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ASSESSMENT OF THE PHYSICAL SPACE UTILIZATION AND LAND USE FOR HEALTHCARE FACILITIES IN AHMEDABAD

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Abstract: Infrastructure forms a critical path of health services delivery in any country. This can be looked at the progress in physical infrastructure, available healthcare facilities and the challenges faced by the health infrastructure. It is an important indicator to understand the health mechanisms in the state. The study covers the impact of reforms on infrastructure and provides some recommendation for improving health infrastructure to ensure the better services to people in future. This covers the land use and space utilization for healthcare facilities for the people. The health infrastructure is developed using health inputs like the number of various dispensaries, clinic, and government as well as private hospitals

Keywords: Health infrastructure, Land use, Space Utilization, Hospitals



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INTRODUCTION

Health infrastructure is an important indicator for understanding the health care policy and welfare mechanisms in the country. It signifies the investment priority with regards to the creation of healthcare facilities. India has one of the largest populations in the world coupled with this widespread poverty becomes the serious problem in India. The country is geographically challenged and is due to its tropical climate and it causes the diseases. The cumulative effect of poverty, population load, and climatic factor India's populations is seriously causing diseases.

There is the problem of lack of resources which have made the health system unaccountable and disconnected to public health goals and inadequately equipped to address peoples growing expectations[1]. The estimated total investment of Rest 74,000 crore consists of a whopping projected Rest 33,000 crore for capital investment required for building up the battered health infrastructure alone[1].

The public health commission recommended that an institutional infrastructure which constitutes of a number of autonomous and self-financed bodies is a bare minimum to cope up with the health situation in India. Thus, in the period of about 60 years, the problem of health infrastructure has remained unresolved[1].

1. OBJECTIVES

To identify the lacunae in existing healthcare facility. To develop suitable physical healthcare model and give recommendations in Ahmedabad. To give suitable advisory healthcare infrastructure. Assessment of healthcare infrastructure require for Ahmedabad city.

2. COMPONENTS OF HEALTH INFRASTRUCTURE

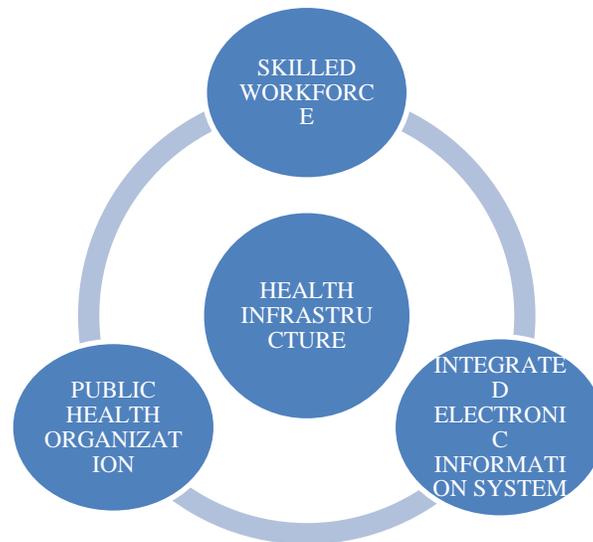


Figure 1 Components of Health Infrastructure

As mentioned above; health infrastructure is one of the most important and significant parts for the effective development of any state. The health infrastructure is further divided into three main components as stated: 1) Skilled Workforce, 2) Integrated Electronic Information System, 3) Public Health Organization [1]. The worldwide development of health infrastructure and services has increased founded on public-private partnership [2]. Led by the benefits of this procurement model government felt tempted to engage themselves in long-term contracts for the provision and management of healthcare facilities under distinct schemes [2].

3. IMPORTANCE OF HEALTHCARE INFRASTRUCTURE

The public infrastructure in India is becoming more and more inaccessible to the public at large because of inadequate government healthcare services and a high cost of treatment at the private medical institution [1].

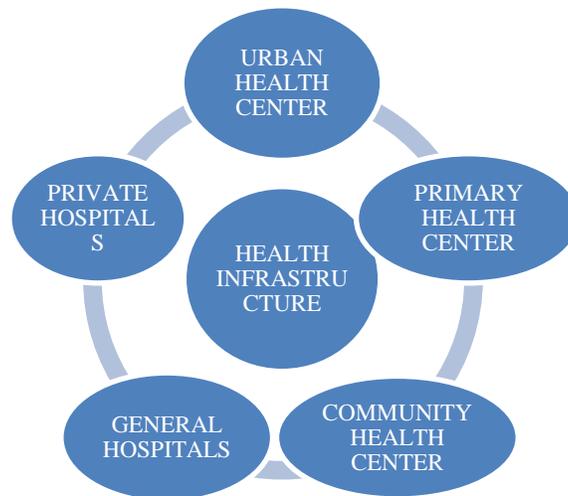


Figure 2 Types of Health Infrastructure

A healthcare infrastructure is developed using health inputs like numbers of hospitals and dispensaries, number of beds and number of government hospitals[3]. Flexibility is an important value driver for hospital infrastructure in a highly unpredictable healthcare environment. It has some principles for the articulation of the value of flexibility to enable an economic case for health infrastructure[4].

Issues related to institutions, financing, and policy are discussed in this content of critical need gap and the potential role of private healthcare facilities is explored[5]. It focuses on the relationship of infrastructure for health services people. The area covered is follow on the terms of references given by World Health Organizations[6].

It provides comprehensive primary health care to the community through primary health centre to achieve and maintain an acceptable standard quality of healthcare[7]. It is based on the particular study of the health infrastructure.

A significant observation from this review is that there are many more well- developed tools are recognized[8]. The role of caricature in development of healthcare facilities is as old as itself. It has responded to change need of health sector of other life [9].

For example, the size of a district hospital is a function of the hospital bed requirement which in turn is a function of the size of the population it serves. In India the population size of a district varies from 50,000 to 15,00,000. For the purpose of convenience, the average size of the district is taken in this document as one million population. Based on the assumptions of the annual rate of admission as 1 per 50 population and average length of stay in a hospital as 5

days, the number of beds required for a district having a population of 10 lakhs will be as follows: -

➤ The total number of admissions per year = $10,00,000 * 1/50$
 = 20,000

➤ Bed days per year = $20,000 * 5$
 = 100,000

➤ Total number of beds required when occupancy is 100% = $100000/365$
 = 275 beds

➤ Total number of beds required when occupancy is 80% = $100000/365 * 80/100$
 = 220 beds

4. CURRENT SCENERIO AND DATA COLLECTION OF HEALTH INFRASTRUCTURE IN AHMEDABAD CITY

Ahmedabad city is the largest city in Gujarat state and fifth largest city in India with the population of 8 million spread across 192 sq.km. The city of Ahmedabad is nearly 7 million dwelling units of which 50% are situated in 2500 slums housing approximately 1.5 million people[10]. This type of slum society needs a special attention.

Ahmedabad Municipal Corporation attaches considerably significant to health care, allows 10 - 12 % of its budget to the health sector and subsidies the cost of healthcare by offering its services through its network of 70 centres consist of dispensaries and general hospitals[10]. The state government of Gujarat has large civil hospitals of more than 2000 bed in Ahmedabad city. Ahmedabad also a large network of more than 3000private healthcare facilities[10].

➤ There are various norms to construct a hospital [7]:-

Table 1 Norms for Hospital

| SR NO | MINIMUM LAND AREA REQUIREMENT | |
|-------|-------------------------------|---|
| 1 | Up to 100 beds | 0.25 to 0.5 hectare |
| 2 | Up to 101 to 200 beds | 0.5 hectare to 1 hectare |
| 3 | 500 beds and above | 6.5 hectare (4.5 hectares for hospital & 2 hectares |

| | | |
|---|-------------------|--|
| 4 | General hospitals | 80 to 85 sq.kms per bed service area such as waiting space, entrance hall, |
| 5 | Clinic | 7.5 hectare |

The above table says that how much requirement of bed is there that much amount of area will be used to construct a hospital if it is 100 beds or 500 beds. As per the requirement, only this should be constructed in the city[7].

➤ The various data are collected from the different part of the city: -

Table 2 Zone Wise Area

| SR NO | ZONES | ACTUAL AREA (in | PROPOSED AREA (in Sq. | PROPOSED AREA- ACTUAL |
|-------|--------------|-----------------|-----------------------|-----------------------|
| 1 | NORTH | 41.54 | 53.84 | 12.3 |
| 2 | SOUTH | 94.26 | 109.85 | 15.59 |
| 3 | EAST | 78.52 | 84.92 | 6.4 |
| 4 | CENTRAL | 16.6 | 19.03 | 2.43 |
| 5 | WEST | 57.53 | 60.79 | 3.26 |
| 6 | NEW WEST | 178.76 | 181.19 | 2.43 |
| | TOTAL | 467.21 | 509.62 | 42.41 |

➤ The above table shows that how much actual area is there and how much-proposed area is required so that it gets the minimum percentage of the area which is required in future in that it will know that in future how much space will be required to construct the hospitals.

➤ The data of general hospitals are as follows: -

Table 3 Data of General Hospital

| SR NO | NAME OF HOSPITALS | OF | ACTUAL AREA (in | PROPOSED AREA (in | PROPOSED AREA – ACTUAL |
|-------|-------------------|-----|-----------------|-------------------|------------------------|
| 1 | Sheth General | V.S | 80 | 82.5 | 2.5 |
| 2 | Sheth Municipal | L.G | 82 | 84.32 | 2.32 |

| | | | | |
|--------------|--|------------|---------------|-------------|
| 3 | Smt Shardaben Chimanlal Lalbhai Municipal | 84 | 85.62 | 1.62 |
| TOTAL | | 246 | 252.44 | 6.44 |

- The above table shows that the construction and area of general hospital should be according to this table.
- In these the top 5 private hospitals took for my research to see despite having large hospital they also require more space to construct a hospital future. The data of private hospitals are as follows: -

| SR NO | NAME OF HOSPITAL | ACTUAL NO OF BED | PROPOSED NO OF BED | PROPOSED BED – ACTUAL BED |
|--------------|-------------------|------------------|--------------------|---------------------------|
| 1 | APOLLO HOSPITAL | 282 | 400 | 118 |
| 2 | CIMS HOSPITAL | 350 | 500 | 150 |
| 3 | SHALBY HOSPITAL | 200 | 450 | 250 |
| 4 | STERLING HOSPITAL | 310 | 520 | 210 |
| 5 | ZYDUS HOSPITAL | 550 | 800 | 250 |
| TOTAL | | 1692 | 2670 | 978 |

5. PRESENT DATA ANALYSIS AND RESEARCH OUTCOMES

From the present research, it can be seen that in every zone there should be minimum 10 to 12 % area is required to construct in the city as healthcare infrastructure. There is a requirement for norms and guidelines for future development in such cities. Same in general hospital there is 15 to 20 % area is required to construct in future.

This research shows that in future; the more population will increase the more hospitals should be constructed so that it doesn't have to go very far for the treatment and it doesn't cause any factual.

It is further discussed that the more researchers it does the more outcomes will comes in a significant manner. In this research outcome, there will be a higher number of population requirement so that the area of land utilization will be more and the space required will be more.

The further it can be analyzed by showing through google earth maps they are as follows: -

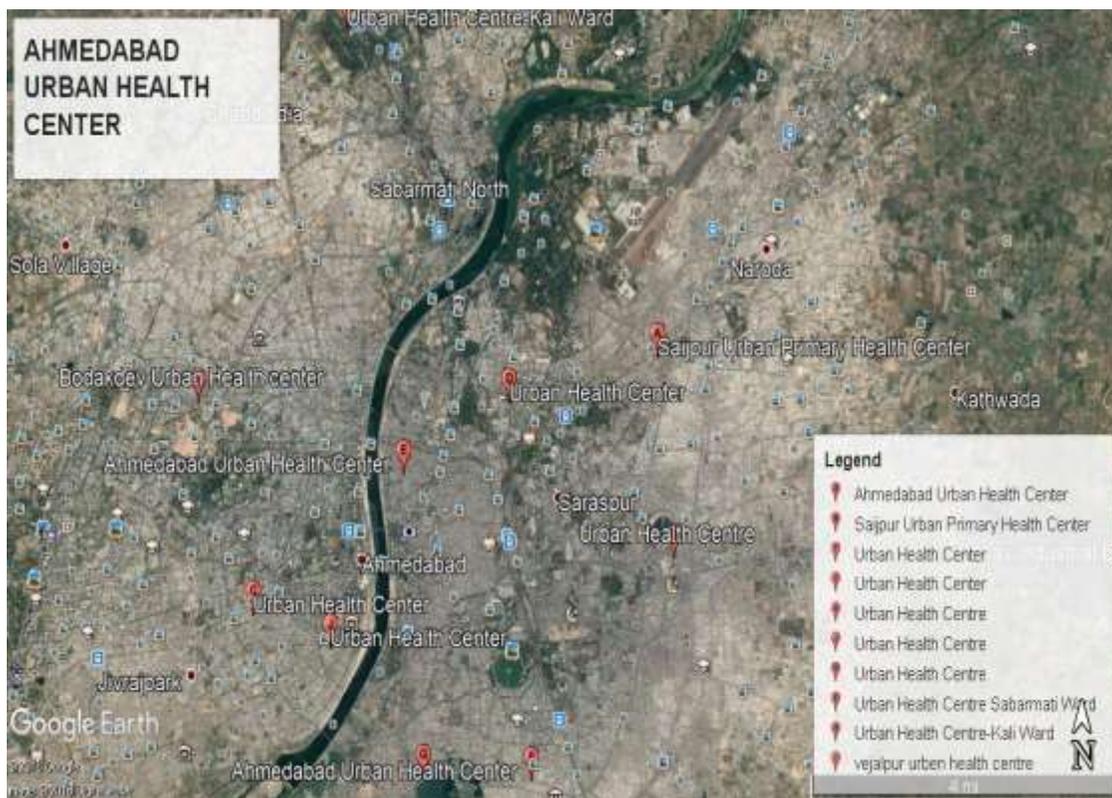


Figure 3 Ahmedabad Urban Health Center



Figure 4 Ahmedabad Primary Health Center



Figure 5 Ahmedabad General and Private Hospitals

6. CONCLUSIONS

Health infrastructure is an important part of the human kind, therefore if these are too being developed in the vicinity of people habitation then will help people to reach in time to the medicinal treatment and cure their diseases and it will be helpful to mankind. Hence, it is

important to efficiently use the available land and space with prescribed government norms and this research provides the way forward to that; which will help government officials to use the available land in an effective and fruitful way. It will be proved useful for the developing area which will be developed in the upcoming year by 2020 so that from known onwards it can be a plan and construct the infrastructure.

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