

Strengthening Housing and Urban Development Division

With Special Reference to Thimphu, Capital of Bhutan

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Objectives

This report is intended to reflect the general urban situation and housing problem in Bhutan with a special reference to Thimphu, the capital city of Bhutan. Further, an attempt is also made in this report to highlight certain strategies and recommendations for solution to the housing problem. The various actors in the housing development program are defined and their roles were highlighted in the context of Bhutan Government's system of running the country. Finally, some specific design issues of houses are also covered in the report followed by recommendations and conclusions.

Population Density	13 inhabitants/Km ²
Government	Monarchy
Religion	Bhudhism & Hinduism
National Language	Dzongkha
Currency	Ngultrum (1US\$=42Ngultrum)
GDP	580 US\$
Literacy Rate	42%
Life Expectancy	58 years
Main Income Source	Timber, Agriculture, Cement, Hydro-Power

Brief Country Background



Figure 1 Bhutan and its neighbouring countries

Population	600,000 (0.60 Million)
Area	47,000 Km ²
Capital	Thimphu with 30,000 inhabitants

Hidden deep in the folds of the great Himalayan Mountains for years, Bhutan developed its own civilisation. The population of about 600,000 people, living in close harmony with nature, evolved a unique identity, derived largely from a rich religious and cultural heritage.

Today, the world is seeing many exotic aspects of this kingdom. Bhutan is becoming increasingly known for its pure practice of Mahayana Buddhism in the Tantric form, its untouched culture, its pristine ecology and wildlife, and the unparalleled scenic beauty of its majestic peaks and lush valleys. It is still, in many ways, magical kingdom of the past.

Yet it is inevitable that Bhutan is changing. Three decades of development have had dramatic impact on the kingdom which has moved, in short span of time, from the medieval age into the 21st century. The essence of modernisation in Bhutan has been a blend of tradition and progress. The protective Bhutanese psyche, which kept the kingdom in a jealously guarded isolation, is visible in the controlled tourism policy, strong sense of environment protection, and the careful pace of all-round development.

Bhutan has long decided that economic achievement is no replacement for its unique national

identity. In the past, the kingdom fought aggression, in different forms, to safeguard its interest, its priorities, and its identity. The future will be no different.

Problem

Urban Situation

Bhutan, like many developing countries, is passing through a rapid urbanisation. Over the past couple of years, there has been significant urban growth exerting pressures on the limited urban infrastructure services and particularly the housing stock. Demand for housing far exceeded the supply. This, as a matter of fact, reflects that the urban issues are assuming greater scale and dimensions. Housing shortage, inadequate and unplanned infrastructure services, land disputes, congestion and rather poor sanitation pose considerable challenge affecting the overall quality of urban environment.

Housing Scenario in Bhutan

The concept of housing is still not clear to the professionals working for the housing sector. It is because of the fact that there are no persons trained in the subject. Housing, therefore, is never taken as a serious concern by the government, which has resulted in people living mostly in the private rented houses with very high rents.

The urban dwellers are now more or less becoming the victims of private house owners. The government built few houses many years back and allotted them to the government employees on the rental basis. The government employee occupied these houses for the past many years on paying rents, which contributes to about 30% of their monthly income.

Analysis on this shows that most employees have by then paid an equivalent amount or more for the cost of new houses. Another and more critical is the people living in the private rented apartments and houses. Almost 30% to 40% of their income go to the rent and there is no rent regulation or any legal framework to control the rents.

Housing shortages for all income groups, particularly the middle and low-income groups has now become a critical issue in all the fast growing cities of Bhutan, especially Thimphu, the capital of Bhutan. Most of the existing housing stocks were not in good condition as the concept of maintenance is rather poor and the landlords do not want to invest in the maintenance as they know the tenants have no other alternatives. The landlords under the present situation of housing shortage and lack of rent control legislation are enjoying such advantage.

Housing in Thimphu

The fastest growing city of Bhutan, Thimphu, and also the capital of the country have been experiencing the housing shortages over the last couple of years resulting in the shared and poor accommodations for many. This has also resulted in inadequate basic infrastructures like water supply, sanitation, parking areas, schools, pedestrian walkways, etc.

Similarly, other towns in Bhutan are also following the footsteps, which indicates that the urbanisation is now the fact of life in Bhutan. The Royal Insurance Corporation of Bhutan (RICB) which is also a real estate company and a semi-government body has



Figure 2 Class IV government quarters in the heart of Thimphu City

produced quite a good number of apartments in Thimphu. These apartments comprise 1st, 2nd, 3rd and 4th class category and are all occupied by the government and semi-government employees. Despite the fact that the housing shortage is still pre-dominant and the demand for housing is exceptionally high, the RICB have not taken any initiative to produce more houses for the last many years. Even, the government has never looked into this situation seriously.

Moreover, these apartments do not receive timely maintenance despite the repeated complaints by the tenants. This has resulted in the deterioration of many apartments affecting the overall quality of house. These apartments also lack the facilities like kindergartens, proper road network, street lighting, parking facilities, etc. This is an indication of how housing is looked upon. Housing is taken in isolation, seen as a structure and nothing else, by the developers, as they have not yet understood the concept and importance of housing. This is exactly the same in the case of government built houses. Over the past, the government has built many houses of different categories like 3 storey apartments for low and middle income groups, 2 storey apartments for middle income groups and quite a good number of single storey houses for all classes. These single storey houses were built quite haphazardly without making judicious use of land.

The housing shortages and the acute demand for housing could be clearly reflected by the large numbers of people looking for houses to be rented and

the very long waiting list of applications for the government house and RICB apartments. Also, many of the private rented houses are not of appropriate standard vis-a-vis the rent they collect from the tenants. This is mainly because of the housing shortage and also due to the lack of rent control by the government.

Urban Development in the Past

Bhutan started its town planning activities only during the 1970s with a handful of people working on it. There were no qualified persons in the field and the importance of town planning was not fully recognised at that time. Later, during the 1980s, with more advancement in the field of development, government started realising the future impact, if town planning were not done carefully from the scratch. With this in mind, the government under the financial and technical assistance from UNCHS/UNDP has initiated the programme under different organisational set up National Urban Development Corporation (NUDC).

The NUDC, however, did not have the professional institutional capacity to fill its urban development responsibilities effectively. There was no policy and legal framework in place to guide urban development. Housing did not receive the importance it deserved. The Ministry of Finance was only involved in repairs and maintenance of the government built houses and its allocation to the civil servants on the rental basis. The housing unit/body of the Public Works Department was only responsible for the structural design of government buildings, scrutiny of private structural drawings and estimates for deposit works. There was no agency specifically responsible to guide and develop the overall housing and urban development programme.

Land Disputes

Land disputes and illegal encroachment on the government owned land is one of the common scenes in Thimphu. Many such cases arise during the land transaction and also at the time of house construction. Large portions of the urban land were private owned, without proper land demarcation. Whenever, such disputes arise, the municipal authority gets into picture which is both complicated and time consuming.

Pattern of Existing Government Office Location

Currently and over the past many years, there were no specific areas or zones for office accommodation. Most of the government offices are scattered and, even worse, some departments occupy several houses in different parts of the city, which causes lot of difficulties in the normal functioning of the office. Most of these offices were rented in the private houses because the owner receives high rent from the government. This is in one way, one of the root causes

for housing shortages because most of the houses built for residential purposes were rented for offices. It has now become the tendency and interest for many private house owners/builders to opt for renting or building their house for office spaces.

Lack of Rent Control, its Impact and Consequences

The high rent set by the private house owners in Thimphu have resulted in a significant impact on the low and middle income groups as regards to the question of affordability to the decent housing. The government rental houses were far inadequate to meet the demand of low-income groups and also at the same time lack maintenance. This has resulted in the practices of shared accommodation with inferior living standard. The house rents in Bhutan have become like a commodity in the shops. This has led to an increasing public awareness of the critical situation of housing in the towns, especially Thimphu and Phuentsholing, the two fast growing cities. Housing shortages has therefore become one of the major concerns, often expressed in the Bhutanese local newspaper by the urban residents.

The reasons for such shortcomings may have resulted because of the following reasons:

- No specific agency to address the housing program.
- No specific agency to monitor and control the rent.
- Inadequate provision of both government and private sector house.
- High rent.
- High cost of urban land and construction making private housing inaccessible to the low and middle income groups.
- Lack of private sector involvement and participation.
- Lack of stable, sustainable and viable long and medium term home financing.

Strategy

Having noted the problems and its implications felt today, it is imperative now to develop effective strategies for the future housing and urban development programmes in Bhutan. The following points strike my mind. I have tried to list them below as a strategy for the Housing and Urban Development Division.

General

- To develop a clear understanding of the housing and urban development concept in all professionals involved in the housing programme. They should have a clear understanding of the Habitat Agenda.

- The aim and objectives of the housing and urban development programme should be clear not only to the top level, but also more importantly, it has to be understood by the middle and lower level sub-ordinates working for the organisation.
- The roles and responsibilities of the Housing and Urban Development Division have to be clearly defined and disseminated to all actors likely to be involved in the program.

Strategy for Specific Problems

Institutional Establishment

How housing and urban development is conceived in the past needs a radical change. Proper urban development policy and legal framework need to be developed along with the proper land administration practices and town planning to guide the over-all urban development process. This could only be possible if a proper institutional arrangement is launched for addressing the housing and urban development issues.

It is with this strong mission that the government strongly initiated the establishment of new organisational set up under the name *Urban Development and Housing Division*. This new organisational set up should play a crucial role in revitalising the urban development process and bring tangible changes in the housing and urban development.

Urban Land Utilisation

Urban land is as what the Bhutanese people now consider more precious than gold. The cost and its value in the long run are now being fully realised by our people. But it does not mean that a land is used only as a long-term asset without effectively using it for the housing development, which is now the major concern in the urban city.

The government should think over its implication and try to harness the best out of the urban land, both private and government owned. Land is a productive commodity if used effectively and economically for the socio-economic development. A large portion of land within the urban zone of Thimphu is owned by the government and is vacant. This land could be identified for housing development and appropriate housing programme can be formulated to meet the increasing housing demand.

Besides, there are many pockets of land owned by private people whose potential for the urban housing is yet to be exploited. Ordinary government employees in the middle and low-income groups were not in the position to afford to buy these lands, whereby the construction of their individual houses is therefore out of question. But, it is always possible if the government follows the Habitat Agenda's commitment of 'Adequate Shelter for All' seriously. The people have potential to repay the money to the government in the

long run. It only requires that the government needs some responsible Agency to bring forward the plan and programmes in a meaningful way. The Housing and Urban Development Division should therefore take this responsibility to reach the government before it is too late.

Land Taxation

For promoting the efficient usage of land, land taxation may be one of the appropriate solutions. Landowners, despite of possessing a large area of land is not willing to put their land on the market nor do they use it to produce housing. Almost everybody thinks that the land could be sold at a much higher price in the future, which is an obstruction to the productivity of land resulting to many vacant plots.

Taxing vacant land can encourage use and alleviate pressure on the existing building stock. If taxation is brought up to date and implemented, it can stimulate more intensive uses including use of vacant land. It may also stimulate higher densities and optimal use of land, buildings, infrastructure and financial resources.

However, land taxation should be levied according to how much land an individual owns.

Creation of Office Space

Government should formulate a plan and build enough buildings to accommodate the current offices and future requirements. This will not only enhance the productivity of office space, but at the same time will reduce the housing shortages to certain extent.

It should be the strategy of government to allocate sufficient land for the development of office buildings. Government should not encourage renting private building for office accommodation. Its pros and cons need to be studied for the long run from every perspective.

National Housing Loan

The combination of high land prices, high mortgage rates, short repayment periods and the relatively low income of potential purchasers makes the low and middle income people inaccessible to the housing loan from any financial institutions. As this comprises nearly seventy per cent of the total housing requirement, government initiatives to assist this part of the housing market are desirable.

Bearing in mind that almost 3/4 of the housing demand is for class III and IV, major changes in present methods of housing finance are needed to bring lower income earners into the housing market. It is expected that such changes would probably be possible on the introduction of differential interest rates and the flexibility of mortgage system.

General Policy

The ultimate goal of the housing policy should be directed *'To achieve a maximum addition to the housing stock through new construction and upgrading of existing stock.'* This is required to meet the demand resulting from population growth. The long term objective of the government should be to create a conducive urban environment whereby every Bhutanese will have access to decent housing either on home ownership or rental occupier basis at an affordable prices. To achieve this goal, the national housing policy should work for increasing the flow of resources into the housing sector.

The Housing Sector under the general policy framework of Urban Development and Housing Division should have the specific policy guidelines for its smooth implementation of the programmes. The following should be the focus of Housing Sector for the moment, which will be reviewed, and necessary additions incorporated in the future.

- Focus on low and middle-income groups.
- Development of alternative housing solutions.
- Improving urban economies.
- Promotion of greater private sector participation.
- Inter-Agency Co-ordination and linkages.
- Capacity building and institutional development.
- Institutional Co-operation
- Implementation and follow-up of the Habitat Agenda

Approach to Housing Delivery

Introduction

Housing, being the major user of urban land and investment resources, is the principal determinant of the overall quality of the urban environment. It is both a catalyst to socio-economic development and a physical manifestation of advances in living standards. Housing programmes also benefit the national and local economies by increasing the quantity and raising the quality of the national stock of shelter and by generating employment within the construction and associated industries.

Keeping in view, the importance of housing for the individual and particularly for the overall development of national economy, the house delivery scheme needs to be addressed with maximum priority right from the initial stage of development.

Government's Past Policy

Government employees occupy almost three-quarters of the housing stock in all the urban towns of Bhutan. The Royal Government during the 1980s had a policy to provide all the employees with appropriate accommodation depending on their category of income. The general classification of house in Bhutan follows the pattern as shown in table below.

Table 1: Standard entitlement to accommodation for government employees

Monthly income US\$	Class	Floor Size	Space
Grade 1-7 190-425	Class I	120 m ²	Sitting/Dinning 3 bedrooms 2 toilets/baths Kitchen/store
Grade 8-11 120-170	Class II	85 m ²	Sitting/Dinning 2 bedrooms 2 toilets/baths Kitchen/store
Grade 12-14 75-110	Class III	50 m ²	Sitting/Dinning 1 bedroom 1 toilet/bath Kitchen
Grade 15-17 60-65	Class IV	32 m ²	1 room Kitchen Toilet/bath

A survey during 1985 revealed that a total of 2500 employees in Thimphu were entitled to housing, of whom 37% lived in government owned quarters, 33% in accommodation rented by the government and 30% (owner occupied) received a rental subsidy of 15% of their monthly income.

This policy however did not work for a long because of the following reasons:

- The low level of home ownership placing continued financial strain on government not only in terms of subventions to individuals but also by way of maintenance costs incurred directly on government owned dwellings or incorporated into private sector rents.
- Since maintenance is not an obligatory, there is always the danger that some or all the houses may deteriorate overtime.

The government later during the late 80s gave away an idea of providing houses to the government employees. Instead, the government has placed the responsibility to the individuals by consolidating their monthly income with the rental subsidy. Since then, the government's role in the housing sector has disappeared resulting to the current housing shortages and lack of housing policy.

Assessment for Housing Needs for Thimphu

To assess the needs of the lower income groups, the Habitat team in co-operation with the team of Royal Government designed and carried out two surveys during 1985. The first was to establish the current

distribution of dwellings by location and type, the employment status of occupants, rental rates and level of occupancy. The second survey was to determine the number, location and occupancy of hutments. A hutment is defined as any inhabited structure, easily removed, made of scrap or other cheap materials.

The hutment survey showed that almost 2000 people live in about 435 hutments in various locations. In assessing future housing needs a number of data sources from different organization were used to supplement the above survey information. These included maps of Survey of Bhutan, data from Division of National Property and a 1985 field survey carried out by Cowiconsult (Danish Consultancy Firm) as a part of the water supply and sanitation studies. The pattern of housing distribution in Thimphu during 1985 has been compiled as a result of these surveys which is as shown in table 2. Comparison of the number of units and households indicates that during 1985, some 600 households resided in shared accommodation. The average size of a household during 1985 was estimated at 4.39 persons.

Table 2 Housing Unit Distribution, 1985

Class	Govt.		Pr i.		Tot.	
	No. of Units	%	No. of Units	%	No. of Units	%
I	296	14 %	166	20%	773	26%
II	311	15%				
III	1304	60%	475	57%	1779	60%
IV	240	11%	195	23%	435	14 %
Total	2151	100% (72%)	836	100% (28%)	2987	100 %

Based on the above data, the future housing requirements was estimated for the period 2000. The required number of housing units is calculated on two assumptions: an average household size of 4.00 persons per household and an average household size of 4.39 persons per household. It is estimated that the number of housing units required to accommodate the growth in population will range from 3325 to 3540 depending on the household size prevailing over the period to 2000. If all households are to be provided with a separate dwelling then an additional of about 600 class III and IV units would be required over the period upto the year 2000.

Estimated future housing demand for the period 1985 to 2000 is shown in table 3. This gives some idea of housing demand trend in the urban cities of Bhutan.

These studies however remained as a dead document in the shelves and could never be implemented because of the many factors mentioned above. The Royal Government should now fully support the newly formed Housing and Urban Development Division to look into the housing development programme and more importantly the Housing and Urban Development Division should play its role more effectively to bring tangible changes in the housing market.

As mentioned above, it is now the responsibility of the newly formed Institution to look into all these area before setting up any housing programme. The actual survey data and the market trend for housing demand for various category of inhabitants will be necessary and is a pre-requisite for proper planning of the urban development and housing programme.

Table 3 Estimated Future Housing Requirements

Housing Needs	Phase I 1985- 90	Phase II 1991- 95	Phase III 1996- 2000	Plan Period 1985- 2000
Population Increase	3625	4630	5906	14161
Av. House hold size 4.39 4.00	825 906	1055 1158	1345 1476	3225 3540

Mission

The government after having formed a new organisational set up to address urban and housing issues should now take it as a challenge in working for the better housing development programme. The housing sector should work with a mission of providing every urban dweller housing with quality, influence, great variety and responsibility for the environment. Its mandate should be to reach the lowest income groups with the decent and affordable houses in the years to come. To this effect, the Housing Sector of the Royal Government of Bhutan should work with the following objectives:

- The housing sector shall assess the long-term housing requirement of all the urban towns with particular emphasis to the fast growing towns.
- The sector shall conduct the detailed survey of the existing housing stock and related infrastructure services.
- The sector shall also carry out socio-economic survey of all the urban towns and come up with specific needs and requirements of different income categories of people.
- The sector will identify, acquire and dispose appropriate land for housing programme.
- The sector will develop and implement a comprehensive and integrated housing development program.
- Formulate and enforce general and specific policies for housing development.
- Develop basic infrastructure services like road, water supply, sanitation, electricity etc. through joint ventures with private sector.
- Prescribe guidelines and standards for the reservation, conservation and utilisation of lands identified for housing.

- Encourage people and community involvement and their initiatives in the housing programme.
- Formulate policies to enable private sector involvement in housing finance and production.
- Design and implementation of transparent targeting mechanisms of housing subsidies.
- Provide technical support and consultancy services required ensuring proper planning as well as efficient implementation of the housing projects.
- Formulate and make available various alternative schemes for the housing program in co-ordination with the financial institutions and other related agencies.
- Promote the production and use of indigenous, alternative and low -cost housing materials and suitable technologies for housing.
- Develop efficient housing policies.

Actors

The different sets of actors to be involved in the housing programme are:

1. The Royal Government which will be represented by the National Level Committee.
2. Urban Development and Housing Division.
3. Housing Section.
4. The Financial Institutions.
5. The Private Consultancy and Construction Company.
6. The Donor/International Agencies.
7. The City/Municipal Corporations.
8. The Community/End Users.

Roles of Different Actors

National Level Committee

On recognising the importance of housing and its potential for the economic growth for the country, it is envisaged that the government should shoulder the major responsibility for the overall functioning of the organisation. Also, as housing is a complex issue having strong impact to the country's overall development it is felt that a National Level Committee should be formed for giving the directions particularly at the policy level. The National Level Committee shall comprise of the members representing.

1. Ministry of Finance.
2. Ministry of Trade and Industries.
3. Ministry of Home Affairs.
4. Ministry of Health and Education.

5. Ministry of Communications.
6. Head, Urban Development and Housing Division.

The Minister for Communication shall be the chairman as the Housing and Urban Development Division is currently under the Ministry of Communications.

The main idea of having a National Level Committee to address the housing and urban development issues is manifold. It is an attempt of government to integrate all housing efforts under a single agency. Many a times and normally in developing countries, the system of government housing provision was not able to reach the low and middle-income groups. It is quite evident that the same is prevailing in Bhutan, which needs serious high level thinking supported by effective program at an early stage. It appeared that government's past efforts in housing program were 'peace meal, uncoordinated and lacking in direction'.

During the last couple of years, many government offices have started having their own construction cell for looking after their construction activities. Most of these offices lack experienced, qualified and adequate staff to function their normal activities. There are many instances that these offices approach the Housing Sector for either consultation or for temporary placement of engineers/architects for their works. This leads to overlapping functions, uncoordinated tasks, administrative difficulties and insufficient human resources at both ends.

The National Level Committee as a sole government agency for addressing housing and urban development shall focus on the following areas:

- Study and analyse the necessity of existing fragmented construction cells in various offices.
- Working for sound institutional arrangements based on their study and findings.
- The development of effective housing policies, strategies, programmes and implementation practices for the orderly growth and prosperity of human settlements.
- Mobilisation of budgetary requirements.
- Establishment of financial and legal structure for the Housing Sector, adequate to respond to the requirements of these sectors.
- International level dealings for the financial aid and technical assistance in the field of housing and urban development programme.

While, it is to be remembered that the role of government does not stop at policy formulation, but encompasses a much bigger responsibility for co-ordinating the various actors to achieve its targets of both providing shelter and raising the standards of living, which has an even more impact on the people of the country.

Housing and Urban Development Division

Housing and Urban Development shall play a key role for the overall efficient functioning of the organisation. The success of the plans, programmes, strategies, objectives and goals of the organisation will be reflected by the managerial and technical capability of the Division. The Head of the Division shall play a dynamic role in bringing the housing programme in the forefront of development by:

- His personal initiatives in the housing development programme supported by other professionals of the organisation
- Defining appropriate roles and responsibilities of different sections of the organisation
- Ensuring that all sub-ordinates are placed with specific responsibilities suited in accordance with his/her experiences and qualifications.
- Periodic discussions on the housing related programs and updating innovative ideas in the field
- Disseminating his ideas, thinking and experiences in the field of housing to the professionals and collecting feedback for the final implementation
- Promote and encourage community participation, arrange and attend meetings with community to study their specific needs and responses
- Encourage and stress on human resource development for the present and for the long term.

Housing Section

All professionals working for it should understand housing and its importance, before it is put to practice in reality. Housing is much more than just shelters. It also involves the quality of the neighbourhood environment, and has a direct impact on access to educational and social services, employment opportunities, cultural and recreational amenities, and economic growth. In a comprehensive sense, housing plays a key role in the physical, psychological and economic health of individuals, families and communities.

The head of the housing sector shall therefore work in the following areas:

- How to solve the existing housing problem
- Study and analyse the reasons behind the failure of strategies implemented; and think for better strategies and approaches
- Analyse the positive and negative effects of the solutions applied in the last decades and re-generate new and innovative ideas in the housing development programme
- Working to solve the needs and expectations of different actors involved
- Keep abreast and well informed of the different housing issues all over the world, especially the

developing countries and put them for discussion with other professionals.

The Donor/International Agencies

Eversince, Bhutan opened its door to the outside world during the 1960s, the assistance of donor agencies have played the most vital role in its development. The donor agencies have been the effective partner for many developmental projects of Bhutan and still their assistance in the field is continued.

However, the distribution of aid for the housing programme in Bhutan was extremely low vis-a-vis other areas of development like health, education, agriculture, forestry, environment, etc. This trend requires a review and the housing programme in Bhutan also needs to be given the priority in terms of the development aids. The housing is a long-term investment and also the strong indicator of socio-economic uplift of the nation. The donor agencies can contribute to the housing sector in following areas:

- Provide technical and financial assistance and assist government to strengthen the Organisational capacities of the Housing and Urban Development Division.
- Ensure that various housing related Institutions gain access to International funding agencies like the World Bank Development loans, Asian Development Bank loans and other similar lending Institutions.
- UNDP and UNCHS Habitat can continue supporting the housing programme with adequate financial resources and technical assistance.
- Support research in building materials, construction techniques and housing designs through their worldwide experience and expertise in housing.

Municipal Corporations

The latest development was that Urban Thimphu is now divided into four zones and eight representatives elected to a town committee chaired by the Deputy Minister for Communications. This was done on realising that planning and development of the towns should be a collective responsibility, closely involving the people who lived in the town. Urban planning should benefit the entire population and future generations and not individuals involved.

In accordance with the recent edition of building rules developed jointly by the Urban Development and Housing Division and the Municipal Corporation, Thimphu, every building has to fulfil the prescribed requirements prior to construction and during the construction. The Municipal Corporation is the implementing agency. The building rule covers the following areas:

Planning Control

- Site coverage for building (Residential & Commercial)
- Set back lines
- Car parking space

Building Control

- Lighting and Ventilation
- Stairs
- Fire places
- Kitchen's, WC's and bathrooms
- Resistance to ground moisture
- Space standards
- Emergency exit

Structure Control**Drainage & Sanitation****Electrical Works****Telephone Connections**

While, it is a good idea to have such guidelines for maintaining control over the haphazard and uncomfortable buildings coming up in the limited urban space. But, I personally feel that this should not be the rules rather I should like to call it as recommendations. It has its better side but at the same time it needs continuous assessment and review not only by the professionals involved, but also considering the feedback from the users. Any rule becomes quite rigid when imposed to the public without really understanding the practical situation.

What I feel is that the Municipal Corporations should also at the same time promote and encourage the public/community to develop their own sense of understanding in the house construction through community awareness campaign and other sources of media. The community should be informed about the importance of building safety, durability and comfort and gradually it should become the owners responsibility to ensure that their building is constructed as per the recommended guidelines. The Municipal Corporations shall look into the physical planning control and ensure that every house builders have the required detailed architectural and structural drawings well before the construction starts.

The role of Municipal Corporations should therefore be more oriented towards the following areas:

- Focus more attention on the overall physical planning of the urban town. They should assess and look for various alternative housing solutions for the urban dwellers.
- Should aim for identifying and solving the urban land disputes.
- Should create public/community awareness and promote their participation in the city development.

Community/End Users

The focus of the overall housing programme should be directed to the end users, i.e., the people for whom the housing project is intended. Therefore, it is essential that the people play an important role in the housing development programme. This is a new concept for Bhutan, but it needs to be practised and implemented, as it has proved to be successful for many housing projects in other developing countries. The people/community can contribute in the following areas:

- Participate fully in all aspects of housing development and improvement.
- They can build and improve their housing conditions according to their needs.
- Their participation in the housing programme can enhance their knowledge in the field.
- The community participation will also enable the professionals in arriving at the appropriate decisions.
- Women should participate fully in all aspects of shelter delivery, i.e., new construction, upgrading or maintenance of existing housing, implementation of water and sanitation programmes, planning and delivery of services.
- Women will thus be given required training to enhance their full and productive participation in the housing programme.

Design Consideration**General**

House design basically comprises of two separate identity, i.e., architectural design and structural design. Architectural design takes care of the external facade and the internal planning of the space for comfortable living. On the other hand, structural design takes into account the safety of the building against its self-weight and other external forces that is anticipated during its lifetime.

Bhutan does not have any standard architectural guidelines nor it has any structural design codes of its own. The Indian Standard code is being used for the structural design. This may be realistic to a certain extent as many of the construction materials have similar properties and also many building materials are imported from India.

However, I do not agree this as an absolute solution as there are other factors also which do vary like the climate, culture, construction technique and technology, etc. Bhutan therefore needs to pay more attention in the research and development of its own codes.

Specific Areas

Need of Codes

Construction materials like timber, cement, stone, sand, hollow cement blocks, etc. are locally available and produced in Bhutan. These materials were abundantly used in the construction by following the Indian standard codes. This may not always reflect the same end result as even the slight variation in the material properties can lead to the big difference in strength and durability of the finished building products.

The differences between the standards in different countries may not reflect differences in environmental awareness. Variations in local conditions play a big role in establishing the codes. For example, treatments developed for temperate conifers may not be suitable for treatments of tropical hardwoods and conifers. Hence, it is very essential to have specific building material codes for every construction materials locally produced in Bhutan.

Need of Standards

Architectural standards needs to be documented and clear guidelines, recommendations, specifications, etc. has to be produced. The Housing Sector should now take the initiatives in all these areas for these documents are a pre-requisite in the implementation of any housing projects. These documents also form a symbol of country's identity for its traditional architecture and can be the base for any discussion at all levels.

Such standards if produced and followed will enable in the production of pre-fabricated building components, which are both economic and also time saving during the construction process. Small and medium scale pre-fabrication units for building components like windows, doors, cupboards, trusses, kitchen shelves, etc. can be promoted if recommended standards were developed.

Bhutan also needs to work on the structural design codes relating to the properties of locally produced construction materials. While, it is important to keep in mind that the codes and standards are not for individual use and nor for a specific agency. These documents once officially produced will be used by all the agencies in the country and therefore the production of codes and standards should be the joint venture with full participation from various agencies involved in the construction.

To start with such programme, I feel it is therefore necessary to have a committee for National Building Codes with representatives from various agencies, government as well as private. This will not only facilitate to have a better understanding of the different ideas from different professional background and experiences, but also will help in developing a better and acceptable codes and standards in the long run.

Climatic Design

Climatic conditions in Thimphu require buildings to be well insulated. Thimphu experiences a cold temperature of -5°C to 15°C during winter (Dec. – Feb.) and a hot temperature of 10°C to 30°C during summer (June – August). Similarly, towards the south where the climate is much warmer with humidity as high as 85 percent, buildings have to be designed accordingly. The general concept is that a building design should be adaptable to the outside environment.

From my personal observations and findings, this concept is totally lacking in Bhutan. All modern buildings constructed irrespective of the different places and climatic condition are often designed without taking the climate into consideration. The building designed for one place is more or less replicated for other places without really assessing the impact of physical environment. It is a fact that important factors such as urban environment, orientation and architectural design of buildings, choice of building materials, etc. are most often ignored. Consequently, many and almost all buildings have a poor indoor climate. The problem is valid for dwellings as well as for public buildings such as schools, government offices, hospitals, etc.

As the living standards and affordability increases, people tend to install heating/cooling equipment in order to overcome the problem with poor thermal comfort. For buildings not adapted to the climate, the energy consumption, and consequently the impact on the environment will be negative. A reasonable indoor climate can often be achieved with passive technique that is without input of energy.

The reason why buildings are badly adapted to the climate is normally lack of knowledge among architects, planners and engineers.

Design for Self-weight and External Forces

The structural design concept is same everywhere in the world. It is only the efficiency that differs depending on the technology and access to more sophisticated design tools. In Bhutan, a structural design takes care of the safety of building components against its self-weight and the different live loads expected during its lifetime. Bhutan being assumed to be lying in seismic zone V with seismic magnitudes as high as 7-7.5 on the Richter Scale, the structural design is taken care to account for its effects.

Recommendations

Eight weeks of intensive lectures by various professionals from Lund University and also from other countries coupled with the course works, discussions, and presentations emphasising mostly on the housing problems in the developing countries have enriched my level of understanding in the housing

issues and policies. Other important issues pertaining to the design of houses with regard to climatic condition and the concept of participatory design are quite new and interesting, which I found very relevant in the context of Bhutan.

After drawing experiences of housing problems in different countries and the different approaches and strategies applied to make low income people accessible to a house, I feel Bhutan have to start thinking more seriously on the housing issues before the problem turns out to a large and unmanageable scale. Right now, though Bhutan has already started facing housing shortages, yet it is very negligible compared to most of the developing countries. The concept of home ownership also needs to be promoted in Bhutan together with the production of rental housing focusing more on the low and middle-income groups as they are the most vulnerable to the housing market.

Many developing countries have failed in the housing market because of the timings. House production started when the situation has already reached the critical stage, i.e., when the demand for housing exceeded far beyond the resource capacity of the country to supply the house. Bhutan has still time to learn and correct from the mistakes that other countries have done over the past. The country has the resources and the people have the potential both labour and finance. It is only the sound management and efficient housing policy that is required to harness the fruitful result in the housing market.

To this effect, many loopholes in the existing system were pointed out and the personal suggestions incorporated. It is further suggested that strengthening of the Institution and particularly in the context of Bhutan where human resource is the main constraint in the development is not an easy task. It needs sound direction from the top and active participation from the bottom. It should be the progressive development and pace of development should be visible and felt by all the actors involved in the housing programme.

Conclusions

It is inevitable that Bhutan will face housing and urban development challenges with greater intensity in the future. The role of the building sector in the country, and the need for better and adequate housing will rise significantly in the future. This will eventually place great demands on the professional actors involved in the housing and urban development programme.

At the Habitat II conference in Istanbul, it was agreed that partnership among all the actors involved in urban development and housing is an important strategy to improve living conditions for low-income households. The Global Plan of Action adopted by many countries including Bhutan also at the conference promotes partnership and capacity building as an important tools to create better cities and adequate shelter for all.

Keeping in view, the importance of housing and urban development also in the context of Bhutan, a separate Institution was created on an urgent basis to address the housing and urban development more coherently.

However, on drawing experiences and lessons from the past on housing and urban development activities, we should now realise that the Institutional forming is not the final solution. What is more important at this stage is how to strengthen the Institution for coping up with the rapid urban growth and housing crisis in the urban cities.

Finally, I on my own behalf and on behalf of the Royal Government of Bhutan extend my gratitude to LCHS for considering my participation in the Advanced International Course on Architecture and Development. Thanks to SIDA without whose financial support I could have never been able to attend this course in Sweden. I also thank to my government for the partial fund provided to me and to my office for the kind co-operation extended in my getting to this course. Last but not the least; I recall the kind co-operation extended to us by all the faculty of the LCHS.

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