With required. the social function of the

With increasing demand on hospital beds, planning for expansion at a future date should always be kept in mind right at the outset while choosing the site.

Therefore, the site should be large enough to enable future expansion and growth. However, strategic sites large enough for the project requirement may be hard to find in urban areas. In dense urban areas, a large site near the periphery of the present town is suitable that will, in due course become central to the major residential areas at a later date. Close collaboration with local town planning authorities will pay dividends in choosing the site. The earlier idea that a hospital should always be established on an open site is open to question in large towns and cities. The idea was based on experiences obtained from the pavilion type of wards of old where indeed a large plot was required. The social function of the hospital demands that a hospital should be situated in the heart of society.

Accessibility is the most striking need the location must be within easy reach of the users. This choice means that the hospital does not belong to an empty, uninhabited office area, but in a living and habitable city centre. Defining catchment areas in large cities is a first step in deciding the location, subject to availability of suitable sites. In crowed localities seldom will there be a building site of the usually accepted acreage (2.

5 to 5 acres per 100 beds) available in a central place.

(ii) Land Requirements:

Determining the requirement of land depends upon many factors. In rural and semi-urban areas, plentiful land may be available permitting the hospital

to grow horizontally. However, in urban areas there will always be great premium on land and the only available avenue will be a vertical growth.

However, the degree of crowding on a site is considered in terms of floor area ratio (FAR). It is the ratio of the total covered area on all floors of a building to the total area of the site, i. e. if a hospital building standing on a plot of land measuring 12, 000 sq.

metre has four floors, each floor having 1, 500 sq. metre floor area (total floor area on all floors 6, 000 sq. metre) the FAR at this site will be two. A floor area ratio of one represents a building whose added-up floor area of all floors equals the area of the plot of land.

This would mean that if a hospital is a two-storey structure, half of the area will be covered with building, and the remaining half available as open space for parking, approach and internal roads, lawns, garden, etc. A plot ratio of 2: 1 is the highest that should be considered for hospital development, and that this ratio is acceptable only in the centres of cities, where a high density of buildings is the rule. When a limited site is the inevitable choice for a new hospital, the hospital size has to be limited. Generally, it will be found that hospitals developed at a plot ratio of 2: 1 will give a crowded site, high buildings close to one another, very little open space, and a certain amount of overshadowing and over-looking between the buildings. In suburban and rural areas, a site should be sought that gives plot ratios of 0. 5 to one or less. In practice, hospital development with plot ratios between 0. 5: 1 and 1.

5: 1 is economically the best although a few hospitals in our metropolitan towns like Mumbai have been built almost on “ postage stamp” sites.

Whether the hospital is in rural or urban area, the character of the buildings in the surrounding will also influence the degree of build up on the site. The question remains, as to which form of construction may be the most efficient the high-rise or low-rise, and which shape will be appropriate. Economy, functional utility and ease of operations should be the guiding factors. With modern constructional methods, buildings can rise very high, but there are limiting factors too, e. g.

cost of building methods, planning bye laws, need to allow for expansion, etc. For city dwellers, the hospital complex of imposing buildings poses no great problem. However, for some who live in rural areas, even visiting the rural hospital can be an alarming event. Many hospitals seem to be more intimidating rather than welcoming. Big buildings are impressive; however, even smaller size hospitals can be visually comforting.

A building can make a good situation better or a bad situation worse. A good hospital building stimulates good hospital care. Many building shapes and configurations shown in Figure 2.

3 satisfy the many demands of hospital planning. There are many advantages in a compact hospital but more the hospital is planned as a single, massive block, the more difficult will it be to make effective provisions for growth and change the concentration of departments close to one another means that only a very little space is available for each to expand into. Further, concentration makes it inevitable that the buildings go up to a fair member of storey’s, and to add to a department on the fourth or fifth floor of a block is always difficult and sometimes impossible.

If such a department needs to be expanded, it means taking over space from some adjoining department above or below it. This will involve massive redistribution and reorganization of many departments. Therefore, it is necessary to weigh very carefully the advantages and disadvantages of concentrated versus diffused types of structure. The principal factor in the decision is the predicted amount of change.

(iii) Soil Structure:

In the selection of site, two very important factors that should be looked into the level of subsoil water and the structure of the soil. A preliminary soil survey to determine subsoil water level and the " bearing" quality of the soil will help determine the type of foundation, possibility of constructing a basement, and effectiveness of sewage plant (if it is to be built on the site).

(iv) Public Utilities:

Three other important considerations in site selection are the availability of water supply, sewage disposal system and electric power.

(v) Water:

Water is required for patients and patient care activities in wards and also for the supportive services. The national building code of the ISI suggests 455 litres of water per consumer day (LPCD) for hospitals up to 100 beds and 340 LPCD for hospitals of 100 beds and over.

For planning purposes, the overall requirement of water in hospitals is estimated at about 300 to 400 litres per bed per day. If staff quarters and nurses' hostel are going to form part of the hospital complex, additional

availability of water for these will have to be ensured. Storage capacity for three days requirement must be build at the site.

(vi) Sewage Disposal:

Liquid and semisoild effluent in the hospital originate from all departments and service areas. Solid waste from hospitals is approximately 1 kg per bed per day. Liquid effluents will be about the same as the hospital’s requirement of water, i. e.

between 300 to 400 litres per bed per day. If a public sewage disposal system is in existence in the area, the hospital sewage disposal will be connected to this system. Otherwise, the hospital will have to build and operate its own sewage disposal plant.

(vii) Power:

Requirement of electric power is minimum 1 kW on a per bed per day basis. This includes the needs of all departments and services including power requirement of X-ray department, operation theatres, laboratories, central sterile supply department, laundry, and kitchen. A hospital with many life-support systems cannot afford to remain without power even for a short-time. It is preferable that power supply should be available on a multigrid instead of the unigrid system in general use, so that a continuous supply of electricity is assured to the hospital at all times.

Besides this, stand-by generator is also a necessity.

(viii) Electrical Substation:

A hospital will have its own transformer and electrical substation for distribution of power to various areas. The total substation area depending on the transformers capacity is given.