



Directorate General of Medical Education and Training, Uttar Pradesh

Investment Assessment Report for Banda Medical College

**Submitted by: CRISIL Risk & Infrastructure Solutions and
Hosmac India Pvt. Limited**

February 2011

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1. ABBREVIATIONS

ACRONYM	DEFINITION
ALOS	Average length of stay
BPL	Below Poverty Line
BPM	Bid Process Management
COP	Cost of Project
CRIS	CRISIL Risk and Infrastructure Solutions Limited
DMET	Department of Medical Education & Training
FN	Foreign National
GOUP	Government of Uttar Pradesh
Hosmac	Hosmac India Pvt. Ltd. - A Healthcare Subject Matter Consultant
ICU	Intensive Care Unit
IPD	In-patient Department
IRR	Internal Rate of Return
NICU	Neo-natal Intensive Care Unit
OPD	Out-patient Department
PPP	Public Private Partnership
Project	Banda Medical College and Associated Teaching Hospital
Projects	Medical colleges at Azamgarh and Banda and Paramedical College at Safai
RIMS	Rural Institute of Medical Sciences
RSBY	Rashtriya Swasthya Bima Yojana
UP	Uttar Pradesh
UPRNNL	Uttar Pradesh Rashtriya Nirman Nigam Limited

2. BACKGROUND

The Government of Uttar Pradesh (GOUP) has undertaken the establishment of allopathic medical colleges at Azamgarh and Banda and Paramedical College at Safai (the Projects). The construction and other development activities for these Medical Colleges and Para Medical College are in full swing. At Azamgarh and Safai construction of buildings is in nearly complete. At Banda the construction activity is approximately complete to the extent of 50%.

The Government of Uttar Pradesh (GOUP) intends to run these medical colleges / Paramedical Colleges on Public Private Partnership (PPP) model. GOUP has envisioned the following role for the private sector in the project:

1. Take-over the facilities on as 'as-is where is' basis and complete the balance construction.
2. Obtain the necessary licenses/regulatory approvals required for starting and operating the College.

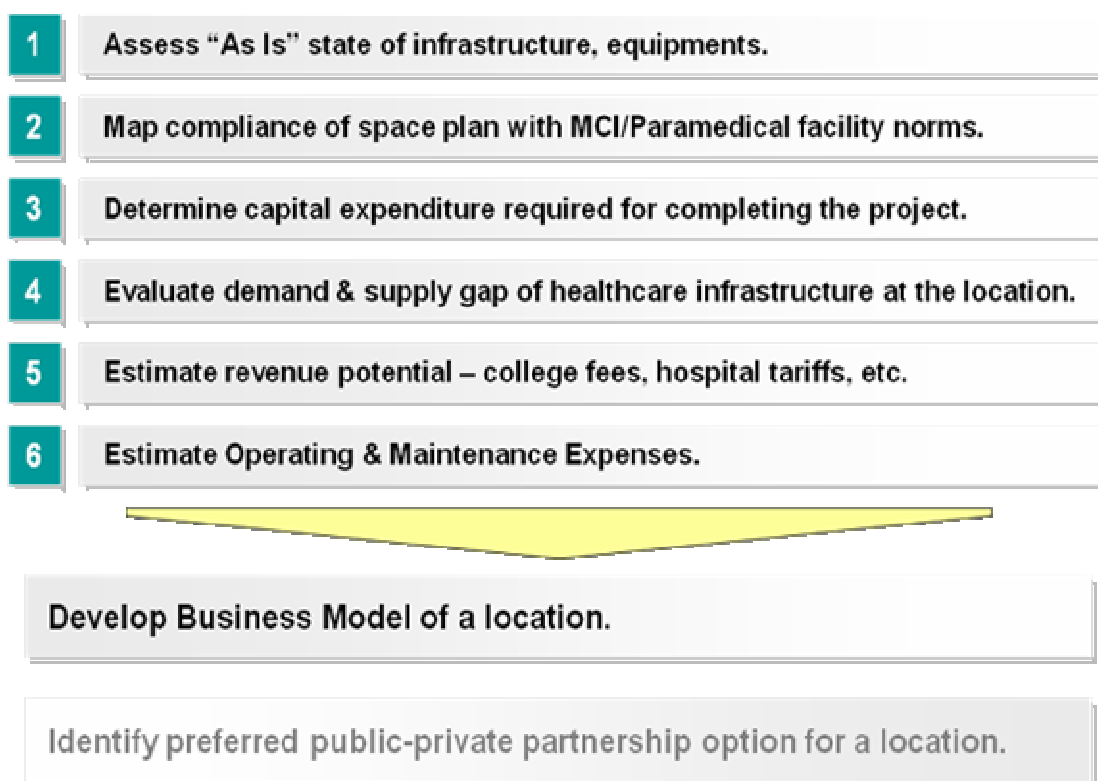
GOUP has appointed CRISIL Risk & Infrastructure Solutions (CRIS) as the Transaction Advisors for this project. CRIS has formed a consortium with Hosmac India Private Limited (Hosmac) a hospital management consultancy to execute the project. CRIS and Hosmac are required to assess the projects for investors, prepare the contractual documents for inducting the Concessionaire and conduct the bid process management exercise for identifying the Concessionaire who will partner with GOUP for the development and operation of the Projects.

The following report estimates the investment required to complete the Banda project, forecasts and analyses the project's financials.

3. METHODOLOGY

A snapshot of the approach that was adopted has been presented below and detailed subsequently.

Exhibit 1: Methodology for preparing PPP Framework



Facility and Market Assessment

CRIS and Hosmac had extensive interactions with GOUP/Department of Medical Education and Training (DMET), Uttar Pradesh to understand their objectives and requirements from this project. A team of consultants visited each site for “As Is” Assessment of the facility to assess the progress of the civil work and tentative time frame required for the completion of the project. Wherever available, site plans and periodic progress reports were collected from each site. Meeting and discussion with key stakeholders on site like chief medical superintendent and project site managers to collect the relevant data; understand project status and lacunae in the existing facility, if any.

Market assessment of the primary service area at each of the seven locations was undertaken to understand the socio-economic profile of the populace, assess the supply/demand situation for healthcare service delivery infrastructure in the region, with special emphasis on demand and needs of all the income groups including below poverty line (BPL) families. Meetings were also held government and private medical colleges operating in UP.

Review of medical education policy/ guidelines/ government orders of the state, MCI and GOI was undertaken to assess their implication on the project.

Through these site visits and meetings the following information was obtained:

- Market Size: The location and demographic profile study enabled in determining the market potential for the proposed facility.
- Spending Power: Economic insight of the region enabled in determining the paying capacity of the populace which will drive the demand for proposed healthcare facility.
- Current Supply of Healthcare Infrastructure: Review of existing healthcare infrastructure at each location enabled to estimating the supply of healthcare services at each location.
- Existing Medical Education Guidelines and Framework: This assisted in understanding the regulations/policies which will have an impact on of PPP framework of the project.
- Operations of existing medical & paramedical colleges and hospitals: This assisted in understanding the governance and business model of government and private medical colleges in UP. The existing fee for the medical courses, reservation pattern, operating model, user charges in the hospitals, broad level productivity, income and expenses of these facilities.
- Site Plans: The review of site plans enabled assessment of the compliance of the project with MCI guideline for the medical college infrastructure.
- Project Progress & Cost Report: The examination of the project progress & cost report enabled assessing project progress status, timeframe required to complete the project and funds released by the GOUP.
- Project Specific Obligations: This assisted in identifying any project specific obligations that could impact the proposed PPP model and framework.

Subsequently the data/document collected, findings of the field assessment were supplemented with secondary information available with CRIS and Hosmac. These market inputs and reviews had also helped in setting bid criteria for the private players and provide inputs/support for the financial assumptions.

Project Investment Assessment Study & Framework

Based on the above, a financial model was prepared for assessing investment of the alternative scenarios. The model inputs were estimated in the following manner:

- Capital Costs for completion of the balance civil work and procurement of equipment at each site was assessed based on funds spent by GOUP and project status and addition fund required to complete civil work and procure remaining equipment required to start the facility.

- Capital Structure of the project and cost of debt was estimated based on inputs on discussions with industry sources.

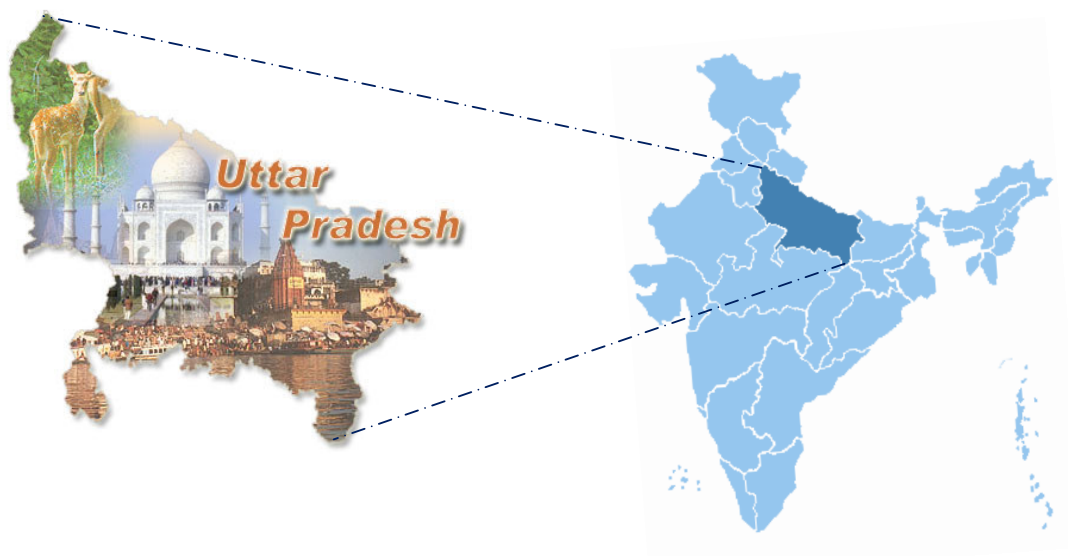
- Revenues were projected based on the courses to be offered, number of seats, seat sharing pattern between GOUP and private player, hospital bed sharing pattern, user charges and capacity utilization levels.

- Operating Costs were estimated considering the cost structure of existing Government and private medical colleges in the region and the industry in general.

Based on the above, the financials of the project was assessed.

4. INTRODUCTION TO UTTAR PRADESH

Exhibit 2: Map of Uttar Pradesh



Uttar Pradesh (UP) is located alongside Nepal in the North, Himachal Pradesh on the North West, Haryana on the west and Rajasthan on the south west, Madhya Pradesh on the south and south-west and Bihar on the east. Situated between 23° 52'N and 31° 28' N latitudes and 77° 3' and 84° 39'E longitudes, this is the fourth largest state in the country encompassing 2,94,411 square kilometers and comprising of 83 districts, 901 development blocks and 112,804 inhabited villages.

4.1. Demographic Profile

The total population of Uttar Pradesh in year 2008 was 19 Crores and in year 2001 was 16.6 crore. The decadal population growth is ~2%. The population density per sq. km. in 2001 was 698. The BPL population in the state is 31.15% and Literacy rate of 57.37%. The sex ratio in Uttar Pradesh in 2001 was 898 females per 1000 males.

4.2. Economic Insight

UP has a large economy, it has a share of 10.7 % in aggregate domestic product of India. The State covers a large part of the highly fertile upper Gangetic plain consequently the major economic activity in the state is agriculture. Uttar Pradesh is home to largest number of Small Scale industrial units in the country.

4.3. Medical & Paramedical Human Resources of the State

There are 58,000 allopathic doctors registered in UP Medical Council of which around 40,000 doctors are working in UP. 56,000 nurses are registered with the UP State Medical Council of which around

43,000 nurses are presently working in the state. The UP State Medical Council estimates that there is a gap of around 12,900 doctors and 1,19,800 nurses as of 2009. The following table provides an overview of the availability and gap in healthcare professionals in the state.

Table 1: Healthcare Professionals: Availability, Need and Gap in UP

S.NO.	HEALTHCARE PROFESSIONAL	PRESENT SITUATION	DEMAND *	GAP
1	Allopathic doctors	40,000	52,857	(-) 12,857
2	Dentists	4,000	24,000	(-) 20,000
3	Nurses			
a	GNM	16,000	1,00,000	(-) 84,000
b	BHW(F)	27,000	60,000	(-) 33,000
c	DNEA	-	500	(-) 500
d	B. Sc. (N)	200	2,500	(-) 2,300
3	M. Sc. (N)	-	400	(-) 400
4	Paramedical			
a	Pharmacists	30,000	88,500	(-) 55,000
b	O.T. Technician	1,200	4,625	(-) 3,425
c	Optometrist and Orthopedician	2,000	7,400	(-) 5,400
d	Physiotherapist and Occupational Therapist	2,500	7,400	(-) 4,900
e	X-ray Technician	1,000	7,400	(-) 6,400
f	Laboratory Technician	3,500	7,400	(-) 3,900
g	CT scan Technician	30	200	(-) 170
h	MRI Technician	-	200	(-) 200
i	Audiometrist	-	740	(-) 740
j	Cytology technicians	-	370	(-) 370

*as estimated by U.P. State Medical Faculty

Source: U.P. State Medical Faculty

4.4. Medical Education Regulation in the State of UP

Department of Medical Education and Training (DMET), UP regulates the functioning of Medical and Paramedical colleges in UP. It conducts entrance examination and counseling for admission to various Undergraduate, Postgraduate and Super specialty courses. DMET also decides that the fees to be charged to students in both Government and Private Medical Colleges.

The Private Medical Colleges in UP are allowed to conduct their own admission procedures including tests for admitting students for the medical/paramedical courses. The course content for the private colleges is determined by the university to which they are affiliated.

4.5. Medical Education Infrastructure in Uttar Pradesh

There is a need to double the existing medical education infrastructure in UP. Presently there are total 21 medical colleges of which 10 are Government Colleges and balance private. The Colleges have an intake capacity of 2062 students per year. The UP State Medical Council estimates that there is a gap of around 12,900 doctors as of 2009 highlighting the need for medical colleges to be set up in the

State. Further there is no degree level Paramedical College in UP state to bridge the current gap and future demand of paramedical staff in the state.

Table 2: List of Medical & Paramedical Institutes & Capacity Details

NO.	PROGRAMME	NUMBER OF INSTITUTES#		YEARLY CAPACITY		TOTAL CAPACITY
		GOVERNMENT	PRIVATE	GOVERNMENT	PRIVATE	
1	M.B.B.S.	10	11	1,062	1,000	2,062
2	Dental	3	27	130	2,650	2,780
3	Nursing					
a	M Sc.	-	4	-	85	85
b	B. Sc.	-	22	-	1,100	1,100
c	Post Basic B Sc.	1	4	25	140	165
d	GNM	-	100	-	4,315	4,828
e	BHW (F)	38	31	2,280	1,800	4,080
f	DNEA	-	1	-	20	20
g	Health Visitors	4	-	80	-	80
4	Paramedical*					
a	Pharmacy	4	1	240	60	300
b	O.T. technician	-	72	-	1,745	1,745
c	Optometry	-	89	-	2,735	2,735
d	Orthoptics	-	11	-	185	185
e	Physiotherapy	-	106	-	3,465	3,465
f	Occupational Therapy	-	4	-	130	130
g	X Ray Technician	7	5	310	150	460
h	Laboratory technician	7	5	150	530	680
i	CT scan technician	-	12	-	200	200
j	MRI technician	-	1	-	30	30

Source: DMET and HOSMAC

Includes Recognized and Permanent Colleges

* Diploma Course

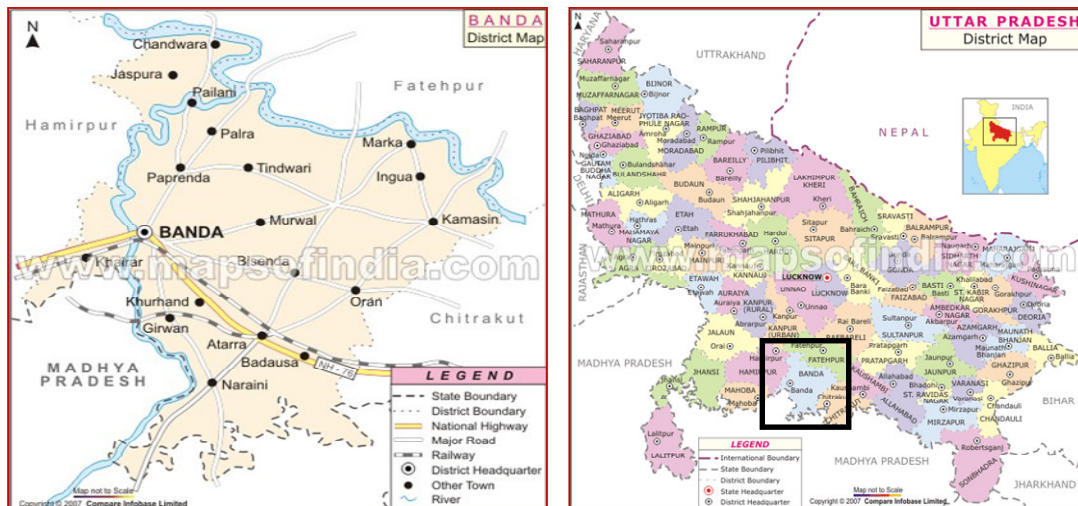
5. OVERVIEW OF BANDA

5.1. Location Profile

Banda is located at 25.48°North and 80.33°east and has an average elevation of 123 metres. It lies south of the Yamuna River in the Bundelkhand region. The districts adjoining Banda are Fatehpur in the north, Chitrakut in the east, Hamirpur and Mahoba in the west and Satna, Panna, and Chhatarapur in the south. The Baghein River traverses the district from south-west to north-east. Other important rivers are the Ken River in the east and the Yamuna to the north.

The district is well connected to major cities with railways and state highways. It is linked with roadways to all the adjoining districts and Lucknow, Kanpur and Allahabad.

Exhibit 3: Map and Location Overview



5.2. Demographic Profile

The total population of the Banda district as per the Census of India 2001 was 15.37 Lakh. Projected population for year 2011 is 17.42 Lakh & year 2016 is 18.31 Lakh. The demographics of the Banda district are summarized in table below

Table 3: Banda Demographic Details

PARTICULARS	BANDA DISTRICT
Population-Total	15.37 Lakh
Population-Rural	12.93 Lakh
Population-Urban	2.44 Lakh
Proportion of Urban Population	15.87%

PARTICULARS	BANDA DISTRICT
Sex Ratio	860
Literacy Rate (%)	18.49%
Decadal Population Growth rate	54.38%

Source: Census of India official website

5.3. Economic Profile

The per capita income was Rs. 12435 in 2008¹. The economy of Banda district is based mainly on agriculture. The soils here are mostly fertile and in spite of many projects of irrigations, the uncertainty of irrigation and its dependence on rains has made this tract adopt mostly the traditional farming. Being a traditional agriculture based society; Banda is still a under developed region. Even though the benefit of the socio economic transformation are percolating down to the grass root level, much remains to be done for raising the standard of living of general masses

5.4. Healthcare Infrastructure Profile

The Banda district has 2 District hospitals, 55 Primary Health Centres and 1 Ayurvedic Medical College. Banda has 7.09 Allopathic hospitals/Dispensaries per Lakh population and 31.19 beds in Allopathic hospitals/Dispensaries per Lakh population. Of the 682 villages, 2.1 percent have a primary health centre while 4.8 percent have a primary health sub centre.²

There is a significant shortage of healthcare facilities at Jalaun. The number of beds per 1000 population is 0.62 which is significantly lower than the World (3.3 beds) norm and India's average (1.5 beds) of beds per 1000 population (Source: Market Survey and Hosmac Database).

There is no Medical College in Banda district at present; this college will help in providing for the much needed trained human resources in the healthcare domain. Moreover, it is estimated that there is a significant latent demand for quality healthcare facilities in the region which can be fulfilled by the upcoming Medical College and Teaching Hospital.

¹ Source: UP Planning Atlas 2008, `

² Source: UP Planning Atlas 2008,

6. PROJECT OVERVIEW

6.1. Project Brief

GOUP is establishing Medical College at Tindwara in the district of Banda with an admission capacity of 100 seats for MBBS course. It has already acquired 104 acres of land. The construction of Academic, Administrative, boundary wall, hostel and residential Administrative Block, Hospital with 500 bed capacity is in progress.

Exhibit 4: Pictures of Ward, OPD, Admin and Library Block



Wards Block



OPD block



Admin block



Library block

6.2. Facility Design

The college and teaching hospital is designed as per the MCI guidelines for the 100 admissions. The following table describes the features of the Medical College at Banda.

Table 4: Features of Medical College

PARTICULARS	REQUIRED AS PER MCI	AVAILABLE AT MEDICAL COLLEGE BANDA
Land	20 Acre	100 Acre
Academic Block, Administrative Block & Central Library	100 Seats	As required for the intake of 100 seats – MBBS course
Auditorium / Examination hall	500-700 Seats	700 Seats
Teaching Hospital	500 Beds	500 Beds
Residents	85	100
Residential Complex	59 and 100% of Nursing Staff	Available as required by MCI

Source: UPRNNL & Project Site Plans

6.3. Project Cost Overview

The estimated cost of the project was 255.43 Crore for the building & Site development out of which GoUP has released 84 Crore. The overall physical progress of the project is 25%. The estimated amount required to complete additional/pending work is 171.43 Crore. The estimated cost for medical equipments was 50 Crore. The procurement of the equipments has to be done by the private player. The cost of the project is summarized below:

Table 5: Cost Estimates

(Rs. Crores)

PARTICULAR	ESTIMATED COST	AMOUNT RELEASED	PROGRESS*
Building & Site Development	255.43	84.00	25 %
Medical Equipment	50.00	0	0

Source: UPRNNL

* Indicative (Detailed Project Progress Report is provided in the Annexure)

6.4. Project Specific Obligation Identified

The key project specific obligations that were identified discussed and finalized before preparing Business Model/PPP Structure.

Table 6: Project Specific Obligation

POINT OF CONTENT	DETAIL	IMPACT ON THE PROJECT	SUGGESTED INPUT FOR FINANCIAL MODEL BY GOUP
Seat Sharing	Allocation of seat between general, reserved and concessionaire categories.	No. of seats to be allocated to concessionaire will impact the concessionaire's revenues and earnings from the project.	Seats sharing shall be 50:50 between GOUP and Concessionaire. Seats sharing pattern as detailed in Table 10
Academic Fees	Academic Fees for Govt. Seats, Management and NRI Seats to be charged at this Medical Colleges	Fees will impact the concessionaire's revenues and earnings from the project.	Fees structure shall be as per existing UP –DGME and private medical colleges in the state. Fees structure assumed is as detailed in Table 11
Hospital Bed Sharing	No. of Beds to be under general and private category.	Hospital bed sharing pattern will impact the concessionaire's revenues and earnings from the project.	No obligation on concessionaire to provide subsidized beds.
User Charges	Any obligation on Hospital User charges for the hospital services under general and private beds category.	User charges will impact the concessionaire's revenues and earnings from the project.	Concessionaire will be free to determine the user charges.
Concession Period	Concession period to be provided to the Developer.	Concession period will impact the concessionaire's revenues and earnings from the project.	Concession period to be assumed for 50 years.

7. ASSUMPTIONS FOR FINANCIAL PROJECTION

This chapter describes the capital cost, revenue and operating cost assumptions considered for projecting the financials of the Banda medical college and teaching hospital project.

7.1. Project Cost Assumptions

7.1.1. Capital Cost

The capital cost comprises of components as detailed in the column “A” of the following table. The estimated cost of the project incurred by the GOUP is mentioned in the column “B”. Funds released till March 2010 by the GOUP for the purpose of the civil work and equipments are mentioned in column “C”.

The pending work for which GOUP has released the fund will be completed by the respective project agencies undertaking civil work/equipment. The Funds required to be invested by Concessionaire is mentioned in the column “D”.

The detailed break-up of the project cost is provided in the following table.

Table 7: Project Costs break-up

(All Figures in Rs. Lakh)

PARTICULARS	INITIAL ESTIMATED COP*	FUNDS RELEASED BY GOUP.	FUND TO BE INVESTED BY PRIVATE PARTNER	TOTAL COP
Land	-	-	-	-
Building + Site Development	24,487.00	8,400.00	16,390.46	24,790.46
Furniture & Fittings	1,056.00		1,075.92	1,075.92
Medical Equipment	5,000.00		5,094.32	5,094.32
Automobiles - Ambulance & Other Vehicles	30.00		30.00	30.00
Total Base Cost	30,573.00	8,400.00	22,590.70	22,590.70

Source: UPRNNL and Hosmac

COP – Cost of Project

7.1.2. Maintenance Capital Expenditure

The medical college and hospital will undertake periodic replacement/refurbishment of the medical equipments. It is assumed that 10% of the equipment (in terms of cost) will have to be replaced every year after 10th year of the operations.

7.1.3. Construction phasing

The Banda Medical College and Teaching Hospital are expected to require 12-14 months to be functional after induction of the Concessionaire.

7.2. Project Financing Assumptions

7.2.1. Means of Finance

The balance project cost would be financed at a debt/equity 0.43/1. The Debt: Equity ratio has been assumed considering the trends observed in the healthcare financing.

Table 8: Means of Finance

MEANS OF FINANCE	Rs. LAKH	% CONTRIBUTION
Concessionaire Contribution	15,813.49	70%
Debt	6,777.21	30%
Total	22,590.70	100%

7.2.2. Loan Details

The debt for financing the project will be raised on the following terms.

Table 9: Loan Terms

PARTICULARS	DETAILS
Loan Amount	Rs. 6,777.21 Lakhs
Tenor	12 Years
Moratorium	3 Years
Repayment	9 Years
Rate of Interest	11.00%

Source: Industry

The Rate of Interest for the loan has been assessed at the prevailing rate of financing in the healthcare sector.

7.3. Income from College

7.3.1. Proposed Course Details

The Details of the course to be offered are provided in the following table.

Table 10: Details of Course

PARTICULARS	DETAILS
Course to be Offered	MBBS
No. of Seats per Batch	100
Duration of the Course	4 ½ Years

Source: DMET and Hosmac

7.3.2. Seats Sharing Details

The seats sharing between for GOUP and the Concessionaire out of a total of 100 seats will be 50:50. The exact reservations for seat sharing would be as follows:

- Total seats would be shared equally between the Concessionaire and Government.
- Of the total Government seats; 21% should be reserved for SC category, 2% for ST category and 27% for OBC category, and the remaining would be General category seats.
- Of the total Concessionaire seats; 21% should be reserved for SC category, 2% for ST category and 27% for OBC category, 15% of total admitted students shall be offered to NRI/PIO/FN quota and the remaining would be General category seats. However, the Concessionaire shall be allowed to charge the same amount of fees from the reserved category seats as charged to its quota of general category seats.

The seat distribution is as tabulated below.

Table 11: Details of Seats Sharing

CATEGORY	% OF SEATS	% OF SEAT AT SUB CATEGORY LEVEL	REMARK
GOUP	50%	25 %	Government Seats – (SC+ ST+OBC : reserved Category)
		25 %	Government Seats - General Category
Management Seats (Concessionaire)	50%	10 %	All India quota to be reserved from the Government Seats
		15 %	Management Seats
		25 %	NRI/PIO/FN Seats
			Reserved Category Seats – (SC+ ST+OBC)

Source: DMET

7.3.3. College Fees Details

The fee for the College is at par with the existing fees structure in the Government and Private Medical colleges and in line with DMET guidelines.

Table 12: Details of Fees

PARTICULARS	GROSS FEES (PER ANNUM) FOR GOVERNMENT SEATS	GROSS FEES (PER ANNUM) FOR MANAGEMENT SEATS
Reserved Seats	17,000	-
General Seats	26,000	4,50,000
NRI Seats	-	20,00,000
Hostel + Mess + Electricity	19,800	75,000
Deposit	10,000	1,00,000

Source: DMET and Market Survey

7.3.4. Occupancy of the Seats

It has been assumed that all seats including the NRI seats will be fully occupied from the 1st Year of College Operations.

7.3.5. Other Income from College

Admission for the Government Seats is considered to be through UP CPMT and for the management seats is considered to be through tests conducted by the Concessionaire. It is assumed that there will be three applicants per management seats who will purchase the application form at Rs.1000/form.

7.4. Income from Teaching Hospital

7.4.1. Hospital Bed Mix

The bed mix of the hospital has been considered as per the MCI guideline/requirements.

Table 13: Bed Mix Details

DISCIPLINES	GENERAL	ICU*	NICU#	BURNS	TOTAL
General Medicine	120	8		2	130
Pediatrics	60	1	8		69
TB & Respiratory	20	1			21
Dermatology, Venerology & Leprosy	10				10
Psychiatry	10				10
General Surgery	120	8			128
Orthopedics	60				60
Ophthalmology	20				20
ENT	20				20
Obstetrics	36				36
Gynecology	24				24
Total	500	18	8	2	528

Source: MCI and Hosmac

*ICU – Intensive Care Unit

#NICU – Neonatal Intensive Care Unit

7.4.2. Bed Occupancy of the Hospital

Bed Occupancy Rate (BOR) and Out Patient Department(OPD) are assumed as per MCI's requirement.

Table 14: Hospital Bed Occupancy Rate Details

PARTICULARS	LOP	1 ST RENEWAL	2ND RENEWAL	3RD RENEWAL	4TH RENEWAL
Year	1	2	3	4	5 & onwards
Beds	300	350	400	450	528
BOR	70%	80%	80%	80%	80%
OPD Attendance	400	500	600	700	800

Source: MCI

LOP: Letter of Permit

7.4.3. Hospital Beds Distribution

MCI requires Teaching Hospitals to have 70% bed occupancy rates in the first year and 80% from the second year of operation. Empirical evidence and industry norms suggest that to meet the MCI norms, colleges charge lower fees to attract patients from the lower income strata of the population to the hospital. These beds have been categorized for the purpose of this study as 'general ward beds'.

As noted earlier Banda has a Bed availability of 0.62 per 1000 population. This is considerably lower than the India average of 1.5 and World Average of 3.3 (Source- Market Survey and Hosmac Database). Hence it is expected that there is significant latent demand for quality healthcare at Banda. The Teaching hospital is expected to be able to target this demand i.e. demand for 'private ward beds' during the Concession Period.

The bed sharing pattern for the financial projection assumes that maximum number of beds that can be allocated to the private ward category is 50%. It is lower in the initial years of operation so that the MCI norm of patients per student ratio can be met. The allocation of beds to the private ward ramps up subsequently. The methodology used to derive the ramp-up is provided below.

- The parameter of 'Per capita income of the location (i.e. Banda District) is used as a proxy to assess the demand for private beds for in a city.
- The per capita of the Banda District is compared with that of Lucknow to derive a normalised rating/score. The normalized per capita income of Banda is provided in the following table.

Table 15: Normalised Per Capita Income Score

NAME OF THE DISTRICT	PER CAPITA INCOME IN 2008	NORMALISED PER CAPITA INCOME SCORE
Etawah	14,420	0.59
Banda	12,435	0.51
Azamgarh	8,900	0.36
Lucknow	24,419	1.00

- Four 'ranges' of the Normalized Per Capita Income Score are created. The lower range indicates lower percentage of private ward beds initially. These are provided in the following table.

Table 16: Beds - Normalised Per Capita Income Score Matrix

NORMALISE SCORE RANGE	PERCENTAGE OF BEDS ALLOCATED TO THE PRIVATE WARD IN THE 1 ST YEAR
0.00 – 0.25	20%
0.26 – 0.50	30%
0.51 – 0.75	40%
0.76 - 1.00	50%

- From the 2nd year of operation of the hospital it is assumed that the allocation of beds to the private ward category increase by 5% p.a. to reach 50%.
- Banda district obtained a normalized per capita income score of 0.51. Hence it is assumed that private beds in the first year will be 40% of total number of available beds in first year.
- It is assumed that both the General and Private Wards have an occupancy ratio that meets MCI requirements.

The details of bed distribution have been provided in the following table.

Table 17: Hospital Bed Distribution

NO.	PARTICULARS	AT INCEPTION	1 st RENEWAL INSPECTION	2 nd RENEWAL INSPECTION	3 rd RENEWAL INSPECTION	4 th RENEWAL INSPECTION
1	Years	1	2	3	4	5
2	Average Occupancy Required as per MCI	70%	80%	80%	80%	80%
3	Total Available Beds	300	350	400	450	528
4	% of General Beds	60%	55%	50%	50%	50%
5	General Beds Available [3 x 4]	180	193	200	225	264
6	Occupied General Category Beds [2 x 5]	126	154	160	180	211
7	% of Private Beds	40%	45%	50%	50%	50%
8	Private Beds Available [3 x 7]	120	158	200	225	264
9	Occupied Private Category Beds [2 X8]	84	126	160	180	211
10	Total Occupied Beds [6+9]	210	280	320	360	422

Source: MCI, Market Survey and Hosmac

7.4.4. Hospital User Charges

The user charges for general ward are assumed to be at par with other Government Medical Colleges/DGME Notification and charges for private ward are derived by the following methodology mentioned below:

- The fees charged at a Leading Private Hospital in Lucknow are considered as the base rates. These are subsequently modified to reflect the paying capability of Banda.
- The base rates are first discounted by 20% as the Lucknow Hospital is considered to be a 'premier hospital'.
- These rates are further discounted by the normalized per capita income factor of 0.51 (derivation provided above) to arrive at the charges for the services under private beds.
- If the charges for any particular services for private ward determined as per above methodology are lower than the general ward charges, then the charges have been assumed to be equal to the general ward charges.
- The charges considered for the investment assessment study are mentioned below.

Table 18: Hospital User Charges

DEPARTMENT	AVG. RATE PER CASE GENERAL WARD (Rs.)	AVG. RATE PER CASE PRIVATE WARD (Rs.)
General	7	280
General	7	204
ICU	7	816
NICU	7	816
Burns	7	7
Deluxe	NA	0
Single occupancy (Special)	NA	0
Twin Semi Private	NA	0
Day Care	NA	0
OPD Consultation - All Inclusive	1	57
Casualty	1	57
Pathology	30	90
Blood Bank & Components	250	326
CT-scans	700	842
X Ray Plain + Special	30	57
X Ray - Dental	5	41
Sonography/USG	150	150
Dialysis	350	350
Dental Procedure	30	102
ECG	50	50
2D-Echo	100	257
TMT	200	286
EEG	150	286
EMG / NCV	300	300

DEPARTMENT	AVG. RATE PER CASE GENERAL WARD (Rs.)	AVG. RATE PER CASE PRIVATE WARD (Rs.)
ENT Screenings	150	163
Mammography	50	245
Normal Deliveries	300	1,714
Caesarian Section	550	1,836
Minor Surgery (All Inclusive of Surgeon + Anesthetists + OT Charges)	400	1,071
Intermediate Surgery (All Inclusive of Surgeon + Anesthetists + OT Charges)	900	2,774
Major Surgery (All Inclusive of Surgeon + Anesthetists + OT Charges)	1,500	4,998
Physiotherapy	40	40
Pharmacy - IP	700	700
Pharmacy - OP	200	200
Consumables - Minor & Intermediate Level Surgery	500	500
Consumables - Major Surgery	1,500	1,500

7.4.5. Bed Days & Average Length of Stay (ALOS) Assumed

The average length of stay (ALOS) assumed to be 5.5. This is based on the assessment of ALOS of the teaching hospital of Rural Institute of Medical Sciences(RIMS), Safai and other Government/Private Medical Colleges in UP.

7.4.6. Hospital Productivity Assumed

The average case load is based on the assessment of the average work load at RIMS and other private medical colleges in UP. The details of the same are given below.

Table 19: Hospital Productivity Assumed

DEPARTMENT	AVERAGE/DAY	AVERAGE/MONTH
OPD Consultation - All Inclusive	1,200	36,000
Casualty	85	2,550
Pathology	750	22,500
Blood Bank & Components	12	360
CT-scans	14	420
X Ray Plain + Special	100	3,000
X Ray – Dental	10	300
Sonography/USG	45	1,350
Dialysis	1.25	37.5
Dental Procedure	10	300
ECG	30	900
2D-Echo	5	150
TMT	4	120
EEG	2	60

DEPARTMENT	AVERAGE/DAY	AVERAGE/MONTH
EMG / NCV	1.25	37.5
ENT Screenings	6	180
Mammography	0.2	4.5
Normal Deliveries	12	360
Caesarian Section	2	60
Minor Surgery (All Inclusive of Surgeon + Anesthetists + OT Charges)	17	510
Intermediate Surgery (All Inclusive of Surgeon + Anesthetists + OT Charges)	12	360
Major Surgery (All Inclusive of Surgeon + Anesthetists + OT Charges)	5	150
Physiotherapy	30	900
Pharmacy – IP	528	15,840
Pharmacy – OP	1,200	36,000
Consumables - Minor & Intermediate Level Surgery	43	1,290
Consumables - Major Surgery	5	150

Source: Market Survey

7.4.7. Miscellaneous Income

Miscellaneous income from other non hospital related activities like Cafeteria, Ambulance, Rent from Shops and Banks, Parking/Gate Passes are assumed as per industry norms.

7.5. Operating Expenses

7.5.1. Staff Requirement

A total manpower required and its ramp up is assumed as per MCI guidelines for medical college and teaching hospital. Wherever MCI does not specify the number of the staff for any category/department, the number is based on the healthcare industry norm/trends or as required for the project. The total number of staff required per year is as tabulated below:

Table 20: Staff Requirement Details

STAFF CATEGORY	LOP*	1ST RENEWAL	2 ND RENEWAL	3RD RENEWAL	4TH RENEWAL
Year	1	2	3	4	5 & Onwards
Teaching Staff	53	93	114	117	117
Resident Doctors	42	57	82	85	85
Non Teaching Staff	101	160	179	179	179
Nursing Staff	175	209	238	258	284
Total Staff Required	371	519	613	639	665
Other Staff Required	117	140	164	187	234
Total Staff	488	659	776	826	899
% of Staff compared to total staff required in 5 th Yr.	54%	73%	86%	92%	100%

Source: MCI and Hosmac, * LOP – Letter of Permit

7.5.2. Salary Assumption

The salaries for the academic staff, salaries are determined per the UP Government pay scale (after considering for 6th pay commission impact). The salaries for Non-teaching and other staff are at par with private hospital salary scale. Bonus, Gratuity, EPF & Allowances are considered at 15% of annual salary per annum.

Table 21: Staff and Salary Details

DESIGNATION	NO. OF STAFF	SALARY/ MONTH (Rs.)	SALARY/ ANNUM (Rs.)
Director / Principal	1	90,000	1,080,000
Coordinator (Head of a dept. nominated by Principal/Dean.)	1	76,000	912,000
Professor / HOD	21	76,000	19,152,000
Associate Professor	24	45,000	12,960,000
Asst Prof	47	30,000	16,920,000
Tutor / Demons.	30	20,000	7,200,000
Technical Assistant / Technicians	75	12,000	10,800,000
Dissection Hall Attendants	4	9,000	432,000
Steno Typist	14	5,000	840,000
Store keeper / Clerk / Computer operator	25	5,500	1,650,000
Sweeper	20	3,500	840,000
Lab Attendant	23	9,000	2,484,000
Epidemiologist	1	15,000	180,000
MSW	5	12,000	720,000
Medical Officers	2	18,000	432,000
Nurses	3	14,000	504,000
Health Inspectors / H Asst	5	12,000	720,000
Health Educator	3	12,000	432,000
Peon	2	4,000	96,000
Van Driver	2	4,000	96,000
Senior Resident	29	25,000	8,700,000
Junior Residents	58	20,000	13,920,000
Psychologist	2	25,000	600,000
Therapist	6	20,000	1,440,000
Physicist	1	18,000	216,000
Hospital & Ancillary Staff			
Chief Medical Superintendent	1	65,000	780,000
Nursing Superintendent 1 (for minimum of 150 beds)	3	40,000	1,440,000
Deputy Nursing Superintendent	1	35,000	420,000
Assistant Nursing Superintendent (for minimum of 150 beds)(for every additional 50 beds one more Assistant Nursing Superintendent)	8	25,000	2,400,000
Staff Nurse	226	10,000	27,120,000
Sister	35	18,000	7,560,000

DESIGNATION	NO. OF STAFF	SALARY/ MONTH (Rs.)	SALARY/ ANNUM (Rs.)
Dieticians	3	18,000	648,000
Supervisors / Senior Executives - Stores, Accounts, Purchase, Billing, Front office)	8	12,000	1,152,000
Executives / Office Assistants	15	8,000	1,440,000
Receptionists, Front Office, Billing, Steno Typist	12	6,000	864,000
Telephone Operator	3	5,000	180,000
Security	6	4,000	288,000
Ambulance & driver pool	2	4,000	96,000
Senior Pharmacists	5	12,000	720,000
Junior Pharmacists	8	9,000	864,000
Central Record Section			
Medical Record Officer	1	15,000	180,000
Statistician	1	12,000	144,000
Coding Clerks	4	8,500	408,000
Record Clerks	6	6,500	468,000
Daftaries	2	5,000	120,000
Peons	2	4,000	96,000
Steno typist	1	5,000	60,000
Central Animal House			
Veterinary Officer	1	14,000	168,000
Animal Attendants	2	10,000	240,000
Technicians for animal operation room	1	8,000	96,000
Sweepers	2	3,000	72,000
Central Library			
Librarian with a degree in Library Science	1	14,000	168,000
Deputy Librarian	1	12,000	144,000
Documentalist	1	9,000	108,000
Cataloguer	1	7,000	84,000
Library Assistants	4	7,000	336,000
Daftaries	2	5,000	120,000
Peons	2	4,000	96,000
Central Photographic Cum Audiovisual Unit			
Photographers	1	6,500	78,000
Artist Modelers 1 each	2	6,500	156,000
Dark Room Assistant	1	6,500	78,000
Audiovisual Technician	1	6,500	78,000
Store Keeper cum Clerk	1	6,500	78,000
Attendant	1	4,000	48,000
Central Sterilization Services Department			
Matron	1	20,000	240,000
Staff Nurse	4	10,000	480,000

DESIGNATION	NO. OF STAFF	SALARY/ MONTH (Rs.)	SALARY/ ANNUM (Rs.)
Technical Assistant	8	9,000	864,000
Technician	8	7,500	720,000
Ward Boys	8	4,000	384,000
Sweeper	4	3,000	144,000
Laundry			
Supervisor	2	9,000	216,000
Dhobi/Washer man/Women	12	4,000	576,000
Packer	12	4,000	576,000
Blood Bank			
Professor /Reader	1	55,000	660,000
Lecturer	1	35,000	420,000
Technicians	6	13,000	936,000
Laboratory Attendants	6	9,000	648,000
Store Keepers	6	6,500	468,000
Record Clerks	2	6,000	144,000
Central Casualty Services			
Casualty Medical Officer	4	20,000	960,000
Stretcher bearers	6	4,000	288,000
Receptionist-cum-clerks	2	6,000	144,000
Ward boys	6	4,000	288,000
Nursing and Para-medical staff	6	-	-
Central Workshop			
Superintendent – who shall be a qualified engineer	1	20,000	240,000
Senior Technicians 4 (Mechanical, Electrical, Electronic, Refrigeration)	4	14,000	672,000
Junior Technicians	2	10,000	240,000
Blacksmith	1	6,500	78,000
Attendants	4	4,000	192,000
Total per Annum	899		163,500,000
Add : Margin for Bonus, Gratuity, EPF & Allowances		15%	24,525,000
Grand Total			188,025,000

Source: Hosmac

7.5.3. Hospital's Departmental Expense

Departmental consumable expenses are assumed in the range of 5-15% considering industry norms.

7.5.4. Hospital Doctor's Fee/Share

General Ward: Doctors fees/share are not considered for the revenue generated from the general ward except in the case of surgery wherein 10% of the surgery fees is considered as a surgeon fees i.e. doctors share.

Private Ward: A doctor fees/share is considered at 5% and surgeon's fee is considered to be 10%.

7.5.5. Miscellaneous Expense

The various miscellaneous expenses like Canteen & Mess, Water, Cooking Gas, Medical Gas, Electricity, Laundry & Linen, Housekeeping, etc based on industry norms.

Table 22: Miscellaneous & Other Expense

PARTICULARS	QUANTUM	UNIT
Cost of Book & Periodical	Rs. 10,000	per month
Repairs & Maintenance	0.10%	of total Cost of Project
Printing & Stationery	Rs. 10,000	per month
Travel & Conveyance	Rs. 20,000	per month
Communication Cost	Rs. 40,000	per month

Source: Hosmac

7.5.6. MCI Application and Inspection Fees

MCI application & registration fees, bank guarantee and annual fees for the inspection are as per prevailing MCI guidelines. The application fee of Rs. 3,50,000 for registration of the medical college, technical scrutiny and five year inspection is spread over five years. Applicant also needs to provide a bank guarantee of Rs.150 lakh for a 100 seat medical college and Rs. 550 Lakh for the teaching hospital which is valid for five year period. Bank Charges of 1.5% of total bank guarantee amount is assumed for initial five years.

Table 23: MCI Application & Inspection Fees Details

PARTICULARS	INCEPTION FEE	PER ANNUM FEE AFTER 5TH YR.
Application Fee (Registration + Technical Scrutiny+ 5 Inspection)	Rs.350,000	Rs.50,000
Bank Guarantee - College	Rs.15,000,000	To be valid for 5 years
Bank Guarantee - Hospital	Rs.55,000,000	To be valid for 5 years

Source: MCI Website

7.5.7. Creditors & Debtors Period

5% of the hospitals patients are assumed to require one month's credit for settling their bills.. Inventory holding period is assumed to be one month. Suppliers are expected to provide credit of a month.

7.5.8. Depreciation Rate

The depreciation rate considered for Straight Line and Written Down Value method for the capital assets is tabulated below.

Table 24: Depreciation rate

DEPRECIATION RATES	SLM	WDV
Land	0.00%	0.00%
Building	3.34%	10.00%

DEPRECIATION RATES	SLM	WDV
Furniture & Fittings	6.33%	10.00%
Medical Equipment	15.00%	15.00%
Non-medical Equipment	15.00%	15.00%
Automobiles	10.00%	10.00%

7.6. Treatment of BPL Patients

The Concessionaire shall, in the first year of the COD of the Medical College be required to create a reserve of Rs. 10,00,000 (Ten) lakhs as a separate earmarked fund to be called BPL Patients Treatment Fund from which it shall fund the treatment of BPL Patients. After the end of the first year of the Term, the BPL Patients Treatment Fund shall be funded by appropriating 1% of Gross Revenue from the Hospitals earned by the Concessionaire in the previous year.

7.7. Income Tax Rate

The rate of Income Tax is assumed at 33.99% and Minimum Alternate Tax (MAT) at 19.931%.

7.8. Inflation Factor

All revenues (including college and hospital fees) and expenses are assumed to escalate at 5% p.a. sector.

7.9. Concession Period

GOUP intends to allow the Concessionaire a 50 year term for operating and managing the Medical College and Allied Infrastructure. The same has been used for the purpose of the projections.

8. ANALYZING THE PROJECT'S FINANCIALS

This chapter presents an assessment of the project's financials and returns from the Concessionaire's point of view. It also assesses the sensitivity of the project returns to key variables.

8.1. Evaluating the project revenues and expenses

The financials of the Banda Medical College have been projected for 50 years. This is line with GOUP's desired concession period.

In the initial 2 years majority of the revenue is contributed by the hospital. From 3rd year onwards Revenues from college and hospital contribute equally in the earnings. Salaries and consumables are primary drivers of expenses at the hospital.

Table 25: Project Revenues and Expenses

(Rs. Lakhs)

YEAR	1	10	20	30	40	50
INCOME						
Academic Revenue - UG	517	3,602	5,867	9,557	15,568	25,359
Total Income from General Ward	604	1,567	2,553	4,158	6,773	11,032
Total Income from Pvt. Ward	566	2,208	3,596	5,858	9,542	15,543
Investment Income	-	-	-	-	-	-
Total Revenues	1,688	7,377	12,016	19,573	31,883	51,993
EXPENSES	1	10	20	30	40	50
Total Salary Expense-UG	1,316	2,917	4,751	7,739	12,607	20,535
Total Dept. Expense	590	1,853	3,018	4,916	8,007	13,043
Total Misc. Exp.	263	797	1,297	2,113	3,441	5,605
Library (Books & Periodicals)	1	1	1	1	1	1
Repairs & Maintenance	31	48	78	128	208	338
Printing & Stationery	1	2	3	5	8	13
Travel & Conveyance	2	4	6	10	16	26
Communication Costs	5	7	12	20	32	52
Insurance	77	46	32	20	31	52
Audit	1	2	3	4	7	11
Treatment of BPL Patients	10	36	59	95	156	253
Total Expenditure	2,298	5,712	9,261	15,051	24,513	39,931
PBDIT (a-b)	(610)	1,669	2,762	4,534	7,387	12,302
Depreciation	1,663	899	1,811	2,458	2,685	4,402
Interest on TL	745	207	0	0	0	0
Interest on WC Loan	0.00	0.00	0.00	0.00	0.00	0.00
Interest on Short Term Loan	0.00	0.00	0.00	0.00	0.00	0.00
PBT	(3,019)	563	951	2,075	4,702	7,630
Less: Tax	0	112	190	975	1,622	2,648

YEAR	1	10	20	30	40	50
PAT	(3,019)	451	761	1,100	3,080	4,982

Source: Hosmac and CRIS Analysis

8.2. Analysis of key financial parameters

Details of the key financial indicators has been provided in the table below and analyzed subsequently.

Table 26: Key Financial Indicators

Year	1	5	10	20	30	40	50
Revenue per patient day (Rs.)	1,528	1,920	2,451	3,993	6,504	10,593	17,256
Manpower costs to Total Revenues	78%	40%	40%	31%	31%	31%	40%
EBITDA Margin	-36%	22%	23%	23%	23%	23%	23%
Net Profit Margin	-179%	-17%	6%	6%	6%	10%	10%
Project IRR							5%
Equity IRR							5%

Source: Hosmac and CRIS Analysis

Revenue per Bed per Day (RBBPD)

The teaching hospital expected to earn revenue of Rs. 1920 per bed per day in the fifth year of the operations. RBBPD is comparatively on lower side compared to multi specialty hospitals in cities mainly due to lower user charges, given that this is a teaching hospital.

Manpower cost

Manpower cost is higher in the first year at 78% of total revenue and initial four to five years mainly due to less number of students and lesser number private beds. After 5th year the manpower cost drops down to 31% of total revenue.

Profitability

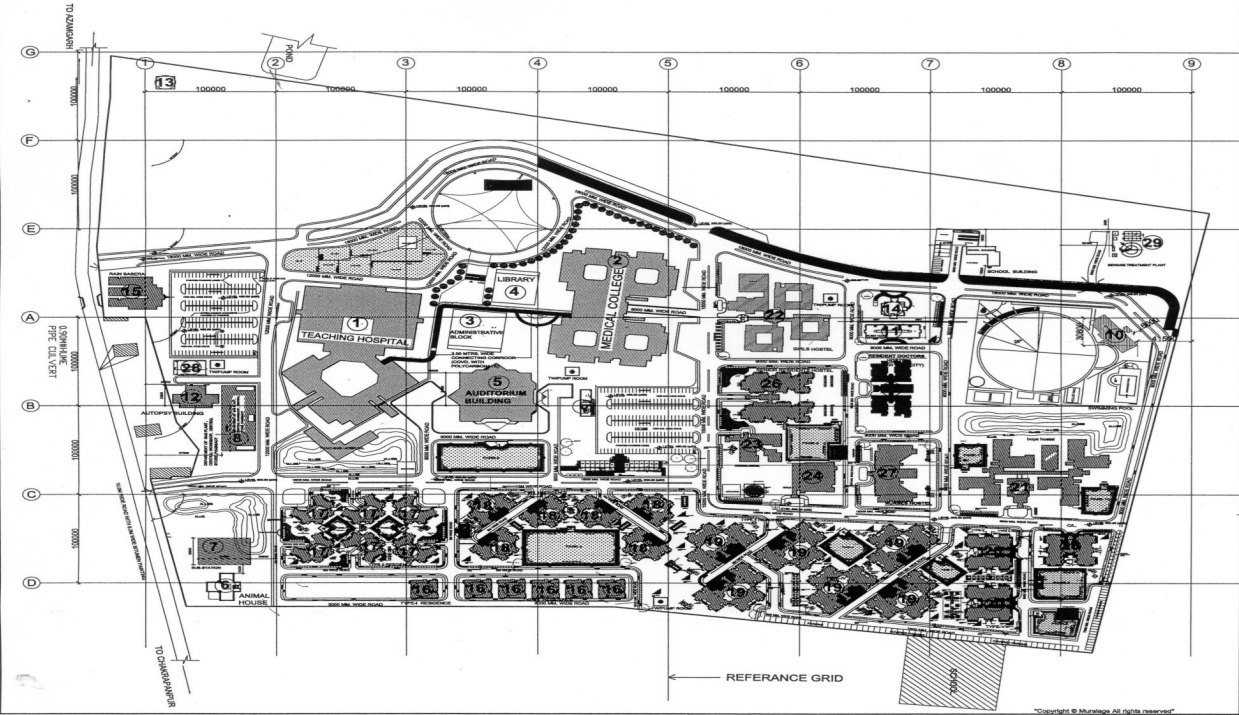
The college and hospital is expected to earn on an average an operating margin (EBITDA) of 14%. The net profit (PAT) margin is low in first five to six years due to high interest costs and depreciation and less number of students. However, post loan repayment and depreciating the assets for significant percentage of their value, the net profit margin increases to 10%.

Internal Rate of Return

The expected project IRR for this project is estimated to be 4.99 % and Equity IRR of 4.50%.

9. ANNEXURE

The Site Master Plan for the Azamgarh Medical College is given below.



Source: UPRNL