Dissertation

at

Aakash Healthcare,

Dwarka,New Delhi

on

"Critical analysis of Project Ramp-up Plan for an upcoming 230 bedded Super specialty hospital in Dwarka, New Delhi"

by

Dr. Rashu Rai

Enroll No. PG15/0065

Under the guidance of

Ms. Kirti Udayai

Post Graduate Diploma in Hospital and Health Management

2015-17

International Institute of Health Management Research New Delhi

The certificate is awarded to

Dr. Rashu Rai

in recognition of having successfully completed her Internship in the department of

Hospital Planning and commissioning

and has successfully completed her Project

on

"Critical analysis of Project Ramp-up Plan for an upcoming 230 bedded multi super specialty hospital in Dwarka, New Delhi"

Date 1/05/2017

Aakash Healthcare, Dwarka, New Delhi

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning

We wish him/her all the best for future endeavour's

Training & Development **Head-Human Resources**

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr.Rashu Rai**, student of **Post Graduate Diploma in Hospital and Health Management (PGDHM)** from **International Institute of Health Management Research, New Delhi** has undergone internship training at **Aakash Healthcare** from 20th January,2017 to 30th April,2017.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfilment of the course requirements. I wish her all success in all her future endeavour's.

Dr. A.K. Agarwal, Dean,

Academics and Student Affairs IIHMR,

New Delhi

Ms Kirti Udayai,

IIHMR, New Delhi

Certificate of Approval

The following dissertation titled **"Critical analysis of Project Ramp-up Plan for an upcoming 230 bedded multi super specialty hospital in Dwarka, New Delhi"** at **Aakash Healthcare, Dwarka, New Delhi** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **Post Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

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Name Signature

Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Rashu Rai**, a graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. She is submitting this dissertation titled **"Critical analysis of Project Ramp-up Plan for an upcoming 230 bedded multi super specialty hospital in Dwarka, New Delhi"** at **"Aakash Healthcare"** in partial fulfilment of the requirements for the award of the **Post Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Mr. Pawan Sharma	Ms. Kirti Udayai
Sr. Manager – Administration	Associate Director
Aakash Healthcare Pvt. Ltd.	IIHMR, New Delhi.

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH,

NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **"Critical analysis of Project Ramp-up Plan for an upcoming 230 bedded multi super specialty hospital in Dwarka, New Delhi"** and submitted by **Dr. Rashu Rai**, Enrolment No. PG15/0065 under the supervision of **Ms. Kirti Udayai** for award of **Postgraduate Diploma in Hospital and Health Management** of the Institute carried out during the period from July 2015 to July 2017embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

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FEEDBACK FORM

Name of the Student: Dr.Rashu Rai

Dissertation Organisation: Aakash Healthcare, Dwarka, New Delhi

Area of Dissertation:

Attendance:

Objectives achieved:

Deliverables:

Strengths:

Suggestions for Improvement:

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

Signature of the Officer-in-Charge/Organisation Mentor (Dissertation)

Date:

Place:

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I, Dr.Rashu Rai, would like to extend my sincere and heartfelt obligation towards all the people who have helped me in this endeavor. Without their active guidance, help, cooperation and encouragement, this dissertation would not have been possible.

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LIST OF ABBREVIATIONS

AHPL	Aakash Healthcare Private Limited
AGM	Assistant General Manager
COO	Chief Operating Officer
HR	Human Resource
HIS	Hospital Information System
HK	House Keeping
QM	Quality Manual
IPD	In Patient Department
OPD	Out Patient Department
ICU	Intensive Care Unit
NICU	Neonatal Intensive Care Unit
PICU	Pediatric Intensive Care Unit
SICU	Surgical Intensive Care Unit
MICU	Medical Intensive Care Unit
OT	Operation Theatre
MRI	Magnetic Resonance Imaging
CT	Computed Tomography
DPR	Detailed Project Report

AAKASH HEALTHCARE

- We care, He cures-

PROFILE

- Aakash Healthcare is a Private Limited Company (AHPL). It was incorporated on 19th November, 2013, and is a subsidiary of the prestigious Aakash Group (AESPL), and is a state of the art healthcare facility and the first smart hospital in South – West Delhi.
- Aakash Healthcare Super-Specialty Hospital kicked off on **11th January, 2014**
- In the month of November 2011, Dr. Aashish Chaudhry envisioned a smart orthopedic clinic for the people of Dwarka, New Delhi, which is Asia's biggest residential colony. The clinic thrived as a result of his ethical and transparent healthcare practices, and in present-day Dr. Chaudhry is a celebrated orthopedic surgeon, having performed innumerable successful orthopedic surgeries, giving agility and the ease of movement to the incapacitated.
- Aakash Healthcare is furnished with 230 beds in 1st phase, 8 State of the art Operating Rooms, 70 bedded Medical and Surgical Critical Care unit, specialized dialysis unit, 24 hours Cardiac Emergency & Trauma Service. We provide premium healthcare services with compassionate staff, advanced technology, IT systems, maintaining ethical medical standards.
- Aakash Healthcare is a super specialty hospital, with state of the art infrastructure, path breaking technology, offering unrivalled healthcare services. Dr. Aashish Chaudhry, the founder and Director of Aakash Healthcare, aims to make Aakash Healthcare the most preferred healthcare brand by providing compassionate, inexpensive, and world class healthcare services, with a talented team of doctors, and ultra-modern technology, ensuring speedy recovery.

Management of Aakash Healthcare- The board of directors is Mr. J C Chaudhry, Mrs. Kamla Chaudhry and Dr. Aashish Chaudhry.

- Mr. J.C. Chaudhry is the founder of Aakash Institute & chairman of Aakash Healthcare Pvt. Ltd.
- Dr. Aashish Chaudhry is the Managing Director of Aakash Healthcare Pvt. Ltd. A celebrated Orthopedic Surgeon.

Infrastructure Highlights:

- 230 Beds in Phase 1.
- 70 Bedded Medical and Surgical Critical Care Unit.
- 24x7 Cardiac Emergency & Trauma Services.
- 10 Bedded Dialysis Unit.
- Advanced Neonatal ICU.
- Ward Bed Options – Suite, Deluxe, Twin Sharing and Economy.
- 8 Modular OTs.
- Flat Panel Cath Lab.
- State-of-the-art diagnostic equipment's that include – 3.0 Tesla MRI, 128 slice CT scan, Flat panel C-Arm, and 4-D Ultrasound to name a few.
- Automated Waste & Laundry Management System for efficient waste management.
- Pneumatic Tube System.

Aakash Healthcare provides comprehensive services under one roof:

Key Specialties:

- Orthopedics and Joint Replacement
- General and Minimal Access Surgery
- Ophthalmology and Refractive Surgery
- Nephrology
- Mother and Child
- Cardiology and Cardiac Surgery

Other Specialties:

- Anesthesiology and Pain Management
- Blood Bank and Transfusion Medicine
- Critical Care
- Dentistry
- Dermatology
- Endocrinology
- ENT
- Gastroenterology
- G I Surgery
- Hearing and Speech
- Internal Medicine
- Interventional Radiology
- Lab Medicine
- Medical Oncology
- Neurology
- Neuro Surgery
- Physiotherapy and Rehabilitation
- Plastic and cosmetic Surgery
- Preventive Health Check up
- Pulmonology
- Rheumatology
- Radiology
- Surgical Oncology
- Trauma & Emergency(24x7)
- Urology
- Vascular & Endo Vascular Surgery

AAKASH HEALTHCARE CORE VALUES

VISION: To become the most desired healthcare brand by providing compassionate, caring and world class service with the help of talented team of doctors, professionals and latest technology.

MISSION: To achieve highest patient satisfaction index by delivering patient-centric best healthcare service amongst the local and extended community.

VALUES:

I - Integrity

C-Compassion

A - Accountability

R- Respect

E- Excellence

INTRODUCTION

BACKGROUND

A hospital project when planned for construction has to undergo various different phases to achieve the final shape as was planned initially. Owing to the huge costs involved in the construction of multi super specialty hospitals it becomes important to ensure optimal utilization of resources and costs to avoid cost and schedule overrun, while still maintaining the quality of the project in all phases.

Every phase of a project is equally important and has an effect on other phases of the project. Hence, it becomes important to ensure that every phase is complete in all respects before proceeding to the next step. Project management hence becomes very crucial in a project. Project management is usually done by project managers and it becomes important to inculcate project managers right from the planning phase in a project. Effective project management can ensure-

- Better predictability leading to commitments that can be met.
- Optimal utilization of resources.
- Better coordination between various teams involved at site.
- Timely completion of various steps involved.
- Lower cost through reduced rework, better resource management, better planning.
- Improved quality through proper quality planning and control
- Better visibility into project health and state leading to timely intervention.

Project Scheduling is an important check on the progress rate of the project. Scheduling helps define timelines for various different activities of the project. A roll out plan is an important tool used to describe the timeline for various activities involved in a project. Scheduling of different activities is essential. Early and non-coordinated progress or delayed activities can both cause cost overrun.

- A project Schedule is at two levels – overall schedule and detailed schedule.
- Overall schedule comprises of major milestones and final date (Macro planning).
- Detailed schedule is the assignment of lowest level tasks to resources (Micro planning).

- Scheduling is explained with the help of a detailed Roll out Plan.
- Staffing is estimated with the help of a Manpower Ramp up Plan.

Equipment procurement is another important aspect of project-

- Delayed equipment procurement will cause unnecessary delay before hospital goes live or patients may have to be referred to different institutes due to unavailability of equipment's at the right time. Licensing process may also get delayed.
- Early procurement of equipment may also cause cost overrun. The infrastructure may not be ready enough to take the equipment, which may cause damage to equipment and security issues for the equipment. Hence, the time at which equipment is procured is very important.

A project may be exposed to various different kinds of risks-

A project may fail due to unforeseen events, risk management aims to tackle this to minimize the effect of risks on a project.

Different risks that may affect a project are-

- Unclear requirements
- Unrealistic schedules
- Insufficient business knowledge
- Too many requirement changes
- Shortage of technically trained manpower.

There are various different phases involved in hospital project planning and commissioning which include- Proposal outline

- Feasibility Study (include Data collection, Demographic pattern, Need assessment, Prioritization of need, site selection, environmental study, Water supply and electricity, Transport and communication.)
- Detailed Project Proposal
- Approval of the project
- Resource allocation
- Land acquisition
- Construction Planning
- Architect Brief
- Tendering

- Award of Contract.

Various different teams are involved in different phases of the project-

(a) Need assessment team - At the earliest stage, a need assessment team involving the planners, end users such as the hospital staff and the community establishes an overall plan of the needs, range of services to be provided, the target population or catchment area, the financial feasibility of the project with cost benefit analysis and the scale of the hospital, etc.

(b) Briefing team - The briefing team involving architects, engineers, the staff and the community prepare "the design brief" which translates the requirements into functions, activities, space distribution and/or any other information necessary for the design.

(c) Design team– This team mainly consists of engineers, architects, quantity, surveyors, hospital staff, the community and the approving authority.

(d) Construction team– The construction team implements the design from the approved drawings and technical specifications within the prescribed time and cost.

(e) Commissioning team– The commissioning team responsible to staff the hospital, commissions and procures the equipment, furniture and supplies and prepares it for operation.

(f) Planning team– By the end of the project, multitude of people would have made their contribution to the project as part of a whole working team including the community.

Rationale

Project management is a mix of two major components i.e. time and money. This boil down to one common denominator that project management basically is capital management which can be in form of liquid cash or time which can impact the business plans in form of delays.

A very high degree of opportunity cost is involved in all major decisions of a project. Hence, all these decisions need to be closely monitored to understand the cause and reasons for deviations in plans and over runs which may happen.

Also, for a quarter year over run in project we need to understand it is not only the cost incurred for that amount of time but also the loss of opportunity which we incurred in the business.

In order to learn what went wrong and implement measures to control the same in upcoming projects, this study becomes a must.

REVIEW OF LITERATURE

The KPMG in India – PMI study 2012, highlights the major reasons for schedule and cost overruns across major sector's infrastructure projects. While some projects are impacted due to external factors which are beyond the control of the implementing agencies such as land acquisition, regulatory approvals, etc., majority of projects are delayed by factors which can be controlled at the project level through proper planning and project management. Reasons for project time overruns across project lifecycle-

- Pre-Planning-
  - Delay in regulatory approvals
  - Land/site handover
  - Lack of project managers, cost managers
- Planning and Design Stage-
  - Ineffective procurement planning
  - Delay in Decision making
  - Design/scope change
  - Lack of MEP engineers
- Execution and Monitoring-
  - Week/ineffective Project planning and monitoring
  - Contractual disputes
  - Lack of project managers/site managers
  - Lack of quantity supervisors
- Closure and Handover-
  - Limited availability of skilled labor
  - Pre-commissioning teething troubles
  - Shortage of good equipment supplier and contractors
  - Contractual disputes
  - Lack of commissioning managers
  - Lack of total quality management professionals

Reasons for project cost overrun-

- Escalation in labor cost and ineffective utilization of labor
- Design changes
- Material price escalation beyond projections
- Inadequate availability of skilled resources
- Poor selection of consultant
- Poor/wrong selection of equipment and technology
- Contractual disputes due to poor framing of contracts
- Ineffective detailed Project Report

The KPMG Leadership series on Project Risk management describes the levels of risks involved in project, identification, analysis of risk, response planning and monitoring the project.

- Risk identification is the identification of all possible risks that could either negatively or positively affect the project.
- Potential contributors to risk identification include:
  - Project team members (planners, engineers, architects, contractors etc.)
  - Risk management team members
  - Subject matter professionals (IT, Safety, Legal etc.)
  - Customers (internal and external)
  - End users
  - Organization management and leadership.

Risk response planning includes:

- Assigning responsibility for identified risks to appropriate project team members or stakeholders
- Developing a response plan to address the identified risk.

OBJECTIVE

GENERAL OBJECTIVE: To critically analyze the project ramp up plan of an upcoming 230 bedded multi super specialty hospital and interpret the reasons for project schedule overruns.

SPECIFIC OBJECTIVES:

- To define, align and freeze the timelines for various activities.
- To interpret the various reasons for project schedule overrun and make necessary recommendations to ensure timely completion of next new hospital project.

METHODOLOGY

STUDY AREA- Aakash Healthcare Super Specialty Hospital

STUDY DESIGN- Descriptive Study

STUDY DURATION- 3 months (1st February,2017-30th April,2017)

MODE OF DATA COLLECTION-

- A self administered unstructured interview was conducted with the key informants of Aakash healthcare to gauge the reasons for gaps recognized in various different phases of the project. Key informants who were the source of information included-
    - Mr. Pawan Sharma - Sr. Manager – Administration
    - Mr. Rajender Sharma- General Manager – Engg. & Maintenance
    - Mr. KP Srivastava- Sr. Manager – Civil Engineering.
- The respondents gave a verbal consent.
- Secondary data has been collected through the following sources-
    - Minutes of Meeting
    - Internet
    - Goods Received Notes
- Inclusion Criteria for key informants-
    - Participants involved in the decision making processes of the project.
    - Participants associated with Aakash healthcare project for at least one year.
    - Participants involved with the project from the planning phase.
- Exclusion Criteria for key informants-
    - Participants not involved in the decision making processes of the project.
    - Participants associated with Aakash healthcare project for less than one year.

THE EXISTING HEALTHCARE MARKET SIZE IN DWARKA, NEW DELHI

- Dwarka is a neighborhood of Delhi and is located in the district of South West Delhi in India.
- Dwarka is the largest residential suburb in Asia, with a total of 1718 residential enclaves, and a net population of 1,100,000.

Location:

- The sub-city is located in South-West Delhi in the vicinity of Gurgaon and international airport.
- It is bounded by Uttam Nagar, Vasant Kunj, Vikas Puri, Najafgarh, Bijwasan, Palam vihar, Vasant Vihar, Janakpuri and Delhi cantonment.
- It is at a short distance from Gurgaon.

Figure No.1

Connectivity to Catchment areas:

- Dwarka has a robust and well connected road network. The sub city will be connected to the mother city by 4 major roads from all directions.
- The sub city is well connected by metro rail with the city Centre and other major parts of the city.
- Connected to Indira Gandhi International Airport Terminal 3.
- The sub city is now connected through metro rail to Noida (UP) and Anand Vihar and Ghaziabad.
- Dwarka is expected to be connected to Gurgaon by metro in the near future due to its close proximity to the NCR town.

Demographic Details:

Dwarka Sub City:

Table No.1

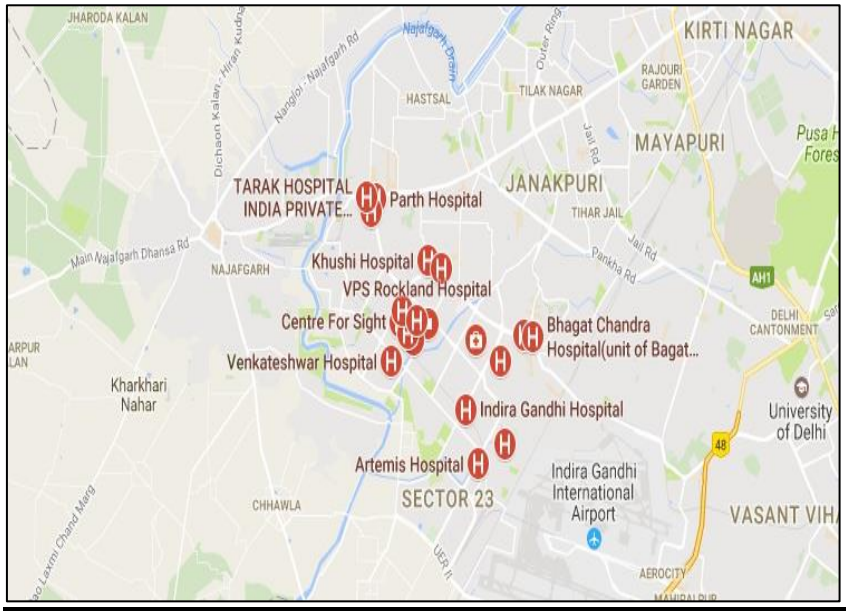
S.No.	Description	2011
1	Area	56.48 km^2
2	Total Population	1,100,000
3	Population Density	19,000/km^2

Medical facilities in Dwarka, New Delhi:

Table No.2

S. No.	Name	No. of Beds
1	Venkateshwar	325
2	Rockland	103
3	Maharaja Agrasen	80
4	Bhagat Chandra	85
5	Artemis	40
6	Rescue Hospital	50
7	Shree Hospital	20
8	Lifeline Hospital	20
9	Shree Sai Hospital	4
10	Ravi Nursing Home	4
11	Gee Bee Nursing Home	3
12	Dr. Nanda's Eye Care	2

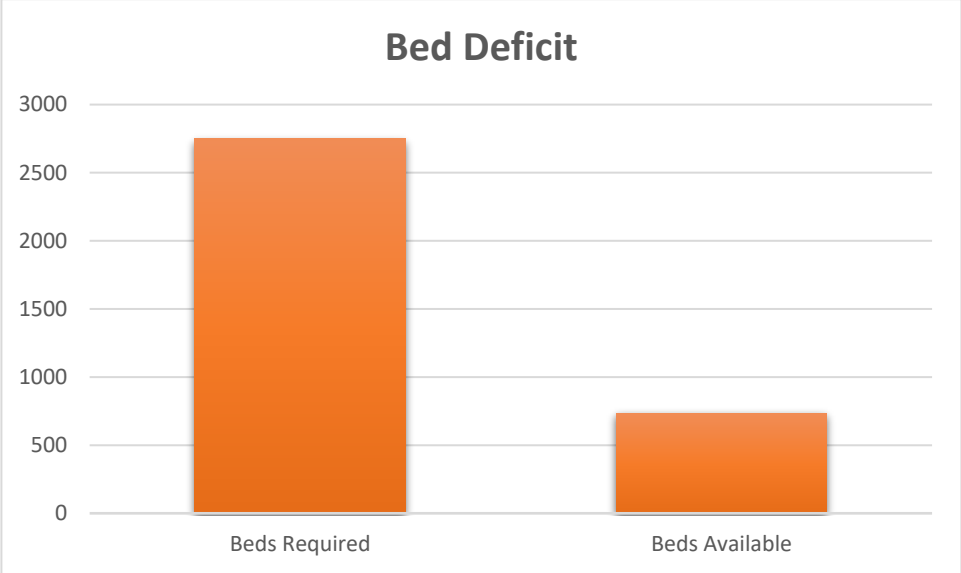
Figure No.2



Observation:

Considering the WHO bed requirement norm, Dwarka has a severe bed deficit – approximately 700 beds available against the required 2,750.

Graph No.1



The top multi-specialty hospitals in Dwarka have three to four leading specialties that drive the majority of volumes and help position the respective hospitals.

Table No. 3

Specialty Focus	**Hospitals**			
	Artemis	**Ayushman**	**Rockland**	**Venkateshwar**
Top 3	Orthopaedics	Orthopaedics	Orthopaedics	Orthopaedics
	Gynaecology	Gynaecology	General Surgery	Cardio Thoracic and Vascular Surgery
	Cardiology	Medicine	Cardiology	Gastroenterology
Other key Specialties	Nephrology	Cardiology	Oncology	Critical Care
	Gastroenterology	Nephrology	Gastroenterology	Interventional Cardiology
	paediatrics	Gastroenterology	Nephrology	Medical Oncology
	Neurology	Paediatrics	Urology	Neurosurgery
	Ophthalmology	Neurology	Plastic and Cosmetic Surgery	Neurology and Paediatric Neurology
	Dentistry	Ophthalmology	GI Surgery	Surgical Oncology
	Dermatology	Dentistry	Critical Care	Urology and Nephrology
	Cosmetic and Plastic Surgery	Endoscopic Surgery	Radiology	Pulmonology and Sleep Medicine
	Endoscopic Surgery	ENT	Endocrinology	Ophthalmology
	ENT	Urology		Physiotherapy
	Urology			Rheumatology

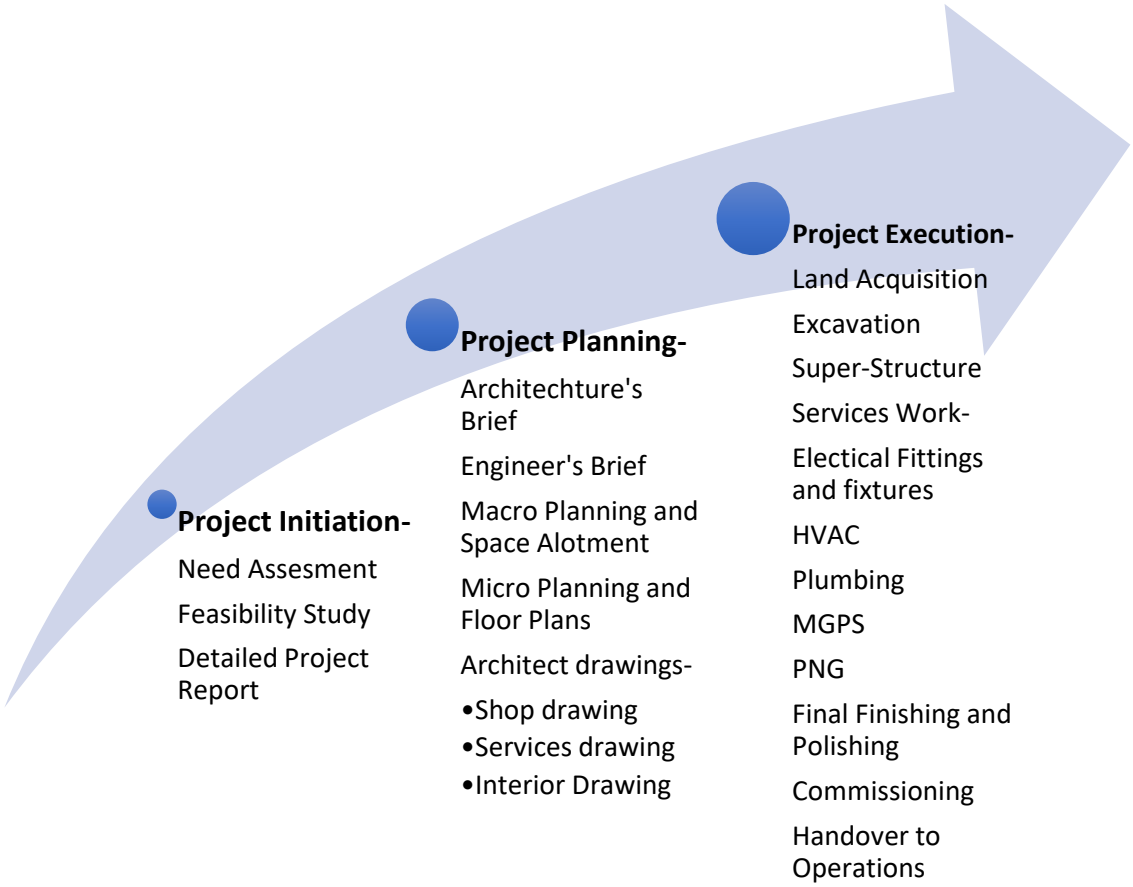
	Physiotherapy			Respiratory Medicine

Observation:

- The top four hospitals all have Orthopedics amongst the top three specialties.
- While all hospitals have most of the facilities, there is no clear focus on specialties like-
    - Mother and Child Care
    - Oncology
    - Geriatrics
    - Dermatology
    - Nephrology/Urology
- After analyzing the current market status in terms of the availability of specialties, the following key specialties are recommended for Aakash Healthcare-
    - Specialty Orthopedics
    - Mother and child
    - Neurosurgery
    - Critical Care
    - Nephrology
    - In the later stages of Operations-
        - Interventional Cardiology
        - Cardiac Surgery
        - IVF
        - Gastroenterology
        - Oncology
        - Endocrinology

TO DEFINE, ALIGN AND FREEZE THE TIMELINES FOR VARIOUS ACTIVITIES.

Figure No. 3



Project Initiation

Need Assessment
A needs assessment is a systematic process for determining and addressing needs, or "gaps" between current conditions and desired conditions.
A need assessment is a systematic process for determining and addressing needs, or "gaps" between current conditions and desired conditions.

Feasibility Study
A feasibility study is used to determine the viability of an idea. The objective of such a study is to ensure a project is legally and technically feasible and economically justifiable. It tells us whether a project is worth the investment.

Observation-

SWOT Analysis of the proposed project site-

STRENGTH	**WEAKNESS**
○ Well connected road and metro rail network. ○ Possible approach from different sides- ○ Dwarka Sector 1 and 2 ○ Dwarka sector 11 and 12 ○ Matiala and Uttam Nagar	• Located in area having lower and lower-middle income group people. • Population density is less in the immediate vicinity of the site location.
OPPURTUNITY	**THREAT**
• Gap in existing and desired bed strength in hospitals. • Clear gap in clinical specialties and technology used by healthcare providers in Dwarka. • Can serve Matiala, Uttam Nagar and Najafgarh.	• Potential competition from upcoming and stalled hospitals in the catchment area. • Dwarka-Gurgaon expressway could make the leading Gurgaon hospitals a preferred choice for Dwarka residents.

Project Planning

Architecture's Brief

An architectural brief is a statement of a client's requirements, which form the basis for appointing an architect. The brief describes the requirements that need to be reconciled and accommodated, and is developed first as a design which is submitted for approval, and subsequently constructed as a building or other structure. A brief is a written document that might be anything from a single page to a multiple volume set of documents.

The architectural brief is often formulated by, or in collaboration with, the architect. It often includes opportunities assessed; constraints identified and needs for further investigation clarified.

Parameters might include: population (median and peak), area, minimum height, floor loading, floor finish and skirting requirements, including any plinths, hobs or set-downs, wall finishes, including wall protection needs (pertinent in hospitals, warehouses, etc.), ceiling finish, including acoustic needs, engineering services required: power, lighting, air-conditioning, water, drainage, communications, etc.; environmental conditions: air temperature, humidity, noise level, air movement; access and security needs; FFE (furniture, fittings and equipment), with note made of mass, dimensions, power requirements, energy evolved, noise produced, ventilation and extraction needed, service and operating clearances; fire safety.

Engineers Brief

Project Engineering bridges the boundaries between engineering and project management, leading the technical workers who contribute to the building of structures or products. Project engineers do not necessarily do design work, but instead represent the contractor or client out in the field.

In some cases, the project engineer is the same as a project manager but in most cases these two professionals have joint responsibility for leading a project.

A project engineer's responsibilities include schedule preparation, pre-planning and resource forecasting for engineering and other technical activities relating to the project. They may also be in charge of performance management of vendors. They assure the accuracy of financial forecasts, which tie-in to project schedules. They ensure projects are completed according to project plans.

Architect's Drawing-

An **architectural drawing** or **architect's drawing** is a technical drawing of a building (or building project) that falls within the definition of architecture.

A floor plan is the most fundamental architectural diagram, a view from above showing the arrangement of spaces in building in the same way as a map, but showing the arrangement at a particular level of a building.

A site plan shows property boundaries and means of access to the site, and nearby structures if they are relevant to the design. For a construction project, the site plan also needs to show all the services connections: drainage and sewer lines, water supply, electrical and communications cables, exterior lighting etc.

An elevation is a view of a building seen from one side, a flat representation of one façade. This is the most common view used to describe the external appearance of a building.

A cross section, also simply called a section, represents a vertical plane cut through the object, in the same way as a floor plan is a horizontal section viewed from the top.

Services Drawing/ Mechanical systems drawing-

A mechanical system drawing is a type of technical drawing that shows information about heating, ventilating, and air conditioning. These drawings are often a set of detailed drawings used for construction projects; it is a requirement for all HVAC work. They are based on the floor and reflected ceiling plans of the architect. After the mechanical drawings are complete, they become part of the construction drawings, which is then used to apply for a building permit. They are also used to determine the price of the project.

Shop Drawing-

A **shop drawing** is a drawing or set of drawings produced by the contractor, supplier, manufacturer, subcontractor, or fabricator.

The shop drawing normally shows more detail than the construction documents.

It is drawn to explain the fabrication and/or installation of the items to the manufacturer's production crew or contractor's installation crews.

TO INTERPRET THE VARIOUS REASONS FOR PROJECT SCHEDULE OVERRUN AND MAKE NECESSARY RECOMMENDATIONS TO ENSURE TIMELY COMPLETION OF UPCOMING HOSPITAL PROJECT

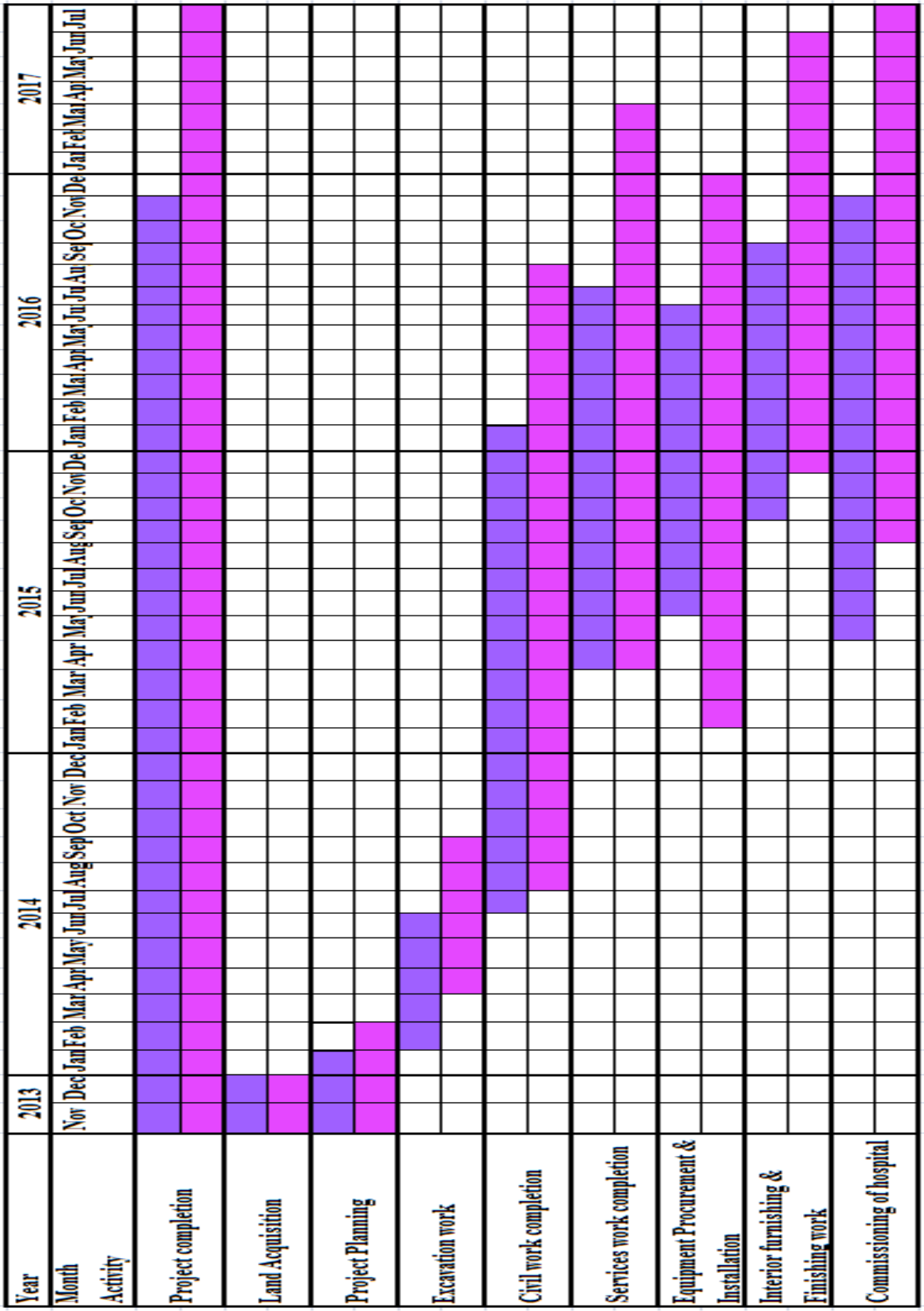
Project Planning and current status:

Table No. 4

	Milestone description	**Planned Date**	**Actual/Revised Date**	**Delay (in months)**
Planning	Project Planning	Jan'14	Feb'14	1 Month
Construction	Land Acquisition	Dec'13	Dec'13	0 Month
	Excavation process	Jun'14	Sept'14	3 Months
	Civil work completion	Jan'16	Aug'16	7 Months
	Services work completion	July'16	Mar'17	12 Months
	Equipment procurement and installation	July'16	Dec'16	5 Months
	Interior furnishing and finishing work	Sept'16	Jun'17	9 Months
	Commissioning of hospital	Nov'16	July'17	8 Months

Project Gantt Chart:

Graph No. 2



STUDY FINDINGS

Gaps Recognized-

Table No. 5

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Project Planning	**January 2014**	**February 2014**	**1 Month**

Reasons for Delay-

- Addition and modification of drawing.
- Changes in the FAR.
- Sub stations should be properly planned.
- Repetition of change should be avoided.
- Any area demarcation should be in proper manner.
- Inadequate need assessment and requirements from architect.
- Any work which requires attention of various departments/people should be done or finalized after proper coordination with all the concerned people.
- Requirements of the user department should be clear.
- Drawing should be made as per Government norms before putting into action.

Recommendations to avoid schedule overrun-

- Identify the requirements of client.
- Realistic schedule for project completion.
- Scrutinize the drawings.
- Sub stations should be properly planned.
- Any area demarcation should be in proper manner.
- Any work which requires attention of various departments/people should be done or finalized after proper coordination with all the concerned people.
- Drawing should be made as per Government norms before putting into action.
- Drawing should be made as per Government norms before putting into action.

Table No. 6

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Excavation Work	**June 2014**	**September 2014**	**3 Months**

Reasons for Delay-

- Soil Condition in this particular area. The land is filled with loose soil and excavation in such area needs proper precaution. Excavation without necessary precautions led to land sliding from surrounding area into the site.
- Space constraint.
- Permission for tree cutting in the area took more than the expected time.
- Weather conditions were another reason for delay in the project. Unexpected rains stalled the project for a few days.

Recommendations to avoid schedule overrun-

- Ensure necessary precautions are taken as per the soil conditions to avoid any unnecessary delays in project completion.
- Weather forecasting can help plan the various activities accordingly.

Table No. 7

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Civil work completion	January 2016	August 2016	7 Months

Reasons for Delay-

- Many changes took place during the construction phase due to which various reworks were done.
- Due to orders by Delhi Govt. the construction activity was stopped for 15 days which added to delay in project completion.
- C-Sect OT and LDR were shifted to separate floor due to certain requirements raised. Construction of a new C-Sect OT and LDR led to cost overrun.
- Department of Gynecology, Endoscopy and Audiometry were interchanged which led to various changes in the structure.
- Addition of one extra floor i.e. seventh floor further led to delay in project completion.
- Addition of two new Operation Theatres in the later stages of construction led to delay in the project.
- External and internal work should go hand in hand.

Recommendations to avoid schedule overrun-

- External and internal work should go hand in hand.
- Identify the requirements of client.
- We should go for basics not on luxury items.

Table No. 8

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Service Work Completion	**July 2016**	**March 2017**	**8 Months**

Reasons for Delay-

- Civil work delay
- Changes in the type of lights led to delay in service work completion.
- Addition of new areas further led to changes in the HVAC ducting as per the drawings of new areas. This rework led to delay in project completion.

Recommendations to avoid schedule overrun-

- Introduction of any new item should be done after proper Research and development.
- Any area demarcation should be in proper manner.

Table No. 9

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Equipment Procurement and Installation	**June 2016**	**March 2017**	**9 Months**

Reasons for Delay-

- Receiving of equipment's like MRI Machine, CT Scan Machine etc. was done when not even 65-70% of the hospital structure was ready. This led to cost overrun in maintaining the equipment for such a long period of time.
- Early receiving of equipment also caused a risk to the security and maintenance of equipment as the structure was not ready and equipped to shelter the equipment.

Recommendations to avoid schedule overrun-

- Any work which requires attention of various departments/people should be done or finalized after proper coordination with all the concerned people.
- Analogous estimation model and expert judgment model.
- Realistic schedule for project completion.

Table No. 10

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Interior furnishing and finishing work	**September 2016**	**June 2017**	**9 months**

Reasons for Delay-

- Mock up for furniture items.
- Delayed completion of services work further added to overrun of project in terms of time.
- Avoid use of customized items.
- Use easily available stone (15mm thickness) instead of special thickness(20mm).
- Lack of co-ordination between the services team and finishing .
- Many gaps could not be recognized in the planning stage which led to additional steps during the finishing stage.
    - Spaces between two adjacent rooms had to be plugged in later stages.
    - Gaps between the façade and staircases had to be closed later on.

- Work should be done as per BOQ instead of extra items.
- We should go for basics not on luxury items.
- Introduction of any new item should be done after proper Research and development.

Recommendations to avoid schedule overrun-

- Scrutinize the drawings.
- Furniture mock up.
- Avoid use of customized items.
- Use easily available stone (15mm thickness) instead of special thickness (20mm).
- Work should be done as per BOQ instead of extra items.
- Repetition of change should be avoided.
- Before putting any plan into action we should think of maintenance and operational issues related to that plan.

Table No. 11

Milestone Description	Planned Completion Date	Actual/Revised Completion Date	Delay (in months)
Commissioning of Hospital	**November 2016**	**July 2017**	**8 months**

Reasons for Delay-

- Execution of software on site has taken more time than required and many changes were executed in the software as per the requirements raised at site.
- Changes in the furniture led to delay in arrival of new modified furniture.
- Changes in the signage's in the final stages caused further delay in the project.

Recommendations to avoid schedule overrun-

- Furniture mock up.
- Avoid use of customized items.
- Repetition of change should be avoided.
- The requirements of the client have to be clear in the planning phase itself rather than making changes in the final stages of the hospital.
- Sub stations should be properly planned.

CONCLUSION

- Estimating the time to complete a construction job is the key to a successful project management. An overly optimistic project completion schedule only adds to the loss incurred by the organization in terms of cost but also the opportunity lost due to the delay. Delayed project affects the organization in terms of -
  - Time loss
  - Loss of opportunity
  - Interest charges
  - Imprecise cash flow
  - Cost of recruited manpower
  - Delayed breakeven point.

LIMITATIONS OF THE STUDY

- The study was based on secondary data.
- Interviews could not be conducted with a few stakeholders like the architect, the vendors to better understand the reasons of delay in various activities.
- A lot of data could not be shared because of the confidential nature of the data.
- Many phases of the project had already been completed and hence proper analysis of the reasons for gap could not be identified in certain cases.

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