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# Prefeasibility Report of setting up of Dialysis Centres at Taluka Level Hospitals of Raichur District

Karnataka Infrastructure Development  
Department Project

Submitted by



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## Executive Summary

Dialysis is essential for patients suffering from “*End Stage Renal Disease(ESRD)*” and it is observed from preliminary studies that the prevalence of Chronic Kidney Disease(CKD) the precursor to ESRD is 0.8% in India. The major contributing causes to CKD are diabetes and high blood pressure among others; these diseases are increasing at an alarming rate across the country. Hypertension is observed in 20-40 percent adults in urban areas and 12-17 percent adults in rural areas, the number suffering hypertension was estimated to be 118.2 million in 2000 and is expected to increase to 213.5 million in 2025. India is the world capital for diabetes cases with 19.3 million cases in 1995 to a projected increase to 57.2 million in 2025, but a 2004 study has projected the number of diabetes cases in India as 34.7 million already.

The cost of supporting the treatment of patients undergoing dialysis and suffering from ESRD is very high in the order of Rs 10,000 to Rs 20,000 per month; with 37% of the country’s population below the international poverty line of USD1.5 per day, it is impossible to support such high treatment costs. Cost of per session dialysis costs anywhere between Rs 1000 to Rs 2000 in the private set up, low cost dialysis centres in the country provide dialysis between Rs 150 to Rs 600, but these centres are run by NGOs and supported by philanthropists. Government set up dialysis in Karnataka costs Rs 350 per sitting but the availability of service is limited to only 6 machines per district headquarter hospital in Karnataka. This results in non-availability of service for suffering patients.

This objective of this project is to establish dialysis centres at taluka level hospitals on PPP mode. The partner/consortium is expected to provide nephrology support and dialysis for patients who require the same. The centres will be located in taluka/CHC hospital, the emergency medical, laboratory and ambulatory support will be provided by the hospital. The centre will be operated by qualified dialysis technicians and supported by trained nurses and shall operate two shifts every day, six days a week. The government will reimburse the partner as per the agreed annuity.

The proposed project will be offered on Build, Own, Operate and Transfer mode (BOOT) to the successful bidder, the bid variable being the cost at which a dialysis is provided. Project agreement can be either between two parties’ namely private service provider/equipment manufacturer and state government or between three parties – the government, equipment manufacturer and service provider. The service provider will be responsible for operating the centre, providing the service and adhering to the laws and regulations that govern the process. The equipment manufacturer/authorized dealer and service provider can agree on the revenue sharing/costing of the equipment between them.

iMaCS has presented three scenarios with different dialysis capacities in each taluka, with and without building infrastructure being provided by the government.

This project 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, the project may be replicated across the state following the same model or modifying it as per the requirement.

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## Chapter 1 – Introduction

### 1.1. Project idea

#### 1.1.1. Basis for selection of this project

The public healthcare service delivery in Karnataka follows the national pattern and consists of different levels of public healthcare institutions, starting from the bottom of the pyramid of healthcare facilities and going to the top, an integrated; step up referral system with a network of sub-centers, primary health centers, community health centers, taluka hospitals, district hospitals, and medical college hospitals. Patients are provided advanced level of curative, surgical, and diagnostic services as they move up the hierarchy.

The Government of Karnataka in its commitment to improve the health and well being of the people has provided extensive resources to the primary and secondary level public health facilities, however wide gaps exist between the desired and the actual level of services provided to the people at tertiary level, one of them is the provision of dialysis service.

Dialysis is the essential requirement for patients suffering from advanced chronic kidney disease and kidney failure when renal replacement is not possible. A nephrologist prescribes dialysis after detailed analysis and examination of the patient; Haemo dialysis and Peritoneal Dialysis are the two ways by which dialysis is provided to patients. Haemo dialysis is more popular as it involved lesser capital cost and is done under supervision in a centre. Peritoneal dialysis can be self administered at home, but it involves high initial investment and operation cost.

The Health and Family Welfare department has set up 18 haemo dialysis centres across the state at the district hospital premises and each centre is equipped with six dialysis machines; the Department of Medical education also provides dialysis services through the medical colleges. At the district hospital dialysis centres APL patients pay Rs 350 per sitting of dialysis and BPL patients are provided the service free of cost.

Private dialysis centres are operated either attached with a hospital/clinic or as a standalone centre similar to a diagnostic centre. The cost of dialysis in a private centre ranges from Rs 1000 to Rs 3000 per sitting depending on the location, type of dialysis, consumables used, reuse of consumables and funding received by the dialysis centre from support organizations.

Patients prescribed with dialysis need to undergo the process until they undergo renal replacement and the frequency of dialysis varies from once a week to once a day depending on the severity of the renal failure. Patients undergoing haemodialysis at private facilities spend between Rs 10,000 to Rs 20,000 every month for the process; additionally patients undergoing haemodialysis have to take special food and additional medicines to support the system. The trauma of the disease coupled with the high expenditure of treatment drains the patients emotionally and economically, hence the government has to step in to provide cost effective and viable alternative. Though the government has

established 18 haemodialysis centres, the capacity of them are limited as only a maximum of 4 cycles are possible per machine operating round the clock, also separate machines have to be maintained to service patients who suffer from communicable and infectious diseases. Cleaning and maintenance of the machine and unforeseen machine failure leading to down time further brings the operating efficiency of the centre. Hence at any point of time these dialysis centres are over loaded and patients are kept on waiting list for availing the service.

As the Government's centres are located in district headquarters it is difficult for patients relying on them because of the long travel required for every dialysis cycle, dietary, medical and family restrictions further add to the strain caused because of the procedure. Hence, the Government of Karnataka intends to provide dialysis services at each taluka, this would ease the load on district hospital, reduce the waiting time for service.

### 1.1.2. Why Dialysis?

The human kidney performs the following functions,

1. Removes the waste and water from the blood stream
  - a. Excess salt, and other chemicals are filtered by the blood to maintain the appropriate balance required for the body, these chemicals and salts are along with the excess water is removed from the body in the form of urine by the kidneys. Excess water in the body results in high blood pressure and swelling of body parts leading to failure.
2. Balancing the chemical composition of the body
  - a. By balancing the fluid levels in the body the kidneys assist in maintaining the chemical composition of the body. Chemical imbalance in the system disrupts the normal metabolism resulting in multiple diseases.
3. Assist in producing Red Blood Cells (RBC)
  - a. Kidneys produce Erythropoietin; this hormone simulates the production of RBC cells in the body. RBC cells act as oxygen carriers in the blood stream, reduction of RBC count results in anaemia and ultimately weakening of the body.
4. Assist in maintaining the blood pressure
  - a. The kidneys release hormones such as renin and angiotensin, these hormones regulate the salt and fluid content of the body and assist in contracting and relaxing the blood vessels that manage the blood pressure. Failure of kidneys increases blood pressure, resulting in contraction of blood pressure leading to high blood pressure, which strains the heart.
5. Assist bone development
  - a. Kidneys produce a hormone called Calcitrol, this maintains the correct level of calcium and phosphate in the blood and bones, failure of kidneys causes reduces calcitrol production and leads to renal bone disease

Kidney failure or failure of kidney function is broadly classified as,

1. Acute kidney failure
  - a. The kidney suddenly stops working, in most cases this is temporary and is caused because of injury, accident or poisoning
2. Chronic kidney failure
  - a. Gradual loss of kidney functions is called as chronic kidney failure and this may lead to permanent kidney failure. The causes of CKD is still unknown, but the following have been identified as leading causes,
    - i. Diabetes Mellitus
    - ii. High Blood Pressure
    - iii. Glomerular Disease
    - iv. Inherited and Congenital Kidney Disease
    - v. Polycystic Kidney Disease
    - vi. Renovascular Disease
    - vii. Chronic Pyelonephritis
    - viii. Kidney Stones
    - ix. Analgesic nephropathy and drugs

Patients who suffer from acute kidney failure are provided drug relief and temporary dialysis till normal operation of the kidney starts, but when patients reach the peak of chronic kidney failure the only option for cure/survival is to replace the kidney from a suitable donor, but with a paucity of replacement kidney, the only other option is to opt for dialysis till replacement kidney is available.

Dialysis is done in two ways,

1. Peritoneal Dialysis

A special fluid is infused in the peritoneal cavity in the stomach, which is surrounded, by arteries and veins. The wastes in the blood are transferred through the semi permeable peritoneal membrane. PD is done in two ways

- i. Continuous Cyclic PD – The patient is connected with the PD machine overnight and the dialysis happens during the sleeping hours
- ii. Continuous Ambulatory PD – The patient is infused with the fluid every and after a 3-6 hour period it is drained. The number of cycles may vary depending upon the intensity of the disease and the ability of the person to carry fluid.

2. Haemo Dialysis

During haemodialysis the blood is removed from the body, is cleaned using a dialyser, and is returned to the body. An Arteriovenous Fistula is surgically attached to the body for removing and injecting blood into the system. Haemodialysis is done in the following ways,

- i. Home Haemodialysis
  - a. Under medical supervision haemodialysis can be done at home either in the mornings or nocturnal
- ii. In centre Haemodialysis

- 
- a. Under medical supervision haemodialysis is done at a centre either during waking hours or nocturnal

In centre waking hour haemodialysis is the most commonly found and preferred option because it offers comparatively lower cost of procedure for the patient, but this method has the following restrictions,

- i. Patient has to travel to the haemodialysis centre for every procedure
- ii. The dialysis timetable has to be strictly followed
- iii. The dialysis schedule restricts the ability to travel elsewhere
- iv. Full time work schedule is affected
- v. Special diet for the dialysis patient has to be strictly followed
- vi. Support medications need to be taken regularly

### 1.1.3. Why PPP 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**

This planned strategy of having PPP is most suitable for this project as state intends to bring the dialysis service affordable and at the door step of patients requiring the service,

1. 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
2. The operation is a service delivery excellence intensive model, and several private dialysis centres pioneer this across the country, a PPP contract would bring in both the private sector efficiency and bring down the cost of service delivery
3. Stand alone dialysis centre has been established as a viable business in the country and leading healthcare organizations are entering the fray across the country
4. PPP in dialysis service is an established model across the country and there are ample examples to emulate
5. Dialysis is both capital and operation cost intensive equipment, offering the service on state government funds puts additional strain on the public exchequer operating within a limited fiscal space



6. There is a human resource constraint in the state of Karnataka to operate the centre, besides this current staff is inadequately trained
7. Delay in reporting of problems in the hard & soft healthcare infrastructure lead to bigger and un-reparable problems.

#### 1.1.4. Objectives of the project

PPPs combine the varied skills and resources of partners in innovative ways and allow for the sharing of benefits, risks, and responsibilities. Therefore, the government looks increasingly to PPP as a model to:

1. Provide Dialysis service by tapping the expertise of the private sector
2. Mobilize private capital to speed up the delivery of infrastructure and services and eliminate subsidies
3. Reduce the travel time of patients by providing dialysis service at the taluka level
4. Enable efficient use of Dialysis service by improving the identification of long-term risks and their allocation, while maintaining affordable tariffs
5. Provide higher quality of services
6. Access best practices
7. Enable regular maintenance and upgrades

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

*A primary research was carried out to,*

- Study and understand the operations of the selected district of the state and identify their needs
- Assess the availability of Dialysis for the district population with the public and private facilities
- Assess the business environment in terms of market dynamics, pricing competition, regulations
- Discussions with key stakeholders in the location, to ascertain the market opportunities in the selected regions and the expectations of clientele
- A detailed sensitivity analysis on the base case projections with respect to the key drivers affecting revenue, streams of business and capital cost.

Based on the sensitivity analysis, the ideal pricing structure for the Dialysis service has been proposed.

*Secondary research*

We supplemented the primary survey with secondary research focused on similar PPP models across the country, operating models of dialysis centres and pricing of services

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## Chapter 2 - Sector Profile

### 2.1. Industry Overview

#### 2.1.1. Brief Introduction

The first dialysis centre in India was established at CMC Vellore in 1961 and soon KEM Mumbai, AIIMS New Delhi, PGI Chandigarh started dialysis in the same decade. In the last three decades dialysis have been established in multiple formats viz.,

1. Nephrologist owned dialysis centres
2. In hospital dialysis centres
3. Dialysis centres by charitable organizations
4. Stand alone dialysis centres

Hospital run dialysis centres were popular till a few years before because of the following reasons,

1. Availability of nephrologist and in house on duty doctors
2. Availability of trained manpower and support system
3. Dependability on the hospital brand for delivery of service

Dialysis centres operated by charitable organizations are very popular in Mumbai, which has the highest number of dialysis centres in the country. The success of these centres in providing low cost services is owed to,

1. Low or no cost incurred for the building for dialysis centres
2. Nephrologists/Doctors associated with the institutions provide the service for free or for minimal fee
3. Machines are procured with the assistance of philanthropists
4. Dialysers are reused, reducing the variable cost per dialysis

Stand alone dialysis centres by Nephrologists are also found across the country, the advantages and disadvantages of such an unit are,

1. The nephrologist owns the building or rents at a lower rate
2. Scale up of number of units is difficult hence the capacity is limited
3. Service delivery would be of high quality owing to the focused care

Lately many stand alone dialysis centres and dialysis centers attached with hospitals have emerged in tier 1 and tier 2 cities because of,

1. Viability of operating a standalone dialysis centre has been proved
2. ESRD has evolved as a life style disease affecting the population which can afford to pay for dialysis at a private centre
3. The model is becoming popular the population is underserved

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Prominent healthcare organizations entering the dialysis business are,

1. Nephroplus Kidney Care Clinics
  - a. Located in Hyderabad, Secuderabad, Mahboobnagar and Bengaluru, Nephroplus provides haemodialysis, peritoneal dialysis, renal replacement and related surgeries. It has started a free helpline for assisting patients suffering from kidney diseases, it has also established a training academy for dialysis technicians and nurses. Nephroplus intends to open 100 dialysis centres by 2015.
2. Davita - Nephrolife
  - a. The centres provide kidney care as a standalone clinic and in partnership with established hospitals. It caters to the whole range of kidney care including dialysis, surgery, renal replacement, dietary services and information services. Davita-Nephrolife offers dialysis through four centres in Bangalore, three in Chennai, one in Tumkur, one in Hosur, one in Hyderabad and one in Pondicherry.
3. Renkare – Fortis
  - a. Fortis has ventured in the dialysis service through its subsidiary Renkare. It offers dialysis through six centers in New Delhi and plans to expand to 50 locations across the country in the next two years
4. Apex Kidney Care Mumbai
  - a. Apex Kidney Care Mumbai has eight centres across the country and intends to expand it to 50+ centres by 2014

### 2.1.2. Leading manufacturers of Dialysis Equipments

The global market for dialysis is highly consolidated with majority of the market being held by a few major players, BBraun(Germany), Fresenius (Germany), Baxter International (USA), and DaVita (USA). The other players in the dialysis equipment industry include NIKKISO (Japan), NIPRO (Japan), Gambro (Sweden) etc. Indian dialysis market is also dominated by the aforementioned MNCs.

## 2.2 Regional profile

As such no authentic data is available on number of Dialysis centre in Karnataka. Apart from the state run dialysis centres in 18 District hospitals and medical colleges there are private hospitals/standalone dialysis centres providing the service, but there is no record of the service delivery parameters.

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. Ten districts in Karnataka have below-100 ranking as shown in the table below:

**Table 1 Ranking of districts based on availability of Healthcare 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 and increasing per capita income make Karnataka an ideal place for investment in this segment.

### 2.3 Key Issues

The key issues in setting up Dialysis centers are,

1. High cost of capital equipments

2. Limited availability of trained clinical and para clinical manpower – Nephrologists are in short across the country and there is a huge shortage for dialysis technicians, most hospitals/centres train nurses and BSc Biology/Zoology graduates as dialysis technicians
3. Short life of dialysis equipment – seven years in the normal operation life of a dialysis machine
4. Requires rigorous infrastructure set up
5. Regular maintenance of equipments as the running time of machines is high
6. High cost of associated employee salary
7. Power supply, procurement of supplies adds to cost

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## Chapter 3 - Market Assessment

### 3.1. Industry Outlook

The exact number of persons requiring dialysis in the country is still not known authoritatively. The Indian Society of Nephrology has established a Chronic Kidney Disease (CKD) registry and this is expected to provide useful epidemiological data in future.

In the prevention study done in Chennai, the prevalence at the community level is 8600 per million population (pmp) in the study group and 13900 pmp in the control group. The second study based in Delhi revealed a prevalence of CKD (serum creatinine more than 1.8 mg %) at 7852 pmp. The third study from Bhopal revealed an incidence of 151 pmp suffering from end stage renal disease (ESRD).<sup>1</sup>

AIIMS, New Delhi conducted two studies<sup>2</sup>, the first study covering a population of 4712 subjects in New Delhi who participated in a blood biochemistry test. Mean age was 42.38±12.54 years, 56.16% were male. Thirty-seven were found to have chronic renal failure (prevalence rate of 0.78%). If these data are applied to India's 1 billion population there are ~7.85 million CRF patients in India. Aetiologically, diabetes (41%), hypertension (22%), chronic glomerular nephritis (16%), chronic interstitial disease (5.4%), ischaemic nephropathy (5.4%), obstructive uropathy (2.7%), miscellaneous (2.7%) and unknown cause (5.4%) constituted the spectrum.

In the second study by AIIMS 48 centres were distributed all over India. Data were based on prospective investigations conducted over a period of one month (33 hospitals) to three months (15 hospitals) comprising 4145 CKD patients. It showed the following aetiological pattern: diabetes (29.7%), chronic glomerulonephritis (19.3%), hypertension (14%), chronic interstitial disease and vesico-ureteral reflux (12.6%), obstruction and calculus (9.3%), ADPKD and Alport Syndrome (8.4%), undiagnosed (6.2%). This study shows that the prevalence of CRF in India is ~0.8%. If we combine the two, diabetes has emerged as the most frequent cause (30–40%) followed by hypertension (14–22%), CGN (16–20%), CIN (5.4–12.7%), heredofamilial disease (8.4%), obstruction including calculus (2.9%). The two studies, which are different in some ways, perhaps explain the wide range in incidence, suggesting regional influences.

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<sup>1</sup> Khanna U. The Economics of Dialysis in India. *Indian J Nephrol* 2009;19:1-4

<sup>2</sup> Suresh Chandra Dash, Sanjay K Agarwal, *Nephrology Dialysis Transplantation* (2006) 21:233, Oxford Journals

### 3.2. Opportunities and demand projections

iMaCS did a research for the district of Raichur, Karnataka based on the CRF prevalence rate of ~0.8% calculated by AIIMS study across 48 centres distributed all over India.

Considering the following assumptions,

1. CRF prevalence rate 0.8% of the population
2. Population dependant on Government System for Dialysis – 75%
3. Dialysis requirement per patient – one per week
4. Annual population growth rate – 1.43% (Average annual growth rate in the past 10 years)
5. Number of cycles per machine per day - 3
6. Operating efficiency of the dialysis machine – 95% (95% of the time the machine is up and running during working hours)

**Table 2 Projection of Dialysis Machine requirement for Raichur District**

	2012	2013	2014	2015	2016	2017
Karnataka Population	62026943	62936321	63859032	64795271	65745236	66709129
Raichur Population	1952325	1980270	2008616	2037368	2066531	2096112
% Requiring Dialysis in Karnataka	496216	503491	510872	518362	525962	533673
% Requiring Dialysis in Raichur	15619	15842	16069	16299	16532	16769
% Visiting GH for Dialysis	11714	11882	12052	12224	12399	12577
Number of Cycles required per patient per week	11714	11882	12052	12224	12399	12577
Total Cycles required per Year	609125	617844	626688	635659	644758	653987
No of M/c required in GH assuming 3 cycles per m/c per day	651	660	670	679	689	699
No of M/c assuming operating efficiency	685	695	705	715	725	735

It is found that the District of Raichur alone requires 675 plus dialysis machines immediately. This assumption does not include the requirements of Sero Positive patients who need to be provided with separate dialysis machine to avoid cross infection. Though these numbers look exaggerated, it

should be noted that there is no standardized study on the number of people requiring dialysis in Karnataka.

The below table gives the distribution of dialysis machines among government hospitals and their existing load,

**Table 3 Number of dialysis cycles in government centres**

Number of Dialysis Cycles at District hospital from April 2011 - January 2012												
Sl.No.	District	No of Machines	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1	KC General hospital, Bangalore	8	418	410	544	466	444	433	450	481	516	4162
2	Bijapur	6	221	218	238	240	264	264	250	299	351	2345
3	Gulbarga	6	258	269	275	291	265	256	247	271	193	2325
4	Tumkur	6	215	219	252	282	265	228	239	242	251	2193
5	Chikmagalur	6	204	187	186	185	209	191	202	203	197	1764
6	Chamarajanagar	6	242	245	153	193	208	114	120	107	122	1504
7	Jayanagar General hospital, Bangalore	8	147	160	161	135	129	105	127	193	236	1393
8	Chitradurga	6	116	134	127	145	143	155	194	158	184	1356
9	Kolar	6	137	135	134	142	153	142	131	108	141	1223
10	Chikkaballapura	6	104	101	111	110	133	141	126	151	175	1152
11	Bagalkote	6	63	71	74	68	71	80	88	100	76	691
12	Hospete	6	61	67	73	87	71	67	58	68	65	617
13	Udupi	2	62	66	55	55	64	63	68	70	73	576
14	Haveri	6	0	1	59	78	70	81	72	72	81	514
15	Karwar	6	61	59	49	48	31	18	40	37	31	374
16	Gadag	6	36	36	38	48	51	49	41	31	33	363
17	Dharwad	6	39	39	34	36	41	41	35	44	45	354
18	Sagara	6	0	0	0	0	3	46	46	48	82	222
19	Ramnagara	6	0									162

It is observed that Bijapur, Gulbarga, Tumkur, Chikmagalur, Chamrajnagar, Chitradurga, Kolar and Chikkaballapura have the maximum load and the average utilization of the machine varies from 0.95 cycle per machine per working day in Chikkaballapura to 2.5 cycles per machine per day in Bijapur. It should be noted that utilization of dialysis service also depends on,

1. Availability of nephrologist
2. Uptime of the dialysis machine
3. Routine availability of consumables
4. Availability of trained manpower
5. Availability of advanced diagnostic support to assess and advice dialysis

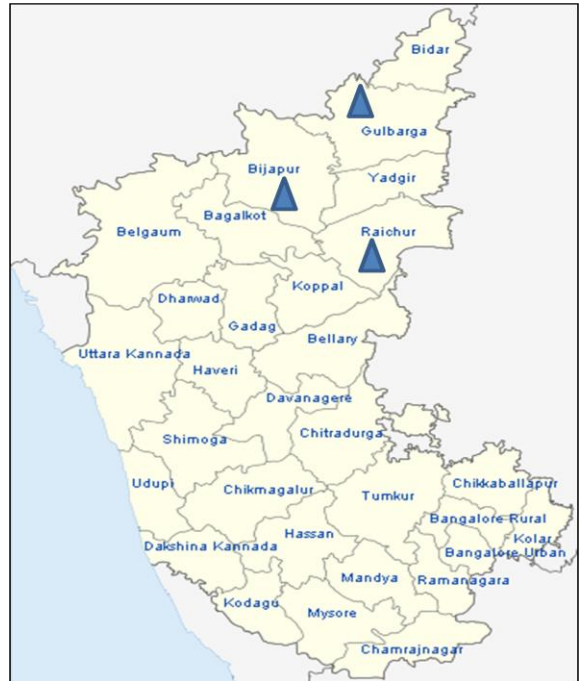


## Chapter 4 - Project

### 4.1 Description of the Project

GOK is planning to provide dialysis services at taluka level hospitals of Gularga, Bijapur and Raichur.

1. The dialysis centres will be located in the Taluka/CHC level hospital premises. The centre will start with a capacity five-dialysis machines and should have the building infrastructure to expand to 15 machines. We have provided scenario analysis for Five machine centre, Ten machine centre and Fifteen machine centre
2. The partner shall employ one nephrologist per district who will consult all patients at the district headquarters and through video conferencing. Adequate manpower shall be employed by the partner for operating the dialysis centre as agreed
3. The centre shall demarcate one machine out of five for Sero positive cases, this is an average and can be altered based on the local profile of the taluka/district
4. The lab tests required will be provided by the government hospital and the ambulance requirement also will be from the hospital and 108 services.
5. The partner shall provide entertainment facilities during the dialysis period. The patients shall bear the cost of special food required for dialysis patients
6. The partner shall provide the service for all patients requiring dialysis, the patient has to be advised dialysis by the nephrologist associated with the centre and it should be approved by the Government Hospital approval committee created for this purpose
7. The partner shall collect the minimum charges prescribed by the government for availing dialysis services from the beneficiaries and submit it with the government. The government shall reimburse the partner for the number of cases served as per the annuity.



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## 4.2 Components of the project

For setting up of a dialysis centre in a Taluka/CHC hospital or stand alone center, the requirements are as follows,

- a) Space for dialysis unit – 1700 sqft to 3000sqft of built up space for running 5-15 dialysis machines including supportive services.
- b) Haemodialysis Dialysis machines
- c) RO plant
- d) Cot, Mattresses and Dialysis Chairs
- e) Para monitors, Ancillary equipments and crash cart
- f) Consumables

### **Services/ Items to be provided by the Government**

#### ***General Provisions***

Administrative responsibilities, required space, adequate raw water, required electrical power required for running the project.

#### ***Professional and other support services***

Required investigations, other supportive and emergency services, treatment of complications, medicines and services for complications shall be ensuring by the Government.

### **Services/Items to be provided by the Partner**

#### ***Infrastructure Works***

The partner shall execute the work of modifying the existing civil and electrical infrastructure to facilitate and establish Haemodialysis Plants.

#### ***Haemodialysis Machines***

The partner shall provide, install, maintain and run the Haemodialysis units in the Taluas hospitals and CHC of the district identified by the State Health and Family Welfare Department. The partner is responsible for comprehensive maintenance and standby machine in case of breakdown of machine in any of the centres to ensure uninterrupted service.

#### ***RO Plant***

The partner shall provide, install and run fully automated compatible RO water plant of required capacity.

#### ***Cot, Mattresses and Dialysis Chairs***

The partner shall provide, install and maintain cots, mattresses and Dialysis Chair as per the WHO guidelines/ Indian Society of Nephrology guidelines

**Para monitors**

The partner shall provide, install and maintain Para monitors of approved specification as per following ratio:

- I. 1 Para monitors for 5 machines
- II. 2 Para monitors for 10 machines
- III. 3 Para monitors for 15 machines

**Isolation Units for HBs Ag and HCV Patients,**

The partner shall provide for Isolation Units for HBs Ag and HCV patients as per following ratio:

- I. 1 in 5 machines
- II. 2 in 10 machines
- III. 3 in 15 machines

This ratio can change with mutual consultation

**Ancillary equipments**

The partner shall provide and maintain all ancillary equipments like the Weighing scale, BP apparatus, Stethoscopes, Ph meter, TDS meter etc. required for proper operation of the system.

The partner shall provide the backup power requirements for 90 minutes to the machines to have uninterrupted dialysis.

The partner shall provide facilities for the disposable, equipments and patient belongings as per the standard requirements of Haemodialysis procedure.

The partner shall arrange for proper Biomedical Wastes collection as per Karnataka State Pollution Control Board norms and shall provide all the necessary infrastructure supports that are required. Disposal of the BMW shall be done by the private partner.

### 4.3 Description of the District – Raichur

It is located in the northeast part of the state and is bounded by Yadgir district in the north, Bijapur and Bagalkot district in the northwest, Koppal district in the west, Bellary district in the south, Mahabubnagar and Kurnool districts of Andhra Pradesh in the east.

It is located 409 km from the state capital Bangalore and 151 km from Hyderabad Airport. The geographical area of the district, according to the Central statistical organization of the Government of India, is 14,013 Sq Kilometers which works out to 5410 sq. miles. Raichur district has 5 talukas as:

1. Deodurga
2. Lingasugur
3. Manvi
4. Raichur
5. Sindahnur



**Demographic profile:** The district has a population of 19.24 Lakhs person as per 2011 census and the district population has gone up by 15.27 percent compared to 2001 population. A demographic profile of Raichur is as below,

**Table 4 Demographic Profile of Raichur**

Total population (2011)	19,24,773
Male	9,66,493
Female	958280
Population growth	15.27%
Density/Km <sup>2</sup>	228
Proportion to Karnataka population	3.15%
Sex ratio	992
Rural : Urban Population	74.68%,25.32%
Average Literacy	60.46
Male Literacy	71.35%
Female Literacy	49.56%

Source: Census 2011 data

Taluka wise population distribution of Raichur district is as below,

**Table 5 Taluka wise population of Raichur**

Name of the Area	Urban / Rural	Estimated population
Lingasugur	R	297676
Lingasugur	U	87508
<b>Lingasugur</b>	<b>T</b>	<b>385184</b>

Devadurga	R	251987
Devadurga	U	28952
<b>Devadurga</b>	<b>T</b>	<b>280939</b>
Raichur	R	246530
Raichur	U	249182
<b>Raichur</b>	<b>T</b>	<b>495712</b>
Manvi	R	324325
Manvi	U	45764
<b>Manvi</b>	<b>T</b>	<b>370089</b>
Sindhur	R	392849
Sindhur	U	316841
<b>Sindhur</b>	<b>T</b>	<b>392849</b>
District Total	R	1437359
District Total	U	487414
<b>District Total</b>	<b>T</b>	<b>1924773</b>

Source: census 2011

### Health Facilities:

The distribution of public health facilities in Raichur district is as follows,

**Table 6 Health Facilities in Raichur District**

Taluka	PHC	CHC	TH	DH	UHC	Pvt. Dialysis clinic	Dialysis Facility
Lingasugur	14	2	1	0	0	0	0
Deodurga	7	2	1	0	0	0	0
Raichur	10	0	0	1	6	2	2
Manvi	9	1	1	0	0	0	0
Sindhanur	8	2	1	0	0	0	0

### Details of Taluka Hospitals

The bed strength and IP/OP details of the taluka hospitals in Raichur is,

**Table 7 IP/OP details of Taluka Hospitals in Raichur**

Sl.No	Name of the Taluka Hospital	No. Of Beds	IPD		OPD	
			2010-11	2011-12	2010-11	2011-12
1	Lingasugur	100	11036	28815	36632	87558
2	Deodurga	100	3554	6883	17666	42666
3	Manvi	100	6757	11874	32885	46057
4	Sindhanur	100	6664	6775	93793	66647

The distribution of medical specialists in Raichur Taluka Hospital's is,

**Table 8 Distribution of Specialists in Public Hospitals of Raichur**

Name of the Taluka Hospital	OBG/ Gynae		Pediatrician		Anaesthesia		MD Med.		Surger y		Opth.		Derma		Radiology		Ortho		Dentist		ENT	
	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available
Lingasugur	1	-	1	1	1	-	1	1	1	1	1	-	-	-	1	1	1	-	1	-	1	1
Deodurga	1	1	1	-	1	-	1	-	1	1	1	1	-	-	-	-	1	-	2	1	1	1
Manvi	1	1	1	1	1	-	1	-	1	1	1	1	1	-	-	1	-	2	1	-	-	
Sindhannur	1	1	1	-	1	1	1	-	1	1	1	1	-	-	-	1	1	2	1	1	1	1

The availability of other medical specialists in the taluka hospitals is,

**Table 9 Taluka wise manpower distribution**

Name of the Taluka Hospital	GDMO/SMO		Specialists		Staff Nurses		Lab. Tech		Pharmsist		X-Ray Tech.		Group-D		FDA	
	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available	Sanctioned	Available
Lingasugur	1	0	10	7	20	20	1	1	3	1	2	2	25	6	1	1
Deodurga	0	0	8	4	16	13	1	1	4	2	1	1	44	3	1	0
Manvi	1	1	8	6	16	13	2	2	2	2	2	1	22	4	1	1
Sindhannur	1	0	9	5	16	16	2	2	2	1	2	2	28	6	1	1

The availability of essential diagnostic equipment at the taluka hospitals of Raichur are,

**Table 10 Availability of essential diagnostic equipments in Taluka Hospitals of Raichur**

Name of the Taluka Hospital	Micro Scope	Haemoglobin meter	X Ray	Sonography	CT Scan	MRI
Lingasugur	Yes	Yes	Yes	Yes	No	No
Deodurga	Yes	Yes	Yes	No	No	No
Manvi	Yes	Yes	Yes	No	No	No
Sindhannur	Yes	Yes	Yes	No	No	No

### Dialysis Facility in the District

Dialysis facility is available only in the district headquarters hospital Raichur, Navodaya Hospital, Raichur (Pvt), MK Bhandari Hospital, Raichur (Pvt), and Balanku Hospital, Raichur (Pvt).

Dialysis facility in district headquarters hospital (Rajiv Gandhi Super Specialty Hosiptal, Raichur) is not operational for the past 10 months and no data is available. Balanku Hospital Raichur started dialysis in 2012 with one machine, and only nine patients have been served so far at a rate of Rs 1000/cycle. MK Bhandari Hospital charges Rs 900-1000 per cycle and has not shared the total number of cycles done so far.

The number of dialysis cycles done in Navodaya Hospital, Raichur (Pvt) is as follow,

Table 11 Dialysis cases in Navodaya Hospital, Raichur

NAVODAYA MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, RAICHUR			
Number of machines		4	3 are working, one is out of order
Sr No.	Year	Number of cases	Comments
1	2007	57	95% of the patient are from Raichur and rest are from Sindhanur, Manvi, Deodurga, Lingasgur these are within district and very few from other Mehboobnagar, Karnool, Bellary
2	2008	788	
3	2009	1116	
4	2010	1156	
5	2011	1321	
6	2012 as on June 25th	300	
<b>Total</b>		<b>4738</b>	



Figure 1 Non functional Dialysis Ward RGSSH, Raichur



Figure 2 Private Dialysis Centre

The average number of dialysis cases in each centre is as follows:

**Table 12 Average Number of Dialysis cases in each centre**

	<b>Navodaya Hospital, Raichur (Pvt)</b>	<b>Bhandari Hospital, Raichur (Pvt)</b>
<b>No. of Machine</b>	4	4
<b>Patient Load per day</b>	12-15	12-15

**Other Major Medical Facilities Available in the District**

Apart from the district hospital and taluka hospitals the other major medical facilities are,

1. Sri Basava Nursing Home
2. Navodaya Medical College Hospital and Research Centre
3. Rajiv Gandhi Super Speciality Hospital
4. Naveen Multispeciality
5. Shivam Hospital Raichur
6. Nandini Hospital Raichur
7. M.K.Bhandari Hospital Raichur
8. Balanku Orthopaedics
9. District Hospital Raichur

**Connectivity within the District**

The distance from the taluka headquarters to the district headquarters in Raichur district is,

**Table 13 Taluka Connectivity from District Headquarters**

Name of the Taluka Hospital	Connectivity from the Taluka headquarters to district headquarters		Distance (in KM)
	By Bus	By Train	
Lingasugur	Yes	No	45
Deodurga	Yes	No	95
Manvi	Yes	No	95
Sindhanur	Yes	No	55

**Railway Station in Raichur District**

1. Raichur Railway Station, Raichur
2. Yermaras Railway Station, Raichur
3. Chiksugar Railway Station, Raichur
4. Marichethal Railway Station, Raichur

**Bus Station in Raichur District**

1. Raichur Central Bus Station
2. Sindhanur Bus Station
3. Lingasugur Bus Station



## 4.4 Interaction with stakeholders

For primary information, IMaCS visited District Hospital Raichur, Sindhanur taluka hospital, Rajiv Gandhi Super Specialty Hospital (OPEC Apollo), Navodaya Medical College Hospital and Research Dialysis Center and interacted with the medical and para medical personnel associated with them.

This interaction brought out following key issues:

1. Government officials stated that the numbers of patients requiring dialysis facilities are increasing every year so there is an immediate need of a public dialysis centre at the district level. In the absence of which, poor patients are forced to visit private facilities and pay higher charges.

This cost of dialysis in each centre is as follows,

**Table 14 Average cost of dialysis in each centre**

Name of the facility	Cost per cycle	Comments
Navodaya Hospital	Rs 850 /cycle	Facility with four Machines
Balanku Hospital	Rs 1000/cycle	Facility started in 2012 and has one machine only. It served total 9 patients till June 25, 2012.
MK Bhandari Hospital	Rs 900-1000	Other details not shared

2. Government officials opined that taluka level dialysis facilities should also be established at the later stage to cater the increasing patient population.
3. Personals from the private facilities welcomed the idea of operating dialysis centre at taluka level and concurred to the fact that there is a dearth of dialysis service in the district.

IMaCS also captured patient's feedback at dialysis centre of Navodaya Medical College Hospital, Raichur. Following are the key information:

1. Monthly cost of dialysis including special food, transportation and medicines is around Rs. 10000 / month / patient.
2. All patients of the survey sample welcomed the idea of Taluka level Dialysis centre
3. Patients are willing to pay between Rs350 – 500 per sitting of dialysis if facility made available at taluka level.
4. More than 70% of the patients are suffering from Hypertension and Diabetes Mellitus

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## 4.5 Best case studies for similar projects in India

### Nephrology Centres in Uttarakhand

*Build -Operate-Transfer of Nephrology Centres at:*

1. Coronation Hospital, Dehradun and
2. Base Hospital, Haldwani

*Project Brief:*

There are number of patients who require dialysis treatment on regular basis. The number of dialysis machines is inadequate in government hospitals. There is always a long waiting status for the patients in government hospitals. The dialysis procedure in private hospitals is very costly and is difficult for poor patients to continue treatment in private hospitals.

It was felt that a fully equipped Nephrology Centres be created in Dehradun and Haldwani to meet the demand of patients requiring dialysis procedure continuously.

*PPP Structuring:*

PPP Model - Built Operate & Maintain (BOT) Model

**Concession Period - Five (5) years**

*Concession:*

- a) Space measuring 480 sq meters at Coronation Hospital.
- b) Space measuring 550 sq meters at Base Hospital, Haldwani

*Government Support:*

- a) The government support as per bid outcome.
- b) State government shall hand over existing furniture & fixture.

*Benefits to Government:*

- a) Maximizing service availability
- b) Reduction of O&M Cost
- c) Free service to BPL patients
- d) Transfer of Operational Risk to PPP partner
- e) Extended hours of operation compared to government setup

*Description of Activities:*

- a) To procure and run thirteen (13) dialysis machines and other equipments in each location
- b) To furnish the given space

*Operation:*

- a) To keep the facility open for patients from 8.00 AM to 6 P.M. (Min)
- b) To respond to emergency cases during odd hours also.
- c) To dedicate one separate machine each for patients infected with HIV, hepatitis-B and hepatitis-C.
- d) To recruit the required personnel including Nephrologists, Technicians, nurses, ward boys and other support staff.
- e) To install a suitable database and application software for maintaining patient records.
- f) To maintain agreed service levels (99% uptime, 12 hrs operation etc)

*User Charges:*

- a) The entire amount of user charges, cost of consumables etc would be collected by Government
- b) To charge the patients for consumable at least 15% less than MRP.
- c) No user charges from BPL & HIV infected patients. Consumable cost to be reimbursed by GoUK.
- d) To maintain records of paying and non paying patients (BPL&HIV infected patients).

*Project Performance (Nephrology Centre, Dehradun):*

The Nephrology Centre Project, Dehradun is running successfully at Coronation Hospital, Dehradun. Appollo Hospital Enterprise Limited is the PPP partner for the dialysis centre operation in Coronation Hospital. The number of patients availing the services from Aug 2010- August 2011 is below:

Month	BPL Patient	APL Patient	Total
August 10	37	81	118
September 10	104	94	219
October 10	136	124	291
November 10	132	130	290
December 10	167	122	318
January 11	179	139	357
February 11	158	121	305
March 11	194	120	342
April 11	251	148	424
May 11	256	171	472
June 11	244	181	504
July 11	238	180	512
August 11	272	203	561

The Nephrology Centre Project, Haldwani has been awarded to Rahi Care on 8 March 2011. The project site has been handed over to the Concessionaire. The actual bid quoted by Rahi Care is 1,034.00 per procedure.

- Source - Impacting the Health Sector - Uttarakhand Public Private Partnership ([cell.upppc.org](http://cell.upppc.org))

**B Braun Dialysis Centres in Andhra Pradesh**

B.Braun is operating 10 haemodialysis centres in Chittoor, Guntur, Hyderabad, Kakinada, Kurnool, Srikakulam, Vijayawada, Visakhapatnam and Warangal districts with 111 dialysis machines and eight other centres are being set up in Anantapur, Cuddapah, Eluru, Mahabubnagar, Nellore, Nizamabad, Prakasam and Vizianagaram. B.Braun has set up and is operating the centres under the **Build, Own, Operate and Transfer model for a period of seven years.**



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*Location:*

These centres are located in medical colleges in the respective districts and the medical college provides space, utilities and nephrologist for clinical duty.

*Concession:*

The medical college hospital provides,

1. Required space
2. Adequate raw water
3. Electrical power for operation

*Other Services Provided by the Hospital:*

1. The hospital assures atleast 540 dialysis cycles per machine per year
2. The hospital provides emergency medical relief, treatment of complications and other specialists required
3. The hospital provides creatinine, PCV and potassium, HB and other investigations
4. Femoral and Jugular catheters are provided by the hospital
5. All support therapy and medicines are provided by the hospital

*Services Provided by BBraun*

B.Braun provides new hemodialysis machines, water treatment plant, reprocessing machine, maintenance of infrastructure, administrative services, and manpower including duty doctor, nurses, and technicians.

*Compensation to BBraun*

The government of Andhra Pradesh supports the project by providing payment for the dialysis at Rs 1200/- per dialysis of which Rs 1080 is for B. Braun and Rs 120 is for the medical college. The dialysis is provided free of cost to patients covered under Rajiv Arogyasri Programme.

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## 4.6 Project Design

### Type of Agreement

The project is designed will be offered on Build Own and Operate mode to the successful bidder, the bid variable being the cost at which a Dialysis is provided. The project can be designed on two types of agreements,

1. Agreement between a private service provider/equipment manufacturer and the government, where the service provider/equipment manufacturer is in charge of procuring and managing the equipment, and providing the service
2. A tri partite agreement between the government, equipment manufacturer/ authorized dealer, and service provider - The service provider will be responsible for procuring the machine from the manufacturer/authorized dealer and delivering the service, and the manufacturer/authorized dealer will be responsible for the maintenance and upkeep of the machine.

Both the models have their inherent strengths and weakness; the right model shall be selected after further analysis during the transaction advisory stage. Adding a service provider would bring in operational efficiency in the management of the dialysis centres, but it will bring up the administrative cost of the set up. The equipment manufacturer will be involved in the process of procuring, installing and managing the equipment set up. This service provider will be responsible for operating the centre, providing the service and adhering to the laws and regulations that govern the process. The equipment manufacturer/authorized dealer and service provider can agree on the revenue sharing/costing of the equipment between them.

The contract shall be awarded district wise to the partners; the partner will be required to set up the centres in each taluka of the district and provide the service. A partner may also win multiple districts depending upon their quote. The government may also decide to bundle all three districts and give it on PPP to a single partner/consortium.

The primary roles and responsibilities of the three parties involved are as follows,

### Roles and Responsibilities of the Government

1. To provide the land (if available the building) for operating the dialysis centre at the premises of CHC/Taluka hospital
2. Provide emergency medical advice and treatment for complications arising during dialysis
3. Ensuring access to water and electricity
4. Providing laboratory, diagnostic and ambulatory support whenever required
5. Providing a conducive organizational atmosphere for the set up to operate
6. Ensuring minimum number of dialysis cases per month

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## **Roles and Responsibility of the Service Provider**

1. Manning and operating the dialysis centre as per the terms of reference
2. Providing the necessary medical advice and treatment through a nephrologist
3. Constructing/renovating the building to house the dialysis centre within the agreed duration as per the TOR
4. Maintaining the supply chain of consumables
5. Recruiting, training and retaining of man power for the centre
6. Adhering to the applicable laws and regulations considering a Dialysis centre
7. Reporting as per the expected norms of the terms of reference
8. Coordinating with the medical hospital for delivering the services
9. To maintain the dialysis equipment in operable condition 95% of the time
10. Sub-meters for electricity and water supply shall be installed, bills shall be paid by the private partner.
11. Monthly report shall be submitted to designated hospital authorities every month.
12. On the expiry or earlier termination of this Agreement, the said hospital space / room shall be vacated peacefully and handed over to hospital authority in the condition they had received.

## **Roles and Responsibility of the Equipment Manufacturer/Authorized Dealer**

1. To provide the dialysis equipment as per the Terms of Reference
2. To provide appropriate support and service for maintenance of the dialysis machine
3. To upgrade the equipment as per the requirement and agreement with the government and service provider

***The roles and responsibilities of the service provider will reside with the Equipment manufacturer/authorized dealer if they prefer to provide the service themselves.***

## **Contract Period**

It is proposed that the Dialysis centre is provided on contract for a period of seven years which is the internationally accepted norm for the life of a dialysis machine. After the completion of this period, project will be rebid to operate for another seven years.

## **Cost of Service**

The service provider shall charge the government a fixed amount towards each dialysis provided, this shall be the bid variable during the process for finalizing the service provider and equipment manufacturer/authorized dealer. The government shall revise the service cost every two years as per the prevailing cost of inflation and service delivery.

*It is to be noted that the service provider would have to collect user charges from the patients undergoing dialysis. The amount collected from the patients shall be deposited in a designated bank*



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*account and the government shall reimburse the service provider separately every month in proportion to the service provided.*

The equipment manufacturer/authorized dealer and service provider can agree on the revenue sharing/costing of the equipment between them.

## **Chapter 5 - Project Financials**

iMaCS follows the total cost concept termed TCO i.e. Total Cost of Ownership while making the financial projections rather than taking into account only the purchase price. The model has been developed to cover three scenarios of operation,

1. Five dialysis machine per taluka centre
2. Ten dialysis machine per taluka centre, and
3. Fifteen dialysis machines per taluka centre

These scenarios have been overlayed with two state of assumption,

1. The government provides only the land and the partner has to build the infrastructure required
2. The government provides built space to the partner for setting up the system

It is to be noted that the Raichur taluka has an existing dialysis centre in Rajiv Gandhi Super Specialty Hospital. This hospital runs on PPP model. Currently the existing dialysis centre of the hospital is non operational for past 10 months due to the breakdown of dialysis machines.

The proposed project model here assumes one dialysis centre per taluka irrespective of the availability of government dialysis centres or building availability. The model can be tweaked during the transaction stage to accommodate the availability/non availability of building/existing dialysis centre.

The cost estimates for the three different scenarios are presented below,

## 5.1. Cost Estimation

### 5.1.1. Capital Infrastructure for Building

Building Infrastructure			5 M/c	10 M/c	15 M/c
SI No	Space for	Dimension	Sq feet area	Sq feet area	Sq feet area
1	Patient waiting area	10*15	150	150	200
2	Administrative area	10*10	100	100	100
3	Doctor + observation	10*15	150	150	150
4	Dialysis area	7*3+7*4+7*2	540	1080	1620
5	Dialsate preparation room	10*15	150	150	200
6	Washroom	3*5*10	150	150	150
7	Nurse/Technician Station	10*10	100	100	150
8	Laboratory	10*10	0	0	0
9	Cleaning room	10*10	100	100	150
10	Store room	2*10*10	200	200	150
11	Janitor Room	5*10	50	50	50
12	Water Treatment Room	10*10	100	100	150
<b>Total Built Area</b>			<b>1790</b>	<b>2330</b>	<b>3070</b>
Development Cost per Sq ft			1200	1200	1200
Building Development Cost			<b>2148000</b>	<b>2796000</b>	<b>3684000</b>



The Haemodialysis equipments include the core dialysis equipments required for delivering the service per centre:

Haemo Dialysis Equipments				5M/c	10 M/c	15 M/c
SI No	Machine	Number Req	Unit Cost	Total Cost	Total Cost	Total Cost
1	Haemodialysis Machine	5	600000	3000000	5700000	8100000
2	Dialysis Fluid Filter	5	30000	150000	285000	405000
3	RO Plant	1	200000	200000	380000	540000
4	Haemocleaner	1	350000	350000	665000	945000
<b>Total Dialysis Equipment Cost</b>				<b>3700000</b>	<b>7030000</b>	<b>9990000</b>

Support equipments include the furniture, cot, generator and other support systems required per centre:

Support Equipments		5 M/c Per Taluk			10 M/c Per Taluk			15 M/c Per Taluk		
SI No	Equipment	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost
1	Waiting chairs	20	600	12000	20	600	12000	25	600	15000
2	Doctors chair	1	5000	5000	1	5000	5000	1	5000	5000
3	Medical Table	1	5000	5000	1	5000	5000	1	5000	5000
4	Admin/Nurse Chairs	5	2500	12500	7	2500	17500	10	2500	25000
5	Admin/Nurse Tables	2	3000	6000	2	3000	6000	2	3000	6000
6	Rack for MRD	2	8000	16000	1	8000	8000	1	8000	8000
7	Liftable bed	5	15000	75000	10	15000	150000	15	15000	225000
8	Bed side table/cabinet	5	2000	10000	10	2000	20000	15	2000	30000
9	Fans	12	2000	24000	16	2000	32000	20	2000	40000
10	Cleaning area set up	1	10000	10000	1	10000	10000	1	10000	10000
11	Exhaust fan for Cleaning	1	5000	5000	1	5000	5000	1	5000	5000

Support Equipments		5 M/c Per Taluk			10 M/c Per Taluk			15 M/c Per Taluk		
SI No	Equipment	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost
1	Waiting chairs	20	600	12000	20	600	12000	25	600	15000
12	Storage Almairah	2	15000	30000	2	15000	30000	1	15000	15000
13	Refrigerator	1	15000	15000	1	15000	15000	1	15000	15000
14	Crash cart	1	20000	20000	1	20000	20000	1	20000	20000
15	Stretcher Trolley	1	15000	15000	1	15000	15000	1	15000	15000
16	Wheel chair	1	8000	8000	1	8000	8000	1	8000	8000
17	Air Conditioning 1.5 Tonnes	4	25000	100000	8	25000	200000	12	25000	300000
18	Generator 30kW	1	350000	350000	1	350000	350000	1	350000	350000
19	Inverter Backup Set	1	200000	200000	1	200000	200000	1	200000	200000
20	Computer + Printer + Scan	1	50000	50000	1	50000	50000	1	50000	50000
<b>Total Support Equipment Cost</b>				<b>968500</b>			<b>1158500</b>			<b>1347000</b>

Bio medical equipments for a dialysis centre includes the following,

Bio Medical Equipments		5 M/c Per Taluk			10 M/c Per Taluk			15 M/c Per Taluk		
SI No	Machine	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost
1	Stethoscope	2	1000	2000	2	1000	2000	2	1000	2000
2	Spyghmomanometer	1	1000	1000	1	1000	1000	2	1000	2000
3	Needle cutter	1	5000	5000	1	5000	5000	2	5000	10000
4	Heart Monitor	1	25000	25000	2	25000	50000	3	25000	75000
5	Defibrillator	1	10000	10000	1	10000	10000	1	10000	10000
6	Oxygen cylinder	2	3000	6000	3	3000	9000	4	3000	12000
7	Glucometer	2	2500	5000	2	2500	5000	2	2500	5000

Bio Medical Equipments		5 M/c Per Taluk			10 M/c Per Taluk			15 M/c Per Taluk		
SI No	Machine	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost	Number Req	Unit Cost	Total Cost
1	Stethoscope	2	1000	2000	2	1000	2000	2	1000	2000
2	Spyghmomanometer	1	1000	1000	1	1000	1000	2	1000	2000
8	Weighing Scale	1	2000	2000	1	2000	2000	1	2000	2000
9	Autoclave	1	20000	20000	1	20000	20000	1	20000	20000
<b>Total Bio Medical Equip Cost</b>				<b>76000</b>			<b>104000</b>			<b>138000</b>

### 5.1.2. Manpower cost

The model assumes the following manpower requirement for the taluka centres,

Manpower for Raichur				5 M/c			10 M/c			15 M/c			Guideline/Remarks
SI No	Post	Qualification	Base / Centre	Number Required	Salary PM*	Total Salary per Annum	Base / Centre	Number Required	Total Salary per Annum	Base / Centre	Number Required	Total Salary per Annum	
1	Nephrologist	MBBS, MD	1	1	180000	216000	1	1	216000	1	1	216000	One Nephrologist for the District on Tele Medicine
2	Dialysis Technician	BSc	2	10	12000	144000	4	20	288000	6	30	432000	Two shifts per day, one technicians per five Machine per shift for five talukas
3	Staff Nurse	BSc	2	10	10800	129600	2	10	129600	2	10	129600	Two shifts per day, one staff nurse per shift

													for five talukas
4	Housekeeping/Cleaning staff	10th pass	2	10	6000	72000 0	4	20	14400 00	6	30	216000 0	Two shifts per day, one cleaning staff per shift per five machines for five talukas
5	Administrative Person	Graduate	2	10	9600	11520 00	2	10	11520 00	2	10	115200 0	Two shifts per day, one administrative person per shift for five talukas
	<b>Total</b>			<b>41</b>	<b>21840 0</b>	<b>67680 00</b>	<b>13</b>	<b>61</b>	<b>89280 00</b>	<b>17</b>	<b>81</b>	<b>110880 00</b>	

\* Salary also includes 20% 'Incentive for working in remote area'

### 5.1.3. Cost of Consumables

SI No	Consumable	Number Required	Cycle Reuse	Unit Cost in Rs	Cycle Cost in Rs	Remarks
1	Dialyser	1	3	650	217	Assuming dialyser is reused three times
2	Blood Tubing Set	1	3	150	50	
3	Needle Set	1	1	20	20	
4	Glucometer Strip	1	1	15	15	
5	Syringe	1	1	8	8	
6	Saline/Dextrose solution	1	30%	25	8	



7	Other Consummables				100	Including Housekeeping chemicals, dialyser cleaning chemical, gloves, saline requirement
Total consumable cost per Cycle					417	

#### 5.1.4. Total Expenditure Projections

Raichur District	5 M/c per taluk		10 M/c per taluk		15 M/c per taluk	
Expenditure Projections for 6 Centres/District	Parameter	Remarks	Parameter	Remarks	Parameter	Remarks
Manpower Initial per Annum	67.7	Rupees Lakh	89.3	Rupees Lakh	110.9	Rupees Lakh
Capital Expenditure on Building	107.4	Rupees Lakh	139.8	Rupees Lakh	184.2	Rupees Lakh
Capital Expenditure on Support Equipment	48.4	Rupees Lakh	57.9	Rupees Lakh	67.4	Rupees Lakh
Capital Expenditure on Haemodialysis Equip	185.0	Rupees Lakh	351.5	Rupees Lakh	499.5	Rupees Lakh
Capital Expenditure on Bio Medical Equip	3.8	Rupees Lakh	5.2	Rupees Lakh	6.9	Rupees Lakh
Total Capital for Equipments	237.2	Rupees Lakh	414.6	Rupees Lakh	573.8	Rupees Lakh
Consummables cost per cycle	417.2	Rupees	417.2	Rupees	417.2	Rupees
AMC & maintenance of equipment as % of equipment cost	4.0%	%	4.0%	%	4.0%	%
Building Maintenance	1.0%	%	1.0%	%	1.0%	%
Cost Escalation per year	5%	%	5%	%	5%	%
Contingency Expenses for equipments and consumables	2%	%	2%	%	2%	%

## 5.2. Tariff Revenue Stream

### 5.2.1. Assumptions for the project model

Capacity Projection under different Scenarios							
No of Dialysis machines in each unit	No of Taluka	M/C per Taluka	Sero Negative M/c	Sero Positive M/C	No of M/c	Cycle Capacity	Cycle Capacity Per Machine
Raichur	5	Five machines per taluka					
		5	4	1	25	22,230	889
		Ten machines per taluka					
		10	8	2	50	44,460	889
		Fifteen machines per taluka					
		15	15	12	75	66,690	889

The assumptions governing the capacity limitations of the centres are as listed below

Capacity Limitations	Parameter	Remarks
Working days per week	6	
Working hours per day	12	
Time per sitting	4	
No of Shifts	2	8am-2pm, 2pm-8pm
Number of Dialysis Shifts	3	
Operating Efficiency	95.00%	
Per day cycle capacity per centre	14	

The revenue generation limits are defined as per the existing Government of Karnataka rates, CGHS rates, 30% cheaper than market rate and 40% cheaper than market rate

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<b>Revenue Projections</b>	<b>Rs</b>
Charge per dialysis as per existing govt. rates	<b>350</b>
CGHS rate per dialysis for Sero negative	<b>1,100</b>
CGHS rate per dialysis for Sero positive	<b>1,200</b>
Existing market rate	<b>1,500</b>
Rates 30% cheaper than current market Rate of Rs 1500	<b>1,050</b>
Rates 40% cheaper than current market Rate of Rs 1500	<b>900</b>

The revenue and expenditure projections for the three scenarios are as below,

Five Machines Centre		Years					
Parameter/Year	1	2	3	4	5	6	7
Number of Dialysis M/c in the District	25	25	25	25	25	25	25
Capacity utilization	85%	90%	95%	100%	100%	100%	100%
Cycle Capacity per year	18896	20007	21119	22230	22230	22230	22230
Number of Sero Negative Cases	15116	16006	16895	17784	17784	17784	17784
Number of Sero Positive Cases	3779	4001	4224	4446	4446	4446	4446
Revenue Projection		Rs Lakh					
Existing Govt. Rate	66	70	74	78	78	78	78
CGHS Rate	212	224	237	249	249	249	249
At Rs 1050, 30% Cheaper than market rate of 1500	198	210	222	233	233	233	233
At Rs 900, 40% cheaper than market rate of 1500	170	180	190	200	200	200	200
Expenditure Projection		Rs Lakh					
Year/Parameter	1	2	3	4	5	6	7
Indexation Factor	1.00	1.05	1.10	1.16	1.22	1.28	1.34
Manpower	68	71	75	78	82	86	91
Building Maintenance	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Equipment Maintenance	9.5	10.0	10.5	11.0	11.5	12.1	12.7
Consumables	78.8	87.6	97.1	107.4	112.7	118.4	124.3
Contingency	1.8	2.0	2.4	2.7	3.0	3.3	3.7
Power cost*	0.73	0.77	0.81	0.85	0.89	0.94	0.98
Fuel cost**	0.40	0.42	0.44	0.47	0.49	0.51	0.54
Cost of water for utility***	0.04	0.04	0.05	0.05	0.05	0.05	0.05
<b>Total Expenditure</b>	<b>160</b>	<b>173</b>	<b>187</b>	<b>202</b>	<b>212</b>	<b>223</b>	<b>234</b>

\* Calculations based on the assumptions that power consumption per machine per month (including power utilization for administrative purpose) is 130 units. Per month fixed cost for 50KW three phase LT power connection is Rs. 1750 and per unit power consumption cost is Rs. 6.70<sup>3</sup>.

\*\* Calculations based on the assumptions that per month diesel consumption is 60 liters and per liter fuel cost is Rs. 56.

\*\*\* Calculations based on the assumptions that water usage in toilet per patient including staff is 10 liters and drinking water usage per patient including staff is 3 liters. Per liter unit cost of water including 20% of sanitary charge is .072 Rs per liter<sup>4</sup>.

<sup>3</sup> <http://www.kerc.org>

<sup>4</sup> <http://bwssb.org>





<b>Ten Machines Centre</b>		<b>Year</b>						
<b>Parameter/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	
Number of Dialysis M/c in the District	50	50	50	50	50	50	50	
Capacity utilization	85%	90%	95%	100%	100%	100%	100%	
Cycle Capacity per year	37791	40014	42237	44460	44460	44460	44460	
Number of Sero Negative Cases	30233	32011	33790	35568	35568	35568	35568	
Number of Sero Positive Cases	7558	8003	8447	8892	8892	8892	8892	
<b>Revenue Projection</b>		<b>Rs Lakh</b>						
<b>Existing Govt. Rate</b>	132	140	148	156	156	156	156	
<b>CGHS Rate</b>	423	448	473	498	498	498	498	
<b>At Rs 1050, 30% Cheaper than market rate of 1500</b>	397	420	443	467	467	467	467	
<b>At Rs 900, 40% cheaper than market rate of 1500</b>	340	360	380	400	400	400	400	
<b>Expenditure Projection</b>		<b>Rs Lakh</b>						
<b>Year/Parameter</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	
Indexation Factor	1.00	1.05	1.10	1.16	1.22	1.28	1.34	
Manpower	89	94	98	103	109	114	120	
Building Maintenance	1.40	1.40	1.40	1.40	1.40	1.40	1.40	
Equipment Maintenance	16.6	17.4	18.3	19.2	20.2	21.2	22.2	
Consumables	157.7	175.3	194.3	214.7	225.4	236.7	248.6	
Contingency	3.5	4.0	4.7	5.4	6.0	6.6	7.3	
Power cost*	1.26	1.32	1.38	1.45	1.53	1.60	1.68	
Fuel cost**	0.81	0.85	0.89	0.93	0.98	1.03	1.08	
Cost of water for utility***	0.08	0.09	0.09	0.09	0.10	0.10	0.11	
<b>Total Expenditure</b>	<b>271</b>	<b>294</b>	<b>319</b>	<b>347</b>	<b>364</b>	<b>383</b>	<b>402</b>	

\* Calculations based on the assumptions that power consumption per machine per month (including power utilization for administrative purpose) is 130 units. Per month fixed cost for 50KW three phase LT power connection is Rs. 1750 and per unit power consumption cost is Rs. 6.70<sup>5</sup>.

\*\* Calculations based on the assumptions that per month diesel consumption is 60 liters and per liter fuel cost is Rs. 56.

\*\*\* Calculations based on the assumptions that water usage in toilet per patient including staff is 10 liters and drinking water usage per patient including staff is 3 liters. Per liter unit cost of water including 20% of sanitary charge is .072 Rs per liter<sup>6</sup>.

<sup>5</sup> <http://www.kerc.org>

<sup>6</sup> <http://bwssb.org>

<b>Fifteen Machines Centre</b>		<b>Year</b>					
<b>Parameter/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Number of Dialysis M/c in the District	75	75	75	75	75	75	75
Capacity utilization	85%	90%	95%	100%	100%	100%	100%
Cycle Capacity per year	56687	60021	63356	66690	66690	66690	66690
Number of Sero Negative Cases	45349	48017	50684	53352	53352	53352	53352
Number of Sero Positive Cases	11337	12004	12671	13338	13338	13338	13338
<b>Revenue Projection</b>		<b>Rs Lakh</b>					
<b>Existing Govt. Rate</b>	198	210	222	233	233	233	233
<b>CGHS Rate</b>	635	672	710	747	747	747	747
<b>At Rs 1050, 30% Cheaper than market rate of 1500</b>	595	630	665	700	700	700	700
<b>At Rs 900, 40% cheaper than market rate of 1500</b>	510	540	570	600	600	600	600
<b>Expenditure Projection</b>		<b>Rs Lakh</b>					
<b>Year/Parameter</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Indexation Factor	1.00	1.05	1.10	1.16	1.22	1.28	1.34
Manpower	111	116	122	128	135	142	149
Building Maintenance	1.84	1.84	1.84	1.84	1.84	1.84	1.84
Equipment Maintenance	23.0	24.1	25.3	26.6	27.9	29.3	30.8
Consumables	236.5	262.9	291.4	322.1	338.2	355.1	372.8
Contingency	5.2	6.0	7.0	8.1	8.9	9.8	10.8
Power cost*	1.78	1.87	1.96	2.06	2.16	2.27	2.38
Fuel cost**	1.21	1.27	1.33	1.40	1.47	1.54	1.62
Cost of water for utility***	0.12	0.13	0.14	0.14	0.15	0.16	0.16
<b>Total Expenditure</b>	<b>380</b>	<b>415</b>	<b>451</b>	<b>490</b>	<b>515</b>	<b>541</b>	<b>569</b>

\* Calculations based on the assumptions that power consumption per machine per month (including power utilization for administrative purpose) is 130 units. Per month fixed cost for 50KW three phase LT power connection is Rs. 1750 and per unit power consumption cost is Rs. 6.70<sup>7</sup>.

\*\* Calculations based on the assumptions that per month diesel consumption is 60 liters and per liter fuel cost is Rs. 56.

\*\*\* Calculations based on the assumptions that water usage in toilet per patient including staff is 10 liters and drinking water usage per patient including staff is 3 liters. Per liter unit cost of water including 20% of sanitary charge is .072 Rs per liter<sup>8</sup>.

<sup>7</sup> <http://www.kerc.org>

<sup>8</sup> <http://bwssb.org>

## 5.2.2. Cash Flow

For Operating Five Machines in each Taluka							
Scenario 1- Dialysis at Existing Rate of Karnataka Govt - Rs 350							
All in Rs Lakh/Year	1	2	3	4	5	6	7
CAPEX With Building	-344.63						
CAPEX Without Building	-237.23						
Total Operating Revenue	66	70	74	78	78	78	78
Total Operating Expenditure	160	173	187	202	212	223	234
Net Cash Flow (Surplus/-Deficit) (With Building)	-438.50	-103.00	-113.04	-124.06	-134.24	-144.95	-156.21
Net Cash Flow (Surplus/-Deficit) (Without Building)	-331.10	-103.00	-113.04	-124.06	-134.24	-144.95	-156.21
Pre Tax IRR (With Building)	N/A						
Pre Tax IRR (Without Building)	N/A						
Scenario 2 - Dialysis at CGHS Rate							
All in Rs Lakh/Year	1	2	3	4	5	6	7
CAPEX With Building	-344.63						
CAPEX Without Building	-237.23						
Total Operating Revenue	212	224	237	249	249	249	249
Total Operating Expenditure	160	173	187	202	212	223	234
Net Cash Flow (Surplus/-Deficit) (With Building)	-293.01	51.06	49.58	47.11	36.93	26.22	14.96
Net Cash Flow (Surplus/-Deficit) (Without Building)	-185.61	51.06	49.58	47.11	36.93	26.22	14.96
Pre Tax IRR (With Building)	-8%						
Pre Tax IRR (Without Building)	7%						
Scenario 3 - Dialysis at 30% Cheaper than Market Rate - Rs 1050							
All in Rs Lakh/Year	1	2	3	4	5	6	7
CAPEX With Building	-344.63						
CAPEX Without Building	-237.23						
Total Operating Revenue	198	210	222	233	233	233	233
Total Operating Expenditure	160	173	187	202	212	223	234
Net Cash Flow (Surplus/-Deficit) (With Building)	-306.23	37.05	34.79	31.55	21.37	10.66	-0.60
Net Cash Flow (Surplus/-Deficit) (Without Building)	-198.83	37.05	34.79	31.55	21.37	10.66	-0.60



Pre Tax IRR (With Building)	-26%						
Pre Tax IRR (Without Building)	-14%						
<b>Scenario 4 - Dialysis at 40% Cheaper than Market Rate - Rs 900</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-344.63						
CAPEX Without Building	-237.23						
Total Operating Revenue	170	180	190	200	200	200	200
Total Operating Expenditure	160	173	187	202	212	223	234
Net Cash Flow (Surplus/-Deficit) (With Building)	-334.58	7.04	3.11	-1.79	-11.98	-22.68	-33.94
Net Cash Flow (Surplus/-Deficit) (Without Building)	-227.18	7.04	3.11	-1.79	-11.98	-22.68	-33.94
Pre Tax IRR (With Building)	N/A						
Pre Tax IRR (Without Building)	N/A						

<b>For Operating Ten Machines in each Taluka</b>							
<b>Scenario 1- Dialysis at Existing Rate of Karnataka Govt - Rs 350</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-554.43						
CAPEX Without Building	-414.625						
Total Operating Revenue	132	140	148	156	156	156	156
Total Operating Expenditure	271	294	319	347	364	383	402
Net Cash Flow (Surplus/-Deficit) (With Building)	-692.70	-154.08	-171.59	-190.94	-208.49	-226.93	-246.34
Net Cash Flow (Surplus/-Deficit) (Without Building)	-552.90	-154.08	-171.59	-190.94	-208.49	-226.93	-246.34
Pre Tax IRR (With Building)	N/A						
Pre Tax IRR (Without Building)	N/A						
<b>Scenario 2 - Dialysis at CGHS Rate</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-554.425						
CAPEX Without Building	-414.625						
Total Operating Revenue	423	448	473	498	498	498	498
Total Operating Expenditure	271	294	319	347	364	383	402
Net Cash Flow (Surplus/-Deficit) (With Building)	-401.71	154.03	153.63	151.40	133.86	115.41	96.00
Net Cash Flow (Surplus/-Deficit) (Without Building)	-261.91	154.03	153.63	151.40	133.86	115.41	96.00



Pre Tax IRR (With Building)	27%						
Pre Tax IRR (Without Building)	51%						
<b>Scenario 3 - Dialysis at 30% Cheaper than Market Rate - Rs 1050</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-554.425						
CAPEX Without Building	-414.625						
Total Operating Revenue	397	420	443	467	467	467	467
Total Operating Expenditure	271	294	319	347	364	383	402
Net Cash Flow (Surplus/-Deficit) (With Building)	-428.16	126.02	124.07	120.28	102.73	84.29	64.88
Net Cash Flow (Surplus/-Deficit) (Without Building)	-288.36	126.02	124.07	120.28	102.73	84.29	64.88
Pre Tax IRR (With Building)	13%						
Pre Tax IRR (Without Building)	32%						
<b>Scenario 4 - Dialysis at 40% Cheaper than Market Rate - Rs 900</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-554.425						
CAPEX Without Building	-414.625						
Total Operating Revenue	340	360	380	400	400	400	400
Total Operating Expenditure	271	294	319	347	364	383	402
Net Cash Flow (Surplus/-Deficit) (With Building)	-484.85	66.00	60.71	53.59	36.04	17.60	-1.81
Net Cash Flow (Surplus/-Deficit) (Without Building)	-345.05	66.00	60.71	53.59	36.04	17.60	-1.81
Pre Tax IRR (With Building)	-24%						
Pre Tax IRR (Without Building)	-14%						

<b>For Operating Fifteen Machines in each Taluka</b>							
<b>Scenario 1- Dialysis at Existing Rate of Karnataka Govt - Rs 350</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-757.95						
CAPEX Without Building	-573.75						
Total Operating Revenue	198	210	222	233	233	233	233
Total Operating Expenditure	380	415	451	490	515	541	569
Net Cash Flow (Surplus/-Deficit) (With Building)	-940.00	-204.49	-229.45	-257.08	-281.94	-308.08	-335.58
Net Cash Flow (Surplus/-Deficit) (Without Building)	-755.80	-204.49	-229.45	-257.08	-281.94	-308.08	-335.58



Pre Tax IRR (With Building)	N/A						
Pre Tax IRR (Without Building)	N/A						
<b>Scenario 2 - Dialysis at CGHS Rate</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-757.95						
CAPEX Without Building	-573.75						
Total Operating Revenue	635	672	710	747	747	747	747
Total Operating Expenditure	380	415	451	490	515	541	569
Net Cash Flow (Surplus/-Deficit) (With Building)	-503.51	257.67	258.39	256.43	231.57	205.43	177.93
Net Cash Flow (Surplus/-Deficit) (Without Building)	-319.31	257.67	258.39	256.43	231.57	205.43	177.93
Pre Tax IRR (With Building)	43%						
Pre Tax IRR (Without Building)	76%						
<b>Scenario 3 - Dialysis at 30% Cheaper than Market Rate - Rs 1050</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-757.95						
CAPEX Without Building	-573.75						
Total Operating Revenue	595	630	665	700	700	700	700
Total Operating Expenditure	380	415	451	490	515	541	569
Net Cash Flow (Surplus/-Deficit) (With Building)	-543.19	215.66	214.04	209.75	184.89	158.75	131.25
Net Cash Flow (Surplus/-Deficit) (Without Building)	-358.99	215.66	214.04	209.75	184.89	158.75	131.25
Pre Tax IRR (With Building)	28%						
Pre Tax IRR (Without Building)	52%						
<b>Scenario 4 - Dialysis at 40% Cheaper than Market Rate - Rs 900</b>							
<b>All in Rs Lakh/Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
CAPEX With Building	-757.95						
CAPEX Without Building	-573.75						
Total Operating Revenue	510	540	570	600	600	600	600
Total Operating Expenditure	380	415	451	490	515	541	569
Net Cash Flow (Surplus/-Deficit) (With Building)	-628.22	125.63	119.01	109.71	84.85	58.71	31.21
Net Cash Flow (Surplus/-Deficit) (Without Building)	-444.02	125.63	119.01	109.71	84.85	58.71	31.21
Pre Tax IRR (With Building)	-6%						
Pre Tax IRR (Without Building)	6%						

### 5.3.Ranking of Project based on commercial viability

A comparative analysis of the three scenarios under different revenue rates with and without building infrastructure is stated below

Comparitive IRR Rates For Different Scenarios					
Type of Centre	Category	Current GoK Rate	CGHS Rate	30% Cheaper than Market Rate	40% Cheaper than Market Rate
		Rs 350 per	Rs 1100/ Rs 1200 per	Rs 1050 per	Rs 900 per
Five Machine Centre at each taluka	IRR (With Building)	N/A	-8%	-26%	N/A
	IRR (Without Building)	N/A	7%	-14%	N/A
Ten Machine Centre at each taluka	IRR (With Building)	N/A	27%	13%	-24%
	IRR (Without Building)	N/A	51%	32%	-14%
Fifteen Machine Centre at each taluka	IRR (With Building)	N/A	43%	28%	-6%
	IRR (Without Building)	N/A	76%	52%	6%

The Break even costing of each type centre with and without considering building cost is as below,

Break Even Cost Per Dialysis Cycle Without Building Cost		Break Even Cost Per Dialysis Cycle With Building Cost	
Five Machine / Centre Without Building		Five Machine / Centre With Building	
Cost of Infrastructure in Rs Lakh	Variable Cost Per Cycle in Rs Lakh	Cost of Infrastructure in Rs Lakh	Variable Cost Per Cycle in Rs Lakh
237.225	1391	344.625	1391
Total No of Cycles	Total No of Cycles	Total No of Cycles	Total No of Cycles
148941	148941	148941	148941
Infrastructure Cost per Cycle in Rs	Variable Cost per Cycle in Rs	Infrastructure Cost per Cycle in Rs	Variable Cost per Cycle in Rs
159	934	231	934
Cost Per Cycle in Rs		Cost Per Cycle in Rs	
1093		1165	
Ten Machine / Centre Without Building		Ten Machine / Centre With Building	
Cost of Infrastructure in Rs Lakh	Variable Cost Per Cycle in Rs Lakh	Cost of Infrastructure in Rs Lakh	Variable Cost Per Cycle in Rs Lakh



414.625	2379	554.425	2379
<b>Total No of Cycles</b>	<b>Total No of Cycles</b>	<b>Total No of Cycles</b>	<b>Total No of Cycles</b>
297882	297882	297882	297882
<b>Infrastructure Cost per Cycle in Rs</b>	<b>Variable Cost per Cycle in Rs</b>	<b>Infrastructure Cost per Cycle in Rs</b>	<b>Variable Cost per Cycle in Rs</b>
139	799	186	799
Cost Per Cycle in Rs		Cost Per Cycle in Rs	
938		985	
<b>Fifteen Machine / Centre Without Building</b>		<b>Fifteen Machine / Centre With Building</b>	
<b>Cost of Infrastructure in Rs Lakh</b>	<b>Variable Cost Per Cycle in Rs Lakh</b>	<b>Cost of Infrastructure in Rs Lakh</b>	<b>Variable Cost Per Cycle in Rs Lakh</b>
573.75	3363	757.95	3363
<b>Total No of Cycles</b>	<b>Total No of Cycles</b>	<b>Total No of Cycles</b>	<b>Total No of Cycles</b>
446823	446823	446823	446823
<b>Infrastructure Cost per Cycle in Rs</b>	<b>Variable Cost per Cycle in Rs</b>	<b>Infrastructure Cost per Cycle in Rs</b>	<b>Variable Cost per Cycle in Rs</b>
128	753	170	753
Cost Per Cycle in Rs		Cost Per Cycle in Rs	
881		922	

*It is observed that the five machines per taluka and ten machines per taluka at rates between Rs 1050 to Rs 1100 would be the most ideal choice to opt for and this should be the range which the government should anticipate the rate to be.*

*It is to be noted that the cost of dialys service Rs 1050 to Rs 1100 is the amount reimbursed by the government to the service provider, the amount which the service provider collects from the patients may vary from time to time depending on the policy decision of the government. The amount collected from the patients shall be deposited in a designated bank account and the government shall reimburse the service provider separately every month in proportion to the service provided.*

Based on the financial calculations the project is very much commercially viable for the private player at the above mentioned cost of dialysis service.

The rates Rs 1050 to Rs 1100 /- is arrived at assuming the dialyser is reused three times for the same patient, if this could be increased the cost of service delivery can be brought down even more and the bid variable can be brought down even lower.



## 5.4.Scenario Analysis using economic criteria

In order to make healthcare services available to all and fill gaps in health infrastructure, GoK plans to rope in private player for providing Dialysis services to the population. So effectively GoK will be the client for the private player who will reimburse him as per the volume of patients serviced per month. Whether these patients will be charged or not, if charged then will it be as per the prevailing market rates or at some concessional rates, how much concession will be given to patients, whether to make any distinction between BPL and APL category patients etc. all these issues are political sensitive and needs to be decided by the government of Karnataka. Above calculations are based on the premise that service provision and thus the reimbursement of private player will not be affected by economical strata of patients.

However the social sector has some peculiarities which require special mention. Health services are vulnerable to segmentation between rich and poor. As a result the public sector ends up providing subsidized services to the poor whereas the private sector providing the paid services to the rich who can afford them. So government, in order to judiciously use its limited financial resources, may need to allocate the budget to financially support only the poor patients while providing the facility to others at concessional rate. Above mentioned scenarios are analyzed in this section to know the financial implications on GoK if this strategy is adopted to implement health PPPs.

Projections of total and BPL population for the three districts chosen for this project are given in the annexure. Analysis of this data reveals that proportion of BPL population in Raichur district is around 71%. Based on this it is assumed that of the total patient load in the Dialysis centre, 71% are from BPL category that will not pay anything for the service while 29% are from APL category that will pay for dialysis as per the cost decided by the state government. For computation purposes it is assumed that per cycle dialysis cost for APL patient will be Rs. 1075.

Using the economic criteria, the two project scenarios have been compared in the following table;

	Scenario 1	Scenario 2	Scenario analysis using economic criteria	
			Scenario 1	Scenario 2
Characteristic Feature	<ul style="list-style-type: none"> <li>GoK provides land</li> <li>Patients not differentiated into BPL and APL category</li> </ul>	<ul style="list-style-type: none"> <li>GoK provides land and 'ready to move in' infrastructure</li> <li>Patients not differentiated into BPL and APL category</li> </ul>	<ul style="list-style-type: none"> <li>GoK provides land</li> <li>Patients differentiated into BPL / APL category</li> </ul>	<ul style="list-style-type: none"> <li>GoK provides land and 'ready to move in' infrastructure</li> <li>Patients differentiated into BPL / APL category</li> </ul>

	<ul style="list-style-type: none"> <li>Dialysis centre has five machines</li> </ul>	<ul style="list-style-type: none"> <li>Dialysis centre has ten machines</li> </ul>	<ul style="list-style-type: none"> <li>71% of total patients are from BPL category which will get services free of cost</li> <li>29% of total patients are from APL category which will pay for services at the rates decided by GoK</li> </ul>	<ul style="list-style-type: none"> <li>71% of total patients are from BPL category which will get services free of cost</li> <li>29% of total patients are from APL category which will pay for services at the rates decided by GoK</li> </ul>		
Number of cycles in first year	18896	37791	BPL Patients	13416	BPL Patients	26832
			APL Patients	5480	APL Patients	10959
Per Dialysis cycle cost as per project financials	1075	1075	1075		1075	
Minimum Financial Burden on GoK in the first year (in Lakh Rs.)	203	406	144		288	

So the estimated minimum annual financial burden of GoK in the first year of operations will be Rs 144 lakh for first scenario and Rs. 288 lakh for second scenario.

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## Chapter 6 – Policy, Statutory and Legal Framework

**Policy Framework:** - Section 5.6 of the Karnataka Integrated State Health Policy 2004, provides the framework for PPP in healthcare sector. This section, under the heading ‘Public, private and voluntary sector partnerships’ states that

*“The state Policy recognizes the role of the voluntary and private sectors in public health care. Though already existing in an adhoc and often informal manner, public, private and voluntary partnerships will be further developed in a planned, systematic manner in order to develop in spirit and practice for better health care and also for optimal utilization of health resources. District and Taluk health action networks and issue-based networks will be encouraged with active participation from the public sector in such voluntary sector initiatives. **Participation of voluntary and private sector will be enhanced through outsourcing certain services, in infrastructure maintenance and investments in health services”.***

**Statutory and Legal Framework:** - The Dialysis unit shall be governed by all existing bio medical, statutory and legal laws governing an imaging centre. The dialysis centre 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. License under Bio-medical Management and handling Rules, 1998
6. Right to Information Act
7. Consumer Protection Act, 1986

The service provider shall be responsible for procurement and management of all statutory and legal requirements for the dialysis centre.

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## Chapter 7 - Indicative Environmental & Social Impacts

### 7.1.Environmental Impacts

The dialysis procedure does produce harmful radiations or noise, but body fluid wastes are generated during the procedure, which needs to be collected, stored, and disposed safely. Stringent bio medical waste disposal processes need to be developed and implemented by the partner.

### 7.2.Social Impacts

Dialysis service 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). Other social impacts of this project are;

- The project will enable provision of dialysis service at every taluka. Patients will get access to high-end treatment facility near to their home. This penetration cuts down the overall cost of treatment. This way this project will help state government in mitigating the adverse effect of escalating prices of medical treatment on state population.
- This initiative will also help state government to achieve its goal to bring major gains in terms of human well-being, development and economic productivity by early and timely intervention in chronic ailments
- Society will get the best of public and private services at one place i.e. private sectors quality and efficiency at public rates thus reducing their economic cost of availing the healthcare services.
- Improved availability of tertiary medical treatment
- The low cost availability of the service will reduce the cost of service at a private centre
- Increased awareness among the public which will indirectly lead to lowering of hypertension, diabetes cases
- Enhanced patient satisfaction and diminished strain
- Employment generation for the trained manpower required for operating the centre
- Streamlined operation and efficient work culture of private partner will impact the public healthcare functioning in the long run

### 7.3.Mitigation Measures

Dialysis equipments and process should be operated under strict trained manpower supervision, the following safety measures need to be taken into account,

1. Dialysis machines and associated equipments must be located and designed as per the manufacturer's specific layout guidelines



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2. New machines should be purchased instead of refurbished one
  3. Machine should always be under CMC for regular maintenance
  4. Proper BMW collection, storage and disposal norms should be developed and adhered to

## Chapter 8 – Operating Framework

### 8.1. Project Structure at a Glance

Sl No	Parameter	Description
1	PPP Model	Build, Own, Operate and Transfer
2	Concession Period	Seven years, after which project will be rebiddd
3	Concession Component	<ol style="list-style-type: none"> <li>1. Right to operate dialysis centre at government hospital premises</li> <li>2. Building and utilities provision at the concerned Medical college</li> <li>3. Reimbursement for patients referred from the Government hospital</li> <li>4. Referral facility from all government hospital</li> <li>5. Can serve private patients at rates fixed by government</li> </ol>
4	Government Support	<ol style="list-style-type: none"> <li>1. Space and building (if available)</li> <li>2. Assurance for minimum number of patients per month</li> </ol>
5	Project Benefits	<ol style="list-style-type: none"> <li>1. Provision of dialysis service at taluka level</li> <li>2. Economic benefits to the patients</li> <li>3. Easy accessibility and availability for patients</li> <li>4. Availability of service so far not available</li> <li>5. Private sector efficiency in operation and maintenance</li> </ol>
6	Operation and Maintenance	<ol style="list-style-type: none"> <li>1. Operation of the dialysis centre for providing haemodialysis service</li> <li>2. Ensure 95% machine uptime</li> <li>3. Operates on two shifts from 8AM to 2PM and 2PM to 8PM, available on call from 8PM to 8AM for emergency cases</li> <li>4. Service provider to address all maintenance related issues</li> <li>5. Provide requisite reports as agreed in the TOR</li> </ol>
7	User Charges Involved	<ol style="list-style-type: none"> <li>1. User charges collected as per government norms and deposition with the government</li> <li>2. The dialysis centre is free to serve private patients at the price prescribed by the government</li> </ol>
8	Inventory Management	<ol style="list-style-type: none"> <li>1. Procure and manage all consumables and inventory required</li> <li>2. Maintain optimum inventory and ensure nil stock out</li> </ol>
9	Revenue Management	<ol style="list-style-type: none"> <li>1. The dialysis centre will be reimbursed at an agreed rate by the Government every month as per the number of cases</li> </ol>

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## 8.2.Risks & Mitigation

In PPP arrangements, risks are inherent in the project due to the varied pursuits and value systems of the two sectors involved in the contract. The private sector is predisposed to prioritizing shareholder return and taking measured risks, whereas regulations and authorities, political opinion and the achievement of societal goals influence the public sector. Additional problems arise because public taxpayers may not welcome the idea of PPPs due to a perceived lack of transparency in the private sector. Full disclosure may also be an issue for the private sector who has an interest in protecting proprietary information to ensure their competitiveness.

Following are the perceived risks involved in developing a dialysis centre

1. Construction / implementation risk arising from
  - a. Delay in project clearance
  - b. Contractor default
  - c. Construction cost overrun
2. Market risk arising from
  - a. Insufficient demand
  - b. Impractical user levies
3. Finance risk arising from
  - a. Inflation
  - b. Change in interest rates
  - c. Increase in taxes
4. Operation and maintenance risks arising from
  - a. Termination of contract
  - b. Technology risk
  - c. Manpower risk
5. Legal risks arising from
  - a. Changes in law
  - b. Changes in lease rights

The emphasis is on optimal allocation of risk or risk transfer. This can “incentivize” partners to ensure that objectives of the agreement are met. Risk transfer has the opportunity to be extremely beneficial to the public sector but if not appropriately managed insufficient risk is transferred to the private sector. Governments cannot allow essential services such as healthcare to fail, so the ability of the public sector to transfer risk to the private sector becomes nonexistent and therefore no longer a benefit of partnership. For example under the Private Financing Initiative (PFI) in the UK, some failed partnerships have required the government to step in and subsidize a service and yet the core essence of the PFI contract is that the private sector should take on appropriate risk in return for the appropriate reward.

### Risk Mitigation Strategies

SI No	Category	Risk	Risk Incurred by	Mitigation Strategy
1.1	Implementation Risk	Delay in project clearance	Partner	<ol style="list-style-type: none"> <li>1. Government to provide all clearances for initiation of the project within 60 days of selection of partner from competitive bid process</li> <li>2. The partner has the right to terminate the contract with three months prior notice if the government fails to honour the commitments</li> </ol>
1.2		Contractor Default	Government	<ol style="list-style-type: none"> <li>1. Only organisations with prior experience in operating an dialysis centre are qualified for bidding</li> <li>2. It is preferred that the partner/service provider has experience in PPP projects, qualifying marks shall be provided for such bidders; if the bidder has experience in operating dialysis on PPP then they shall be provided additional qualifying marks</li> <li>3. Government to retain the earnest money in case the private partner defaults before signing the contract</li> <li>4. Client default payment clause to be inserted as a part of the contract</li> <li>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.</li> <li>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 Commissioner Health and Family Welfare or by the Secretary Health and Family Welfare</li> <li>7. The service provider 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</li> </ol>



				notice, and take control of the premises, equipment and accounts during the period and afterwards till the case is resolved
1.3		Construction/Renovation cost/time overrun	Partner/Government	<ol style="list-style-type: none"> <li>1. Land/Building shall be recognized for this purpose prior to the issue of RFP</li> <li>2. Building to be provided to the partner wherever available</li> <li>3. Land/Building shall be handed over within 30 days of signing of the contract, in as is where is condition</li> <li>4. Private players shall be invited to inspect the land/building during the bidding stage to assess the time taken to commence the operation</li> <li>5. Time frame to be agreed upon to commence operations, failing which the service provider has to pay liquidate damages as mentioned in the TOR</li> </ol>
1.4		Non availability of Medical and technical personnel to operate the centre	Partner/Government	<ol style="list-style-type: none"> <li>1. The service provider shall provide a list of manpower already under employment during the bidding stage</li> <li>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</li> </ol>
2.1	Market Risk	Insufficient demand	Partner	<ol style="list-style-type: none"> <li>1. The government shall ensure minimum number of cases per month to the service provider</li> <li>2. If the minimum number of services is not attained, the government shall reimburse the amount equivalent to the number assured</li> <li>3. The service provider is free to service patients referred from private institutions, but shall not levy charges more than what agreed for government hospital patients</li> </ol>
2.2		Impractical user levies	Government/Partner	<ol style="list-style-type: none"> <li>1. The service shall be competitively priced by the government, it shall be lower than the prevailing market rate at the time of fixing the rate</li> </ol>
3.1	Finance Risk	Inflation risk	Partner	<ol style="list-style-type: none"> <li>1. The government shall revise the reimbursement rate for dialysis service every two years</li> </ol>

				2. The effective increase per dialysis shall not be higher than 10% of the previous amount
3.2		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
3.3		Exchange rate fluctuation	Partner	The partner has to bear the exchange rate fluctuation during the procurement process
4.1	Operation and Maintenance	Technology obsolescence	Government	1. The initial contract is for a period of seven years, beyond which if the parties agree to continue the contract the dialysis machines should be replaced to meet the latest technology specification at that point of time
4.2		Man power retention	Government	<ol style="list-style-type: none"> <li>1. The service provider shall employ manpower as agreed with the government</li> <li>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.</li> <li>3. The centre shall not be deficit of the number of employees agreed for not more than one week at a stretch</li> <li>4. Should employees go on leave, fall sick or leave the organisation the service provider has to ensure the replacement within a week</li> <li>5. The service provider shall adequately train its manpower annually</li> <li>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</li> </ol>
4.3	Operation and Maintenance	Utilities	Private	<ol style="list-style-type: none"> <li>1. The government shall provide the electrical and water supply free of cost</li> <li>2. The service has to maintain power stabilizing equipments and power backup generator as required</li> </ol>
4.4		Process adequacy and Quality of Service	Government	<ol style="list-style-type: none"> <li>1. The service provider shall maintain detailed books of records of, <ol style="list-style-type: none"> <li>a. Medical records</li> </ol> </li> </ol>

				<ul style="list-style-type: none"> <li>b. Consumables – in stock, out of stock, consumption pattern – as per the existing government guidelines</li> <li>c. All expenditure involved in the day to day operation of the hospital as per the existing government guidelines</li> <li>d. Maintain and display quality indicators as per the machine standards</li> <li>e. Display MIS of the centre</li> </ul> <p>2. The dialysis unit shall maintain and adhere to detailed Standard Operating Procedures for,</p> <ul style="list-style-type: none"> <li>a. Service delivery</li> <li>b. Patient handling</li> <li>c. Documentation management</li> <li>d. Emergency and Disaster management</li> <li>e. Bio Medical waste management</li> <li>f. Ethical treatment and management of patients</li> <li>g. Cleaning and sterilisation</li> <li>h. Any other process deemed necessary by the H&amp;FW department</li> </ul> <p>3. The dialysis centre stand alone or along with the district hospital shall get itself ISO 9001:2008 certified within one year of commencement of operation and the cost of certification shall be borne by the government.</p> <p>4. The service provider shall produce a report to the Commissioner Health and Family Welfare on the operation of the dialysis centre every month. The report shall contain,</p> <ul style="list-style-type: none"> <li>a. Staff attendance report</li> <li>b. Number and variety of dialysis tests conducted on Outpatients/In patients/Private patients</li> <li>c. Expenditure statement for consumables, separately for Inpatient, outpatient, special clinics</li> <li>d. Uptime/downtime of the machine</li> <li>e. Maintenance work which have been conducted in the past month</li> </ul>
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				<ol style="list-style-type: none"> <li>5. This monthly report shall be scrutinised by the Commissioner of Health and Family Welfare and the state nodal officer for the project</li> <li>6. The dialysis centre shall be subjected to six monthly stock audit, monthly accounts audit and weekly visual inspection cum audit</li> </ol>
4.5	Operation and Maintenance	Equipment Maintenance	Government	<ol style="list-style-type: none"> <li>1. The service provider and the equipment manufacturer need to produce a defined maintenance contract document at the time of contract award</li> <li>2. The cost of any maintenance of the machine has to be borne by the service provider</li> <li>3. Insurance cost of the machine shall be borne by the service provider, the government is not liable for any damage caused to the machine either during operation or during the idle period</li> <li>4. The service provider shall maintain 95% uptime during a month</li> <li>5. All service issues shall be attended to within 24 hours of intimation by the equipment manufacturer</li> <li>6. If there is a equipment downtime period of more than 72 hours at a stretch, the service provider has to arrange for dialysis service to be provided from an alternate centre at the same cost, while bearing the cost of transportation of patients</li> </ol>
5.1	Legal risk	Changes in Policy	Private	<ol style="list-style-type: none"> <li>1. The government shall be cognizant of the impact of any policy change that may adversely affect the contract (this is apart from the issues relating to taxes, inflation changes, change of interest rates, exchange rate fluctuation which have been discussed above)</li> <li>2. The government shall insulate the contract from any such policy changes, or see to that the partners are adequately compensated for losses incurred because of policy change</li> </ol>

5.2	Legal risk	Adherence to legal and regulatory compliances	Government	<ol style="list-style-type: none"> <li>1. The private partner is responsible for adherence legal and regulatory compliances</li> <li>2. Any loss arising from inadequate compliance to legal and regulatory norms are to be borne by the private partner</li> <li>3. The partner shall get the process/centre ISO 9001:2008 certified to adhere to all process in place</li> </ol>
5.3		Medico legal risk	Government/Private	<ol style="list-style-type: none"> <li>1. The medico legal risk is shared between the Government, the service provider and the equipment manufacturer on a case to case basis</li> </ol>
5.4		Employee legal risk	Private	<ol style="list-style-type: none"> <li>1. The service provider is absolutely responsible for any legal risk arising out of employee disputes</li> <li>2. Employees of the service providers cannot claim themselves as employees of the government and are not liable for any facilities and perks provided to government employees</li> </ol>

## Chapter 9 – Way Ahead

Currently the project plan is to set up a dialysis centres in the three districts of Bijapur, Gulbarga and Raichur.

Once implemented the success of the project can be measured in terms of the impact of service delivery, availability of universal access, assistance in treatment, benefits accrued to the society, and the feasibility of the project. Other districts of qualifying size and volume can adopt this model in future.

This model shall be showcased during the GIM meeting as a flagship project for investors. This also exhibits the forward marching initiatives of the Government of Karnataka in engaging with the industry both in economic and social fronts.

## Chapter 10 - Annexure

### Annexure 1: District wise population projections until 2018

District	Population Growth Rate	2012	2013	2014	2015	2016	2017	2018	2013-2018 Growth Rate	2013 - 2018 %
Bijapur	1.0187	2,215,776	2,257,211	2,299,421	2,342,420	2,386,224	2,430,846	2,476,303	0.0971	1.0971
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
Raichur	1.0143	1,952,297	1,980,215	2,008,532	2,037,254	2,066,387	2,095,936	2,125,908	0.0736	1.0736

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

### Annexure 2: District wise BPL population projections until 2018

BPL 2012	Population Growth Rate	2012	2013	2014	2015	2016	2017	2018
Bijapur	1.02	1,526,898	1,547,664	1,568,712	1,590,047	1,611,671	1,633,590	1,655,807
Gulbarga	1.02	2,150,283	2,179,527	2,209,168	2,239,213	2,269,666	2,300,534	2,331,821
Raichur	1.01	1,395,647	1,414,628	1,433,867	1,453,367	1,473,133	1,493,168	1,513,475

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

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