Health Facility Planning and Design: Priorities of the Profession and Urgencies of Local Needs

Shaheda Rahman

Introduction

Planning and design involves choosing between alternatives so as to achieve the best possible result. In health facility planning and design where change is rapid in every area of knowledge and demand increases faster than the possibility of response this is an extraordinarily difficult thing to do. The difficulty further increases if constrained by limited resources, or inadequate data, or paucity of necessary expertise; all of which are present in Bangladesh

The situation prevailing in Bangladesh is not uncommon in the region. In fact the current trends in developing countries present a common pattern. Although the present difficulties in these countries appear in the form of shortages and inadequacies, these are not simply problem of providing additional resources. The difficulties will not be solved if existing patterns and types of solutions are repeated[1].

This paper attempts to review the problems in this field now faced in Bangladesh, the priorities of the profession, and urgencies of the local need The aim is to identify some of the pitfalls that lie in the path of the planners and designers, to draw attention to the common errors, and indicate as far as possible the conceptual network within which health facility planning and design should take place. Many of the issues discussed here are not all within the control or domain of architects but they directly or indirectly affect the profession. Some of the things stated may appear naive or self-evident but in fact they are not, as is proven by the existing situation.

Existing standards

The general standard of health care facilities in Bangladesh, both in terms of service and physical amenities, is poor. One factor responsible for the poor standard is that in Bangladesh the health care facilities, with a few exceptions, are not purpose-built. This does not imply that existing buildings cannot be utilised for health care facilities which perhaps is a necessary option for countries like Bangladesh. The harmful practice is that the conversion is usually taking place almost without any modification of the existing building necessary for the new purpose. Such a practice necessarily precludes the possibility of rational planning and achieving high standards. The Institute of Post Graduate Medicine and Research (IPGMR) hospital would serve well as an example. It may be noted that this is one of the biggest and best equipped hospitals in Bangladesh.

The IPGMR was founded in 1965, and lodged in the old Shahbagh Hotel in 1970 which had then recently gone into liquidation. The hotel was converted into a 250 bed teaching hospital almost without any modification of the existing structure. The new hospital, consequently did not embody the established planning principles, nor meet the expected norms of a teaching hospital. The planning is irrational and the sub-standard arrangements can be well illustrated by the use of the hotel's single accommodations. Thus 6 metres × 4 metres (approx.) rooms with an attached bath and balcony have been in use as 2-bed cabins, 4-bed ward compartments, nurses stations, treatment rooms, offices and varied other functions as need arose. A ward, normally, consists of a number of these basic requirements but without the functional and rational basis of a ward layout. Whether it be at activity level, or departmental level or whole hospital level the rationale of this hospital's planning is questionable.

A consequence of the existing poor standard, other than poor patient care, is that it results in what might be termed as the 'disorientation of the users'. The users, because of their intimate knowledge of the institutions, are pivotal factors in planning and design of health care facilities. In Bangladesh, however, by working under stressful conditions in sub-standard facilities the users tend to become apathetic and often lose their ability to identify and define what are the desired and/or optimal conditions. Hence, they fail to make a positive contribution to the design process.

The process and the product

Presently in Bangladesh there appears to be a general nescience in the planning and design of health care facilities. The decision-makers, owners, users, and the design professionals are apparently insensible to the particular need and nature of the problem and the related principles of planning and design that are well established today. At the core of the designer's dilemma are two related problems. The first is getting comprehensive information on the project to which he is assigned or engaged. The second is having the support of necessary functional and technical data. To this are added his own limitations of not being a specialist in the specific area of concern.

The apathy and ignorance of the client (owner and/or user) to his own role, and his responsibility to the designers are to a great extent responsible for the first encumbrance. The absence of necessary expertise in the relevant bodies is perhaps responsible for this situation More importantly the concept, the intent, and content of an individual or type of health care facility specific to the country's need and socio-economic context is yet to be defined and quantified on a rational and pragmatic basis

Health facility planning and design is a specialised field. The expertise and special knowledge that complex medical buildings require are held to be beyond the competence of most architects in general practice, unless specially trained or sufficiently experienced. In Bangladesh there is a paucity of such expertise The country's health facility planning and design programmes are of too recent origin to present the opportunity of learning through practical experience to the designers The absence of a comprehensive development programme for health care facilities also disrupts the continuity of skill and negates the possibility of learning. Moreover, the uncoordinated structures and irrational techniques followed with the resultant unhappy solutions offer little to further professional experience or knowledge

Another handicap experienced is the absence of good documentation of information on the projects at the different stages of planning and design. Programmes, policies, and design decisions their rationale and results are never properly recorded at any point. This leads to a waste of information gained in a project.

The inadequacies of the present system may be summarised as follows:

- Health care facilities are being built, often as a direct response to an immediate need, without proper planning or programming.
- The programme, if any, is based on arbitrary priorities and an irrational basis with minimal forethought to organising and scheduling, and to the methods and means of running the facility.

Briefing and design are separate processes performed by separate bodies namely, the Ministry of Health and the Public Works Department. The link between these two responsible bodies and thereby between brief and design is weak. The only existing link is the 'P-Form' (brief) which is basically an incomplete schedule of accommodation and of little value as a basis for design.

The design is an uncoordinated process. A health facility project, like any other development project, is looked upon as a collection of independent design components viz. architectural, structural, mechanical and electrical, and each is assigned to the corresponding specialists without the desired collaboration between the different disciplinary groups at the various stages of design. Thus the final outcome is anything but satisfactory. The absence of norms, standards and regulations on hospital construction and equipment further impinges on the rationality of design.

In the absence of a proper briefing method it becomes necessary for the consultant architect to restructure the development programme through discussions with the client. While discussions are necessary even if a proper brief is provided, the present mode of communication has several disadvantages. For instance, the programme developed is deficient with omission of important facts which later result in serious design deficiencies. Secondly there is overlapping of planning and design activities with waste of valuable time and energy of all concerned.

The above situation applies to the profession in general. What is important to realise is that these inadequacies, while not critical for many building projects viz. offices and flats, are a serious handicap in the health facility projects. This is particularly true for hospitals which are among the most complex buildings with stringent functional and technical requirements.

An example

The new development scheme of IPGMR is a typical example of the hospital planning and design process described in the foregoing. As the existing IPGMR hospital, discussed earlier, was functioning at great cost and inconvenience a decision was taken to construct a new nursing unit and a proper operating theatre suite. Ten years after its inception approximately two-thirds of the project has been completed. The completed sections have been commissioned and functioning since December 1984. As the new purpose-built hospital units are coming into use several irrevocable design deficiencies are coming to light. For example, in the ward to reach a patient's bedside with a trolley it is necessary to move the

adjacent bed as well as the two on the opposite side. There are many other patient areas in this building where the doors and passages are not wide enough to allow movement of patients on trolleys.

The design of the whole unit i.e. the grouping of beds, the design of the wards, and the design of the operating theatre suite, all reflect a lack of comprehension of the hospital functions, the design objective and the principles of planning and design of hospitals. For instance in designing operating theatres it is advisable to centralise all theatres for flexibility and efficiency of use, better management, and economy in deployment of staff and thus reduce running costs. By improving utilisation it can lead to savings and avoid duplicating ancillary accommodating. The operating department should be designed so that, with few exceptions, any theatre can serve any purpose. 'One-off' design should be minimised in the interest of long-term flexibility. It is also usual for theatres to be designed in pairs[2]. In this particular case the operating department called for 13 operating theatres. These have been provided distributed on different floors, at different ends attached to different specialities in different combinations viz. one, two, three and four. Moreover the separation of clean and dirty zones which is a primary consideration in design of operating theatres has not been successfully achieved in all the theatre suites.

While the design professional's responsibility must be admitted in any design deficiency it is equally important to acknowledge that the final outcome of the project is not solely dependent on the design or on the efficiency of the designer. Much of the present difficulties can be attributed to the fact that the planning organisation, decision making and information system required to meet the need of the client, planner and designer is non-existent.

A principled approach

If progress is to be made in this field then three things need to be done with utmost care. Of primary importance to the success of health facility projects is effort, time and consideration given to organising and scheduling, development of programmes and development of design[3].

- The first task in a health facility project is to describe the conceptual network in which decisions are to be made. It needs to be ensured that policy, management and design decisions will be made in a logical sequence at appropriate levels and at the time required. The establishment of an organisation and system for making and communicating decisions involves definition of roles and responsibilities, it is sometimes assumed that these are self evident when in fact they are not. It is also very important that all members i.e the owner, users and the design and construction team, are aware of their responsibilities and the schedule Health care facilities can become obsolete, at least in part even before they can be built. Hence relevant to successful projects is agreement to and achievement of a starting and completion date.
- The danger and pitfalls of incomplete and improper programming hardly needs to be emphasised. Even a hospital architect with previous experience cannot be expected to solve the multifarious details of a hospital without a proper brief[4] The thoroughness with which a programme is prepared determines the success of the project. A programme as the very basis of design should be completely comprehensive, anything less is baffling[5].

  The preparation of the programme is the responsibility of the owners, in most countries the government and as such a public matter. The development of programmes for health care facilities is a tremendous responsibility, and too complex to be left to amateurs. Ideally this should be the responsibility of a multidisciplinary planning team composed of the representatives of the decision-makers, users, and the members of the design and construction team. The proposed team, to function smoothly need a common frame of reference and, to attain a common orientation the members of the team should be educated and trained in this discipline[6].
- In designing health care facilities it is important that the design team works under the guidance of an expert. Health care facilities are complex projects even if no greater technologies are concerned. Health facilities, particularly hospitals, deal with most stringent functional and technical requirements which if not satisfactorily met can seriously cripple the hospital system[7].

The responsibility of the designer is to design an efficient shell to enhance the smooth functioning of the facility and to account for the future growth and change. A hospital is always a conglomerate of different departments that have their own internal character and very delicate interrelationships which the designer needs to take into account. To make a hospital work in parts as well as a whole is the essence of hospital architecture. This further demands an approach to the design of a hospital as the design of a system rather than a building. Thus the dictum 'form follows function' still holds good in hospital design[8].

Today the identification of growth, change, and development has the highest priority in hospital design. The need to design for change stems from two inevitable conditions:

- Increase in demand for health service.
- Progress in medical science and technology inducing change in techniques and procedures

Both at the whole hospital level and departmental levels radical change of functions must be expected within the life time of the facility. These changes in our low technology hospitals may be slow but are inevitable. One approach to the problem is to have loose-fit, open-ended plans with room shapes and sizes which accommodate a greater range of activities, and an open modular structural frame, rather than frozen finite shapes tailor-made to the particular need of its first users

As changes in a hospital involve not only the building fabric but also the services the hospital engineering should also be designed to accommodate growth and change. It is important, therefore, that the design is an integrated continuous process with the professionals working together as a team and all aspects of design being developed in parallel[9].

In designing hospitals it should be remembered that it deals not only with stringent functional requirements of medicine, which is a highly involved and specialised complex of scientific disciplines but that physical facilities are expensive tools. Not only the initial investment is important but the operating cost is an ever increasing burden which has to be borne year after year. In developed countries the initial capital investment is equalled in three years by running cost. This period may be somewhat longer in our low technology hospitals but considering that the physical facilities are built for some hundred years they need to be planned and designed with more rationale. The aim of the design in health facility projects should be efficiency and economy.

Priorities

Presently, the greatest need in Bangladesh is:

- to understand the specific situation and specific limitations and the possibilities that exist within the area.
- to develop the necessary expertise in the relevant responsible bodies.
- to organise the procedure and set up a system for planning and design of health care facilities.

Obviously there is a great need to develop the necessary professional expertise but that by itself will not be enough. If any real progress is to be achieved in this field then considerable client expertise has to be developed. A training programme should be initiated by the Ministry of Health with the objective of developing multi-professional planning and design teams.

In view of the country's limited resources and urgency of the local need, it is advisable to develop 'a core multi-professional planning and design team' in the Health Ministry either to undertake the work themselves or to scrutinise critically the work of others commissioned to do it on their behalf

It must be understood that the planning team and the planning machinery can perform well only when the necessary data is available. It is necessary, therefore, first to identify the scope, the intent and content of the health care facility on a scientific and pragmatic basis before proceeding to plan and design for it. This would be possible only after the existing facilities are properly evaluated with the objective of creating realistic criteria for the development of the much needed 'local model'.

Architect in the changing environment

It may be wondered why architects need to be concerned with multifarious details of planning and programming when the complex design of health care facilities is all absorbing. The obvious reason is that design is but one albeit important phase in the total process. What precedes or follows influences the final outcome. Since it is the architects who have to shoulder the responsibility of the building designed it is important that they understand not only the elements which make a hospital or a health centre but also the forces which shape and mould these institutions. Thus to design the health care facilities it calls for an area of knowledge which is not necessary in other design projects[4].

In health facility projects the role and responsibility of the architect is not confined to design only. The participation of the architect in the development of the brief is considered to be a basic necessity. In other words the involvement of the architect should begin with the very inception of the project and continue till the commissioning i.e. until the facility is put into use[3].

In planning and design of health care facilities the role of the architect, in the local context, is even more involved. The classical mental process, analysis (programme) followed by synthesis (design) is not valid. One does not occur before or after the other, they are intermingled together. The architect, of necessity, has to create to least some information by his own research. A wealth of information exists in the world today on health facility planning and design. It is possible to draw on this and to adapt it to suit one's own requirements.

It needs to be stressed that the architects are not mere technicians. They have a key role play in the design process Today they are in a unique position to

influence the health apparatus through design — what it is, what it could be, and how it can change If architects wish to live up to the role of the leader and coordinator of the design process then they must avail themselves of the knowledge and experience from the most diverse fields and apply it to the problem at hand[9]

Conclusion

In conclusion it may be said that the present issues on health facility planning and design are not merely problems of today. Health is a basic human right and the demand for health services never slackens Consequently, the demand on and for physical facilities will never decrease The responsibility is therefore to design a system that can grow and change with time. The urgency is to understand the specific situation, the limitations and the possibilities that exist in this field It is important to realise that health care facilities are complex buildings and call for special knowledge and expertise which must be made available and desirably through training of local experts.

Many of the current problems can be mitigated within the given resource base through better planning and organisation However by and large any change has to be a deliberate one and cannot be left to chance. Bangladesh cannot afford the continued luxury of haphazard planning and design Her resources are very limited, any mistake is usually very expensive for the country.

To reach the 'health for all by 2000' target there is a great need to expand the development projects This calls for the concerted effort of all — decision makers, users and professionals. Now is the proper time to organise the effort and the architects have a key role to play in this process