	
TOTAL OPERATING REVENUE (in Lakhs)	104	106	107	109	110	112	113	115	117	118	120	121	123	125	127	128	130	132	134	136	138	
TOTAL OPERATING REVENUE		0.047	0.050	0.054	0.057	0.061																
OPERATING EXPENDITURE																						
Manpower cost for three locations	72	75.60	79.38	83.35	87.52	91.89	96.49	101.31	106.38	111.70	117.28	123.14	129.30	135.77	142.56	149.68	157.17	165.03	173.28	181.94	191.04	
Supplies and Consumables for three locations	36	37.80	39.69	41.67	43.76	45.95	48.24	50.66	53.19	55.85	58.64	61.57	64.65	67.88	71.28	74.84	78.58	82.51	86.64	90.97	95.52	
Power cost for three locations for three locations	1.08	1.13	1.19	1.25	1.31	1.38	1.45	1.52	1.60	1.68	1.76	1.85	1.94	2.04	2.14	2.25	2.36	2.48	2.60	2.73	2.87	
Cost of water for utility for three locations	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.79	0.83	0.87	0.91	0.96	

Telephone charges for three locations (in lakhs)	0.36	0.38	0.40	0.42	0.44	0.46	0.48	0.51	0.53	0.56	0.59	0.62	0.65	0.68	0.71	0.75	0.79	0.83	0.87	0.91	0.96	
Maintenance cost of the building for three locations (in lakhs)	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.26	0.27	0.28	0.30	0.31	0.33	0.34	0.36	0.38	0.40	
Maintenance cost of equipments for three locations (in lakhs)	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.26	0.27	0.28	0.30	0.31	0.33	0.34	0.36	0.38	0.40	
Budget for contingencies for three locations (in lakhs)	3	3.15	3.31	3.47	3.65	3.83	4.02	4.22	4.43	4.65	4.89	5.13	5.39	5.66	5.94	6.24	6.55	6.88	7.22	7.58	7.96	
TOTAL OPERATING EXPENDITURE	113	119	125	131	137	144	152	159	167	175	184	193	203	213	224	235	247	259	272	286	300	
NET CASH FLOW - (SURPLUS / -DEFICIT)		-93	29	27	25	22	19	16	12	9	5	4	4	4	4	5	6	8	11	14	18	
PRE-TAX PROJECT IRR		20 %																				

Net cash outgo for Government of Goa

From the perspective of GoK, the net outgo for managing the geriatric care centre will include

- Fees for Services Provided to BPL patients
- Annuity Grant for Viability Gap (as described above)

Assumptions for percentage of BPL population of the total district population are based on the data developed by **SANIGEST for GoK project under WB TA assistance**. Following is the percentage;

1. Gulbarga = 82% of the total population
2. Dakshina Kannada = 42% of the total population
3. Uttara Kannada = 68% of the total population

Based on these assumptions, service charges have been calculated in the following tables;

District	Total OPD	BPL patients in OPD	BPL patients in IPD	BPL patients in Lab	BPL patients in Physiotherapy
Gulbarga	28820	23633	1891	18244	3545
Dakshina Kannada	24519	10298	824	7950	1545
Uttara Kannada	12638	8594	687	6634	1289
Total BPL Patients in Geriatric care centre	65976	42524	3402	32829	6379

District	Expenditure on BPL patients in OPD (Rs. Lakhs)	Expenditure on BPL patients in IPD (Rs. Lakhs)	Expenditure on BPL patients in Lab (Rs. Lakhs)	Expenditure on BPL patients in Physiotherapy (Rs. Lakhs)
Gulbarga	11.82	0.95	22.81	1.77
Dakshina Kannada	5.15	0.41	9.94	0.77
Uttara Kannada	4.30	0.34	8.29	0.64
Sub-Total (Rs. Lakhs)	21.26	1.70	41.04	3.19

Total outgo for GoK for BPL patients in the base year will be

Outgo for GoK on BPL patients (in Lakhs)	67.19
Annuity in base year (in Lakhs)	44.75
Total outgo for GoK in the base year (in Lakhs)	111.94

Ranking of Project based on commercial viability

In the first scenario, companies will be funding the project by a portion of their profit under the CSR umbrella. It is preferred to appeal to the corporate for funding the project, as this will result in better ownership and service delivery of the setup.

Second scenario of the project is based on the annuity grant for viability gap funding, where the government provides a fixed amount to the private partner to deliver the designated services. This scenario is not only commercially viable for private players but also competitively awards the contract to the bidder offering to perform the work for the lowest annuity payments from GoK.

Chapter 8 - Statutory and Legal Framework

The geriatric unit shall be governed by all existing bio medical, statutory and legal laws governing hospital/clinic. The geriatric unit along with the hospital or independently as the case and situation may apply shall get itself certified for/obtain the following certificates,

1. Building Permit
2. No objection certificate from Chief Fire Officer
3. Indian Medical Council Act and Code of Medical Ethics, 2002
4. Drugs and Cosmetics Act, 1940
5. Narcotics and Psychotropic drugs licenses and acts
6. License under Bio-medical Management and handling Rules, 1998
7. Registration of Births and Deaths Act, 1969
8. Right to Information Act

Besides this, if this centre is being run on CSR then appropriate sections of “Companies Bill 2011” will also be applicable on this centre.

The status of the compliance shall be verified during the annual audit conducted by the government.

Chapter 9 - Indicative Environmental & Social Impacts

9.1 Environmental Impacts

There is no adverse environmental or social impact due to the implementation of the project. The geriatric unit will generate bio medical waste similar to any ward in a hospital and the District hospital's existing bio medical waste collection and disposal system shall be used for the geriatric unit as well.

9.2 Social Impacts

The project would offer a better support to the social fabric of Karnataka by providing effective medical care to its senior citizens. It would reinforce the commitment of the government towards the welfare of its constituents.

Geriatric care centre will be accessible to all the citizens irrespective of his/her region, urban/rural location, gender, social and economic groupings. This will also bring equity in healthcare services which also encompass disadvantaged groups (Scheduled Castles and Tribes) and vulnerable groups (street children, elderly).

Chapter 10 - Operating Framework

10.1 Indicative project structure

SI No	Parameter	Description
1	PPP Model	BOT (Annuity Model)
2	Concession Period	Twenty years
3	Concession Component	<ol style="list-style-type: none"> 1. Land for construction of Geriatric Care Centre in District Hospitals of Gulbarga, Dakshina Kannada and Uttara Kannada. 2. Right to operate and maintain these centers at district hospitals
4	Government Support	<ol style="list-style-type: none"> 1. Providing vacant space for constructing the clinic 2. Providing ambulatory support, high end laboratory and radio-diagnostic facility to patients whenever required 3. Providing a conducive organizational atmosphere for the set up to operate
5	Project Benefits	<ol style="list-style-type: none"> 1. Support the underserved geriatric population in the district 2. Develop a new stream of medical treatment which is still at its nascent stage in the state 3. Reduce the burden of diseases at elderly age
6	Operation and Maintenance	<ol style="list-style-type: none"> 1. Operate the outpatient service six days a week and inpatient ward 24X7 2. Provide physiotherapy and lab services required 3. Induction, deployment, training and payment of salaries and other benefits to specialists and additional manpower required to provide the services envisaged.
7	User Charges Involved	<ol style="list-style-type: none"> 1. The GoK will be responsible for fixing of Tariffs for various services. 2. The GoK will be responsible for making payments periodically to the Private Operator in line with agreed terms of service delivery
8	Inventory Management	<ol style="list-style-type: none"> 1. Private player will procure and manage all consumables and inventory required 2. Maintain optimum inventory and ensure nil stock out

10.2 Risks & Mitigation

Risk analysis

Critical risk factors, their impact and likelihood and potential mitigation measures are summarized in table 16 below. The focus of the risk assessment is from the point of view of investors and lenders to the project. The Concession agreement would be prepared to factor all aspects of the project structure discussed earlier and would incorporate necessary features to address the risks as highlighted below.

Table 16: Risk Assessment and Mitigation Strategies

SI No	Category	Risk	Risk Incurred by	Mitigation Strategy
1.		Delay in project clearance	Partner	<ol style="list-style-type: none"> 1. Government to provide all clearances for initiation of the project within 60 days of selection of partner from competitive bid process 2. The partner has the right to terminate the contract with three months prior notice if the government fails to honour the commitments
2.	Implementation Risk	Contractor Default	Government	<ol style="list-style-type: none"> 1. Given the nature of the project, it is critical to have stringent pre-qualification criteria to ensure a minimum threshold of qualification of bidders, both from technical and financial standpoint. The pre-qualification criteria set for the project should enable a combination of healthy competition while ensuring threshold level of technical capability, financial

				<p>capacity and demonstrated experience.</p> <ol style="list-style-type: none"> 2. It is preferred that the partner has experience in PPP projects, qualifying marks shall be provided for such bidders; if the bidder has experience in operating Geriatric care centre on PPP then they shall be provided additional qualifying marks 3. Government to retain the earnest money in case the private partner defaults before signing the contract 4. Client default payment clause to be inserted as a part of the contract 5. The government has the right to terminate the contract with one-month notice if the service provider is not adhering with the Terms of Reference mutually agreed. 6. The government shall give two warning notices and provide adequate time for rectification before sending a notice for termination of services. The termination notice shall be given only by the Ministry of Health & Family Welfare, GoK. 7. The service provider
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				shall not sub-let the premises or service to any other party without the prior permission of the government. The government has the rights to terminate the contract in the event of any such activity with a 15 day notice, and take control of the premises, equipment and accounts during the period and afterwards till the case is resolved
3		Construction/Renovation cost/time overrun	Partner/Government	<ol style="list-style-type: none"> 1. Land shall be recognized for this purpose prior to the issue of RFP 2. Land shall be handed over within 30 days of signing of the contract, in as is where is condition 3. Private players shall be invited to inspect the land during the bidding stage to assess the time taken to commence the operation 4. Time frame to be agreed upon to commence operations, failing which the service provider has to pay liquidate damages as mentioned in the TOR
4		Non availability of Medical and technical personnel to operate the centre	Partner/Government	<ol style="list-style-type: none"> 1. The service provider shall provide a list of manpower already under employment during the bidding stage

				<ol style="list-style-type: none"> 2. The centre to be staffed within the operation commencement time frame assured to the government, failing which the service provider has to pay liquidated damages as mentioned in the TOR
5	Market Risk	Insufficient demand	Partner	<ol style="list-style-type: none"> 1. There is a risk of the actual population growth being lower than the projected population used as basis. This could lead to lower number of patients and hence impact project viability. 2. Since the CA is for a period of 20 years, the expected population projections, taken at a conservative 1.4% is likely to materialize. 3. Geriatric care centre will be the only healthcare institution in the district completely dedicated to elderly population, so there is adequate visibility of patient load.
6		Impractical user levies	Government/Partner	<ol style="list-style-type: none"> 1. The service shall be competitively priced by the government as per CGHS rates.
7	Finance Risk	Inflation risk	Partner	<ol style="list-style-type: none"> 1. Tariff level: Since it is proposed to revise the baseline CGHS rates periodically (and this would be indicated

				<p>upfront) this risk is minimal.</p> <p>2. Annuity Grant: Annuity Grant will be paid from budgetary outlays and there should be a separate budgetary head created for this purpose.</p>
8		Change of interest rates/tax rates	Partner	The partner has to bear any changes in interest rates and tax rates by the state/central government
9		Exchange rate fluctuation	Partner	The partner has to bear the exchange rate fluctuation during the procurement process
10	Operation and Maintenance	Adherence to Service Levels specifications	Partner	<p>1. This risk should be allocated to the Private Operator as this is the primary rationale for doing a PPP. Adequate specifications of rollout and service obligations along with penal provisions for default would help minimize this risk</p> <p>2. Since the exact specification of all parameters can be complex, the Private Operator should also obtain NABH accreditation for the Hospital within a period of one year of commencement of services should be insisted.</p>

11		Man power retention	Government	<ol style="list-style-type: none"> 1. The service provider shall employ manpower as agreed with the government 2. The service provider shall frame effective human resource policies for the training and retaining manpower at the centre, there shall be defined plans for replacement of trained manpower. 3. The centre shall not be deficit of the number of employees agreed for not more than one week at a stretch 4. Should employees go on leave, fall sick or leave the organisation the service provider has to ensure the replacement within a week 5. The service provider shall adequately train its manpower annually 6. All new recruits by the service provider shall be trained by the service provider for a period agreed with the government in an established set up
12		Force Majeure		<p>These involve risks beyond the project and arise due to uncertainty and variation in the factors listed. Part of this risk can be mitigated through appropriate hedging policies</p>

				and insurance, while part of this risk is intrinsic and needs to be addressed through appropriate termination and compensation clauses in the contract agreement.
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Chapter 11 – Way Ahead

Currently the project plan is to set up a separate geriatric unit in the proposed three districts of Karnataka – Uttar Kannada, Dakshina Kannada, and Gulbarga. Once implemented the success of the project can be measured in terms of the reach to the old aged people, service provided, benefits accrued to the society, and the feasibility of the project. The model can then be replicated in other districts of Karnataka thereby meeting the needs of elderly in other districts as well.

This model shall be showcased during the GIM meeting as a CSR initiative in Karnataka the private corporation can contribute. This also exhibits the forward marching initiatives of the Government of Karnataka in engaging with the industry both in economic and social fronts.

Given the projected increase in the geriatric patients in Karnataka and in India, it is the responsibility of the citizens and the government to provide adequate care for the elderly. This is only the first step towards the cause; in future the following activities can be initiated to support the geriatric patients in the state,

1. Geriatric wards in Taluk level hospital
2. Creating a team of master trainers and practitioners in Geriatric medicine in Karnataka
3. Training all levels of medical care personnel in geriatric care
4. Introducing specialty in geriatric medicine in the medical colleges of Karnataka
5. Introducing geriatrics as a specialisation subject in nursing colleges
6. Equipping the existing and new government hospitals geriatric friendly

Chapter 12 - Annexure

Annexure 1: State wise population of India - 2011 and the decadal growth rate for every state

India/States	Total Population	% Of Total Population	Decadal Growth Rate 2001-2011
INDIA	1210193422	100.000	17.64
Jammu and Kashmir	12548926	1.037	23.71
Himachal Pradesh	6856509	0.567	12.81
Punjab	27704236	2.289	13.73
Chandigarh	1054685	0.087	17.1
Uttarakhand	10116752	0.836	19.17
Haryana	25353081	2.095	19.9
NCT of Delhi	16753235	1.384	20.96
Rajasthan	68621012	5.670	21.44
Uttar Pradesh	199581477	16.492	20.09
Bihar	103804637	8.578	25.07
Sikkim	607688	0.050	12.36
Arunachal Pradesh	1382611	0.114	25.92
Nagaland	1980602	0.164	-0.47
Manipur	2721756	0.225	18.65
Mizoram	1091014	0.090	22.78
Tripura	3671032	0.303	14.75
Meghalaya	2964007	0.245	27.82
Assam	31169271	2.576	16.93
West Bengal	91347736	7.548	13.93
Jharkhand	32966238	2.724	22.34
Orissa	41947358	3.466	13.97
Chhattisgarh	25540196	2.110	22.59
Madhya Pradesh	72597565	5.999	20.3
Gujarat	60383628	4.990	19.17
Daman & Diu	242911	0.020	53.54
Dadra and Nagar Haveli	342853	0.028	55.5
Maharashtra	112372972	9.286	15.99
Andhra Pradesh	84665533	6.996	11.1
Karnataka	61130704	5.051	15.67
Goa	1457723	0.120	8.17
Lakshadweep	64,429	0.005	6.23
Kerala	33387677	2.759	4.86
Tamil Nadu	72138958	5.961	15.6
Puducherry	1244464	0.103	27.72
Andaman & Nicobar Island	379,944	0.031	6.68

Source: Census 2011

Annexure 2: Projected Age-wise population in India with 2001 as the base year.

Age-group	2001	2006	2011	2016	2021	2026
0-4	121395	115238	114879	114102	111416	104584
5-9	123310	119290	113486	113309	112717	110186
10-14	119876	122469	118577	112880	112774	112234
15-19	104038	119055	121727	117927	112327	112268
20-24	91034	103048	118038	120774	117087	111586
25-29	82941	89964	101955	116886	119695	116111
30-34	75838	81858	88905	100854	115735	118598
35-39	67971	74700	80760	87811	99723	114532
40-44	57518	66710	73464	79537	86594	98431
45-49	46911	56073	65211	71954	78041	85063
50-54	37158	45169	54195	63204	69924	75971
55-59	29932	35032	42838	51624	60463	67092
60-64	25692	27442	32405	39886	48376	56919
65-69	20514	22506	24397	29098	36166	44167
70-74	15996	16860	18944	20851	25212	31639
75-79	5309	12012	13092	15025	16831	20581
80+	3176	4760	9632	13239	16660	19877
Total	1028610	1112187	1192507	1268961	1339741	1399838

Source: Census 2001

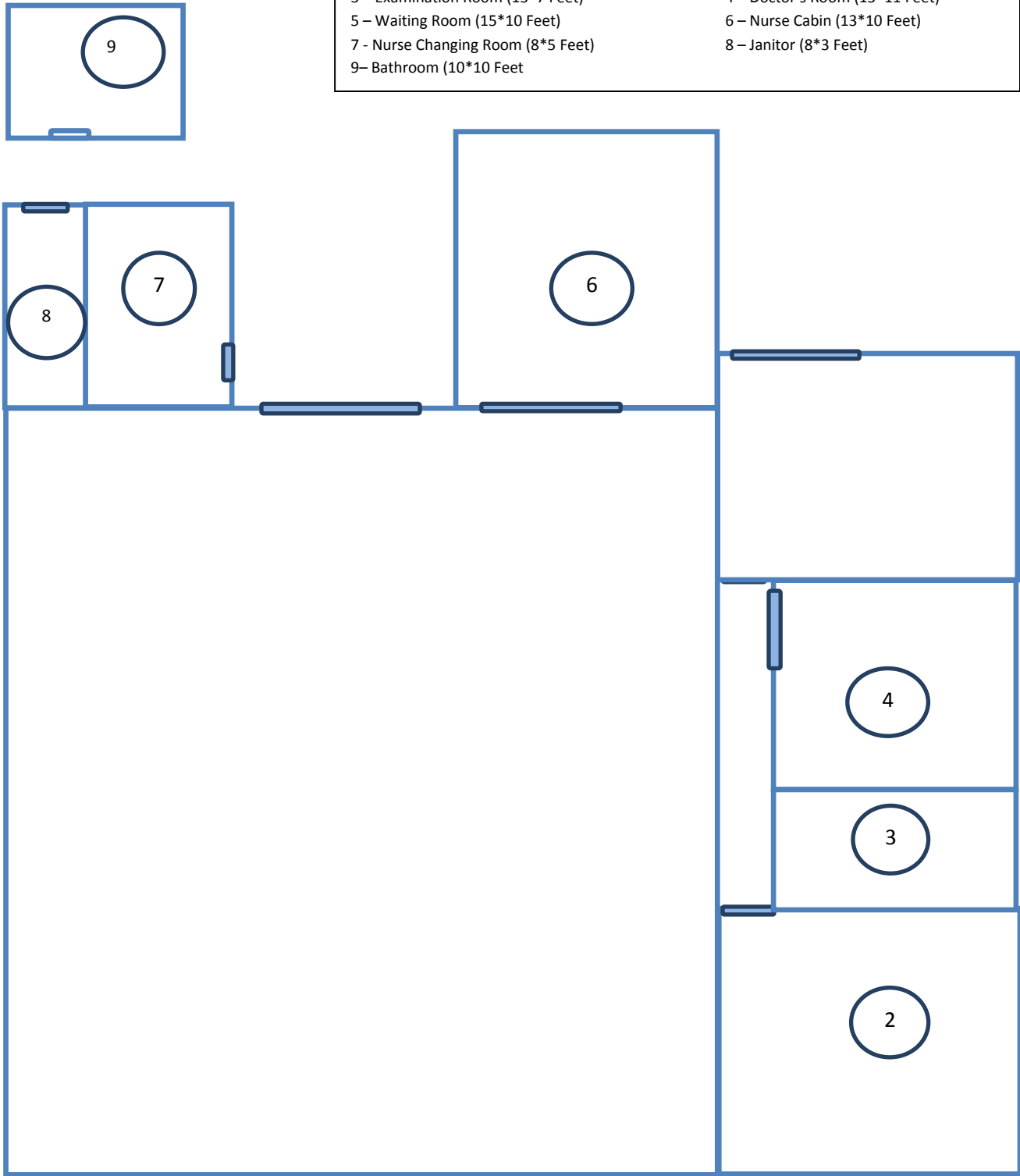
Annexure 3: District wise population of Karnataka – 2011 and the decadal growth rate

S.NO		Total	Rural	Urban	Total Percentage of Decadal Growth 2001-2011
	KARNATAKA	61130704	37552529	23578175	15.67
1	BELGAUM	4778439	3567739	1210700	13.38
2	BAGALKOT	1890826	1292036	598790	14.46
3	BIJAPUR	2175102	1674311	500791	20.38
4	BIDAR	1700018	1276647	423371	13.16
5	RAICHUR	1924773	1437359	487414	15.27
6	KOPPAL	1391292	1157659	233633	16.32
7	GADAG	1065235	685450	379785	9.61
8	DHARWAD	1846993	797430	1049563	15.13
9	UTTARA KANNADA	1436847	1018216	418631	6.15
10	HAVERI	1598506	1242442	356064	11.08
11	BELLARY	2532383	1613038	919345	24.92
12	CHITRADURGA	1660378	1332012	328366	9.39
13	DAVANAGERE	1946905	1317816	629089	8.71
14	SHIMOGA	1755512	1132286	623226	6.88
15	UDUPI	1177908	843829	334079	5.9
16	CHIKMAGALUR	1137753	898079	239674	0.28
17	TUMKUR	2681449	2078665	602784	3.74
18	BANGALORE	9588910	868971	8719939	46.68
19	MANDYA	1808680	1499831	308849	2.55
20	HASSAN	1776221	1399214	377007	3.17
21	DAKSHINA KANNADA	2083625	1091888	991737	9.8
22	KODAGU	554762	473659	81103	1.13
23	MYSORE	2994744	1756412	1238332	13.39
24	CHAMARAJANAGAR	1020962	845669	175293	5.75
25	GULBARGA	2564892	1732298	832594	17.94
26	YADGIR	1172985	952482	220503	22.67
27	KOLAR	1540231	1056953	483278	11.04
28	CHIKKABALLAPURA	1254377	975188	279189	9.17
29	BANGALORE RURAL	987257	719564	267693	16.02
30	RAMANAGARA	1082739	815386	267353	5.06

Annexure 4: Indicative Layout – District Geriatric Unit

Legends

- | | |
|--|-------------------------------------|
| 1 – 10 bedded In-Patient ward (40*25 Feet) | 2 – Physiotherapy Room (16*16 Feet) |
| 3 – Examination Room (13*7 Feet) | 4 – Doctor’s Room (13*11 Feet) |
| 5 – Waiting Room (15*10 Feet) | 6 – Nurse Cabin (13*10 Feet) |
| 7 - Nurse Changing Room (8*5 Feet) | 8 – Janitor (8*3 Feet) |
| 9– Bathroom (10*10 Feet) | |



Annexure 5: District wise population projections until 2018

District	Population Growth Rate	2012	2013	2014	2015	2016	2017	2018	2013-2018 Growth Rate	2013-2018 %
Dakshina Kannada	1.0094	2,103,211	2,122,981	2,142,937	2,163,081	2,183,414	2,203,938	2,224,655	0.0479	1.0479
Gulbarga	1.0166	2,607,469	2,650,753	2,694,756	2,739,489	2,784,964	2,831,195	2,878,192	0.0858	1.0858
Uttara Kannada	1.006	1,445,468	1,454,141	1,462,866	1,471,643	1,480,473	1,489,356	1,498,292	0.0304	1.0304

Source: Data developed by SANIGEST for GoK project under WB TA assistance

Annexure 6: District wise BPL population projections until 2018

BPL 2012	Population Growth Rate	2012	2013	2014	2015	2016	2017	2018
Dakshina Kannada	1.01	884,676	896,707	908,903	921,264	933,793	946,492	959,365
Gulbarga	1.02	2,150,283	2,179,527	2,209,168	2,239,213	2,269,666	2,300,534	2,331,821
Uttara Kannada	1.01	988,867	1,002,315	1,015,947	1,029,763	1,043,768	1,057,964	1,072,352

Source: Data developed by SANIGEST for GoK project under WB TA assistance

Annexure 7: Health Related CSR Undertaken by Corporate in India

Jindal Steel Power

Hospitals: To make medical facilities available to the common man, JSPL has set up many charitable clinics and hospitals in the Raigarh district. An ICU unit at the general hospital at Raigarh has been set up. Excellent health facilities are provided to the people of Raigarh at the 100-bed multi-specialty O. P. Jindal Hospital & Research Centre. The disciplinary facilities include medicine, surgery, gynaecology, orthopaedics, and paediatrics. The hospital has four well-equipped Operation Theatres, a Cardiac ICU, a Burns ICU, and a Neo-natal ICU. It plans to launch comprehensive pathological and other investigation facilities such as X-Ray lab, ECHO colour Doppler, Endoscopy, and CT-Scan.

Health Camps: Regular and integrated medical camps with super specialist doctors from eminent hospitals have benefited more than 40,000 people in the district. Women welfare programs are also organized regularly. Regular village medical camps are organised through mobile medical van services with specialist doctors in Patratu, Angul and Raigarh.

Camps for disabled persons: Special camps are organized for serving and assisting disabled persons of the society. Assistive equipment such as tricycles, wheel chairs, crutches, hearing aids etc. are distributed in these camps. Persons with cleft lip/palate are identified and referred for surgery at Raipur.

Family Welfare Camps: Population control and family welfare is one of the important aspects of community welfare. JSPL has been organising family planning camps in the region since 1996. This initiative has resulted in bringing couples under family welfare coverage and has ensured better health for the women and also contributed in controlling infant mortality rate in the community.

Eye Camps: Cataract and other ophthalmic disorders are very common in the district of Raigarh. Leading surgeons from all over India are invited for conducting cataract and lens implantation surgery. Dr. Aroop Chakravathy, a leading eye surgeon from Trivandrum conducts eye camps. Surgery is carried out by the PHACO method in which no suturing is required. The surgery costing Rs.10,000 is done free of cost in the camp. Cataract operations are conducted for patients annually, free of cost. Spectacles & fruits are distributed to all patients after the operation.

Pulse polio vaccination and HIV/AIDS detection camps: Pulse polio vaccination and HIV/AIDS detection camps are organized from time to time in Raigarh, Patratu and Angul. Blood samples of all workmen are examined. Suspected cases have been referred to agencies for counseling and further treatment.

Health and Hygiene: All employees in the areas of Chhattisgarh, Jharkhand and Odisha undergo periodic medical examination and regular physical fitness programmes are organized for them. Yoga classes are held for all employees and their family members.

Clean Drinking Water: Villages in the Raigarh district are very prone to water-borne diseases. Safe potable water is scarce and in many areas, humans and cattle share the same source of water. JSPL took the initiative and installed water and hand pumps in the adopted villages. Until now, 45 pumps have been installed in the area.

For the supply of clean drinking water, non-functional hand-pumps have been repaired in all villages of the operational area and follow-up is done regularly by CSR team members.

Indian Oil:

Health & Medical Care: Organising Medical/Health Camps on Family Planning, Immunization, AIDS awareness, Pulse Polio, Eye, Blood Donation, Pre and Post-natal Care, Homeopathic Medicine, distribution of free condoms, providing anti-mosquito fogging treatment, toilets, medicines to primary health centres, mosquito nets, ambulances to Medical Centres/Hospitals/NGOs, hearing aids/wheel chairs to physically challenged, financial assistance to hospitals, medical equipments etc.

Besides the above, IndianOil also runs and maintains the following for the benefit of the local community:

50 Bed Swarna Jayanti Samudaik Hospital, Raunchi Bangar, Mathura: IndianOil has set up a 50 bed Swarna Jayanti Samudaik Hospital, at village Raunchi Bangar, Mathura, Uttar Pradesh for providing medical assistance to the residents of the area. In addition, two mobile dispensaries have been set up by Mathura Refinery to provide primary medical care in the nearby villages of Mathura Refinery. The entire cost of operation and maintenance of hospital including operation of two mobile dispensaries is borne by the Corporation. The hospital provides free treatment to destitute and offers subsidized treatment to others.

200-bed hospital set up by Assam Oil Division, IOCL at Digboi, Assam: IndianOil has set up and operating a 200-bed hospital at Digboi with ultra-modern medical facilities for the benefit of the people of the area. The hospital doctors along with paramedical staff also visit the nearby villages for providing health care services to the villagers. The medical care services provided by the hospital are heavily subsidized.

Assam Oil School of Nursing, AOD, Digboi: Assam Oil School of Nursing, established in the year 1986, offers a three-year diploma course in General Nursing and Midwifery, recognized by the Indian Nursing Council, where local girls are trained to be professional nurses. 20 Students per year are awarded Diploma by the Nursing School and until date over 294 girls have obtained diploma in Nursing and Midwifery courses. The entire cost of training is borne by the Corporation and the students are also paid a monthly stipend during their training.

IndianOil Rural Mobile HealthCare Scheme: IndianOil has identified the lack of medical services, especially availability of qualified doctors, as one of the major problems facing rural India. Most of the diseases prevalent in rural India can be treated through timely primary healthcare and basic awareness regarding prevention and treatment. In order to bridge this gap, IndianOil is planning to launch

the IndianOil Rural Mobile HealthCare Scheme , which would provide primary healthcare to the villages near the IndianOil Kisan Seva Kendras. Kisan Seva Kendra is an award-winning retail outlet model pioneered by IndianOil to cater to the needs of customers in the rural segment. Under the IndianOil Rural Mobile HealthCare Scheme, mobile medical units with a dedicated team of doctor, pharmacist, community worker and driver would travel amongst the villages near a Kisan Seva Kendra as per a fixed schedule providing primary healthcare to the local community. In the pilot phase, IndianOil intends to launch the scheme in parts of Uttar Pradesh and Andhra Pradesh, which would later be scaled up to other states as well.

Expansion of Education: Providing financial assistance to schools for construction/renovation/repair of hostels, school buildings, classrooms, computers to schools, books, furniture, laboratory equipment, awards to meritorious students, scholarships to poor students, adult literacy programme, delivery vans for distribution of mid-day meals to Govt. School children, sponsoring/organizing rural sports/games, sports meets/events, supporting education and research activities etc.

AstraZeneca India:

Astra Zeneca is a multinational pharmaceutical firm in India that offers an integrated approach to the discovery, development and marketing of medicines. They also have the only dedicated research Centre for TB in the world, located here in India.

Health camps for women: They regularly hold health camps for women to tackle maternal mortality and make safe motherhood a reality for Indian mothers. The camps especially focus on educating younger women about reproductive health. They vaccinate young girls with the Rubella vaccine to protect them against German measles during pregnancy. In addition, they also provide them with basic medicines, such as iron and calcium tablets. In with the Federation of Obstetrics and Gynaecology (FOGSI), they have worked on several initiatives to increase public awareness and education on this topic.

Strides Arcolab Limited: Incorporated in 1990, Strides Arcolab is a first generation, pharmaceutical company headquartered in Bangalore, India. With business interests in specialty pharmaceuticals, pharma generics and branded generics, they are a valued player in the global healthcare industry.

Healthcare: Health awareness and check-up camps are periodically organized by the Foundation for communities around Strides' manufacturing facilities. Medical grants are made available to certain sections of employees for medical emergencies and exigencies that are not covered by their ESI eligibility or are beyond their group health insurance coverage.

Biocon:

Biocon is India's premier biopharma enterprise focused on innovation to deliver affordable healthcare solutions to patients, partners and healthcare systems across the globe. The Company is committed to reduce therapy costs of chronic diseases like diabetes, cancer and autoimmune diseases by leveraging India's cost advantage to provide access to affordable treatment to patients worldwide.

ARYHM Insurance Plan: ARY Health Insurance has till date enrolled 100,000 members who can avail the services of highly qualified surgeons and doctors. During the last 5 years of its operation, the scheme has facilitated more than 1000 surgeries, of which 225 has been cardiac procedures and surgeries, and 250 OB/GYN related. In Huksur, where the scheme was launched in 2005, they have achieved 100% renewal rate. In Chikballapur more than 50% of the 10,000 members have enrolled for the 4th year in succession. This is a significant endorsement of the services by the community they serve.

To facilitate automation and scale up of the enrolment process, they have advanced from a paper-based, manual member enrolment system to a mobile phone-based enrolment solution. This shift has considerably reduced errors during transmission and related loss of data. Data captured on the mobile phone is transmitted directly to a centralized server.

Arogya Raksha Yojana (ARY) Clinics: Delivering on its commitment to affordable healthcare, Biocon Foundation has been setting up ARY Clinics in areas where large numbers of people are enrolled with the ARY health micro insurance program. These Clinics have been set up to make primary healthcare facilities more accessible and more affordable for surrounding communities. Supporting the ARY micro insurance program, the Clinics guide member patients to network hospitals and help them avail of the benefits due to them.

Health Camps: General and specialized health camps are conducted in remote areas where good medical facilities are not available. These camps provide cardiac, neurological, ophthalmic, orthopaedic, gynaecological and general health checks. Three to four camps are held every month in collaboration with Narayana Hrudayalaya and other network hospitals. Every camp is attended by an average of 300 people.

In Oct 2009, the team from Biocon Foundation's Health Program held numerous health camps in the various flood hit villages in Bagalkote district of North Karnataka. The teams also collaborated with the Government doctors and Public Health Centres to ensure maximum reach and effectiveness. Through these health camps, the doctors were able to reach and help more than 5,000 people.

Diabetic Foot Clinic: Greater awareness of diabetes related problems and their prevention is of critical importance, especially in India today. According to the International Diabetes Federation (IDF), every 30 seconds a person loses a limb to amputation following diabetes complications. To address this grave concern at the village level, Biocon Foundation has part funded a "Mobile Diabetic Foot Care & Vascular Diagnostic Clinic," possibly the only of its kind in the world. Managed by the Jain Institute of Vascular Sciences, Bangalore, the Clinic caters to those urban and rural areas where most of the patients belong to the lower economic strata. Biocon Foundation has sponsored about 25% of this project with funding covering education materials like booklets, videos for patient counseling, labs like blood sugar, parts of equipment and maintenance. The mobile clinic goes into those rural areas where Biocon Foundation has already built up a relationship with local communities through the Arogya Raksha Yojana program. In addition to screening and treating patients with diabetic foot, the Arogya Raksha physician attends to general healthcare issues.

The Mobile Clinic is completely equipped and staffed to evaluate and treat diabetic foot problems, the main stress being on preventive care.

Research Institute & Hospitals: There has been tremendous progress in the treatment strategies for various diseases, which were once considered inoperable. Unfortunately, most Indians cannot afford the cost of high technology healthcare. For example, India requires a 2.5 million heart surgeries a year, but has the capacity to do only about 80,000-90,000. India also has a very high incidence of head and neck cancer, which can be cured if diagnosed early and proper treatment is given.

To address this problem, Narayana Hrudayalaya and Biocon Foundation have joined hands to offer high technology healthcare that is also affordable. The aim is to set up large 'health cities' in every state capital and large hospitals in every district headquarter and town strategically locating them between government and corporate hospitals. The mission is to create at least 20,000 beds within the next 3-5 years in various parts of the country.

'Bangalore Health City', consists of a heart hospital, an eye hospital, an orthopaedic hospital and in the year 2010 a modern, 1000-bed cancer hospital has been commissioned. Similar health cities will be launched in Kolkata, Jaipur, Ahmedabad and other major metros. All hospitals will have comprehensive infrastructure for training of medical super specialists with emphasis on research into newer modalities of treatment for various illnesses.

Early Detection of Oral Cancer: The Mazumdar Shaw Cancer Centre & SANA have together developed a mobile oral cancer-screening program. The program helps detect oral cancer in the early stages and find people who may have even a single risk factor and could be persuaded to make lifestyle changes to mitigate this risk. A simple set of questions and answers asked by the CHW, and checked on the mobile phone, can be combined with a picture and sent directly from the mobile phone to the central server in the hospital. Doctors in MSCC will then take over treatment of the patient. Low cost mobile technology is a great way to extend the reach of this and other health screening programs. This will benefit the communities and help in strengthening the disease management programs. Biocon Foundation is ideally positioned to implement SANA – MSCC oral cancer screening program through their established clinics and networks of Community Health Workers (CHW's) that each clinic has built up.

Ranbaxy Laboratories Limited (Ranbaxy):

Ranbaxy Laboratories Limited is India's largest pharmaceutical company, is an integrated, research based, international pharmaceutical company, producing a wide range of quality, affordable generic medicines, trusted by healthcare professionals and patients across geographies.

Community Healthcare:

In 1978, in the wake of the grim health scenario in India, Ranbaxy realised the urgency to reach out to the underprivileged sections of society that had little or no access to basic healthcare. The Company

took a conscious decision to contribute towards the national objective “Health for All.” Towards this end, the “Ranbaxy Rural Development Trust” was set up and the first well-equipped mobile healthcare van was introduced, in certain underserved areas of Punjab. As the program grew, the Ranbaxy Community Healthcare Society (RCHS), an independent body, was created. RCHS is devoted to the health of the disadvantaged. Today, 16 well equipped mobile healthcare vans and an urban family welfare Centre , run by Ranbaxy, benefit over 5.5 lakh people, in identified areas in the State of Punjab, Haryana, Himachal Pradesh, Madhya Pradesh and Delhi. A total of 76 personnel including 26 doctors 30 nurses are devoted full time to the program. The program is based on an integrated approach of preventive, promotive and curative services, spanning areas of maternal child health, family planning, reproductive health, adolescent health, health education including AIDS awareness. List of Services Provided

- Treatment of Common Ailments
- Maternal & Child Health
- Antenatal Care
- Immunization – (BCG, Diphtheria, Hepatitis B Polio, Whooping Cough, Tetanus & Measles)
- Growth Monitoring
- Safe Motherhood
- Vitamin A, Prophylaxis for prevention of nutritional blindness
- Treatment of Diarrhoea & Pneumonia
- Postnatal Care
- Family Planning
- Sterilization (Referral and follow up)
- Provision of Family Planning Methods (Copper T, Oral Pills, Condoms)
- Prevention and Treatment of Sexually Transmitted Diseases & Reproductive Tract Infections
- Control of Disease Outbreak
- Health Education AIDS awareness
- School Health
- Adolescent Health
- Home visits by ANM

One of the major achievements of RCHS is the attainment of zero maternal mortality rates in its service areas, which is indeed a turning point in our battle to keep mothers alive through pregnancy and childbirth. Diarrhoea, a major killer disease for the under five children, is not a serious threat now. Slowly yet surely, the move to achieve positive health for all in our service areas is beginning to bear fruit. This is also reflected truly by the tangible and measurable results especially in respect to substantial fall in the infant mortality rate, which is one of the most sensitive indicators of health of a community. These positive outcomes are the result of scientific approach and strategic planning to tackle major issues like low birth weight, pneumonia, diarrhoea, lack of essential newborn and neonatal care and counseling of couples for readiness to meet any emergency during pregnancy and childbirth.

Ranbaxy Science Foundation:

Ranbaxy Science foundation (RSF) is a non-profit organization dedicated to promote scientific endeavors in the country by encouraging and rewarding and channeling national and international knowledge and expertise on subjects connected with treatment of diseases afflicting mankind. To achieve these objectives, the Foundation conducts Round Table Conferences on topics concerning public health and symposia on topics at the cutting edge of research in medical sciences to explore the latest in the selected area of specialty and its potential application for the benefit of mankind. Being committed to recognizing and furthering excellence, the Foundation has also initiated “Research Scholarship Awards for the Young Scientists” with an aim to stimulate their interest in research.

Dr. Reddy’s Laboratories:

Established in 1984, Dr. Reddy's Laboratories Ltd is an integrated global pharmaceutical company, committed to providing affordable and innovative medicines for healthier lives. Their focus has primarily been on three life-altering areas: Patient Care, Education and Livelihood.

The company channels its wide network of social activities through Dr. Reddy’s Foundation (DRF), addresses health education needs and patient care activities through Dr. Reddy’s Foundation for Health Education (DRFHE) and creates positive impact on communities through Corporate Social Responsibility (CSR) teams in each location.

DR. REDDY’S FOUNDATION: Its activities span two broad areas of social intervention -
Livelihoods: Create, implement and disseminate sustainable and replicable livelihood models through partnerships through the livelihood Advancement Business School (LABS) program
Education: Provide learning opportunities for those who have never been to school, or are dropouts, while improving quality of education across schools.

DR. REDDY’S FOUNDATION FOR HEALTH EDUCATION aims to create professionals (health educators) who would work with the medical fraternity to offer an integrated, multi-disciplinary approach to good health. The programs also aim at building the necessary soft skill capabilities with an objective of strengthening the healthcare delivery system for better patient care.

OUR APPROACH TO COMMUNITY CARE: They inject business efficiency into community care and invest professional resources, talent and technical expertise in it. They approach community interventions as they do successful product launches. They research community needs, develop and pilot new projects, scale them up, and once proven, collaborate with the government and various Non-Governmental Organizations (NGOs) to roll them out.

Aventis Pharma:

Sanofi-aventis, one of the world's leading pharmaceutical companies, and its 100% subsidiary, Hoechst GmbH, are the major shareholders of Aventis Pharma Limited and together hold 60.4% of its paid-up share capital. Sanofi-aventis India participates in a wide range of programs that improve the well-being of the community and continuously strives towards changing the lives of the less fortunate

Saath7 - Patient support in Disease Management

Saath 7, which means 'together' in Hindi, is a patient support programme across India where trained counselors help patients understand their disease better and reach treatment goals effectively. This takes place under the instruction of their treating physicians. The personal touch by the counselors ensures that patients and their families respond appropriately to the impact of the disease on their life.

Salient features of Saath 7 are:

- Certified 'Diabetes Counselor' provides personalized consultation through home visits for the first six months of treatment to patients who enroll with the programme
- Patients and their families are provided diabetes management guidance, psycho-social support, and patient education material
- A qualified team of dieticians, physiotherapists, psychologists, and professional social workers run the programme in 23 cities across India
- Currently engages over 57,000 patients
- Recommended by over 3,200 doctors

SITE (Screening India's Twin Epidemic) – Studying prevalence of diabetes and hypertension in major cities of India: India's twin epidemic of diabetes and hypertension is a growing concern in the healthcare sector, especially since a large number of patients with these diseases remain undiagnosed.

Sanofi-aventis conceptualized Screening India's Twin epidemic (SITE) as a cross-sectional study to study the prevalence of the diseases. The largest of its kind in India, the study involves more than 1,000 general practitioners and consulting physicians across the country. Patients are surveyed at the first point of contact—at the general practitioner or consultant physician's level, and important parameters of disease management such as food habits and lifestyle are evaluated.

Salient features of SITE are:

- Engages approximately 20,000 patients across 10 cities making it the largest study of its kind in India
- The study indicates that patients need to be treated holistically, giving attention to assessing risk factors and underlying diseases
- Assesses prevalence of obesity, truncal obesity, cardiovascular disease (IHD/MI/Stroke), Dyslipidaemia and Microalbuminuria and other variables in the context of Diabetes and Hypertension

- Evaluates other parameters in disease management such as food habits, lifestyle (smoking and alcohol history), family history, demographics, etc.

Prayas – Empowering doctors in rural India: Prayas is an endeavor to improve the practice of health care in rural India, by aiding speedier diagnosis and early and efficient treatment. The programme keeps rural doctors and medical practitioners updated about latest developments in medicine and better disease management practices. Prayas enables primary level physicians (mentees) to receive training from Key Opinion Leaders (mentors), thus establishing a knowledge-based link between them.

As part of Prayas, Sanofi-Aventis also makes available certain medicines at subsidized rates for rural populations.

Salient features of Prayas are:

- Aims to improve healthcare in rural India by mentoring doctors in quicker diagnosis and competent treatment of disease
- Currently has a network of 400 mentors and 5,500 mentees
- Seeks to empower at least 1,50,000 doctors across 60,000 towns and villages of India by 2015
- Through Prayas, Sanofi-Aventis hopes to achieve better care at the grassroots level by providing healthcare literacy.

Lupin Labs:

Headquartered in Mumbai, India, Lupin Limited today is an innovation led transnational pharmaceutical company producing a wide range of quality, affordable generic and branded formulations and APIs for the developed and developing markets of the world.

Lupin is committed to the challenging task of becoming a proactive partner in nation building through the Lupin Human Welfare & Research Foundation (LHWRF). Lupin Human Welfare & Research Foundation was set up on October 2, 1988 with the objective of providing an alternative model of rural development in the country, which is sustainable, replicable and ever evolving. Initiating the program of Rural Development within a small number of 35 villages, LHWRF has now succeeded in revitalizing, revamping and recreating life in 2,200 villages in Rajasthan, Madhya Pradesh, Maharashtra and Uttarakhand States of India, which has led to LHWRF emerging as one of the largest NGOs in the country. The Foundation has been successful in making a big difference in the development of poverty-ridden villages, and especially in the life of the poorest of the poor and empowerment of large number of women in these areas.

Mobile Medical Unit (MMU) (Providing basic health services to the population in far-flung rural areas): LHWRF has taken an initiative in with the collaboration of Government of Rajasthan under the National Rural Health Mission (NRHM) to improve the health situation of the population of underserved areas particularly in 'C' category villages in the three districts of Bharatpur, Dholpur and Karauli. Taking Health Care to the doorstep is the principle behind this initiative to ensure that the poorest of the poor have an improved access to health care services. In 15 months, 787 camps have been organized

benefiting more than 62,085 patients and 2930 patients have undergone various diagnostic tests for which a diagnostic Van has also been provided as a part of MMU which include x-ray machine, ECG, Ultrasound, and Pathology Lab providing doorstep health services.

Urban-Reproductive Child Health (RCH) Centre Under National Rural Health Mission (NRHM): (To cater for Ante-natal, Post-natal care and Minor Ailments): The LHWRF has also established an Urban RCH Centre at Bharatpur town to provide medical care to the urban poor population targeting women and children residing in slums and peri-slum areas. They presently provide coverage in 12 wards encompassing a population of 50,000. Since August 2008, 11958 patients have utilized the services at Urban RCH. 1432 patients have undertaken various Lab tests at the Center.

It is an endeavor to improve the health situation of the urban poor population and bring about quality improvement in the provision of basic health services. Urban RCH centre have been set up to act as 1st Tier Urban Health Post, equivalent to PHC, providing outdoor services like :-

- Antenatal Care
- Post natal care. Referral for institutional deliveries
- Child Health services including immunization
- Services under national programmes like National Malaria Control, DOTs etc
- Family Planning
- Treatment of minor ailments
- Services for contraceptive and ORS
- ANM's utilized for outreach services

Mobile Surgical camps: In order to provide health and medical services the Foundation organized nine major mobile surgical camps in different parts of Bharatpur district, apart from organizing health camps at various LHWRF Centres, from 1992 to till 2001. 60,000 patients received treatment and 10,867 surgical operations were conducted.

Ayurvedic camps: 10 camps were organized in last four years under the leadership of Padma Shri Vaidya Suresh Chaturvedi. 4628 patients were treated for various ailments. In Alwar district, 15,739 patients were referred for advance treatment to various Ayurvedic Hospitals.

Integrated Child Development Services (ICDS): Lupin Foundation has been implementing the Integrated Child Development Services (ICDS) since 1994 in the Kumher block of Bharatpur District of Rajasthan. Under this Project, the block has been divided into 7 sectors. There are 171 Anganwadi Centers, which has been established in various village schools to provide supplementary food to pregnant women, lactating mothers, 6 months to 6 years children. The supplementary food consisting of baby mix (Wheat – 40%, Soya – 20%, Sugar – 30%, Oil – 5%) and Khichdi / Daliya (hot cooked) are prepared and made available through the women self-help groups. In addition health check-up, vaccination and immunization is carried out by the village ANM. Pre-school Education is given to 3-6 years children by Anganwadi workers at the Anganwadi centers for the mental development of Children and to reduce the school dropout

Cisco:

Cisco makes an impact on society by creating networks that connect the world and improve education and healthcare, by enabling energy efficiency, and by helping people collaborate and work smarter

Project Samudaya: Between September 29th and October 4th, 15 districts of Karnataka in Southern India were hit by the most severe flooding in the last 100 years. The unprecedented rainfall took 229 lives, killed nearly 8000 cattle, destroyed crops in over 22 lakh hectares of land, and rendered over 7 lakh people homeless. In the end, nearly one third of the state's population were affected by the floods - a total of 1.8 Crore people, at a cost of nearly Rs. 19,000 Crore

Cisco announced a corporate social responsibility (CSR) programme called "**Samudaya**", a Sanskrit word for "community" - because they knew it will require a community of businesses, government leaders, NGO's and citizens working together to rebuild the affected areas for a better future.

Cisco announced a two-year, US \$10 million commitment to the state of Karnataka to build 3000 houses, 2 schools, 1 hospital and feed 2000 children.

Cisco introduced its healthcare solution in its corporate social responsibility project – Samudaya – to enable access to remote healthcare to flood-affected people of Raichur on a proof-of-concept basis. Leveraging Cisco technology and medical services provided by RxDx's multi-specialty hospital in Bangalore, remote consultation for over 1700 patients has been rendered.

In the Chitradurga pilot, the healthcare solution will link Chitradurga District Hospital to one community healthcare centre at Bharamasagara in Chitradurga Taluk and one primary healthcare centre (PHC) at Mathode in Hosadurga Taluk. Patients visiting these two centers will have their vitals checked by the paramedic/nurse at the centre while the doctor at the district hospital provides consultation and diagnosis in real time. Cisco's healthcare solution creates an environment where patients and doctors can meet each other virtually through video without having to commute long distances.

.....**End of Prefeasibility Report**.....

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