



# Sarpang Structure Plan 2010-2035

## Final Report – Volume 02

Department of Human Settlement, MoW&HS, Thimphu

# **Structure Plan for Sarpang**

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**2010-2035**

**Volume 02**

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# 1. SOCIO-ECONOMIC ENVIRONMENT AND SHELTER STRATEGY

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Urbanism works when it creates a journey as desirable as the destination

- Paul Goldberger

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## 1.0 Proposed Socio-Economic Environment

### 1.0.1 INTRODUCTION:

A Socio-economic and household survey was conducted as a part of the Structure Plan preparation process to get an overview of the present socio-economic status of the Sarpang's inhabitants. The study, analysis and findings of the survey reflect in document prepared.

The proposals made in the proposed Structure Plan for Sarpang has a direct benefit on the improvement of the socio-economic condition of the present and the future residents of the town. It also has a positive impact on the town development and would govern the urban economy to a great extent.

This part of the report sets out a socio-economic development plan for Sarpang. It reviews the strengths, weaknesses, threats and opportunities and presents a series of statements relating to Sarpang's vision, mission, values and objectives; and sets out its proposed strategies and goals.

### 1.0.2 SWOT ANALYSIS:

#### a) Strengths:

- Regional Headquarter
- Strategically located near the international Boundary
- It is well connected to the various parts of the country through highways
- Relatively flat terrain favorable for densification
- Surrounded by potential tourist destinations
- Future of Socio-Economic Zone identified at Jigmeling
- Development of an airport and it's supporting infrastructure at Gelephu

#### b) Weaknesses:

- Flood prone area
- Less availability of government land at Shechangthang

- Dependant on Gelephu for all the Municipal activities
- Lack of core commercial area
- Inadequate housing for government employees
- Inadequate community infrastructure such as recreational spaces, religious facilities, health facilities
- Undeveloped private sector
- Inadequate infrastructural development (water supply, sewerage, storm water drainage, road development, street lighting, etc.)

**c) Opportunities:**

- Development of Sarpang as an Administrative and Institutional Hub for the entire southern region of Bhutan
- Promotion of Tourism activities by creating Recreational and Commercial Hubs along Sarpang River and the Urban Corridor; golf course in the reclaimed land, water sports in the proposed river channel, development of link between Sarpang and Phibsoo Wild Life Sanctuary, etc.
- Designate Sarpang as an extension to Gelephu town by supporting the Industrial activities at Jigmeling
- Development of National level open spaces all along the river with exhibition centers, sports activities and other recreational activities.

**d) Threats:**

- Possible relocation of Sarpang Dzong to Gelephu is a matter of utmost concern as the majority of the population residing in the town area is employed by the Dzongkhag Administration.
- Presently, the Sarpang River poses a serious threat to the residents of the town hence River Training works are important and should be taken up on priority basis
- Security is of main concern being close to the Indian border state of Assam
- Out migration of Sarpang's residents in search of job opportunities and livelihood

The Structure Plan has identified projects that are significant to uplift the socio-economic structure of the future Sarpang town. Implementation of these projects would create an identity for Sarpang.

**i. Redevelopment of the Sarpang Bazaar Urban Village and Urban Hub at Shechangthang:**

The primary idea of establishing an Urban Core is to create a commercial center with all the public facilities. The Urban Hub envisioned in the Sarpang Urban Core will not only serve the

population of the local area but also the population of the town and the entire region. The Urban Hub at Shechangthang will act as an extension of the Urban Core at the Sarpang Bazaar due to limited space for expansion for existing Core Area.

The Urban Hub can act either as a destination, or as a facility hub, with facilities for 'modal split' within the entire framework of transport suggested for Sarpang town in the Structure Plan. Thus, transport facilities in the future, like an inter-town bus terminus; local level public transport, and a large taxi stand, will connect the Urban Hub with the rest of the town and the region. Public parking will be accommodated within the Hub. People in other parts of the town, can drive to the Hub acting as a workplace and as a center for commercial, recreational facilities. They can enjoy the pedestrian oriented environment proposed within the Urban Hub.

### **Components of the Urban Hub:**

The Urban Hub can be split into the following three components:

- 1) Commercial component
- 2) Recreational component and
- 3) Public Conveniences component.

#### **1. Commercial Component:**

This will include the town level and local level commercial activities like shopping arcades, departmental stores, bookshops, net cafés, bars, restaurants and cafeterias. It would also house private and public office spaces required for the growing business community in the town. Based upon the development control regulations, there will be separate guidelines to control the ground coverage and height of these commercial buildings. There should be urban design controls for the massing and facades of these buildings. There should be provisions to accommodate plot level parking either in basements, or under stilts. Apart from this, every commercial building should have off-street parking in the front to accommodate the visitor's vehicle parking.

#### **2. Recreational Component:**

This will include town level recreational facilities like cinema theatre, auditorium, bowling alleys, etc. These facilities can be under private ownership. The recreational component also includes town level sports facilities like the existing football ground, indoor sporting facilities, tennis and basketball courts, archery field, etc. A system of open spaces connecting all the sporting facilities is also proposed within the Urban Village as a part of the Environmental Conservation Precinct.

### **3. Public Conveniences Component:**

This includes the public facilities provided by the government like a hospital, post office, banks, fire station, fuel services, etc. The existing vegetable market is proposed to be upgraded with the provision of additional facilities for cold storage and parking. A new town hall is proposed as a part of the Urban Hub. Most of the public conveniences at present are provided and maintained by the government and are proposed to be up-graded considering the future needs.

#### **ii. Public Transit System and Development of Urban Corridor**

At present there is hardly any need for a Public Transit System in Sarpang, but considering the future growth and activities it would be wise to have a provision for it along with a conceptual plan. With Sarpang conceptualized as a service at the regional level it will act as an extension to Gelephu town in the form of a satellite town. An efficient Public Transit System for Sarpang connecting the regional centers surrounding it, is envisioned as an effective mean to achieve rapid, comfortable mass movement, lower air pollution levels, enhanced safety and convenience, and to revive conviviality amongst the citizens. Rationalization of routes and rates will play a major role in making the public transit popular. Apart from this it is essential that buses along the Sarpang-Gelephu Urban Corridor pick up passengers at intervals not more than ten minutes apart, even during slag periods of the day, increasing it to five minutes at rush hours.

A set of balancing measures on private vehicle utilization will have to come into force to support the Public Transit System. Young professionals, students, office personnel, servants and workers will all depend on public transport. Gelephu Structure Plan has already proposed a Multi-modal Transit Hub, integrating air, road and rail transport along the Sarpang- Gelephu Urban Corridor. This will not only benefit the residents of Gelephu but will also serve the future regular commuters from Sarpang to Gelephu. The Urban Corridor is hence extended to the extreme western end of Sarpang town.

Establishing a strong inter-town connectivity in terms of public transit system between Sarpang, its regional catchment areas and other parts of Bhutan, and the proposal for developing a transit terminal in the town, is seen as both crucial and vital part of the structure plan, considering the envisioned development of Sarpang as a Service Centre in the south-central part of the country and to integrate the town into the development stream of the country. The following components are seen as inseparable elements for encouraging the use of Public Transit system in the Sarpang town in the coming years.

#### **iii. Institutional Development:**

##### **Appropriate relocation of the Dzong:**

There were initiations made in the recent past for the relocation of the Dzong at Gelephu. In such a scenario Sarpang would entirely lose its identity and the future for the growth of the

town would appear bleak. It is very important for the economic sustainability of the town that the Dzong be located in or around the present Sarpang town. Hence, an alternative site is been proposed for the Dzong to be located on the plateau of Chanotea Village. The site is found advantageous in various aspects:

- a. Visual connectivity to various parts of the Municipal Area
- b. Possible monitoring of the International Border taking care of the security issues
- c. Elevational difference between the bazaar area and the proposed location makes it safe from flood hazards
- d. Convenient road and pedestrian accessibility

#### **Development of Institutional Precincts at Sarpang Tar:**

Sarpang is envisioned to be developed as an Institutional Town. With an added advantage of ample government land available at Sarpang Tar various institutional development projects have been proposed in the Structure Plan. Development of institutions will not only benefit the residents of Sarpang town but it would also serve the people from the neighboring villages and towns. Following are the institutional projects that are proposed in the Structure Plan:

- a. Upgradation of the Sarpang Middle Secondary School
- b. Primary School at Shechangthang
- c. Research center at Sarpang Tar
- d. Government Institute for Vocational Training (Diploma level)
- e. Performing Arts Center

#### **Upgradation of Hospital:**

The present 10 bedded hospital at Sarpang has basic level health facilities. The residents of Sarpang are dependent on the Regional Hospital at Gelephu for higher health facilities. With the increasing population and rapid urbanization an upgradation of the existing hospital to a 20 bedded hospital with added facilities is proposed in the Structure Plan.

#### **Government Housing:**

Presently the residents of Sarpang are facing an acute housing shortage. Many of the government employees reside at Gelephu and commute to their workplace at Sarpang on a daily basis. An appropriate site for government housing, for government employees at various levels, is proposed at Sarpang Tar. This will minimize the load on the private sector for provision of housing to the government staff and in turn it will turn out to be in the affordable range.

#### iv. Recreational Centers

##### Riverfronts

In Sarpang the Sarpang Chhu pose flood threats to the Sarpang town. Sarpang Chhu has a past history of heavy flooding, because of which the old settlement of Sarpang has already been severely affected several times.

But on the other hand river fronts are major assets to any settlement, since they provide open places for both active and passive recreational spaces. Considering the dual nature of these spaces and for safety purposes this zone has been marked as a restricted and highly controlled development precinct in the structure plan.

However, apart from agricultural usage, these waterfronts can be active recreational open spaces, characterized by open spaces and activities which are temporary in nature and different from other parks and gardens proposed in the Sarpang town. In later stages while river protection work is carried out, parts of land can be reclaimed and put into non intensive recreational uses and development of tourist attractions such as water parks, outdoor restaurants, golf courses, outdoor recreation and play grounds, drive in theatres, children roller skating strips, cycle tracks, mela and exhibition grounds etc.

**Golf Course:** An 18-Hole Golf Course is proposed at the reclaimed land in the river that will cater not only to the citizens of the country but would hold international level tournaments and bring life to the city. Other than its recreational importance the golf course would also act as a revenue generator for the town with supporting activities of golf training camps, hotels and cafeterias. This would be the first of its kinds in the entire country and would support the tourism industry. Golf courses across the world are marked as tourist destinations. As Sarpang is envisioned to have a slow growth it will always be calm and quiet urban area. With a peaceful and quiet environment surrounded by scenic mountains it becomes an attractive destination for golfers from across the world.

**National Level Open Space with Exhibition Grounds:** A central park is proposed all along the Sarpang Chhu that spreads in a linear fashion and will act as the “lungs” of the town. It will be associated with temporary exhibition ground to host exhibitions, public fairs and gatherings. In the past Sarpang used to be a place to have Maghey Mela every year during the month of January. The exhibition ground is proposed to be based on the same age old tradition where informal exhibition activities would take place by attracting people from neighboring villages and strengthening the social networking. This park is proposed in the reclaimed land through the river bed and is proposed to be a national level open space.

**Sports Complex:** As Sarpang is envisioned to be developed into an Institutional Center, with an increase in student population, a need to have a variety of sports facilities for the younger generation in the town is felt necessary. To cater to such needs a sports complex is proposed at Shechangthang. The complex would have both indoor and outdoor sports facilities. The



indoor sports facilities would include the basket ball court, squash court, a badminton court, table tennis and a swimming pool while volleyball and lawn tennis are proposed to be in the outdoors.

**Archery Field:** Archery being the National Game of Bhutan is set to be on a high priority. Presently there is a small archery field behind the existing Dzong at Sarpang Tar that is rarely used by the residents. Archery requires fields that are away from the crowded areas for safety reasons. An appropriate location is identified for the archery field below the present highway in the Sarpang Bazaar Urban Village. Tournaments could be held at the proposed location with enough seating facility for viewers. Structures in the Urban Core are proposed to have terraces at higher levels overlooking the archery ground, the river and the surrounding recreational area giving it a scenic value.

**Water Sports:** In Sarpang the Sarpang Chhu pose flood threats to the Sarpang town. Sarpang Chhu has a past history of heavy flooding, because of which the old settlement of Sarpang has already been severely affected several times. Sarpang Chhu is hence proposed to be realigned with major river training project along its sides. This will regulate the river water flow within the municipal limit and the proposed bunds at various locations will make sure that water becomes a permanent feature in the town area all throughout the year. The presence of ample amount of water creates an opportunity to introduce water sports activity on a regional level. On implementation, boating, water scooters and fishing are a few of the proposed attractions. Water sports would be a major attraction for tourists visiting the south of Bhutan.

#### **Phibsoo Wildlife Sanctuary:**

Phibsoo has been identified as a potential tourist destination in the Strategy for Gross National Happiness. It is located at a distance of 32kms from Sarpang town area. Emphasis is given on the development on the accessibility to this destination. Upon development this would be an additional tourist destination to the southern region. With development of tourism activities a tourism corridor would develop in the entire belt along the Gelephu-Sarpang Corridor.

#### **Heritage Open Spaces**

Heritage Open Spaces are the open spaces proposed in the immediate surroundings, or in the open spaces associated with cultural and heritage structures, national monuments and important religious buildings. The proposal will develop and enhance these spaces to enhance the heritage structures and their precinct, which will also act as a public open space. The proposal would also build up the image of the town as the district headquarters.

The only Heritage Open Space existing in the Sarpang town is at Sarpang Tar along the Monastery. It is situated along the existing park that is under utilized by the residents. It is hence proposed to combine the two and connect it to the entire open space system to enhance its heritage value. Also, the proposed temple site along the Sarpang Chhu is

surrounded by green open spaces and a children's park. These two religious and heritage sites will be connected through an open space system with off street pathways laid on gradual slopes within. These open spaces will reserve spaces for accommodating religious features like Prayer Flags, Chortens, Prayer Wheels and Mani Walls.

Other than the above proposals Sarpang is proposed to have all basic level infrastructure and amenities that a modern town is required to have.

The strategies for future development are discussed in this chapter, which will lay down the systems to implement the objectives, aims and proposals for actions stated in the Sarpang Structure Plan. These are established rules and regulations which form the non-negotiable components of a Structure Plan, formulated to guide the town managers and local authorities during the implementation of the Structure Plan<sup>1</sup>. These strategies will be elaborated in details as a part of the Structure Plan in the later stage of the plan preparation process. At this point it should be made clear that a Structure Plan, once cleared, is not negotiable, flexible or easily adaptable. It sets out a rigid "structure" that can be altered only at the highest level. Smaller Area Plans using Guided Development, or Local Area Plans based on land pooling, are more flexible, adaptable and indeed more participatory. Yet they have to work within the pattern of the Structure Plan.

## 1.1 Shelter Strategy

His Majesty the Fourth King has defined the goal of Bhutan as Gross National Happiness. Nothing brings happiness to the people like owning their own home. A major element of the Sarpang Structure Plan is to bring housing within the reach of common people, moving this from the realm of dreams to reality.

The 'Housing Shortage' in Sarpang is on account of delayed construction activities, in the absence of any proper Structure Plan for the town. However this stagnant town is very soon going to get transformed into an active regional with high possibilities of increased population in the town, because of the location and the envisioned activities in the region. This housing shortage will grow even more in the coming decades. Hence it is the prime responsibility of the planners to formulate a shelter strategy for the people of Sarpang.

The proposed Shelter Strategy could be understood in two main parts:

1. Designing and Physical planning aspects
2. Finance, management and administration

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<sup>1</sup> Reference: Gelephu Structure Plan, 2004

### 1.1.1 DESIGNING AND PHYSICAL PLANNING ASPECTS

As discussed in previous chapter, population projections and carrying capacity of a place are two inseparable aspects that will have an impact on the density pattern and hence the shelter strategy. The main physical determinants of the Shelter Strategy, which would determine the carrying capacity and the population density pattern in Sarpang, would be:

- Topographical Condition of the place;
- Future Development Opportunities;
- Eco-fragileness of the town and the region; and,
- The existing land cover

The land condition directly relates to the physical capacity of the land in terms of accessibility to land, the ease of construction, stability of the structure, laying of infrastructure and related costing. The higher the slope, the lower is the associated population density. Sarpang being located in relatively flat terrain gives the golden opportunity to accommodate larger population density in a given area of land, compared with other urban settlements of the Kingdom. This gives rise to the need for optimal utilization of land as a resource for accommodating future population in the town. The nature and pattern of land use and hence the activity associated with a place has an impact in the amount of population it attracts. Though, Sarpang has great potential to accommodate more population, the proposed land use and activity pattern should be eco-responsive and eco-friendly in nature, which would help maintain the existing sanctity and respect the carrying capacity of the place.

Taking into consideration the above factors and their implications, the Structure Plan advocates ‘medium-rise, high-density’ development as a development strategy. ‘Medium-rise, high-density’ means the maximum height allowed in Sarpang Town and its peripheral zone would be ground plus three floors at the maximum. But to accommodate higher density of population the allowable ground coverage of buildings would be relatively high, within the building setbacks rules proposed by the Development Control Regulations. The details of the same are elaborately discussed in the later part of the chapter.

### 1.1.2 FINANCE, MANAGEMENT AND ADMINISTRATION

The solution to this “housing shortage” lies as much in the financial mechanisms we evolve and in the institutional modalities, as it does in the physical plans we prepare. It is important that we facilitate the private sector to become active in the provision of housing, in addition to the public sector agencies involved now. The idea is to get small and medium sized builders into the shelter provision business, which would also provide employment in the construction industry. Other long-term loan schemes can be evolved for the buyers of housing units.

For achieving the above said goal two strategies seem to be required. First, the problem needs to be re-conceptualized from that of a “housing shortage” to one of “facilitating a shelter process.” Next, the problem has to be seen as promoting private sector initiatives. Thus, we are moving from the government producing amounts of minimum standard housing units, to facilitating and promoting an array of private actors to get on with the process of creating shelter in various manifestations.

The following strategies are proposed to address current housing shortage:

1. Access to land,
2. Access to housing finance,
3. Access to materials and technology,
4. Access to construction; and,
5. Access to design, planning and management.

The landowners, the contractors, the potential buyers, the materials suppliers, the skilled labor, the promoters, the designers and the financial institutions will be the main stakeholders in the entire process. The proposed housing strategy shall facilitate all of these stakeholders, and actions must be taken to address the issues faced by each one of them.

In addition to generating more shelter and more options for shelter, another goal of the Shelter Strategy is to increase the utilization of Bhutanese resources to achieve objectives. This involves evolution of more sophisticated financial mechanisms; training Bhutanese youth into skilled blue collar workers, promoting small electrical, plumbing and other specialized contractors and facilitating medium and large contractors.

### **1.1.3 OPPORTUNITY FOR ACCESS TO SHELTER**

The Shelter Strategy for Sarpang envisions a variety of needs on the part of end users. For some households, the dwelling unit may act as a basic functional devise, providing shelter and security, while for others it may be a major source of social status. There will be those who will walk to work, or who will depend on a public transport system and others who will drive and location may not be so severe a criteria. People’s willingness to pay for shelter may not be a direct function of their earning power, as they may prioritize other investments like the education of their children. In the actual design of the range of locations, sizes and potential development of dwelling units in plotted areas and in medium to high-density residential schemes the government must aim for a wide diversity of housing packages. The Local Area Plans will provide the mechanism within which the goal could be achieved.

Landowners require a Local Area Plan under which they can market their land. They need to know the layout and subdivision rules which will determine the density, land use and nearby

amenities which will all together set a value and define potential buyers. Individual owners may not have the management skills to develop their land, so a strategy must be laid down.

Promoters can bring together all of the other stakeholders and manage a physical product within the boundaries of an investment package. Promoters also need to know the prices, the rules and prospects governing each site. A good plan removes the element of the unknown, tying down all of the facts about each parcel of land.

One of the most facilitative processes the government could initiate would be “packaging projects” such that a team of professionals could “bid” a turnkey price to construct and sell entire neighborhoods. For example, the government may provide the bidders with a site plan, a detailed building program, comprehensive specifications, the public facilities required, including housing units, site development, access roads, walk ways and landscaping.

The National Housing Development Corporation (NHDC) could initiate this process by inviting teams including an Architect, Landscape Designer, land owners, Contractor and a financial Promoter, to submit a comprehensive proposal to build, say dew hundred houses, and all of the infrastructure and amenities. These bids would be proposals for everything from the design, layout and selling prices of the houses, shops and offices within the project.

The Government could further facilitate this process by assisting in the access to land for Group Housing, private sector projects. The proposed local area plans must designate plots for lower middle class group units, in the layouts. Row Houses must be introduced as a housing typology for higher density locations.

For such a scheme to work the government needs rolling capital for accumulating lands and its overheads. It would recuperate these from the promoter whose responsibility would be to pay all of the stakeholders, maintain a schedule and to sell the units in the open market. For this the promoter would need short-term capital investment of a substantial level. Thus, financial planning and the role of financial institutions like the Royal Insurance Corporation of Bhutan, the Bank of Bhutan, Bhutan National Bank and the National Pension and Provident Fund (NPPF) are very crucial in increasing the housing stock of any particular place. In the long run there is a need to form an institution that finances housing exclusively.

#### **a) Facilitative Finance**

Finance is another facilitative element of the housing strategy. Until now, housing finance has been for the end users to buy their homes over some period of amortization and rate of interest. This concept of finance needs to be broadened.

At the national level Bhutan will have to evolve coherent housing policy measures to create urban and housing financial institutions. In doing so the scale of modest operations and limited human resources available must be formative parameters. On the other hand organizations that are repositories of surplus capital, such as banks, the pension fund and the

Insurance Corporation must not act in the shelter sector in an ad hoc and independent manner, skewing the sector toward the internal needs of those organizations. The Shelter Strategy for Sarpang cannot await the emergence of this mechanism. At the same time two forms of development finance are urgently needed and the Bank of Bhutan may be entrusted to initiate these as they have the social mandate. The resources for these may come from a requirement that the insurance and pension institutions invest a fixed percentage of their reserves annually into the Bank of Bhutan's shelter fund. The interest rate paid to these investors would be half a percent less than reaped from current market wholesale investments. The finances required are for seed capital for developers /promoters and long-term mortgage finance for homeowners.

#### **b) Seed Capital**

The promoters need seed capital to construct houses, from the time the land is bought, until the time the dwelling units are sold to end users. They need medium term to long term loans to buy heavy equipments, to buy materials and to pay the workers.

Financial planning and facilitation through Seed Capital is an essential element of the Shelter Strategy for Sarpang. It makes good sense that such an activity be initiated within the organization of an existing financial institution, than within the structure of a new and inexperienced development finance institution, specialized in the housing sector. Such Seed Capital loans should cover a medium quantity of construction. Performance with the first Seed Capital loan should be the criteria for advancement into further support. A gestation period of three to five years would be the credit period, with amortization running not more than four to seven years. Interest rates for Seed Capital should be considerably higher than the rates charged to homeowners for long term finance of individually owned dwelling units.

#### **c) Long Term Mortgage Finance**

There are a limited number of prospective homeowners who can afford to make a one-time payment for their homes. The vast majority of potential buyers will be able to muster a maximum of twenty to thirty percent of the total dwelling unit cost as their initial equity share in the project. The Banks may initiate a savings scheme for future home owners; where youngsters begin to make monthly deposits toward the time when they have accumulated the needed equity to apply for a housing loan. What is needed is to initiate a culture of savings and borrowing amongst the populace. In mortgage finance the dwelling unit itself becomes the asset held by the bank as surety against potential defaults. It is also essential in this kind of a system that the judicial system favors the banking system when the issue of repossession of property arises, due to defaults in loan payments by borrowers.

A housing mortgage finance system cannot function where the potential of eviction and repossession does not exist. It is clear that a mix of buyers will emerge. Some will be in a position to make an outright purchase, extending payments to the developer in accordance with stages of construction. Others will require smaller portions of the total equity in the form

of loans. But the majority of homebuyers will require around seventy-five percent of the equity in the form of a loan, and an amortization horizon of between fifteen to twenty years. Monthly payments will have to be profiled against the buyers estimated ability to pay over the amortization period. That ability would rise over time. Therefore a “telescoped” repayment schedule may make more sense in Bhutan than a simple system of equated monthly installments, which equalize the capital and interest over a long period of time, into a static monthly loan repayment, called an EMI in the banking industry. While these modalities must be worked out, there is no doubt that a mortgage finance system must be created urgently, using a rolling fund concept to initiate more and more loan opportunities with a given base of capital and annual investment from other pension and insurance institutions.

#### **d) Promotion of Construction of Individual Houses**

The government may promote such an effort by providing land owners with layouts for small plots and giving them support in planning site and services schemes on their land. Potential house owners may then buy these and build their own houses. By adjusting the building controls such that small houses do not need any permission, access to shelter becomes that much simpler. The advantage of this approach is that it off-loads the actual management of house building to the private sector; it facilitates the realization of the Structure Plan in terms of creating high density, compact, mixed-use communities.

Another alternative is a system of land development known as Land Pooling. In this system, irregular shaped, undeveloped land plots are temporarily acquired and reconfigured in a manner that includes minimum standard roads, utilities, open spaces and urban services. In order to realize this level of improvement, about thirty percent of the land will have to be shifted into the public domain. The result is a modern layout of regularly shaped plots, all with road and utilities access and within a neighborhood plan that includes all basic public services. The portion of land surrendered becomes a Development Cess or Tax that forms part of the development capital of the area. Where it is not possible to acquire an equitable portion of a particular plot, a Development Tax will be charged.

#### **e) Low Income Group Housing**

It is important that the shelter strategy proposed as a part of the Sarpang Structure Plan address the issue of shelter for the lower income groups. Presently, these households live in illegal and unhygienic Bagos. These will grow at a much faster rate than the better off segments of the society as the town grows. One manner to address this issue is to formalize the occupations of these people making it mandatory to register domestic and construction workers, to pay reasonable and minimum wages, and to see that these people have adequate housing. What seems most reasonable is that the Development Briefs for medium and high-density housing complexes in the Local Area Plans include small housing units, whose market values and selling prices are within the reach of a large group of users. The creation of neighborhoods with economic diversity, yet cultural homogeneity, would aid bringing new urban immigrants into the mainstream of national life.



From an urban design point of view, this is the sector that the public sector should be focusing its limited skills on, while the private sector should be facilitating in the middle and upper income groups.

In every Local Area Plan, a small high-density village of low-income units could be constructed for domestic servants who will work in the area. Another strategy would be to propose Site and Services schemes of not more than fifty houses each where plots with basic services like water, sewerage, storm drains, paved foot paths, street lights, solid waste collection and electricity is provided and the inhabitants would buy these little plots and construct their own modest shelters. Plots could be as small as fifty square meters each and it may also be possible to provide the plinths and party walls in some schemes. There could also be provision of loans at very low interest rate or building materials under self help housing schemes.

#### **f) Reception Accommodation**

Cities and towns are growing rapidly in Bhutan. Educated youth with Tenth- and Twelfth-Standard “pass” are flocking to towns in search of employment, which they are finding in the service sector, in retailing, in the hospitality sector and in blue collar jobs. On the whole these are single, young male bachelors who team up with relatives or village friends and rent shanty rooms in illegal shacks. The shelter strategy sees a viable investment market in the construction of working women’s and working men’s Hostels in Sarpang, as entry point housing. These would be walk-up structures having “triple seated” rooms with a small cooking niche, common toilets and baths and drying balconies. There may be a common mess and T.V. lounge on the ground floor.

Another issue of concern is the need for improving the skills of the Bhutanese workers in the construction industry. An expanded skill development and construction management training program is needed. There must be a guaranteed minimum wage to attract Bhutanese youth into the construction industry, and to build up the national capability. The construction industry has the potential to be the country’s largest employer. Any public policy and related program must include components on regulation of foreign labor, upgrading the skills and working conditions of Bhutanese labors and to provide a range of housing options to them. In Sarpang an Industrial Training Institution, polytechnics for diplomas in various fields should be created which imparts practical training to youngsters in carpentry, masonry, concrete work, plastering, interior finishes, plumbing, wiremen, electrician, pipe fitters, blacksmiths, as well as in different branches of engineering.

#### **1.1.4 LOCATIONS FOR HOUSING IN URBAN VILLAGES**

The Structure Plan of Sarpang will fulfill the future housing demand of the town through designating Medium and High-density Housing in each self-contained Urban Village identified in the town, further amplified by the preparation of Local Area Plans. The Urban Villages, which form the basic planning unit of the Sarpang Structure Plan, will be dominated by residential areas with varied density patterns to optimize the provision of essential urban

services. Conceptually, these units will have amenities, basic services and a convenience shopping core in their center, called Village Squares, surrounded by medium- to high- density walk-up apartments, then with a ring of medium density housing units towards the periphery. The Village Square surrounded by housing neighborhoods, will be basically a convenience center containing social amenities like health unit, police stand, taxi stand, post boxes, convenience shopping, vegetable shop, general store, pub, kindergarten, crèche, garden and public transit stop and will play an instrumental role in attracting and serving the population. The facilitation of the private sector by the government to create these housing stocks in the designated neighborhoods will be a fillip to the entrepreneurs of the town and will generate employment in the construction industry. It is proposed to use students of the National Technical Training Authority, through a local “Building Centre” in the process, in order to create more skilled labor in the nation.

In addition to the medium and high-density housing schemes, which will be identified in the Local Area Plan for the development of compact residential neighborhoods, promoted and facilitated by the government, large plots, of about 1000 square meters will also be created as a part of the Urban Village Core precinct (UV - 2) to accommodate private parties who wish to construct ground plus three storied apartment buildings. In the precinct called the Urban Village Periphery (UV - 3) a variety of plot sizes will be created to accommodate cottages, bungalows or smaller apartment blocks. Such structures will accommodate one or two households each, plus attached servant’s quarters with adequate parking space.

#### **a) Incremental Development**

After preparation of the Local Area Plans, roads will be demarcated on the sites indicating all plots. Even before the roads are paved, or before any utilities are laid, the owners shall be entitled to begin their construction. Housing construction and the creation of utilities and services will go hand-in-hand. The next priority is to provide potable drinking water, first in raw form and later in a processed form. Electricity, telecommunications and storm drainage will immediately follow. Finally, sewerage systems will be laid, roads will be surfaced, footpaths and streetlights will be placed, and solid waste collection bins positioned and other amenities will emerge.

### **1.1.5 ROLE OF NATIONAL HOUSING DEVELOPMENT CORPORATION (NHDC) IN THE CREATION OF HOUSING STOCK**

The National Housing Development Corporation (NHDC) should take a lead role in facilitating the private sector to create housing stock in Sarpang. Instead of being a provider of housing, the NHDC can become a Facilitator of the Housing Process.

In each Local Area Plan an area will be designated for the compact residential neighborhood as noted above. The NHDC can identify and prioritize projects according to the market demand, with respect to location, need etc. Housing process in the identified locations will then be facilitated by “banking” all the private land parcels of the designated area in the form

of a common account. As opposed to Land Acquisition, where the owners are losers, their land will be held in agreement for them, and they will de facto become participants in the free market production of housing. Should they decline such participation, acquisition procedure shall begin. Should they join they will have “equity” in the project with the value set as the market value, and they will also accordingly get a proportionate share of the profit. The NHDC will prepare a Project Brief for each Neighborhood. This will include the gross and net residential densities to be achieved; the amount of open space to be created; the service and utility levels to be provided and the types, numbers and areas of the apartments, row houses and duplexes to be created. The Project Brief will also include the envisioned Specifications and a reference to the Development Control Rules and the Bhutan Building Rules, which must be followed. The Brief will include an investment plan stating all costs and projected profits.

#### **a) The Promotion of Construction Professionals**

In the next phase, NHDC will invite architects to compete in the preparation of designs for the over-all layout; buildings; apartment plans; internal roads parking and footpaths; landscaping; and utilities layouts. Architects from nearby countries may also participate, on the understanding that they will have to enter into collaborations with Bhutanese firms, should their designs be selected. Architects must follow the Specifications in the Brief, but may propose improved specifications, if they desire. A Technical Committee will select the best design and commission the architect as the designer and Project Manager.

#### **b) The Promotion of Promoters**

NHDC will make the selected design public and invite prospective developers to bid for the role as Promoter for the project. In the bids the participants will have to agree to work under the supervision and control of the selected Architect and agree that the fees will be included in the total project cost. The fees they will assign for the architect and for NHDC overheads will be standardized and a “given” in the package. The amount to be paid to the landowners will also be a “given” in the package. The base amount to be charged per square meter of built-up saleable area to the buyers will be the bid parameter for the competitors. Their project risk lies in the time they take to produce the dwelling units and on the market demand for the units.

A Technical Committee composed of the Architect, and representatives of the NHDC will analyze and select the Promoter for the project. The promoter takes on the financial responsibility and liability of the project, until it is handed over to the end users. He negotiates with financial institutions, maintains accounts, operates bank accounts, and pays the overheads and architect’s fees to the NHDC. The NHDC pays the architect who also acts as the NHDC’s project manager.

**c) Transfer of Project Ownership to the Promoters**

At this stage the facilitative role of the NHDC becomes one of over-all Supervisor and Auditor, on behalf of the future clients. The selected architect and promoter now act as Project Managers, carrying out the preparation of construction documents, tendering documents and standard contracts between the Contractors and Promoters. The NHDC will certify the final selected contractor, but the architect and the Promoter will jointly select a contractor based on criteria given by the NHDC. If all the contractors bid over the estimate based on the Bhutan Schedule of Rates, the lowest bidder must be awarded the work. Wherein contractors bid under the Bhutan Schedule of Rates, the architect and promoter will not be bound to select the lowest bidder, but may use criteria like track record, compatibility as a team member and other discretionary parameters, which they believe will result in the best final product for the end users.

**d) Transfer of Housing Stock into the Market**

After the completion of the project, the promoter, under the direct guidance of NHDC could either sell the housing stock at the market price and distribute the profit among the private land owners according to their respective share or could distribute the housing stock itself to the private land owners, retaining the share of the promoter as initially agreed. In both the cases the involvement of the NHDC, towards making the housing stock available in the market is very crucial considering the larger implications of such a nature of project in Sarpang. The promoter, and the private land owners, could pay overheads to the NHDC towards the maintenance of the project for a specified period time. Alternatively, each buyer will be required to pay a maintenance fee which goes into a general fund for property management.

**1.1.6 VACANT LAND TAX**

There is an apparent, though not necessarily fundamental conflict between the regime of planning and the regime of property, especially when a new plan is overlaid upon an existing land ownership system. The structure plan sets down a new rationale. It promotes equal access to shelter and to land for shelter. It alters the value of land upward at the same time. Due to its inherent restrictions, it also limits development options. It disrupts the immediate plans of landowners at least until they understand and readjust to the new terms of the new plan.

In most societies land is held in the hands of a few longer-term residents of the city. Newcomers to the city and persons with more modest means may find entry into the housing market blocked by artificially high values of land. Unfortunately, in most of the situations the regime of property dominates the land system and most of the time access to land for shelter has virtually been blocked. The Structure Plan attempts to reverse that trend and opens more opportunities. It suggests that methods towards equitably distributing land must emerge in Sarpang. The Local Area Plans and the access to dwelling units created under the medium and high-density residential projects go a long way to guaranteeing each household access to

shelter. Guided development through the mechanism of the Development Control Rules adds another dimension to the system's operation. But in the end there must be some mechanism which limits the quantity of land held ineffectively and merely for investment.

There are limited options to control land accumulation. One of them is an effective land ceiling. But the legislation and implementation are cumbersome, means of concealing property ownership are many and the entire process takes land effectively out of the market, driving up the remaining prices of lands that fall outside of the ceiling still higher. Land banking involves extensive data maintenance, sophisticated financial management and complicated accounting, which will not appear as transparent to the concerned public. It may only work where the highly developed financial institutions exist. One possible mechanism is a Vacant Lands Tax. The concept would be to treat vacant land as an unused wealth of the nation and to use a system of taxation to catalyze it into the market.

There would have to be a Register of Land Values maintained wherein the value of land in each area of the town is documented based on the actual registered transactions in the area. To assure that the values stated at the time of transaction are correct the Royal Government has a first option to buy lands where the registration is declared for a value less than twenty five per cent of the Registered Value in that area of the town. Using the Register of Land Values, each area of the town would have a different ratable value, based upon which the town's land tax would be charged to users and also upon which the Vacant Land Tax would be charged. Generally, land values and the services and infrastructure provided by the local authority are high at some locations and low at some locations. So the Ratable Values also reflect the levels of services provided. Where there are vacant lands a Vacant Land tax of say five to ten per cent of the land value should be charged annually. The tax would tend to move land into the market, and curb the holding of land for investment purposes. When a property is purchased, there should be a Vacant Land Tax Holiday for three years, allowing time for the owner to initiate construction. There must also be a Land Transfer Tax, of about five to ten percent of the registered property value. Acquisition of excess lands must always be with the Royal Government as a last means to equalize the land holdings.

## 2. URBAN DEVELOPMENT MANAGEMENT SYSTEM

### 2.0 Urban Development Management System:

#### 2.0.1 INTRODUCTION:

Urban areas are living organisms and a structure plan could be appropriately described as a skeleton, on which the parts of the town can be hung, much as a human body. In a vibrant settlement, there will be a myriad of new developmental projects continuously under execution by various sectors. There are many other social services and amenities which will come up in the town over the next decade. There will be an elaborate shelter system to accommodate the future population of the town. Though, each of these urban development's has its own rationale, regarding its networking and phasing, integrating with each other to form an organized system has manifold advantages including easing of the implementation process. It is important that these networks are planned as a system of main corridors, limbs and fingers in terms of hierarchical organization. In this given context management and planned development of these systems becomes crucial for the proper functioning of urban areas. The success and effective functioning of the urban development lies as much in the physical plans we prepare as it does in the effectiveness of the Development Management Systems we evolve for the town.

Such a management system should guide the development not just confined within the town boundaries, but also in its immediate surroundings. For the effectiveness of such a mechanism, the proposed Development Management System for Sarpang could be elaborated and would have its influence in three varied tiers pertaining to various scales ranging from the regional to plot level. The ease and success of implementation specifically depends on the effectiveness in breaking down the scales at various levels supported by competitive administrative set-ups.

#### 2.0.2 DEVELOPMENT MANAGEMENT SYSTEM FOR SARPANG- GELEPHU REGION

The first tier of Development Management System proposed essentially governs the area around the Sarpang town and its region. The Dzongkhag administration is responsible to see any development within this zone is in accordance with the plan.

The present Sarpang town lies in its own small setting surrounded by vast flat vacant landscape, in all directions. Given the present development opportunities of the region, in the future, unless the development is rationally distributed along the region, the carrying capacity of the present town will be exhausted and the entire surrounding landscape will become a victim of uncontrolled urban sprawl. We should not wait for this to happen. There must be a well detailed and elaborate development management mechanism to guide the development in the entire region. This will include an Urban Peripheral Control Zone, which controls the

development in the immediate surroundings of the town and a Special Economic Development Zone, which guides the future economic development activities of the region.

#### **A. Urban Peripheral Control Zone**

As an influence of the development in the town area, there is a great deal of slow, but nevertheless continual development in the periphery of the town. Hence, municipal boundaries are major issues in planning. Generally the bye-laws for construction within the municipal area are very strict and move through difficult procedures, while just across this magic line clearing plans is rather easy. Land taxes within the boundaries, of course, are comparatively higher than agricultural revenues in rural areas. The latter lands may be only a few meters from the former.

Generally, developments starts taking place outside the Municipal boundaries as there are low taxes and very few building restriction. Land is undeveloped across the boundary and therefore cheaper. This causes inefficient urban sprawl. When the fringe areas are absorbed into the municipality service networks, they are then over extended, to accommodate low density, spread out and even inaccessible plots. This leads to “patchy developments” in the fringe areas. This is a situation where suddenly a cluster of structures have developed, surrounded by hectares of empty lands. These small patchy clusters must provide their own storm drainage, water supply and sewerage management. Yet, there will be a pressure on the town governing authorities to provide electricity, telephone and road connections to these patchy developments. It also leads to “strip development” along the roads, as these uncontrolled, cheap parcels have both access and potential commercial use facing the roads. This causes congestion along the roads as well as accidents from vehicles pulling on and off the roads.

These fringe or peri-urban areas eventually come under the jurisdiction of the local authority, and eventually these areas need to be provided with infrastructure facilities and services as similar to the urban areas. The existing “strip” and “patchy development” becomes a hindrance during this process, which results in mismatches between the demand and the provision.

Presently, there exists a peripheral control zone of one kilometer radius around the Sarpang town. This needs to be further reinforced in the structure plan both in terms of legal and implementation aspects. Thus, an extended area around Sarpang’s present boundary has to be declared as within an Urban Peripheral Control Zone. This zone will employ one of the ‘Environmental Precinct’ systems of regulation.



## **B. Special Economic Development Zone**

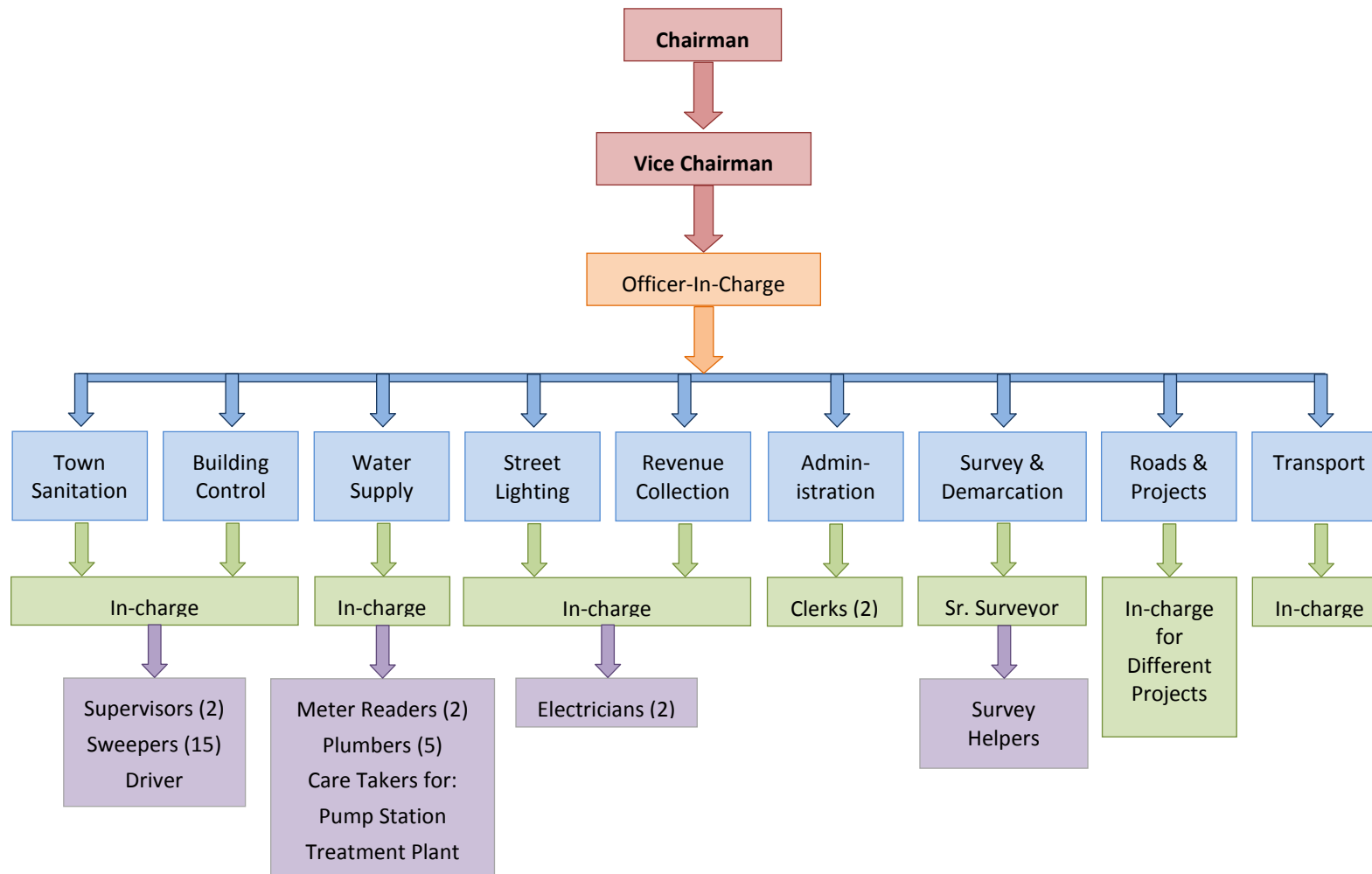
The Special Economic Development Zone proposed in the Sarpang- Gelephu region will extend from Sarpang till the villages in the east beyond the Mao Chhu at Gelephu, bounded by Indo-Bhutan International boundary and the mountain line on the south and north respectively.

All the existing settlements in the region will also be included in this zone. All these settlements apart from their own Development Control Regulations will also follow certain special guidelines as per the Special Economic Development Zone within their own confined administrative boundaries. The Zone designated will facilitate higher level economic generation activities envisioned in the concept plan, governed by special policies and incentives initiated by the Royal Government of Bhutan.

### **2.0.3 SETTING UP OF SARPANG THROMDE:**

As the smaller village turns into towns and develop into larger urban areas, town management becomes of utmost importance. In absence of a management institution growth inside the urban area goes beyond control. Similarly, in case of Sarpang, been identified as an upcoming urban area, to implement the Structure Plan it would require a management institution, a municipal corporation or an approving authority. Presently, Sarpang is dependent on Gelephu Municipal Corporation for even the smallest of the building permissions and other supports. With a Structure Plan in place it becomes important to set up a Municipal Corporation office based on the same institutional structure as that of Gelephu Municipal Corporation to govern and implement the Structure Plan efficiently. Setting up of a Municipal Corporation will not only take care of the Structure Plan implementation but also will have immense developmental pressure. Following is the proposed Institutional Structure for Sarpang Thromde:

Figure 1: Proposed Organization Structure for Sarpang Thromde



### 3. DEVELOPMENT CONTROL REGULATIONS-2010

The Bhutan Building Rules 2002, which follow, are basic guidelines applicable across the entire nation in a variety of settlements. On the other hand the Local Government Act 2009 enables Municipal Authorities to prepare plans for their respective urban settlements and adopt relevant development control regulations to direct development within their jurisdictions. The new Development Control Regulations 2010 for Sarpang supersedes the Bhutan Building Rules. The notes below explain the relationship between The Bhutan Building Rules 2002, and such development control regulations, which accompany Structure Plans for urban areas.

- The Bhutan Building Rules, 2002 (BBR, 2002) are applicable to urban areas across the country, in the absence of any structure plan for the urban areas in question. The operation of the Bhutan Building Rules 2002 is thus imperative, in urban areas where no structure plan exists.
- Wherever a structure plan is sanctioned, the provisions of the accompanying Development Control Regulations, which are an intrinsic part of the concerned structure plan, will be applicable in that urban area. The provisions in the Bhutan Building Rules itself enable this. This is also enabled by Section 67 of the Local Government Act of Bhutan, 2009, which specifically states that a “Municipal Corporation may adopt rules to carry out its functions specified in Sections 48 and 49 “ (which includes Planning and Land Use).
- Wherever a local area plan has been notified, its specific regulations, if any, shall be applicable within that local area alone. Generally, local area plans conform to the Development Control Regulations of the urban jurisdiction in which they fall.

Thus in the absence of Local Area Plans, the provisions of the Structure Plan for that urban settlement shall prevail. In the absence of a Structure Plan for any given settlement, the Bhutan Building Rules, 2002 shall prevail.

**This tiered set of Regulations reflects the fundamental policy of the Royal Government of Bhutan to decentralize governance, administration and development, enabling and facilitating strong responses to local conditions and aspirations. It may be noted that the new Development Control Regulations 2010 for Sarpang supersedes the Bhutan Building Rules, 2002 in the city of Sarpang, by providing some additional directives needed in a larger urban context. These same provisions may be extended to the other settlements as plans are prepared and conditions warrant.**

### 3.0 Section-1: Administration

#### 3.1 Title, Commencement and Jurisdiction

These Regulations may be called the Sarpang Thromde Development Control Regulations, 2010 (Sarpang TDCR-2010). These Regulations shall come into force with effect from the date of their notification by the Royal Government of Bhutan. These Regulations shall apply to the whole of the area within Sarpang Thromde as defined by the Sarpang Structure Plan 2010-2035. The provision in the BBR, 2002 shall supplement the STDRCR. This STDRCR shall supersede the BBR 2002 and all other local rules and regulations.

#### 3.2 Applicability

- 3.2.1 These Regulations shall be applicable from the date of their notification by the Royal Government of Bhutan. The Regulations shall be applicable to all development except those specifically mentioned in clause 3.2.2.
- 3.2.2 Except, as herein after otherwise provided, these Regulations shall apply to all development, redevelopment, erection or re-erection of a building, change of use, etc., as well as to the design, construction, reconstruction of, and making material additions and alterations to a building. However, where a part of a building layout or group-housing scheme is demolished, or altered, or reconstructed, these Regulations shall apply only to the extent of the new work involved.
- 3.2.3 Any action taken, or developments permitted, under the Regulations or Building Rules, existing prior to these Regulations coming into force, shall be deemed to be valid and continue to be so valid, unless otherwise specified.
- 3.2.4 In the case of development, for which the Commencement Certificate has been obtained prior to these Regulations coming into force, and where amendments to the sanctioned plan is proposed, these Regulations shall apply.
- 3.2.5 'Commencement Certificate' granted in the past shall be revalidated in conformity to these Regulations.
- 3.2.6 If there is a conflict between the requirements of these Regulations and those of any other rules or byelaws, these Regulations shall prevail.

#### 3.3 Interpretation

Unless the context otherwise requires, the terms and expressions not defined herein shall have the same meaning as indicated in the following legislations:

- 1) The Local Government Act of Bhutan, 2009
- 2) The Land Act 1979

- 3) Urban Area and Property Regulations 2003
- 4) National Housing Policy 2002
- 5) Building Code of Bhutan 2003
- 6) Bhutan Building Rules 2002

### **3.4 Delegation of Power**

The Implementing Authority may delegate any of the powers, duties or functions conferred or imposed upon or vested in the Implementing Authority to its officers, or designated committee of officers, generally or specially in writing and may impose certain conditions and limitations on the exercise of such powers as it may deem fit.

### **3.5 Discretionary Powers**

3.5.1 The Implementing Authority may exercise its discretion in conformity with the intent and spirit of these Regulations, in order to mitigate any demonstrable hardship or to sub serve public interest in the following ways:

- a) Decide on matters where it is alleged that there is an error in any order, requirement, decision and determination, interpretation made by it under delegation of powers, while applying these Regulations.
- b) Interpret these regulations in various contexts or in situations where more clarity is required under such circumstances the Implementing Authority's decision shall be final and binding.
- c) Decide upon the nature and the extent of concessions in respect of marginal distances, room heights, etc. that can be granted in cases of proven hardship for reasons which are to be recorded in writing. However, such relaxation shall not affect the health, safety and hygiene of the inhabitants of the building and the neighbourhood and the structural stability of the building. Provided further that while granting such relaxation, as above, the authority may impose conditions as may be necessary. These may include a payment of deposit and its forfeiture for non-compliance, payment of a premium amount and other obligations, etc.
- d) No concessions in respect of the additional floors shall be given.
- e) Decide on the fine or compounding charges to be made applicable in cases of developments where non-adherence to these Regulations is detected.
- f) Modify the limit of a precinct where the boundary of a precinct divides a parcel of land or where a layout street or a thram or a plot number actually on the ground varies from its location shown on the Structure Plan.
- g) Authorize the erection of a building or the use of premises for a public services undertaking or a public utility purpose where such an authorization is reasonably

necessary for the convenience and the welfare of the public, even if such erection or use is not permitted as per these Regulations.

h) Determine and establish the location of precinct boundaries in cases of doubts or controversies.

3.5.2 As regards the delegation of powers to exercise the discretion, all matters stated above shall be decided by a committee designated and authorized by the Implementing Authority.

3.5.3 When issues arise that are not covered within these Regulations, the Implementing Authority shall refer the matter to the Competent Authority.

### **3.6 Enforcement of Regulations through Involvement of Accredited Architects**

Enforcement of these Regulations may also be ensured through a mechanism of speedier approval of development proposals through Green Channel of accredited Architects as detailed out in these Regulations.

### **3.7 Power to Change the Appendices and Proformas**

The Implementing Authority shall have the powers to make amendments to the contents of appendices 2 and 4, the proformas and the procedures for grant of development permission from time to time.

### **3.8 Definitions**

These Regulations, unless the context otherwise requires, the terms and expressions defined as follows shall have the meaning indicated against each of them.

The terms and expressions not defined in these Regulations shall have the same meanings as in the Local Government Act of Bhutan, 2009 and the rules framed there under or as mentioned in the Bhutan Building Rules, 2002 and the Building Code of Bhutan, 2003 as the case may be unless the context otherwise requires.

#### **ACT**

Shall mean the Local Government Act of Bhutan, 2009

#### **ADDITIONS AND/ OR ALTERATIONS**

Shall mean any change in an existing authorized building or approved plans of a building, or a change from one use to another use, or a structural change such as additions to the area or height, or the removal of part of a building, or a change to the structure, such as the construction or cutting into or removal of any wall or part of a wall, partition, column, beam, joist, or re-roofing, or re-construction of any kind, alterations to a floor, including a mezzanine floor, or any support, or a change to, or closing of any required means of ingress, or egress, or a change to fixtures, or equipment, as provided in these Regulations.

#### **ADVERTISING SIGN/HOARDING**

Shall mean any surface or a structure with any character, letter or illustration, applied there to and displayed in any manner whatsoever out of doors for the purpose of advertising, giving information regarding, or to attract the people to any place, cause, person, public performance, article or merchandise, and which surface or structure is attached to, forms part of, or is connected with any building, or is fixed to a tree or to the ground, or to any pole, screen, hoarding or displayed in any space, or in or over any water body included in the limits of the notified area of the Implementing Authority.

**AIR-CONDITIONING**

Shall mean the process of treating air to control simultaneously, or singly, its temperature, humidity, cleanliness and distribution to meet the requirement of an enclosed space.

**AMENITIES**

Shall mean roads, streets, open spaces, parks, recreational grounds, play-grounds, gardens, water supply, electric supply, street lighting, drainage, sewerage, public works and other utilities, communication network, etc. for the citizens' use and convenience.

**APARTMENT/FLATS**

Shall mean residential buildings constructed in a detached or semidetached manner being designed as ground floor plus one or more upper floors and constructed as separate dwelling units with common staircase and other building services.

**APPLICANT**

Shall mean the registered owner(s) of a property who applies in the prescribed form to construct/ alter/ extend a building.

**ARCHITECT**

Shall mean a person with degree in architecture from an Institute, College or University accredited by the respective country's accreditation board to impart professional degrees in architecture.

**ATTIC**

Shall mean the space within the confines of the roof structure, above the ceiling of the top floor which is constructed and adopted for storage purpose, lift machine room, water tanks etc.

**BASEMENT OR CELLAR**

Shall mean the lowest storey of a building more than 75% below the lowest ground level. Permitted only for vehicular parking and other building services.

**BUILDING LINE**

Shall mean the plinth of the building running in line with the adjoining plinth of the building parallel to the road.



**BUILDING SERVICES**

Building Services shall mean HVAC plant, power generator, underground sumps, pumps, boilers, sub-station, lift pits and related services, chutes, storages, laundry and other services related to building maintenance

**BETTERMENT CHARGE**

Means a charge levied by the Implementing Authority for ensuring off-site services and amenities to the area by the Implementing Authority.

**BUILDING**

Meaning any structure for whatsoever purpose, and of whatsoever materials constructed and every part thereof, whether used as human habitation or not including foundations, plinths, walls, columns, floors, roofs, chimneys, plumbing and building services, fixed platforms, verandas, balconies, cornices or projections, part of a building or anything affixed thereto. However, structures of a temporary nature like tents, hutments, etc. erected for temporary purposes or for ceremonial occasions, with the permission of the Implementing Authority, shall not be considered to be "buildings".

- a) **"Assembly building"** shall mean a building or part thereof where groups of people congregate or gather for amusement, recreation, social, religious, patriotic, civil, travel and similar purposes. Assembly buildings shall include theatres for drama and cinema, city halls, town halls, auditoria, exhibition halls, museums, "marriage halls", "skating rinks", gymnasia, stadia, restaurants, eating or boarding houses, places of worship, dance halls, clubs, road, air, or other public transportation stations.
- b) **"Business building"** shall mean any building or part thereof used for transaction or record thereof. Offices, banks and all professional establishments are classified as business buildings if their principal function is transaction of business and/or keeping of books and records thereof.
- c) **"Detached building"** shall mean a building with walls and roofs independent of any other building and with open spaces on all sides.
- d) **"Semi Detached Building"** shall mean a building detached on three sides with open spaces as specified in these Regulations. A superficial connection via a beam, wall, balcony, corridor, Sky Bridge, or any other trivial connection will not qualify a building to be defined as "semi-detached"
- e) **"Educational building"** shall mean a building exclusively used for a school or college, recognized by the appropriate Board or University, or any other Implementing Authority involving assembly for instruction, education or recreation incidental to educational use, and including a building for such other uses incidental thereto such as a library, laboratory, fine arts facility, or a research institution. It shall also include quarters for essential staff required to reside in the premises, and buildings used as hostels and

boarding solely captive to an educational institution whether situated in its campus or not.

- f) **"Hazardous building"** shall mean a building or part thereof used for:
- (i) Storage, handling, manufacture or processing of radio- active substances or of highly combustible or explosive materials or products which are liable to burn with extreme rapidity and/or producing poisonous fumes or explosive emanations.
  - (ii) Storage, handling, manufacture or processing which involves highly corrosive, toxic obnoxious alkalis, acids, or other liquids, gases or chemicals producing flame, fumes, and explosive mixtures or which result in division of matter into fine particles capable of spontaneous ignition.
  - (iii) Storage, handling, manufacture, experimentation, research, or processing which could cause any danger to the public health, hygiene or safety, as certified by the competent health and safety officials of the Royal Government of Bhutan
- g) **"Industrial building"** shall mean a building or part thereof wherein products or materials are fabricated, assembled or processed, such as assembly plants, laboratories, power plants, refineries, gas plants, mills, dairies and factories.
- h) **"Institutional or public building"** shall mean a building constructed by the Royal Government, Semi-Government organizations, public sector undertakings, registered Charitable Trusts for their public activities, such as administration, education, medical, recreational and cultural, hostel for working women or men, or for an auditorium or complex for cultural and allied activities, or for an hospice, care of orphans, abandoned women, children and infants, convalescents, destitute or aged persons and for penal or correctional detention with restricted liberty of the inmates ordinarily providing sleeping accommodation, and includes dharamshalas, hospitals, sanatoria, custodian and penal institutions such as jails, prisons, mental hospitals, houses of correction, detention and reformatories, clubs, golf course, sports stadium, buildings and facilities constructed by the Royal Government for the promotion of tourism, such as inns, resorts, lodges, etc..
- i) **"Commercial/ Mercantile building"** shall mean a building or part thereof primarily used for commercial purposes such as shops, stores, departmental stores or markets, for display and sale of goods or merchandise, including office, storage and service facilities incidental thereto located in the same building. Mixed use buildings with commercial areas on the ground floor and residential above shall be construed as Commercial building for the purposes of this document.
- j) **"Office building (premises)"**, shall mean a building or premises or part thereof whose sole or principal use is for an office or for office purposes or clerical work. "Office purposes" includes the purpose of administration, clerical work, handling money, telephone, telegraph and computer operation; and "clerical work" including writing, book-keeping,

sorting papers, typing, filing, duplicating, punching cards, tapes or machines, calculations, drawing, of matter for publication and editorial preparation of matter of publication.

- k) **"Residential Building"** shall mean a building in which sleeping accommodation is provided for normal residential purposes, with or without cooking or dining facilities, and includes one or more family dwellings, lodging or boarding houses, hostels, dormitories, apartment houses, flats and private garages of such buildings.
- l) **"Special Building"** shall mean
  - (i) a building solely used for the purpose of a drama or cinema theater, motion picture, drive-in-theatre, an assembly hall or auditorium, town hall, lecture hall, an exhibition hall, theatre, museum, a stadium, a "community hall, marriage hall;
  - (ii) a hazardous building;
  - (iii) a building of a wholesale establishment;
  - (iv) a building of more than two floors constructed on stilts,
  - (v) a building of more than four floors.
- m) **"Storage Building"** shall mean a building or part thereof used primarily for storage or shelter of goods, merchandise and includes a building used as a warehouse, cold storage, freight depot, transit shed, store house, public garage, hangar, truck terminal, grain elevator, barn and stable.
- n) **"Unsafe Building"** shall mean a building which,
  - (i) is structurally unsafe,
  - (ii) is unsanitary,
  - (iii) is not provided with adequate means of egress,
  - (iv) constitutes a fire hazard,
  - (v) is dangerous to human life,
  - (vi) in relation to its existing use constitutes a hazard to safety or health or public welfare by reasons of inadequate maintenance, dilapidation or abandonment.
- o) **"Wholesale establishment"** shall mean an establishment wholly or partly engaged in wholesale trade and manufacture, wholesale outlets, including related storage facilities, warehouses and establishments engaged in truck transport, including truck transport booking, warehouses.

#### **BUILDING LAND PARCEL**

Shall mean a land/plot or part of a land/plot or combination of more than one land/plot over which a building is to be constructed as approved by the Implementing Authority.

**BUILT-UP AREA**

Shall mean the area covered by a building on all floors including cantilevered portions, if any, but except the areas excluded specifically under these Regulations.

**BALCONY**

A platform projecting from the wall of the building with a balustrade or railing along its outer edge, often with access from a door or windows.

**BUILDING SETBACK**

Shall mean a distance between the plot boundary and building or distance between building.

**BUILDING INSPECTOR**

Shall mean a technical person authorized by the Implementing Authority to inspect buildings and their premises during construction / renovation / addition / alteration.

**CARPET AREA**

(Otherwise called "Net Internal Floor Area") shall mean the covered area on all floors, excluding the area of the walls.

**COMPETENT AUTHORITY**

Shall mean the authority as defined in the Municipal Act, 1999.

**IMPLEMENTING AUTHORITY**

Shall mean Sarpang Thromde to perform such functions as may be specified in these Regulations.

**CHIMNEY**

Shall mean a construction by means of which a flue is formed for the purpose of carrying products of combustion to the open air and includes a chimneystack and the flue pipe.

**COMMON WALL**

Shall mean a structure joining two or more properties.

**COMBUSTIBLE MATERIAL**

Shall mean that material which when burnt adds heat to a fire when tested for combustibility in accordance with the IS: 3808-1966 Method of Test for Combustibility of Building Material, National Building Code, India.

**CONVENIENCE SHOP**

Shall mean shops each with a carpet area not exceeding 20 sq.m and comprising those dealing with day-to-day requirements, as distinguished from wholesale trade or retail shopping. It includes:

- (i) Food grain or ration shops
- (ii) Doma shops/kiosks
- (iii) Shops for collecting and distribution of clothes and other materials for cleaning and dyeing establishments
- (iv) Tailor or danner shops
- (v) Groceries, confectioneries, general provision shops
- (vi) Hair dressing saloons and beauty parlours
- (vii) Bicycle / scooter/ motorcycle hire shops
- (viii) Motorcar hire shops
- (ix) Vegetable and fruits shops
- (x) Milk and milk products shops
- (xi) Medical and dental practitioners' dispensaries or clinics, pathological or diagnostic clinics and pharmacies
- (xii) Florists.
- (xiii) Shops dealing in ladies ornaments such as bangles, cosmetics, etc.
- (xiv) Shops selling bakery products
- (xv) Newspaper, magazine stalls and circulating libraries
- (xvi) Wood, coal and fuel shops
- (xvii) Books and stationery shops or stores
- (xviii) Cloth and garment shops
- (xix) Plumbers, electricians, radio, television and video equipment repair shops and video libraries
- (xx) Restaurants and eating houses
- (xxi) Shoes and sports shops
- (xxii) Hardware shops
- (xxiii) Taxi stand office

With the approval of the Implementing Authority, this list may be added to, or altered, or amended from time to time.

#### **CORRIDOR**

Shall mean a common passage or circulation space including a common entrance hall.

**COURTYARD**

Shall mean a space permanently open to the sky within the site around a structure or surrounded either partially or completely by a structure.

**COMMON PLOT / LAND**

Shall mean a common open to sky space exclusive of setbacks, margins, parking spaces and approaches, at the ground level of the building unit to be used collectively by the joint owners.

**COVERED AREA**

Shall mean the area covered by a building on the ground floor.

**DEVELOPER**

Shall mean the person, who is legally empowered to construct or to execute work on a plot of land, building unit, building or structure, or where no person is empowered, the owner of the building unit, building or structure.

**DEVELOPMENT**

Means the carrying out of building construction, engineering, mining, or other operations, in, over, or under land or water or the making of any material or structural change including demolition of building or reclamation of land or any change in use of the premises and includes redevelopment and layout and sub-division of any land.

**Plotted Development:** Means the carrying out of development leading to the subdivision of land into plots.

**Flatted Development:** Means the carrying out of development on a site leading to the construction of flats.

**DEVELOPMENT CHARGE**

Means a charge levied by the Implementing Authority as per the provisions of the Local Government Act of Bhutan, 2009 clause 95.

**DEVELOPMENT PERMISSION**

Means a valid permission, or authorization, in writing by the 'Implementing Authority' to carry out development, issued to a legally empowered developer, with due regard to the prevailing Act/ Regulations in force at the time of issue.

**DEVELOPMENT RIGHT**

Means the right to carry out development of a building or land, and shall include the transferable development right in the form of right to utilize the permissible built-up area of

land utilizable either on the remainder of the land partially reserved/ directed to be reserved for a public purpose within the site of the reserved, or elsewhere.

**DEVIATION**

Shall mean carrying out or undertaking a building construction or land development activity in departure from the sanctioned/ approved plans, permissions or orders, irrespective of the degree of change.

**DRAIN**

Shall mean a system or a line of pipes, with their fittings and accessories such as manholes, inspection chambers, traps, gullies, floor traps, used for drainage of buildings or yards appurtenant to the buildings within the same catchments. A drain includes an open channel for conveying surface water or a system for the removal of any liquid.

**DWELLING UNIT**

Shall mean a shelter consisting of residential accommodation for one household. Provided that the minimum accommodation in a dwelling unit shall be one habitable room of minimum carpet area of 9sqm with a minimum side dimension of 2.5m and a water closet (WC). It may not have more than one kitchen or cooking space.

**ENCLOSED STAIRCASE**

Shall mean a staircase separated by walls and doors from the rest of the building.

**ENGINEER**

Shall mean a person with a degree or diploma in civil and /or structural engineering from any recognized Institute, College, or University of Engineering accredited by the respective country's accreditation board to impart professional degrees in engineering.

**EXISTING BUILDING**

Shall mean a building or a structure existing before the commencement of these Regulations.

**EXISTING USE**

Shall mean use of a plot of land, a building, or a structure existing before the commencement of these Regulations.

**EXIT**

Shall mean a passage, channel of means of egress from any building, storey or floor area to a street or other open space of safety; horizontal exit, outside exit and vertical exit having meanings at (i), (ii) and (iii) respectively as under:

- (i) "HORIZONTAL EXIT": shall mean an exit which is a protected opening through or around a firewall or bridge connecting two or more buildings.
- (ii) "OUTSIDE EXIT": shall mean an exit from a building to a public way, to an open area leading to a public way, or to an enclosed fire resistant passage leading to a public way.
- (iii) "VERTICAL EXIT": shall mean an exit used for ascending or descending between two or more levels, including stairways, smoke-proof towers, ramps, escalators and fire escapes.

**EXTERNAL WALL**

Shall mean an outer wall of a building not being a party wall even though adjoining a wall of another building and also shall mean a wall abutting on an interior open space of any building.

**ESCAPE ROUTE**

Shall mean any well-ventilated corridor, staircase or other circulation space, or any combination of the same, by means of which a safe place in the open air at ground level can be reached.

**FIRE AND/ OR EMERGENCY ALARM SYSTEM**

Shall mean an arrangement of call points or detectors, or sensors, or sounders, and other equipment for the transmission and indication of alarm signals working automatically or manually in the event of fire.

**FIRE PROOF DOOR**

Shall mean a door or shutter fitted to a wall opening, and constructed and erected with the requirement to check the transmission of heat and fire for a specified period. Fireproof doors for various purposes must conform to the specifications and performance standards as laid out in the Bhutan Building Code of Bhutan 2003, (BTS-015-2003, Part 2 Section 6 Fire Protection).

**FIRE PUMP**



Shall mean a machine, driven by external power for transmitting energy to fluids by coupling the pump to a suitable engine or motor, which may have varying outputs/capacity but shall be capable of having a pressure of 3.2kg/cm<sup>2</sup> at the topmost level of a multi-storied building.

**FIRE RESISTANCE**

Shall mean the time during which a fire resistant material, i.e. material having a certain degree of fire resistance, fulfils its function of contributing to the fire safety of a building when subjected to prescribed conditions of heat and load or restraint. The fire resistance test of structures shall be done in accordance with IS: 3809-1966 Fire Resistance Test of Structure.

**FIRE SEPARATION**

Shall mean the distance in meters measured from any other building on the site or from another site, or from the opposite side of a street or other public space to the building.

**FIRE SERVICE INLET/ HYDRANT**

Shall mean a connection provided at the base of a building for pumping up water through-in-built fire-fighting arrangements by fire service pumps in accordance with the recommendation of the Chief Fire Officer.

**FIRE TOWER**

Shall mean an enclosed staircase, which can only be approached from the various floors through landings or lobbies separated from both the floor area and the staircase by fire resisting doors. The specifications and performance standards of the enclosing walls, materials and doors shall be as per those stated in I.S3809-1966 Fire Resistance Test of Structure.

**FLOOR**

Shall mean the lower surface in a storey on which one normally walks in a building, and does not include a mezzanine floor. The floor at ground level with a direct access to a street or open ground/ land shall be called the ground floor; the ground floor shall also be counted as a floor in defining the number of floors. (In the estimation of floors, the actual areas or extent of the floors shall have no consideration) The nomenclature of the other floors shall be as follows: the floor above the ground floor shall be termed as floor 1, with the next higher floor being termed as floor 2, and so on upwards.

**FLOOR AREA**

Shall mean the total area of the floor including the area of walls.

**FRONT**

Front as applied to a plot; shall mean the portion facing the road and in case of plot abutting on more than one road the plot shall be deemed to front on all such roads / means of access.

**FOOTING**

Shall mean a foundation unit constructed in brickwork, stone masonry or concrete under the base of a wall or column for the purpose of distributing the load over a large area.

**FOUNDATION**

Shall mean that part of the structure, which is in direct contact with and transmitting loads to the ground.

**GARAGE/ PARKING – PRIVATE**

Shall mean a building or a portion thereof designed and used for the parking of vehicles.

**GARAGE/ PARKING – PUBLIC**

Shall mean a building or portion thereof, designed other than as a private garage, operated for gain, designed and/or used for parking motor-driven or other vehicles.

**GROUND LEVEL**

Shall mean the lowest ground level within the plot.

**GROUP HOUSING**

Shall mean a housing scheme wherein two or more independent dwelling units or buildings are constructed in an undivided parcel of land.

**HARDSHIP**

Shall relate to the hardship arising due to the internal operation of the rules and not to the economic, social or personal condition of the applicant.

**HOME OCCUPATION**

Shall mean customary home occupation other than the conduct of an eating or a drinking place offering services to the general public, customarily carried out by a member of the family residing on the premises without employing hired labour, and for which there is no display to indicate from the exterior of the building that it is being utilized in whole or in part for any purpose other than a residential or dwelling use and in connection with which no article or service is sold or exhibited for sale except that which is produced therein, which shall be non-hazardous and not affecting the hygiene or safety of the inhabitants of the building and the neighbourhood, and provided that no mechanical equipment is used except

that as is customarily used for purely domestic or household purposes and /or employing licensable goods. If motive power is used, the total electricity load should not exceed 0.75 KW. "Home Occupation" may also include such similar occupations as may be specified by the Implementing Authority and subject to such terms and conditions as may be prescribed. Under no case should an economic activity, deemed as a "Home Occupation" if it generates nuisance by way of sound, water, or air pollution.

**HABITABLE ROOM**

Shall mean a room occupied or designed for occupancy for human habitation and uses incidental thereto, including a kitchen if used as a living room, but excluding a bath-room, water closet compartment, laundry, serving and storing, pantry, corridor, cellar, attic, store-room and spaces not frequently used.

**HAZARDOUS MATERIAL**

Shall mean: radioactive substances and material which is highly combustible or explosive and/or which may produce poisonous fumes, explosive emanations, or storage, handling, processing or manufacturing of which may involve highly corrosive, toxic, obnoxious alkalis or acids or other liquids; other liquids or chemicals producing flame, fumes, explosive, poisonous, irritant or corrosive gases or which may produce explosive mixtures of dust or fine particles capable of spontaneous ignition.

Biological substances causing viruses, infections or which could cause uncontrolled bacterial growth harmful to humans, livestock, or plant life.

**HEIGHT OF BUILDING**

Shall mean the vertical distance measured from the level of the lowest natural ground level, up to the top of the finished level of the top most floor slab in case of flat roofs and up to the midpoint of the height of the sloping roof. The height of the sloping roof shall be taken as an average height of the relevant floor. The number of floors specification includes the ground floor. However the maximum height of the attic shall be limited to that given in the Critical Dimensions (see Concerned Section).

In addition to the precinct regulations, the height of buildings shall be governed by the "Guidelines on Traditional Architecture of Bhutan" and by the overall allowable building heights.

**HEIGHT OF A ROOM**

Shall mean the vertical distance measured from the finished floor surface to the finished ceiling/slab surface. The height of a room with a pitched roof shall mean the average height between the finished floor surface and the bottom of the eaves and the bottom of the ridge.

**KIOSK**

Shall mean any light open-fronted booth selling fast food, newspapers, tickets, telephone booth etc

**LAYOUT**

Shall mean laying out a parcel of land or lands into smaller plots for building on, with laying of roads / streets, including formation, levelling, metalling or blacktopping or paving of the roads and footpaths, etc. and laying of the services and amenities such as water supply, drainage, street lighting, open spaces, etc.

**LIFT**

Shall mean a mechanically guided car, platform or transport for persons and materials between two or more levels in a vertical or substantially vertical direction.

**LIGHT HOME WORKSHOP**

Means a workshop wherein the work done or the machinery installed is such as could be done or installed in any residential area without detriment to the neighbourhood by means of noise, vibration, smell, fumes, smoke, soot, ash, dust or grit etc.

It will be subject to the following restrictions:

- a) Power used will be electrical.
- b) Maximum power used will be 1.5 KW.
- c) Maximum floor space occupied will be 20sqm.
- d) It will be worked by the members of the family.
- e) Any part of the machinery including pulley, belt shafts etc. shall be attached to the walls or other parts of the building except the floor at which the same machinery is supported.

Such home workshop may be gold smithy, milk or curd churning, pills making, stitching embroidery, tailoring, vulcanizing, sewing machine, folding machine, and milk-separation.

**LIGHT INDUSTRY**

Means an industry in which the processes are carried out without detriment to the neighbouring residential areas by reason of noise, vibration, smell, fumes, smoke, soot, ash, dust or grit. It will be subject to the following restrictions:

- (i) Power used will be electrical
- (ii) Maximum power used will be 10 KW, which may be enhanced up to 25 KW by the Implementing Authority in special cases of genuine expansion of existing factory, which may have reached the maximum limit of power.
- (iii) Maximum floor space occupied shall not exceed 500sqm.

- (iv) It will be housed in a building suitable for the purpose. However, it shall not include the following industries:

Manufacturing or refining of ammonia, bleaching powder, chlorine, asphalt, brick, terracotta, gypsum, lime, plaster of Paris, coke, creosote, glucose, starch, dye, explosive or fireworks or storage thereof in excess of 50 Kg. fertilizers, gas (fuel or illuminating) in excess of three hundred cubic meters, gelatin or glue from fish or animal refuse, or offal, hydrochloric acid, nitric acid, sulphuric or sulphurous acid, lead black, linoleum or oil cloth, matches, pyrexilin or rubber or treatment thereof involving offensive odour, tar, turpentine or blast furnace, coal or junk yard, distillation of bores, coal weed or tar or manufacture of any of their distilled products, drop forages, fat grease lard of fallow manufactures, refining or rendering lout or grist mill, hot rolling mill, incineration, reduction, or dumping of dead animals, garbage or refuse except when accumulated and consumed on the same premises without the emission of odour, production or refining or storage above ground of petroleum or other inflammable liquids (except heating fuels), slaughtering of animals, tanning or curing or storage of raw hides and skins, tyre recapping.

#### **LOFT**

An Intermediary floor between two floors on a residual space in a pitched roof, above normal floor level with a maximum height of 1.5m and which is constructed or adopted for storage purpose.

#### **MARGIN/ SETBACK**

Shall mean space fully open to sky provided at the ground level from the edge of the building wherein built-up area shall not be permitted except specifically permitted projections under this regulation.

#### **MEZZANINE FLOOR**

Shall mean an intermediate floor with height not more than 2.3m, between two main floors overhanging or overlooking a floor beneath and accessible only from the lower floor. The total floor area of the Mezzanine floor should not exceed 1/3rd of the lower area. The floor area of the mezzanine floor shall be considered for calculating the total built up area of the building.

#### **MUNICIPAL BOUNDARY**

Shall mean the boundary of Sarpang City as defined by the Royal Government / Competent Authority.

#### **NEIGHBOURHOOD CENTRE AND CIVIC CENTRE**

Neighbourhood Centre and Civic Centre shall include activities such as community shopping centre, market, office building, cinema, small hospital, playground, swimming pool, town hall, open air theatre, civic and cultural facilities, library, higher secondary school, parking plots, public utility and service buildings such as post office, fire station, police station, religious building and building of public uses.

#### **NON-COMBUSTIBLE**

Shall mean not liable to burn or add heat to a fire when tested for combustibility in accordance with the IS: 3808-1966 Method of Test for Combustibility of Building Materials.

**OBNOXIOUS and HAZARDOUS INDUSTRY**

Means industry, which will create nuisance to the surrounding development in the form of smell, smoke, gas, dust, noise pollution, air pollution, water pollution and other unhygienic conditions.

**OCCUPANCY OR USE**

Shall mean the principal occupancy or use for which a building, or a part of it, is used or intended to be used, including contingent subsidiary occupancies; mixed occupancy building being those in which more than one occupancy are present in different portions of the building.

**OCCUPANCY CERTIFICATE**

Shall mean an official document issued by the Implementing Authority certifying that the building is safe and fit for occupation.

**OPEN SPACE**

Shall mean an area forming an integral part of the plot or an independent plot, left permanently open to sky.

**OWNER**

Shall mean person in whose name the land or property is registered as per the Land Records with Sarpang Thromde and who receives rent for the use of the land or building or would be entitled to do so if it were let.

**PARAPET**

Shall mean a low wall or railing built along the edge of roof or a floor.

**PARKING SPACE**

Shall mean an area, enclosed or unenclosed, covered or uncovered, sufficient in size to park vehicles with space for movement. Parking spaces shall be served by a driveway connecting them with a street or alley and permitting ingress or egress of vehicles.

**PARTITION**

Shall mean an interior non-load bearing divider wall not more than one storey or part thereof in height.

**PERMANENT OPEN AIR SPACE**

Shall mean air space permanently open if its freedom from encroachment is protected by any law or contract ensuring that the ground below it is either a street or is permanently and irrevocably appropriated as an open space.

**PERMISSION**

Shall mean a valid permission or authorization in writing by the Implementing Authority to carry out development or a work regulated by the Regulations.

**PLINTH**

Shall mean a portion of a building between the surface of the surrounding ground level and the finished floor surface immediately above the ground.

**PLINTH HEIGHT**

Shall mean the height of the finished floor of the lowest floor level above the natural ground level.

**PLINTH AREA**

Shall mean the built-up covered area measured at the floor level of the basement or of any storey, including the walls.

**PLOT**

Shall mean a piece of land enclosed by definite boundaries fixed by the Implementing Authority.

**PORCH**

Shall mean a covered surface supported on pillars or otherwise for the purpose of a pedestrian or vehicular approach to a building.

**PRECINCT PLAN**

Shall mean a geographical area designated in the approved Urban Development Plan/ Structure Plan for the purpose of regulating land uses within the approved municipal boundary.

**PUBLIC PURPOSE**

The expression "Public Purpose" includes:

- a) The provision of village sites, or the extension, planned development or improvement of existing village sites;
- b) The provision of land for town or rural planning;
- c) The provision of land for planned development of land from public funds in pursuance of any scheme or policy of Royal Government and subsequent disposal thereof in whole or in part by lease, assignment or outright sale with the object of securing further development as planned;

- d) The provision of land for a corporation owned or controlled by the Royal Government;
- e) The provision of land for residential purposes to the poor or landless or to persons residing in areas affected by natural calamities, or to persons displaced or affected by reason of the implementation of any scheme undertaken by the Royal Government, any local Authority or a corporation owned or controlled by the Royal Government;
- f) The provision of land for carrying out any educational, housing, health or slum/ bagos improvement and/or clearance scheme sponsored by the Royal Government or by any Authority established by the Royal Government for carrying out any such scheme or with the prior approval of the Royal Government,
- g) The provision of land for any other scheme of development sponsored by the Royal Government or with the prior approval of the Royal Government, by a local Authority;
- h) The provision of any premises or building for locating a public office, but does not include acquisition of land for Companies.

**PUBLIC UTILITY NOTE, PUBLIC FACILITY, SERVICES BUILDINGS** shall include buildings or works developed or undertaken by the Govt./ Semi-Govt. or Public Undertaking only, such as sub-station, and receiving station of the Electricity Dept., Building for infrastructural facilities like bus service, water supply, drainage, sanitation, domestic garbage disposal, pumping station, electricity, purification plant, police building, post and telegraph and telecommunication, public urinals, milk supply, and public telephone booth, fire brigade station, ward and zonal offices of Implementing Authority, taxis, scooter and cycle stand and parking lot, garden, nursery, playground and open spaces, canal, communication network, first aid medical centre, primary health centre, dispensary, library, reading room and religious buildings/ places of public worship.

#### **PROPERTY**

Shall mean either a business or industrial premise; a single domestic dwelling, e.g. a house or an apartment; or a building with multiple domestic dwellings, businesses or industries or empty lot.

#### **REGISTERED ARCHITECT/ ENGINEER/ STRUCTURAL DESIGNER/ URBAN PLANNER/ DESIGNER/ DEVELOPER**

Shall mean respectively a person registered by the Implementing Authority or any other recognized institutions/ organizations for the purpose of these Regulations as an Architect, Engineer, Structural Designer, Urban Designer, Urban Planner or Developer, under these Regulations or any other Rules prevailing for the area.

#### **RECREATION and OPEN SPACES**

Shall mean an area primarily intended for active and passive recreational purposes.

#### **REFERRAL AUTHORITY**



Shall mean an Authority created by the RGoB to which certain aspects of a proposed development may be required to be referred to, and a “no objection certificate’ obtained from, before the Implementing Authority scrutinizes/examines the proposal for giving approval.

**RESIDENTIAL BUILDING**

Shall mean a building used for human habitation including garages and out houses.

**RESIDENTIAL USE**

Shall mean a use of any building unit for the purpose of human habitation and includes similar activities like hotels, lodges, inns, guesthouses, and hostels.

**RIGHT OF WAY**

(ROW) shall mean an area reserved for road carriageway, central verge, footpath, roadside drains, avenue plantations and utilities.

**ROAD/ STREET**

Shall mean any public expressway, highway, boulevard, street, lane, pathway, alley, stairway, passageway, carriageway, footway, square place or bridge, whether a thoroughfare or not, over which the public have a right of passage or access or have passed and had access uninterruptedly for a specified period, whether existing or proposed in any scheme, and includes all bunds, channels, ditches, storm-water drains, culverts, sidewalks, traffic islands, road-side trees and, hedges retaining walls, fences, barriers and railings within the street lines.

**ROW HOUSES**

Shall mean a row of houses with only front and rear open spaces.

**STREET-LEVEL OR GRADE**

Shall mean the officially established elevation or grade of the centre line of the street upon which a plot fronts, and if there is no officially established grade, the existing grade of the street at its midpoint.

**SUB-DIVISION**

Shall mean the division of a single plot or building unit into two or more legal parts.

**SANITARY INSPECTOR**

Shall mean a technical person authorized by the Implementing Authority to inspect and regulate water supply, drainage and sanitation.

**SERVICE ESTABLISHMENT**

Is wherein the work done or the machinery installed in such as would render service to the local residents and would satisfy their day-to-day residential needs and which does not create nuisance to the surrounding development in terms of noise, dust, water and air pollution. It will be subject to the following restrictions:

- (i) Power used will be electrical.
- (ii) Maximum power used to be 10 KW for residential zone and not more than 25 KW in commercial zone.
- (iii) Maximum floor space occupied will be 50sqm.
- (iv) It shall be detached and housed in a shop or a building specially designed for the purpose. Such establishment may be a fuel filling and/or service station, flour mill, bakery, laundry, air compressor unit, electrical motor, optical repair and watch repair shop, repair of musical instrument, carpentry, book-binding, printing press, paper-cutting, water cooling, and juice extracting unit, black-smithy, vulcanising, motor winding, cutting and nut cutting unit etc.

#### **SERVICE ROAD**

Shall mean a road/ lane provided at the front, rear or side of a plot for service purposes and includes a road/ lane provided along a major road or expressway to cater to local traffic.

#### **SHOPPING CENTRE OR COMMERCIAL CENTRE**

Shall mean group of shops, offices and/ or stalls designed to form market/office complex.

#### **SITE DEVELOPMENT**

Means the carrying out of engineering, mining, or other operations, in, over, or under land or water or the making of any material or structural change including demolition of building or reclamation of land or any change in use of the premises and includes redevelopment and layout and subdivision of any land.

#### **STAIR COVER**

Shall mean a structure with a covering roof over a staircase and it's landing built to enclose only the stairs for the purpose of providing protection from the weather, and not to be used for human habitation.

#### **STOREY**

Shall mean the portion of a building included between the surface of any floor and the surface of the floor next above it, or if there be no floor above it, then the space between any floor and the ceiling next above it.

#### **TENEMENT**

Shall mean an independent dwelling unit with a kitchen, or a cooking space.

**TENEMENT BUILDING / OWNERSHIP FLATS**

Shall mean a residential building constructed in a detached manner, or in a semi-detached manner, or as ownership flats in a building unit, each being designed and constructed for separate occupation with independent provision of bath and WC.

**TRAVEL DISTANCE**

Shall mean the distance from the remotest point of a building to a place of safety, be it a vertical exit or a horizontal exit or an outside exit, measured along the line of travel.

**URBAN CONTROL ZONE**

Shall mean a defined peripheral area immediately outside the municipal boundary as fixed by the Competent Authority and restricted for development activities.

**URBAN PLANNER/DESIGNER**

Shall mean a person with degree or diploma in Urban Planning/ Designing from an Institute, College or University accredited by the respective country's accreditation board to impart professional degrees in Urban Planning/ Designing.

**UNAUTHORIZED BUILDING**

Shall mean a building or structure which was constructed without sanction from the Implementing Authority empowered to control building pattern and form, at the time the concerned construction took place.

**VENTILATOR**

Shall mean an appliance or an aperture which is usually used for the purpose of ventilating a room or space.

**WATER CLOSET (WC)**

Shall mean a privy with an arrangement for flushing the pan with water, but does not include a bathroom. It shall not be smaller in floor area than one square meter.

**WATER COURSE**

Shall mean a natural channel or an artificial channel formed by draining or diversion of a natural channel meant for carrying storm and wastewater.

**WAREHOUSE OR GODOWN**

Shall mean a public or private building, the whole or a substantial part of which is used or intended to be used for the storage of goods whether for storing or for sale or for any similar purpose.

#### **WHOLESALE TRADE**

Shall mean a business or enterprise, which operates on the basis of buying, receiving, transiting or taking goods from the producers and selling, trading, distributing such goods and products to retailers, convenience shops, etc., but not to the end users. Any trade where ninety percent of the premises used is for the storage of bulk goods, cartons and crates of goods, dissembled goods or goods to be passed on to retail units or direct sales outlets shall be deemed to be a Wholesale Trade use/ activity.

#### **WINDOW**

Shall mean an opening, other than a door, to the outside of a building, which provides all or part of the required ventilation.

#### **INTERPRETATION AND MEANING OF EXPRESSION**

The use of present tense includes future tense, the masculine gender includes feminine gender and singular includes plural or vice versa.

### **3.9 Section 2a: Land Development/ Subdivision/ Consolidation and Building Permission**

#### **3.10 Procedure for Obtaining Development Permission**

No person shall change the use of a land or carry out development without the written permission of the Implementing Authority.

Provided that no such development permission shall be necessary for the following:

- (i) Carrying out works for the maintenance, improvement or alteration of a building, being works which affect only the interior of the building without altering the structural members of the building or which do not materially affect the external appearance thereof – such as providing or closing of a window or a door or ventilator not opening towards other's property, providing intercommunication door, white washing/ painting, retiling, plastering and patch work, re-flooring and replacement of flooring. Provided further that no built up area shall be added to the existing work without seeking the Implementing Authority's permission. Provided however that no such exemption shall be available in the case of heritage buildings/ structures in heritage precincts.
- (ii) Carrying out the following works by/ in compliance with an order or direction made by an authority under a law for the time being in force:

- a) required for the maintenance or improvement of highway, road or public street, being works carried out on land within the boundaries of such highway, road or public street including repairs, extensions, modifications to existing service installations, culverts, bridges, tunnels, drains, foot over bridges, subways, pavements, pedestrian railings along pavements, medians, etc,
  - b) for the purpose of constructing, laying, inspecting, repairing or renewing drains, sewers, mains, pipes, cable, telephone or other apparatus including breaking open of a street or other land for that purpose,
  - c) falling in the purview of the operational constructions by Government departments/ bodies, such as water tanks – over head or underground, pumping stations, sub-stations, traffic signals, bus stop shelters, overhead electrical equipment for electrification, etc.
- (iii) excavation (including) wells made in the ordinary course of agricultural operation; (for the construction of a road intended to give access to land solely for agricultural purposes),
- (iv) for an occasional use of land such as exhibitions, fairs, etc., but shall obtain temporary permission from the Implementing Authority.

### **3.11 Procedure for Land Development/ Subdivision/ Consolidation Permission**

#### **3.11.1 APPLICATION FOR LAND DEVELOPMENT/ SUBDIVISION/ CONSOLIDATION PERMISSION**

A person or body intending to carry out layout development as defined in these Regulations in or over a land and /or subdivide and /or consolidate land or a building within the limits of Sarpang Thromde shall obtain prior permission for the same from the Implementing Authority by applying in a standard format and furnishing all information in forms, formats and plans prescribed under these regulations and as may be amended from time to time by the Implementing Authority.

The application shall be signed by the legal owner of the plot or authorized signatory. The applicant shall submit signed plans and drawings along with the application as per clause 3.11.2 and pay the requisite scrutiny fees, development charges, betterment charges, and other charges and dues if any to be leviable under the Regulations.

#### **3.11.2 DOCUMENTS AND PARTICULARS TO BE FURNISHED WITH THE APPLICATION**

The following particulars and documents shall be submitted along with the application.

- 1) Copy of the Land Ownership Certificate issued by Sarpang Thromde.
- 2) Copy of the latest Site Plan certified/ issued by Sarpang Thromde.
- 3) Copy of Precinct Certificate substantiating “Use Conformity”

- 4) Three copies of proposed layout plan drawn to a scale of not less than 1:500 showing the details as listed in Appendix I, wherever applicable (in the case where plot is more than ten hectares, scale shall not be less than 1:1000)

Note: Drawings shall be prepared in S.I. system only.

Certificate of undertaking in the standard form by the registered Architect/ Urban Planner/ Designer.

- 5) Full information should be furnished in the Form along with the plan.

The applicant shall also submit a copy of N.O.C/ clearance from relevant Authority as per wherever applicable.

### **3.11.3 PLANS/ DRAWINGS AND SPECIFICATIONS TO BE PREPARED BY REGISTERED ARCHITECT/ URBAN PLANNER/ URBAN DESIGNER**

The plans and particulars prescribed under clause No. 3.11.2 above shall be prepared by a registered **Architect, Urban Planner and/ or Urban Designer**

### **3.11.4 COLOR CODES FOR PLANS/ DRAWINGS**

The Color code to be used for plans/ drawings referred to in 3.11.2 shall be as laid down in Appendix 4

### **3.11.5 SCRUTINY FEE**

A person or body applying for permission for carrying out development shall with his/ its application pay to the Implementing Authority the scrutiny fees as mentioned in Appendix-5 or as decided by the Town Committee from time to time.

### **3.11.6 APPROVAL OF LAYOUT FOR PLOT SUBDIVISION**

The approval of layout proposed to be developed and /or subdivided and /or consolidated will be given upon furnishing the required information in a standard format and fulfillment of the requirements as described in the following sections. Intermediary scrutiny and checks shall be conducted by the concerned authorities without prior notice. In case of any change in the approved layout plan the proposal has to be revalidated by Sarpang Thromde. If it is noted during the scrutiny or site visits of the concerned authorities that no prior approvals for the changes in the approved layouts have been procured by the person/ body and/ or failure in producing valid documents for such changes, the development approval/ permission shall be cancelled.

### **3.11.7 REJECTION OF APPLICATION**

If the plans and information given do not contain all the particulars necessary to deal satisfactorily with the development permission application, the application shall be rejected.

**3.11.8 CANCELLATION/ REVOCATION OF APPROVAL**

The development permission if secured by a person/body by misrepresentation or by producing invalid documents, such development permission will be cancelled.

**3.12 Procedure for Obtaining Building and Occupancy Permission**

A person/ firm/ body or developer shall not erect a building or carry out additions and alterations or carry out civil construction activity without obtaining a building permit from the Implementing Authority. A building permit shall be issued only to the legal owner of the land/ plot.

However applications for temporary permission involving erection/ construction of temporary structures shall be permitted only in specific locations which would have to be approved beforehand upon the payment of fees specified in appendix 5 by Sarpang Thromde. The procedures for obtaining building permission and also those procedures that are to be followed during construction are different for the two classes of buildings/ construction:

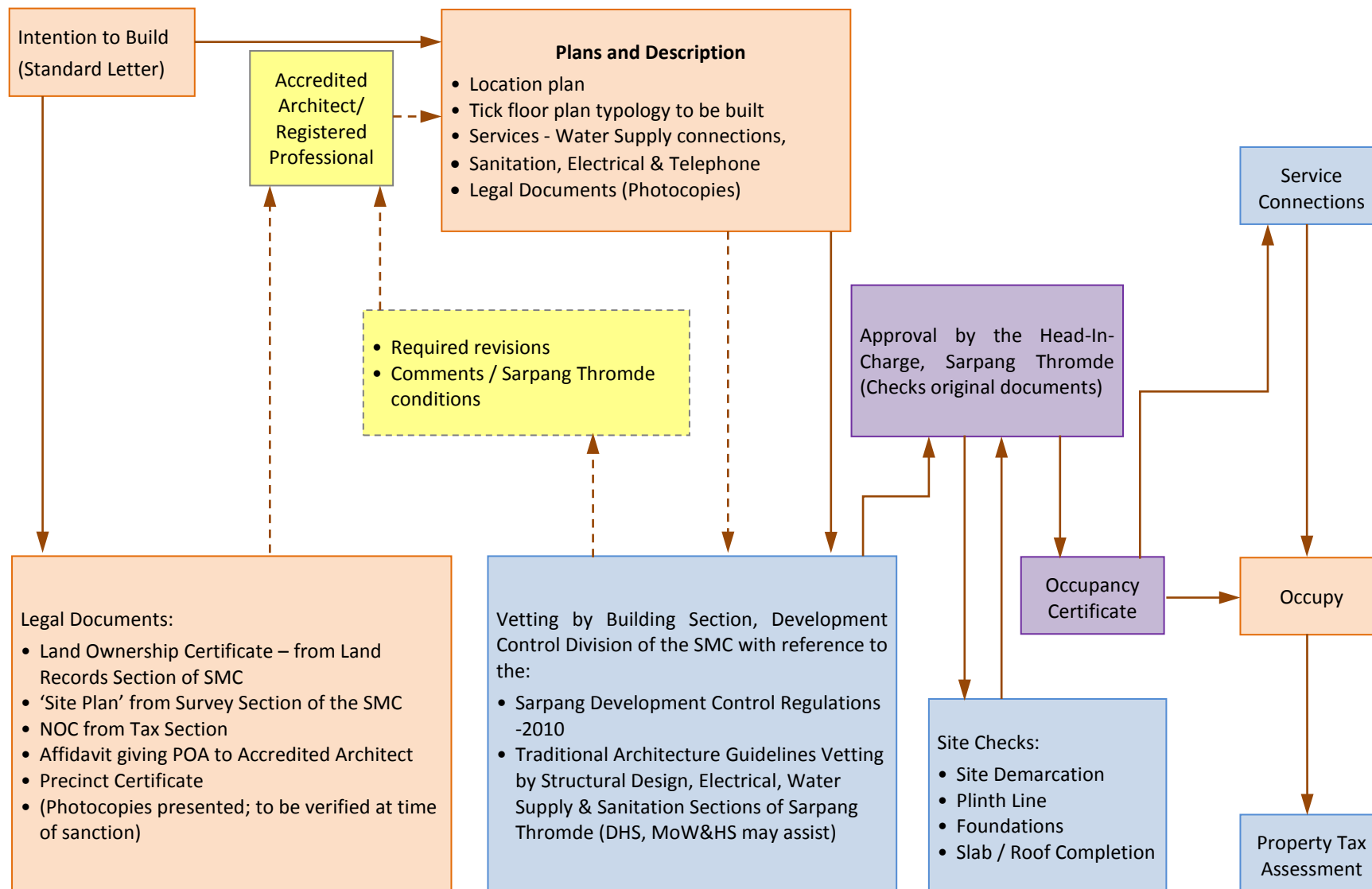
- a) Residential structures not more than two floors (ground plus one floor) on sites up to 1,000sqm.
- b) More than two floors (ground + two floors) on site more than 1,000sqm of land and/ more than two floors/ buildings for non-residential uses.

A mechanism for speedier approvals in the case of tier “a” as above is proposed through a Green Channel of accredited architects/ engineers. All building applications shall enclose an “ultimate structural capability of the structure” statement from the architect/ structural engineer, in terms of total number of floors.

For details of temporary permission refer to clause no. 3.15

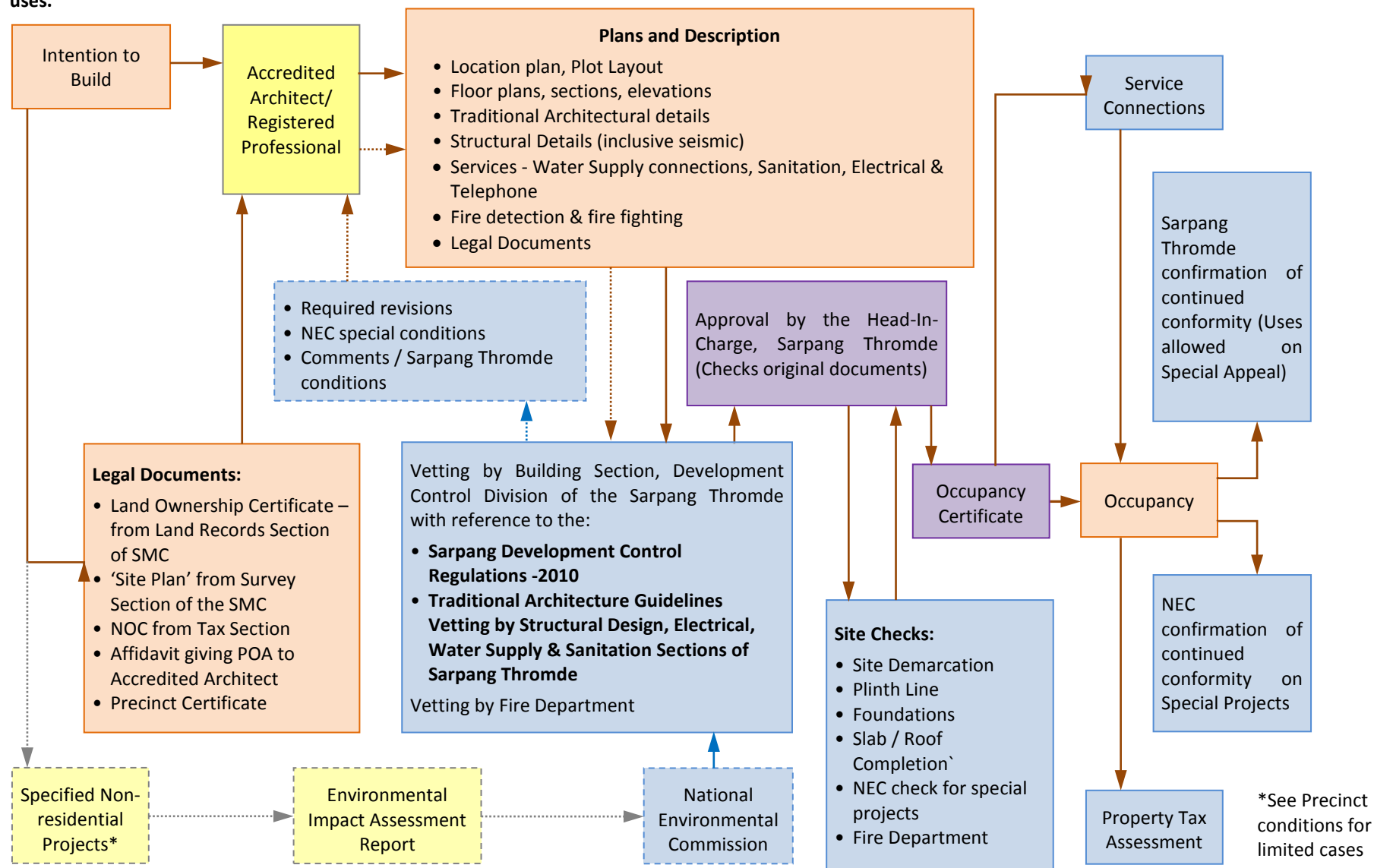
The procedures for the different classes of buildings/ constructions are described in the following charts:

**Figure 2: procedure for obtaining building permissions and also the procedure that is to be followed during construction of residential structures not exceeding two dwelling units and / or not more than two floors (ground plus one floor) in plots up to 1000 square meters.**





**Figure 3: Procedure for obtaining building permission and also the procedures that are to be followed during construction of three or more residential units, or any building on a plot of more than 1000 square meters of land/ or more than two floors (Ground plus two and more) or buildings for non-residential uses.**



**3.12.1 APPLICATION FOR BUILDING PERMISSION**

A person or body intending to erect a building or carry out additions and alterations to a building or to carry out development as defined in these Regulations in or over land owned by him/ it within the limits of Sarpang Thromde shall obtain prior permission for the same from the Implementing Authority by applying on the prescribed form and furnishing all information in the forms and format prescribed under these regulations and as may be amended from time to time by the Implementing Authority. The application shall be signed only by the legal owner of the plot or authorized signatory. The applicant shall submit signed drawings along with the application as per the clause 3.12.2 below and pay the requisite scrutiny fees, development charges, betterment charges, and other charges and dues if any to be leviable under the Regulations.

**3.12.2 DOCUMENTS AND PARTICULARS TO BE FURNISHED WITH THE APPLICATION**

- a) The applicant shall sign all forms, plans, sections or written particulars or cause them to be signed by him and his duly authorized registered Architect, Engineer, Developer etc. as the case may be. Such person or authorized registered Architect, Engineer, developer shall furnish documentary evidence of his authority. If such notice or other document is signed by such authorized registered Architect, Engineer, Developer it shall state the name and address of the person on whose behalf it has been furnished.
- b) The forms, plans, sections and descriptions to be furnished under these Regulations shall all be signed by each of the following persons:
  1. A person making application for development permission.
  2. A person who has prepared the plans and sections with descriptions, and must be a registered Architect.
  3. A person who is responsible for the structural design and supervision of the construction i.e. a registered structural designer or civil engineer.
  4. A developer
- c) A person who is engaged either to prepare plan or to prepare a structural design and structural report or to supervise the building shall give an undertaking (accepting full responsibility for all of the above and liability in case of direct or indirect damage or loss) in the prescribed form.
- d) A person/body who under the provisions of the relevant sections of these regulations is required to furnish to the Implementing Authority, plans or other documents, shall furnish THREE copies of such plans and other documents. One copy of each plan and document shall be returned, on approval, to the applicant duly signed by the Implementing Authority or authorized officer.
- e) It shall be incumbent on the person/ body whose plans have been approved, to submit amended plans for deviation leading to increase in built-up area, building height or change in

plans, he proposes to take during the course of construction of his building work, and the procedure laid down for plans or other documents hereto before, shall be applicable to all such amended plans.

- f) Approval of drawings and acceptance of statements, documents, structural report, structural drawings, progress certificate, or building completion certificates shall not discharge the Owner, Engineer, Architect, Structural Designer, Developer, from their responsibilities, imposed under these Regulations and other local laws.
- g) A certificate of structural capability of the building in terms of ultimate number of floors it is designed for, and the soundness of the structural design from the licensed structural designer in regard to the proposed building shall be submitted in the format prescribed under these Regulations. He shall also submit the detailed design and plans for office record.
- h) Three copies of the proposed layout plan of the area proposed to be developed shall be submitted to a readable scale, as the case may be showing the details as listed in the Appendix-1 wherever applicable.
- i) Three copies of the detailed drawings showing the plans, sections and elevations of the proposed building work to a scale of 1:100 showing the details as listed in Appendix-2, wherever applicable, shall be submitted.

### **3.12.3 PLANS/ BUILDING DRAWINGS AND SPECIFICATIONS TO BE PREPARED BY REGISTERED PROFESSIONALS**

The plans/ building drawings and particulars prescribed under these Regulations shall be prepared by a registered Architect.

### **3.12.4 COLOR CODE FOR PLANS/ DRAWINGS**

The Color code to be used for plans shall be as laid down in Appendix-4

### **3.12.5 SCRUTINY FEE**

The scrutiny fee payable at the time of application shall be as per the rates indicated in Appendix-5 or as decided by the Town Committee from time to time.

### **3.12.6 SERVICES AND AMENITY FEES**

Permission for carrying out development shall be granted by the Implementing Authority only on payment of service and amenities fees as may be decided by the City Committee from time to time. These fees and maintenance charges shall be revised on review by Implementing Authority from time to time.

### **3.12.7 GRANT OF DEVELOPMENT PERMISSION**

Grant of Development Permission shall mean acceptance by the Implementing Authority of all the requirements of these Regulations excluding the following

- a) Easement rights.
- b) Variation in area from recorded areas of a plot or a building.
- c) Structural reports and structural drawings.
- d) Soundness of material specifications used in construction of the building.

### **3.12.8 VALIDITY OF APPROVALS**

The validity of the approved building plan shall be for two years from the date of approval. The construction should start within two years from issue of building permission

### **3.12.9 REVALIDATION/ RENEWAL**

Building permission granted under these regulations shall be deemed to have lapsed, if such development work has not commenced till the expiry of two Gregorian calendar year from the date of development permission, provided that, the Implementing Authority may on application made to it before the expiry of above period (two Gregorian calendar year) extend such period by a further period of one Gregorian calendar year at a time by charging an amount to be fixed by the Town Committee from time to time for renewal of the building permission.

### **3.12.10 PROCESS FOR REVALIDATION IN THE EVENT THAT THE DEVELOPER EXCEEDS THE VALIDITY PERIOD OF THE APPROVAL NEEDED:**

#### **APPROVAL OF LAYOUT**

The approval of building permission will be given in two stages:

- i. Preliminary approval, and
- ii. Final approval

#### **PRELIMINARY APPROVAL**

The approval of the layout plan is the stage which approves the proposed layout plan enabling the commencement of work on the site to facilitate activity related to subdivision and transfer of land as per the relevant standards and as proposed in the layout plan submitted by the applicant.

#### **FINAL APPROVAL**

The final approval of the building permission shall be given only on the completion of all the requisite development on the site and after inspection and verification of the performance of the services and other common facilities provided as per the relevant standards. In case of any changes in the approved layout plan the proposal has to be revalidated by Sarpang Thromde.

**3.12.11 LIABILITIES AND RESPONSIBILITIES OF APPLICANT LIABILITIES OF THE APPLICANT**

Notwithstanding the development permission granted under these Regulations, a person/body undertaking any development work shall continue to be wholly and solely liable for any injury or damage (direct or indirect) or loss whatsoever that may be caused to anyone in or around the area during such construction and no liability whatsoever in this regard shall be cast on the Implementing Authority.

**Responsibilities of the Applicant**

Neither the grant of development permission nor the approval of the plans, drawings and specifications shall in any way absolve the applicant of the responsibility for carrying out the development in accordance with requirement of these regulations.

**3.12.12 REJECTION OF APPLICATION**

If the plans and information given as per these Regulations do not give all the particulars necessary to deal satisfactorily with the Building permission application, the application shall be rejected.

On receipt of the application for Building Permission, the Implementing Authority after making such inquiry as it thinks fit may communicate its decisions granting or refusing permission to the applicant as per the provisions of the Act.

The Building permission shall be in the prescribed form and it should be issued by the Implementing Authority. Every order granting permission subject to conditions or refusing permission shall state the grounds for imposing such conditions or for such refusal.

**3.12.13 CANCELLATION/ REVOCATION OF APPROVAL**

The building permission if secured by a person/body by a misrepresentation or by producing false documents is not valid and such development permission will be treated as cancelled/revoked.

**3.12.14 CHANGE OF OWNERSHIP**

Building permission granted under these Regulations shall be deemed to be suspended/ cancelled/ revoked, in cases of change of ownership, unless the 'original' owner who applied for, and obtained the development approval submits a letter to the Implementing Authority about the change in ownership giving details of the transaction and the new owner submits an application duly attaching copies of all the official records of such a transaction and an undertaking that he accepts the transfer to himself, of all the responsibilities and liabilities of the previous owner that relate to the development on the site.

**3.13 No Objection Clearance (NOC) from Referral Authorities for Certain Projects**

The proposal submitted shall be in conformity with other Acts/ Regulations and shall, wherever applicable submit the NOC, from the respective authorities for conformity with:

- a) The Department of Power's Electricity Grid Lines and the horizontal and vertical clear distances to be kept open to sky
- b) The provisions of Environmental Assessment Act, 2000.
- c) The provisions of NEC Secretariat's, 'Regulations for the Environmental Clearance of Projects, 2001'.
- d) The conservation/ preservation of monuments and cultural heritage.
- e) The Department of Industry, Ministry of Trade and Industry, RGoB for the establishment of industries.
- f) The Department of Trade, Ministry of Trade and Industry, RGoB for the setting up and operation of fuel stations
- g) The Department of Geology and Mines, Ministry of Trade and Industry, RGoB for the setting up and operation of:
  - a. Quarrying and mining activities on less than 3 hectares
  - b. Mineral exploration for verifying mineral deposits
  - c. Emergency responses to natural disasters/ hazards.
- h) The Department of Forestry Services, Ministry of Agriculture, RGoB for:
  - a. Surface collection of sand and boulders,
  - b. All other activities governed by the Forest and Nature Conservation Act, 1995 and Rules, 2000, except sections that require NEC's clearance
- i) The Department of Research and Development Services, Ministry of Agriculture, for:
  - a. Farm roads,
  - b. Irrigation channels,
  - c. Activities related to agriculture research and development

### **3.14 Demolition and/ or Reconstruction of Dangerous/ Unsafe/ Dilapidated Buildings**

Wherever it is necessary to demolish a dilapidated/ unsafe structure in the interest of public safety, such demolition shall be carried out by the owner wherever so directed by the Implementing Authority. However if the same is to be reconstructed, it shall be done in conformity with these Regulations with due approval from the Implementing Authority.

**3.15 Temporary Permission**

Applications for temporary permissions need not be submitted through the registered professional. A scrutiny fee shall be paid as specified in the Appendix-5. These temporary permissions shall be permitted only for:

- i. in the case of private premises - temporary sheds to be used for storing construction material/ as watchmen's cabin during construction phase.

**3.16 Green Channel for Building Approvals**

- 3.16.1 This provision is devised to simplify and expedite the procedure of getting building permission for proposals of a modest scale through accredited architects. If all compliances as laid down in these Regulations are made permission shall be granted within 2 weeks, failing which construction may be commenced
- 3.16.2 The accredited architects themselves shall scrutinize and submit such proposals to the Implementing Authority.
- 3.16.3 The procedure will be applicable only for getting sanction of plan. The site inspections and subsequent certificates such as plinth completion, etc up to the occupancy certificate shall be obtained as a matter of routine followed in other cases.
- 3.16.4 Proposals for residential construction up to 2 floors, on plots upto 1000 sq.m, can be submitted to/ through an accredited architect. The accredited architect will examine the proposal in light of these Regulations and obtain the necessary permission.
- 3.16.5 The owner shall remain fully liable for the work done by the professional selected by him/her.
- 3.16.6 The accreditation of professionals shall be done by the Implementing Authority or any other recognized institutions/ organizations on the basis of certain criteria laid down by it. Such professionals shall have to get their registration done with the Implementing Authority

**3.17 Development Undertaken on Behalf of the Government**

The Office-in-Charge of a Government Department shall inform in writing to the Implementing Authority of the intention to carry out development for its purpose along with the plans of proposed development or construction.

- 1) All the development undertaken on behalf of the Government shall strictly confirm to these regulations.
- 2) Any Government proposal which is not in conformity with Sarpang Structure Plan (its related Local Area Plans and Urban Design Proposals) and these regulations should have prior approval from the Competent Authority.

**3.18 Section-2b: Procedure during Development/ Building****3.19 Procedure during Development/ Construction**

- a) No applicant shall carry out any further work after any of the inspection stages (clause 3.19.6) without an inspection and clearance by the Implementing Authority.
- b) The progress certificate shall not be necessary in the following cases:
  - (i) Alteration in Building not involving the structural part of the building.
  - (ii) Extension of existing residential building on the ground floor up to maximum 15sq.m in area provided it conforms to the set back rules and plot coverage.
- c) On receipt of the progress report certifying that the work has been executed as per the approved plan, it shall be the duty of the Implementing Authority to inspect, verify and endorse the report.

**3.19.1 TEMPORARY SERVICE CONNECTIONS**

An applicant with a certified copy of building permit may apply to the respective agencies for temporary connection of services like electricity, water and sewerage.

**3.19.2 LOADING AND UNLOADING AND STACKING OF MATERIALS AND EQUIPMENT**

The use of a public street/ road or a public place for loading and unloading and stacking of materials of construction and construction equipment and excavated materials shall not be allowed, unless permitted by the Implementing Authority.

Material or equipment found on public street/ road or public land without prior approval is liable to be confiscated and the owner shall be liable for penal charges.

**3.19.3 DOCUMENTS AT SITE**

The person to whom development permission is issued shall during construction, keep:

- a. Posted in a conspicuous place, at the site for which permission has been issued a copy of the development permission and
- b. A copy of the approved drawings and specification on the site for which the permit was issued.

**3.19.4 CHILD LABOUR**

It is incumbent that the architect/engineer/site supervisor sees that no underage workers, or children, are present on the construction site, either as employees, guests, or as dependents of legal employees.

A construction activity of a built-up area of 5000sq.m or more shall provide a crèche or day care centre for the laborer's children, where one, or more, women are employed on site.



### 3.19.5 SAFETY ON SITE

All construction sites must be organized in a manner that the safety of all persons (particularly laborers) on the site, at all times is assured. Every person on the construction site should be well equipped with helmet, boots, gloves, safety belts, first aid kit etc. On such sites safety barriers will be erected around all chutes, shafts, floor openings and slab edges, etc. All the workers at site should be insured.

### 3.19.6 INSPECTIONS

Building constructions shall be subject to routine/ periodic inspections by the Implementing Authority or persons/ bodies authorized by the Implementing Authority. In the event of deviation(s) from the approved plan and drawings or any of the conditions noted in this section, the Implementing Authority shall have the full authority to stop construction.

The Implementing Authority may, at any time during erection of a building or the execution of work or development, make an inspection thereof without giving prior notice of his intention to do so.

1) Inspection at various stages:

Following shall be the recognized stages for progress verification and checking in the erection of a building or the execution of a work:

- (i) Site layout shall be verified and approved by the authorized Engineer/ Building Inspector from the Implementing Authority,
- (ii) Foundation; before casting of footings
- (iii) Plinth; in case of basement before the casting of basement slab,
- (iv) Each storey shall be inspected before any casting,
- (v) Before roofing

2) A person/ body who is empowered/ responsible under these Regulations shall give to the designated officer of the Implementing Authority at least four working days notice in writing of the time at which the work will be ready for inspection.

This shall be called the progress certificate. This progress certificate shall be duly filled-in and kept with the owner/ architect and produced at the time of each inspection to be scrutinized and signed/ endorsed by the building inspector, before the commencement of the next stage of construction.

3) The applicant/ developer/ owner shall permit authorized officers of the Implementing Authority to enter the plot for which the development permission has been sought/ granted for carrying out development, at any time for the purpose of enforcing these regulations.

- 4) The applicant shall keep a board at site of development mentioning the survey no., city survey no, block no, final plot no, sub plot no, etc name of owner, and name of architect/ engineer/ developer/ owner, building permit no.
- 5) The building shall also be inspected for fire safety norms as per the fire safety regulations.

### 3.19.7 DEVIATION DURING CONSTRUCTION

Deviations during construction from the approved building plan shall require prior approval from the Implementing Authority and would be approved only if it is in conformity to these regulations. The procedure laid down for plans or other documents here to before shall apply to all such revised (amended) plans.

#### Regularization Fees for Developments without Prior Approval

Nature of unauthorized Developments	Whether Development would have been Approved	Rate of Regularization and / or Penalty
Application for development not made	Yes	20 times the regular fees*/charges#
	No	10 times the regular fees & removal of the deviations at the owner's cost
Application made but development commenced before grant of permission	Yes	10 times the regular fees/charges
	No	Removal of the deviations at the owner's cost

**\*Regular fees** refer to the fees that the Implementing Authority charges for scrutiny and approval of development applications.

**# Charges** refer to the charges and levies that the Implementing Authority may impose for its services and facilities

### 3.19.8 ILLEGAL OCCUPATION OF BUILDING

- a) Notwithstanding the provision of other laws to the contrary the Implementing Authority may by written notice, order the whole building or part thereof to be vacated forthwith, or within the time specified in such notice:
  - (i) if such building or part thereof has been unlawfully occupied in contravention of these Regulations.

- (ii) if a notice has been issued in respect of such building, or part thereof, requiring the alteration or reconstruction of works specified in such notice have not been commenced or completed.
- (iii) if the building or part thereof is in a ruinous or dangerous condition, which are likely to fall and cause damage to persons occupying, restoring to or passing by such building/ structures or any other structure or place in the neighborhood thereof.
- (iv) If the site is in danger of collapsing, due to land slide, or erosion, or flood, or if the site is in danger of stones, boulders, debris, earth falling on it from areas at a higher elevation
- b) The reasons for requiring such building or portion thereof to be vacated shall be clearly specified in the notice.
- c) The affixing of the written notice on the premises shall be deemed a sufficient intimation to the occupiers of the building or portion thereof.
- d) On the issue of notice, a person occupying the building or portion thereof to which the notice relates shall vacate the building or portion as directed in the notice and no person shall so long as the notice is withdrawn, enter the building or portion thereof, except for the purpose of carrying out a work of reinstatement which be lawfully permitted to be carried out.
- e) A person who acts in contravention of the above provisions or who obstructs the action taken under these regulations shall be removed from such building or part thereof by the police, which may also use such force as is reasonably necessary to affect entry in the said premises.
- f) The cost of measures taken under this provision shall be recovered from the owners.

### 3.19.9 OCCUPANCY CERTIFICATE

The applicant shall obtain occupancy certificate from the Implementing Authority prior to occupancy or use of development so completed.

The application for Occupancy Certificate shall include:

- (i) In case of any change from the approved plans, (which is permissible within these regulations), a completion report in the prescribed form along with two copies of the 'as built' drawings endorsed by the Architect/ Engineer. It shall also be incumbent on every person who is engaged under these Development Control Regulations to supervise the erection or re-erection of the building, to endorse this completion report. One copy of the 'as built' drawings shall be stamped and returned to the applicant after inspection and approval by the Implementing Authority.
- (ii) A copy of the progress certificate containing all the comments and endorsements of the building inspector at every stage of inspection.

In case of occupying the building or part thereof without obtaining occupancy certificate, all service connections shall be disconnected.

On receipt of the application, the building and its premises shall be inspected within 2 weeks by the Implementing Authority to verify that the work has been completed as per the approved building drawings, or if there is a change, permissible within the Regulations, approve and endorse the 'as built' drawings submitted along with the completion report. The inspection team shall consist of authorized Architect and Engineer from the Implementing Authority. Based on this inspection report the Occupancy Certificate shall be issued.

The Implementing Authority issuing occupancy certificate before doing so shall also inspect the building for the fire safety provisions (as per the norms) and issue a certificate that necessary requirements for the fire protection (wherever applicable) under these regulations have been fulfilled and if not, the applicant shall be asked to carry out necessary additions, alterations or rectifications to the satisfaction of the Implementing Authority before issuing occupancy certificate.

#### **Issue of Occupancy Certificate**

The Authority issuing occupancy certificate shall ensure that

- a) Septic tank and soak-pit have been constructed as per standards and are located as per approved plan.
- b) Domestic drains (to collect the rainwater) have been constructed as per standards and are connected and as directed by the Municipal Corporation.
- c) The completed portion of the building/ dwelling unit applied for occupation is fit and safe for occupancy.
- d) Construction debris around the building, and/ or on the abutting road, and/ or adjoining property is cleared by the applicant.
- e) The applicants have permanently displayed the full postal address (house number, street name and zone) outside the main entrance to the building and where appropriate, each dwelling unit, with unit number.
- f) The planned trees as per the section 3.45 are planted on site or ensure this by taking suitable deposits as decided from time to time for specific period by the Implementing Authority.
- g) Parking space is properly paved and the layout of parking space is provided as per the approved plans. Signboards indicating the entrance, exit and location of parking spaces for different types of vehicles shall be permanently erected and maintained at a prominent place of a building unit.
- h) Certificate of lift Inspector has been procured and submitted by the owner, regarding satisfactory erection of Lift.

- i) Proper arrangements are made for regular maintenance of lift as provided in Building Code of Bhutan 2003 and in these regulations
- j) The completion report endorsed by the Implementing Authority and certificate of fire safety for the building (as per the fire safety norms) has been procured and submitted by the owner.
- k) Proper arrangements are made for regular maintenance of fire protection services as provided in Building Code of Bhutan 2003 and in these regulations
- l) There shall be a percolating well at the lowest corner of the site in a building land parcel having area more than 1500sq.m.
- m) In the case of buildings with three storeys or more, public gathering places, cinemas, auditoria, schools, colleges, government building and hospitals, a Certificate of Structural Stability shall be obtained from the site engineer.

The occupancy certificate shall not be issued unless the required information is furnished by the owner and the site engineer/ Architect concerned, in the schedule as prescribed by the Implementing Authority from time to time. The occupancy certificate shall be issued within one week after the receipt of all the required information.

Permanent connection to services like water, sewerage, electricity and telephone to the building shall be given by the respective agencies after issue of occupancy certificate only.

### **3.20 Revocation/ Cancellation of Approval**

If the construction is not as per the approved building drawings, the Implementing Authority shall, by written notice, direct the owner to stop further construction. The construction shall be resumed only after approved rectification is carried out to the satisfaction of the Implementing Authority. In case the owner fails to rectify the deviations which are not acceptable, the Implementing Authority shall cancel the building permit and disconnect the services.

### **3.21 Change of Building or Premises Use**

The applicant shall apply in writing to the Implementing Authority for conversion of building or premises to other uses or activity. Permission for change of use shall be given only if the building use conforms to precinct use schedule, structural safety of the building and other relevant clauses of these regulations. Change of building use without written permission of the implementing authority shall be regularised on payment of fines only if it conforms to the land use schedule and safety standards. If the building use does not conform to the land use and safety standards it will revert to the original use and the defaulter shall still pay a fine. The fine shall be 20% of the cost of construction of misused floor area.

### **3.22 Confirmation Inspections by NEC and Sarpang Thromde Regarding Special Projects Sanctioned/ Appeals**

Developments sanctioned through special conditions/ appeals as listed in the Precinct Sanctions (refer Section 3.34) shall be liable for inspections by the NEC or the Implementing Authority for revalidation of the development permission.

### 3.23 Parking Requirements

Table 1: Parking Requirements

No.	Description	Number of vehicle Parking Spaces Required			
		Minimum Space	Sizes of Apartment	Sizes of Single/Detached Independent houses	Parking
1	Residential	Sitting/Dining 3 bed rooms 2 toilets/baths kitchen/store	Above 1260 Sq.ft	Above 1500 Sq.ft	1 Car parking space per unit
		Sitting/Dining 2 bed rooms 1 toilets/baths kitchen	875-1259 Sq.ft	1200-1499 Sq.ft	1 Car Parking for single occupant unit. 50% car parking*& 50% two wheeler parking* for more than one dwelling units.
		Sitting/Dining 1 bed rooms 1 toilets/baths kitchen	508-874 Sq.ft	874-1199 Sq.ft	1 Two wheeler parking space per dwelling unit
		*% of total Residential Units equivalent to one parking space			
2	Shops (up to 40 Sq.Mts or 400 Sq.ft of Clear Retail Floor Space)	1 Car Parking Space for Every 5 Shops			
3	Shops (Over 50 Sq.Mts or 550 Sq.ft of Clear Retail Floor Space)	1 Car Parking Space to Every 40 Sq.Mtrs or 400 Sq.ft of Clear Retail Floor Space			

No.	Description	Number of vehicle Parking Spaces Required
4	Department Store or Shopping Centers (over 450Sq.Mts or 5,000 Sq.Ft of Clear Retail Floor Space)	1 Car Parking Space for Every 30 Sq.Mts of Clear Retail Floor Space
5	Offices	1 Car Parking Space for Every 30 Sq.Mts of Net-Usable Office Floor area with a Minimum of 5 per office
6	Public Halls, Community Centers, Non-Residential Clubs, Restaurants and Cafes	1 Car Parking Space for Every 30 Sq.Mts of Net-Usable Floor area
7	Theatres and Cinemas	1 Car Parking Space for Every 10 fixed seats of Public Accommodation
8	Hotels and Guest Houses	1 Car Parking Space for Every Room or 30 Sq.Mts or Net-Usable Floor area
9	Industry and Workshops	1 Car parking space for every 80 Sq.m of Net-Usable Floor area
10	Warehouses	1 Car Parking Space for every 100 Sq.m of net-Usable Floor Area
11	Vehicle Services and Repair workshops	5 Car Parking Space for every service or repair bay

**Note:**

1. No on-street parking will be allowed for streets identified by the Implementing Authority. Conversion of garages for other uses will not be allowed unless otherwise approved by the Implementing Authority in conformity to these regulations.
2. For the general Public Use the Municipality or private developers shall provide paid parking spaces according to local area plan for commercial zones. General parking spaces shall be charged as designated by the municipality and according to the charges fixed by the management.

**3.24 Painting**

Same as BBR 2002

**3.25 Maximum Number of Storeys**

The maximum number of storeys of the building shall be as per the Precinct Regulations mentioned in table no. 2 and 3. In case of areas for which Local Area Plans are in place the maximum number of storeys will be governed by the respective Local Area Plans. The number of storeys shall be counted from the lowest natural ground level.

**3.26 Architectural Control**

Same as BBR 2002

**MINIMUM FLOOR SPACE OF ROOMS IN RESIDENTIAL BUILDINGS**

Same as BBR 2002

**CIRCULATION SPACE REQUIREMENTS**

Same as BBR 2002

**LIGHT AND VENTILATION REQUIREMENTS**

Same as BBR 2002

**ARTIFICIAL LIGHTING AND MECHANICAL VENTILATION**

Same as BBR 2002

**VENTILATION SHAFT**

Same as BBR 2002

**PLINTH HEIGHT**

Same as BBR 2002

**FIRE SAFETY**

Same as BBR 2002

**ELEVATORS**

Same as BBR 2002

**GARAGE CUM SERVANTS QUARTERS**

Same as BBR 2002

**PORCH**

Same as BBR 2002

**SEPTIC TANK & SOAK PIT**

Same as BBR 2002

**ROOF AND SITE DRAINAGE**

Same as BBR 2002

**3.27 Access for the Disabled**

Same as BBR 2002

**3.28 Structural Control**

Same as BBR 2002

**3.29 Water Supply and Sanitation Control**

Same as BBR 2002



### **3.30 Electrical Installations Control**

Same as BBR 2002

### **3.31 Telephone**

Same as BBR 2002

**3.32 Section-3: Precinct Sanctity (Regulations on Use, Building Bulk and Height)****3.33 List of Precincts Designated in the Sarpang Structure Plan**

The following list of Precinct categories has been formed so that the city can function in harmony. Each precinct protects a group of human activities from the interfering, or destructive aspects of other human activities. The definition of Precincts maintains an ecological balance between nature's order and an order of human activities. Thus each precinct reflects a sphere of human, or natural, conduct. By defining and separating these spheres, the optimum meaning and functionality of each sphere is protected. Just as favorable influences are carried over the city from prayer flags offering ritual protection, the sanctity of precincts offer spatial protection to the people of Sarpang.

With this principle, the following precincts have been defined.

**1. Urban Village Precinct****UV-1 Urban Village Square**

Convenience shopping, basic services, Residential (High Density) and amenities precincts for the Urban Villages, Mix-Use Precinct

**UV-2 Urban Village Core**

High Density, Residential precinct.

**UV-3 Urban Village Periphery**

Medium and Low Density, Residential precinct.

**2. Urban Hub Precinct****UC-1 Urban Core**

The Existing and proposed Redevelopment of Sarpang Town Center, a precinct of trade and commerce, Bazaar and mixed use residential.

**UC-2 Urban Hub**

To be created in Shechangthang as a Shopping, Recreational, Entertainment and Mixed Use Residential Precinct.

**3. Institutional Precinct****I Institutional**

Local, National and International Institutions emphasizing on educational activities

**4. Environmental Precinct**

- E-1 Environmental Conservation Precinct  
Enhancement and protection of Sarpang's fragile ecological legacy.
- E-2 Forest Environments  
Precincts devoted to the natural forest preserves.
- E-3 Agricultural Environments  
Precincts characterized by paddy lands, agricultural areas, flood plains and other farming activities.
- E -4 Flood Prone Zone  
Zones with risk of flooding where development must be allowed only after necessary flood protection measures are adopted.
- E-5 National Importance Open Spaces  
Precincts of national importance such as a regional sports complex, archery ranges.
- E-6 Local Green Space System  
Precincts of public assets like parks, gardens, sports and recreation areas.
- E-7 International Buffer Zone.  
300M wide no development zone along the Indo-Bhutan Border.

## 5. Heritage Precinct

- H Heritage  
Precincts for sacred activities and places of historical importance.

## 6. Special Economic Zone Precinct

- SE-2 Transit Hub  
Precincts characterized by Transit Terminus location.
- SE-4 Service Centers and Industries  
Precincts characterized by industrial, heavy maintenance, wholesaling and warehousing.

## 7. Royal Precinct

- R Royal Uses  
Precincts related to Royal uses.

The 'precinct plan' gives more flexibility than the conventional 'land use' plan, however it is to be understood that every precinct has a dominant activity and the other activities are supportive to it. So the supportive activities are governed by the main activity and within a precinct only a limited number of supportive activities are allowed. Thus, if an activity though secondary in nature is not compatible to the main activity they should not be allowed. The proposed precincts have been marked and defined with a scientific temperament and rational logistics with due consideration to the Bhutanese lifestyle, however if need arises in future to change the precinct definition the local authority after consultation with Town Committee, and the DHS, MOW&HS, can make the necessary modifications.

### 3.33.1 THE PRECINCTS SCHEDULE SHOWING USES PERMISSIBLE IN DESIGNATED PRECINCTS

**Table 2: Precincts Schedule Showing Uses Permissible in Designated Precincts**

Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
<b>1.0</b>	<b>URBAN VILLAGE PRECINCTS</b> This Precinct takes into cognizance the residential use and its immediate needs.		
1.1	<b>UV-1</b> Village Square	<b>Convenience Shopping / Basic Amenities</b> All uses permitted in UV-2 Retail commercial use such as Retail Shops, Restaurants, Hostels, Maternity Homes, Clinics, Convenience Shopping, Professional Offices and Establishments (of less than 15 employees), ATMs, Crèche / Children's day care center, Kindergartens, Primary Schools, Dispensaries, Clinics, Health Centers, Pathological Laboratories, Maternity Homes, Nursing Homes, Local Hospitals, Public Facilities, Public Utilities, Public Transportation Stops, Parks, Gardens, Playgrounds, Apartments, Service Establishments (residential), Light Home Workshops etc., Local Libraries, Club Houses, Community Halls, Petrol Pumps with or without Service Stations, Kiosks, Taxi Stands, Vegetable Vendors, Display Areas, Neighborhood Pub (one only), Outdoor Cafes.	Firewood and Timber Stock Yard, High School, Boarding and Lodging.
1.2	<b>UV-2</b> Urban Village Core	<b>High Density, Residential Precinct</b> All uses allowed in UV-3 a) All types of residential dwellings including apartments and group housing, Professional Services, Commercial only on ground floors, Household economic activity, Light home workshops, Cottage industries not involving use of,	Min. Plot size – 1,000sq.m All permissible non-residential uses in residential area may be permitted in a residential dwelling only on the ground floor or any other floor with separate means of access/staircase from within

Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
		<p>or installation of, any machinery driven by more than 10 KW power and which do not create noise, vibrations, fumes and dust provided that such home occupations, cottage industries and other non - residential uses shall not be permissible in the tenement dwellings or flats. Play fields, Gardens, Gymnasium, Swimming pool, etc.</p> <p>b) Ubiquitous local level retail shops and services establishments, Small restaurant, Pre - primary and primary school, Dispensary, clinic.</p> <p>c) Public facilities and utilities, Club house, Local Community Hall.</p>	<p>the building or outside the building, but not within the prescribed marginal space.</p> <p>Such development shall only be permitted beyond 150m from the boundary of the building unit of existing school, or heritage place.</p>
1.3	<b>UV-3</b> Urban Village Periphery	<p><b>Medium and Low Density Residential Precinct</b></p> <p>Residential uses, Apartments and group housing with less than or equal to 10 units, Ubiquitous local level retail shops and services, Household economic activity, Cottage industries not involving use of, or installation of, any machinery driven by more than 1KW power and which do not create noise, vibrations, fumes and dust provided that such home occupations and cottage industries shall not be permissible in the tenement dwellings or flats.</p>	L.P.G., Cylinder delivery center for the domestic consumption only if on a separate plot of at least 1,000sq.m with no other use on the premises.
<b>2.0</b>	<p><b>URBAN HUB PRECINCT</b></p> <p>This Precinct takes into cognizance the commercial, institutional and recreational uses and their immediate needs at town level.</p>		
2.1	<b>UC-1</b> Urban Core	<p><b>Town Center</b></p> <p>All uses permitted in UC-2</p> <p>Government and semi government buildings and their activities, Autonomous Bodies and Public Sector undertaking Buildings and activities, Non Governmental Organization (NGO) buildings, Registered Charitable Trust Buildings and Educational, Medical, Health, Religious and Public Welfare Activities, Tourist units as recommended by the Tourism Corporation, Bars.</p>	
2.2	<b>UC-2</b> Urban Hub	<p><b>Entertainment and Shopping Centers</b></p> <p>All uses permitted in UV-1</p> <p>Cinema Hall, Multiplexes, Shopping Centers, Food</p>	<p>Small printing press</p> <p>Residential incidental to and limited to 25% of</p>

Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
		Courts, Bowling Alleys, Pool and Billiard Halls, Lodging and Boarding Houses, Hotels, Tourism and Recreation based facilities. Commercial Center, Public Buildings, Auditorium, Petrol Pumps, Transport Terminal for passengers, Nursing Home, Hospitals, Office Buildings, Public Facilities, Public Utilities, Banks, Professional Offices, Parks, Gardens, Playgrounds, Schools, Colleges, Educational Buildings, Training Institutes Research Institutions, Hostels, Boarding Houses, Staff Quarters, Canteens, Sports Complex Gymnasium, Library, Assembly Buildings including Swimming Pool, Club, Stadium, Theatre, Open Space proposed for Party & Marriage Ceremony and Amusement and Recreation Activities, Art Galleries, Exhibition Halls, Discotheques, Bars (in association with eating establishments of forty seats and over).	predominant institutional use on plot > 4,000sq m.  LPG delivery centers and Fuel Station can be permitted under the fulfillment of all relevant safety norms.
<b>3.0</b>	<b>INSTITUTIONAL PRECINCT</b> This Precinct takes into cognizance the institutional use and its immediate needs.		
3.1	I Institutional Precinct	<b>Institutions</b> Educational, Training, Cultural and Government Institutions, Public Libraries, Museums, Art galleries, Government Offices.	Residential and other activities incidental to the main institutional use, provided only 20% of the site should be used for such activities.
<b>4.0</b>	<b>ENVIRONMENTAL PRECINCT</b> This Precinct takes into cognizance the environmental aspects related to a town at various levels and related concerns.		
4.1	E-1 Environmental Conservation	<b>Natural Reserve and sanctuary, River Basins, Natural Storm Water Drainage Systems, Avifauna, Fauna Habitats, unique Flora and Bio-mass preserves.</b> <b>All Uses permitted as per the Natural Environment Protection and Enhancement Zone Guidelines</b> Activities related to environmental enhancement/ protection undertaken by competent authorities. Chorten, Mani Walls, Pedestrian and Bicycle Path	To be cleared by the National Environment Commission (NEC) Service installations to private lots through this zone to be checked by Competent Authority.
4.2	E-2 Forest	<b>Forest and Vegetation reserves</b> All uses permitted in E-1	To be cleared at Dzongkhag level (environment

Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
	Environments	<p>Activities related to and permitted / undertaken by or on behalf of the Forest Department, Community and Social forestry.</p> <p>Chorten, Mani Walls, Pedestrian and Bicycle Path</p>	<p>committee) &amp; put up to competent authority for review and decision.</p> <p>Access road or any service installations to private lots through this zone is to be checked by Competent Authority.</p>
4.3	<b>E-3</b> Agricultural Environments	<p><b>Agriculture</b></p> <p>All uses permitted in E-1 and E-2</p> <p>Agriculture, Horticulture, poultry keeping (subject to the N.O.C/ approval and conditions laid down by the Department of Agriculture), Dairy Development, Fisheries, Animal rearing and breeding, Open Storage of Drying Manure. Farm House located in land of not less than 4,000sq.m, Camping area for recreation and tourist activities, Natural Reserves and Sanctuaries, Athletic Track, Archery Range, Zoo, Nursery, Botanical Garden, Wayside Shops, Restaurant, Workshops related to agriculture activities.</p>	<p>Tourist information centers/ kiosks, museum for the history of the site, region, public conveniences such as toilets, cultural center, parks, gardens. Traditional architectural guidelines to be applicable.</p> <p>More than one farmhouse shall be permitted provided the minimum plot area per farm house is 1,000 sq.m.</p> <p>Building to be constructed at a distance of not less than 8 meters from the road, on which it abuts.</p> <p>For other activities for this precinct regulation, ground coverage shall not exceed 5% of the land area. In case of public and semi - public uses and buildings of charitable &amp; religious purposes the competent authority may permit development activities to the extent of 10% of the land area.</p> <p>Education, Hospital for infectious and contagious disease, Mental hospital, Sanatorium. With a ground coverage not exceeding 15% of land area. Amusement and Theme parks.</p> <p>Only basement, Ground</p>

Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
			<p>floor, and first floor structure may be permitted, however, the structure for storage of inflammable material and explosive goods shall be single storied only.</p> <p>For poultry farm, maximum 25% ground coverage shall be permitted.</p> <p>No sub - division of land shall be allowed.</p>
4.4	<b>E-4</b> Flood Prone Zone	<p><b>Zones with risk of possible Flooding Development will be permitted in this zone only under the condition that necessary flood protection measures for the entire zone are implemented and certified by competent authorities.</b></p> <p><b>All uses permitted as per the Natural Environment Protection and Enhancement Zone Guidelines</b></p> <p>Uses Permitted in Flood Plains protection Zone, located beyond the Flood Prone Area Protection Zone include, all uses permitted in E-1, E-2, E-3, E-5 and E-6.</p> <p>All kind of recreational and entertainment activities associated with predominant use of open spaces.</p> <p>Tourist attractions and Facilities, Tourist information centers/ kiosks, Camping area for recreation and tourist activities, Horticulture, Orchards, Floriculture, Vegetable Gardens, Botanical Garden, Facilities for Plant Tissue - culture, Mushroom Culture, Green Houses, Herbal based Health Centre, Health Clubs, Cemetery and Burial Ground, Brick Kiln, Public conveniences such as toilets, Resorts, Amusement parks, Theme parks, Play fields and courses, Athletic tracks, Exhibition grounds, Archery ranges, Adventure trials, Drive-in-Cinema, Open air theatres and auditoriums, recreational use of water, Social and Community forestry, Flood Protection and River Training Works.</p>	<p>Museum for the history of the site, region, cultural center, parks, gardens. Traditional architectural guidelines to be applicable.</p> <p>More than one farmhouse shall be permitted provided the minimum plot area per farm house is 1,000sq.m.</p> <p>Building to be constructed at a distance of not less than 8 meters from the road, on which it abuts.</p> <p>For other activities for this precinct regulation, ground coverage shall not exceed 5% of the land area.</p> <p>Only basement, Ground floor, and first floor structure may be permitted, however, the structure for storage of inflammable material and explosive goods shall be single storied only.</p>
4.5	<b>E-5</b> National	<p><b>Precincts of National Importance</b></p> <p>National Sports Complex, Aquarium, Archery</p>	<p>To be cleared by the National Environment Commission (NEC). Uses like Restaurants,</p>



Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
	Importance Open Spaces	Range, Zoo, Nursery, Stadium, Botanical Garden, Planetarium, Amusement Park, Swimming Pool, Exhibition and Fair grounds, Drive-In theater, Pedestrian and Bicycle Path and Recreational use of water.	etc. shall be permitted by special permissions.
4.6	<b>E-6</b> Local Green Space System	<b>Public Assets</b> Parks, Gardens, Playgrounds, Recreation of any type, Club House, Small Stadium, Pedestrian and Bicycle Path, Heritage related Structures.	
4.7	<b>E-7</b> International Buffer Zone	<b>International Boundary</b> Non-Habitable Land along International Boundary of minimum 300 meters width.  Customs and Immigration Check posts, Military Camps, Parking for Cargo Vehicles at Fixed locations. Agriculture with crops that do not block vision of patrols and allow easy accessibility, Border security related activities, Airport Run-way for military use, Cargo handling.	No permanent structures for agriculture or other purpose. Maximum of open type shelters of temporary nature would be allowed.  For regulatory purposes, one storeyed construction may be allowed (eg. Combined check points etc)
<b>5.0</b>	<b>HERITAGE PRECINCT</b> This Precinct takes into cognizance the historic, religious and spiritual uses and their immediate needs.		
5.1	<b>H- Heritage</b>	<b>Cultural and Religious Heritage</b> Spiritual and religious artifacts and places, Temples, Chortens, Mani Walls, Lhakhangs, Prayer Wheels, Statues, Monasteries and activities related to enhancement/ protection/ conservation of the heritage structures and/or precincts, permitted/ undertaken by Department of Culture, Ministry of Home and Cultural Affairs.	To be cleared in consultation with the Department of Culture, Ministry of Home and Cultural Affairs, RGoB.
<b>6.0</b>	<b>SPECIAL ECONOMIC PRECINCT</b> This Precinct takes into cognizance the various aspects related to the economy generation at regional and national level.		
6.1	<b>SE-2</b> Transit Hub	<b>Zones characterized by Transit Terminus location</b> Transit Terminus, Transit Stops, Visitor Centre, Tourist Information Centre, ATM, Cafes, Phone Kiosks, Convenience and Souvenir shops, Toilets	

Sr. No.	Designated Urban Precinct	Uses Sanctioned	Uses Permissible On Appeal To Competent Authority under Special Conditions
		and Showers, Luggage Storage, Petrol pump with minor repairs shop, Rest areas, Security Post, Check Posts.	
6.2	SE-4 Service Centers and Industry	<b>Service Centers, Industries and Workshops</b> Go-downs, Dormitory, Convenience and Souvenir shops, Toilets and Showers, Oil depot, Junk yard, Storage of permissible goods, Vehicle workshops. Battery charging, and Truck parking	Residential dwelling unit only for care taker or top management working within the public utility services and industrial premises
<b>7.0</b>	<b>ROYAL PRECINCT</b>		
7.1	R - Royal Uses	<b>Precinct related to Royal uses</b>	To be cleared by His Majesty.

**Table 3: Precinct Schedule Showing Plot Coverage, Setbacks and Maximum Number of Allowable Floors in each Precinct**

Sr. No	Designated Precincts	Plot Area	Max. Plot Coverage Allowed (%)	Min. Setbacks	Max. Height
		Sq.m			no. of floors
1	Urban Village Precinct				
a	UV-1	368.264*-400	50	1.5 m on front, 3 m on two sides and 5 m on the side accommodating the septic tank	4
		401-500	50		4
		above 500	50		4
b	UV-2	368.264 -400	45	3m on three sides and 5m on side accommodating septic tank	3
		401-500	45		3
		above 500	45		3
c	UV-3	368.264-400	40	3m on three sides and 5m on side accommodating the septic tank	2
		401-500	40		2
		above 500	40		2
2	Town Core and Urban Hub Precinct				
a	UC-1	368.264-400	50	1.5 m on front, 3 m on two sides and 5 m on the side accommodating the septic tank	4

Sr. No	Designated Precincts	Plot Area	Max. Plot Coverage Allowed (%)	Min. Setbacks	Max. Height
		Sq.m			no. of floors
		401-500	50		4
		above 500	50		4
		in case of vegetable market	40	6 m on all sides	2
b	UC-2	368.264-400	50	1.5 m on front, 3 m on two sides and 5 m on the side accommodating the septic tank	4
		401-500	50		4
		above 500	50		4
3	Institutional Precinct				
	I	More than 1,000	25	6m on all sides	2
4	Environmental Precinct				
	E-1				
	E-2				
	E-3	4,000	10	4.5 on all sides	2
	E-4				
	E-5		10	4.5 on all sides	1
	E-6		10	4.5 on all sides	1
	E-7				
5	Heritage Precinct				
	H- Heritage Precinct		Standards to be framed after Discussion with the NCCA and Department of Culture, RGoB		2
6	Special Economic Zone				
	SE-2				2

Sr. No	Designated Precincts	Plot Area Sq.m	Max. Plot Coverage Allowed (%)	Min. Setbacks	Max. Height
					no. of floors
	SE-4	400-3,000	40	3m on three sides and 5m on side accommodating the septic tank	2
		above 3,000	40		3
<b>7</b>	<b>Royal Precinct</b>				
	<b>R- Royal Uses</b>		30		2

\*The minimum plot area for Shechangthang Local Area has been considered. However, it has to be noted that the minimum plot area will change, when the respective Local Area Plan for the Urban Villages are prepared.

Notes:

1. Plot Coverage: The maximum permissible plot coverage shall be within the set back rules as prescribed in this regulations, and balconies (not enclosed or roofed) projecting up to 1.2 m from the ground floor external wall face shall be permitted. Such projections/ structures shall not cover the septic tanks. In the case of commercial buildings cantilevered balconies shall be allowed only at the rear side. Corner plots, with roads on two sides, shall not be permitted with balconies or similar projections.
2. Setback: Shall be measured from the outermost wall/window projection.
3. Habitable attics shall not be permitted.
4. Compound wall: Construction of compound walls shall not be permitted in UV1, UC1 and UC2 precincts. In residential precincts of UV2 and UV3 compound walls with a height of not more than 1.0m shall be permitted.
5. The above-mentioned Precinct Schedule is framed for the overall Sarpang Structure Plan.
6. All permitted proposals within the respective precincts should provide plot level parking spaces as per the parking standard mentioned in Section 3.23 of the DCR "Parking Requirements".

### 3.34 Tree Plantation

Tree plantation at the rate of one tree for every 50sq.m of land, shall have to be undertaken and maintained in all sites (not compulsorily in Urban Core Precinct UC1 and UC2 only).

### 3.35 Collection and Discharge of Storm Water

Every site development should include:

- A) Channels at the lower elevation/ level of the site which discharges rainwater runoff into public storm water drains.
- B) The underground water collection cistern at the lower portion of the site to store rainwater. It shall have the capacity for every 50sq.m of land coverage of the site, a

volume which can store 150litres of water, collected from the site run-off. This water shall be used for landscaping, car washing and other non-potable uses.

### **3.36 Vertical Extension:**

Vertical Extension (addition of floors to an existing structure) of the existing building would be permitted only upon satisfying the following requirements.

1. The application for the vertical extension should include the Building Permit and the approved drawings of the existing building, submitted along with the proposed drawings for the vertical extension.
2. The application for vertical extension shall be processed only if the existing building was strictly constructed as per the approved drawings. If the attic of the existing building is currently being used as a habitable floor, the application shall be rejected.
3. The Total Built-up area (Plinth Area x Number of floors) of the building should be within the maximum permissible built-up area achieved by multiplying the maximum Plot Coverage and maximum number of floors permitted under the respective precincts mentioned for the respective plot sizes as per the 'Sarpang DCR'.
4. The parking requirements for the proposed additional built-up area should be fulfilled as per the parking standard mentioned in Section 3.24 "Parking Requirements".
5. Structural Stability of the existing structural system should be proven to be adequate to accommodate the proposed vertical extension or additional floors (while complying with the current Building Code of Bhutan).

### 3.37 Betterment Charges

Betterment Charges would be collected for areas within the local area planning under land pooling but where physical pooling is not feasible totally. The charges would be equivalent to the land that would be contributed in correspondence to percentage of pooling of that particular LAP and if that particular area/ plot does not have any direct vehicular access then the percentage of land contributed to access road shall be deducted from the overall pooling percentage. These charges would be applicable for areas within LAP which are partially pooled and the betterment charges shall be charged based on the remainder percentage of pooling.

**The rate considered for calculating betterment charges would be as per Land Compensation Rate, 1996.**

### 3.38 Existing Non-Conforming Uses

A lawful use of land existing prior to the notification of the Sarpang Structure Plan of which these Precinct Sanctions forms a part and which do not conform to the designated Precinct Sanctions, shall be permitted to continue, subject to the condition that no extension, modification of the buildings, nor extension, or intensification of the non-confirming use shall be permitted. The existing use (structures) will continue but once the structure is demolished no further development/ redevelopment shall be allowed.

Uses like workshops, sawmills etc shall be allowed to continue operations for a minimum of five calendar years from the date these Precinct Sanctions become operational.

### 3.39 Redevelopment/ Reconstruction Of Dilapidated/ Unsafe Buildings

In the case of proposals involving redevelopment/ reconstruction of dilapidated/ unsafe buildings, the maximum allowable Total Built-up Area shall be equal to the Total Built-up Area legitimately consumed or the base Total Built-up Area allowable under these Regulations, whichever is more. Buildings with uses that do not conform to those permissible in the Precinct shall be permitted to be reconstructed only if their intended future use is permitted by the Implementing Authority, according to the regulations of the precinct in which they fall.

If the structures are found to be unsafe, or not fit for habitation the Implementing authority shall pull down the structure as per the BBR, at the cost of the owner.

## 3.40 Section-4 Land Development and Subdivision Regulations

### (GENERAL PLANNING REQUIREMENTS)

### 3.41 Development of Land

For undertaking land development that includes layout/subdivision/ consolidation of land/ plots, and/ or building activity, the application (refer Section 3.11 of these Regulations) shall comply with the following planning requirements of these Regulations.

### 3.42 Requirements of Site

#### 3.42.1 MEANS OF ACCESS

Subdivision of a land into smaller parcels for developing a layout or for construction of building/s shall not be permitted unless it derives access from an authorized and developed street/ means of access prescribed in these Regulations (Section 3.43.3, and 3.44.1). This implies that land locked/ trapped sites shall not be sub-divided.

#### 3.42.2 ACCESS FROM HIGHWAYS/ IMPORTANT ROADS

In case the land proposed to be developed abuts a highway or an important primary road, the access to the land shall be regulated such that:

- (i) it is located on the farthest point of the frontage from any junction,
- (ii) it is combined with an adjoining access way leading to the adjoining land,
- (iii) if possible, access the main road through a service road,
- (iv) provide the access in such a way that it is clearly visible from at least 60m away on the highway/ road, from both directions, and
- (v) when the access to the site has a gradient of more than 1 in 10, there shall be a minimum of six meters buffer space between the edge of the road and the gate to the site.

#### 3.42.3 APPROACH TO BUILDINGS

For residential development with buildings up to two floors:

The width of the approach from the public street or means of access to a building shall not be less than:

- a) 1.8m wide provided its length is not more than 3m. and/ or the floor area of the building served does not exceed 100sq.m and/ or the building consists of only one housing unit.
- b) 2.5m wide if its length is more than 3.0m and/ or the floor area of the building served does not exceed 100sq.m and/ or the building consists of only one housing unit.
- c) 3.5m wide in all other cases.

Such approach way shall be paved and shall always be kept open to sky and no projection or overhang shall be permitted over such pathways Subdivision of property where buildings with more than two floors exist, or are proposed, (residential or non-residential buildings), shall be permissible only if the following additional provisions of means of access are ensured:

- 1. The width of the main street on which the building abuts shall not be less than 4.5 m. and one end of this street shall join another street not less than 6m in width
- 2. Provision shall be made for one entrance to the plot, of adequate width to allow easy access to the fire engine.

3. The entrance gate shall fold back in the plot against the compound wall of the premises, thus leaving the exterior access to the plot free for movement of fire service vehicle.

#### **3.42.4 NO OBJECTION CERTIFICATE FROM REFERRAL AUTHORITIES**

- **In the Case of Use for Industrial Activity**

If the land is to be used for general industrial use, other than a service industry, the application has to be accompanied by a No Objection Certificate from the Department of Industry

- **In the Case of Development in Royal Precincts**

The application has to be accompanied by a No Objection Certificate from the Royal Secretariat.

- **In the Case of Development in Heritage Precincts**

The application has to be accompanied by a No Objection Certificate from the National Commission for Cultural Affairs (MH&CA)

- **In the Case of Development in E-1 (Environmental Conservation), E-2 (Forest Environments) Precincts and E-3 (Agricultural Environments)**

The application has to be accompanied by a No Objection Certificate from the National Environment Commission

#### **3.42.5 DISTANCE FROM RIVERS AND STREAMS**

##### **3.42.5.1 Rivers and Major Streams**

No development or building construction shall be permitted within 50m of the edge of the water course/ edge of Sarpang Chhu

##### **3.42.5.2 Rivulets / Minor Streams**

No development or building construction shall be permitted within 15m of the edge of all streams and natural drainage channels or such distance as may be prescribed under other general or specific orders of royal government or other Authority.

##### **3.42.5.3 Development Permissible on Environmental Clearance from the Relevant Authority**

1. Beyond 30m from the edge of the river and beyond 10m from the edge of the rivulets/ major streams: Foot paths and cycle tracks, foot bridges, edge/bank protection works for river, vegetable and flower gardens, nurseries, street furniture like lamp posts, benches, gazebos/ pavilions, basic children's play equipment and plot level litter bins,
2. Actions related to conservation of the precinct and enhancement of the environment under the guidance of Nature Conservation Division and the NEC.



**Addendum:**

- a) Natural landscape features of the rivers, major streams and rivulets, which includes the natural course of the water, banks/ edges, soil, vegetation (trees, shrubs and ground covers), rocky outcrops, boulders and other features or elements which are considered as part of the ecosystem or which are considered to be of scenic value shall not be damaged or disturbed from their natural state of being.
- b) Construction of roads, laying of underground cables and other service networks, structures like high-tension cable pylons, transmission towers and installations of electric substations shall not be permitted within the 50m zone of the river and within the 15m zone of the streams. Underground cables and service network shall be permitted within this buffer under special considerations with NOC from NEC.
- c) Dumping of solid wastes, sewage disposal, cleaning and servicing of vehicles/ automobiles or other action considered as polluting shall not be permitted.

**3.42.6 GENERAL REQUIREMENT**

The proposed development shall not have a detrimental impact on the ecology or be against the aesthetic sensibility within the environmental setting or be against public interest.

**3.43 Sub-Division/ Layout Of Land****3.43.1 LAND UTILIZATION**

In case of land development for the purpose of plotted development, or for group housing in the form of flatted development, the following land utilization indices shall be achieved.

**Table 4: Land Utilization as Percentage of the Residential Layout Area**

Sr. No.	Land Utilization	For Layouts of above 1 Hectare Area	For Layouts of less than 1 Hectare of Area
		% of total land	% of total land
1	Residential*	60 to 65	65 to 70
2	Roads and Footpaths	Up to 27	20 to 25
3	Open Space **	10	10
4	Public Amenities (day care, school, health center, etc.)	2 to 4	-
5	Public Utilities (over head tank, septic tank, electric sub-station, water supply reservoir/ pumping station, etc.)	1	-

\* Within this, plots for commercial use (permissible on ground floor only) shall be limited to 5

Sr. No.	Land Utilization	For Layouts of above 1 Hectare Area	For Layouts of less than 1 Hectare of Area
---------	------------------	-------------------------------------	--

percent of the total layout area. Such plots where commercial use is limited to the ground floor shall be allowed only along main roads within the layout and the building shall have a minimum setback of three meters.

\*\* The area under open spaces should be planned in such a way that at least half of such an area is provided at a central location.

### 3.43.2 INTERNAL ROAD LAYOUT

#### 3.43.2.1 Minimum Width of Road

The width of internal road right of ways in a layout for different purposes and the width of the internal approaches for tenements and ownership tenement flats shall be regulated as outlined in the LAP or as per Urban Road Standards.

#### 3.43.2.2 PLOT CONSOLIDATION

In the case of a site/ plot with existing buildings, its sub-division or consolidation shall not be approved unless it fulfils all the requirements under these regulations.

#### APPROACH ROAD

Consolidation of plots shall be allowed only if:

- The minimum width of the roads within the layout shall be a minimum of 6meters for Development of Plots, Development of Flats/ other non-residential development in UV2 precincts and should not be less than 4.5meters in UV3 Low Density and E3 precincts.
- The minimum specified road widths shall be developed completely up to the plot boundaries by providing all the required infrastructure networks viz., sidewalks, street lighting, trees, etc.

#### FOOTPATHS

Where there is no motorable road access to individual plots, but only footpaths, the following shall apply for the Temporary Settlements.

**Table 5: Maximum Number of Plots to be served with respect to Width and Length of Footpath**

Width of Footpath (m)	Maximum Length (m)	Maximum No. of plots to be served
1.5	20	5
2	32	8
3	52	12

#### 3.43.2.3 Internal Arrangement of a Layout

1. The arrangement of tenements, shopping centres, ownership tenements/ flats in a plot, shall be approved by the Implementing Authority with due regard to internal approach roads, marginal open spaces/setbacks, common plot, water supply, drainage, and internal road lighting.
2. In the case of shopping centres and commercial or industrial development the minimum width of road/ access to shops, stall/ complex entrance, or industrial factory shed shall be 7.5 m.
3. In the case of tenement type buildings such as ownership flats, row type, cluster type, group housing, semidetached buildings, 1.5m margin/ setback will be necessary from internal approach roads, wherein no steps shall be permitted in the margin/ setback.
4. The minimum clear distances between two detached structures shall be 6meters. However, staircase open to sky shall be permitted.

### 3.43.3 MINIMUM PLOT SIZES

#### 3.43.3.1 Minimum Plot Sizes for Different Uses

Unless otherwise stated specifically in these Regulations, the minimum building plot/ unit shall be as follows:

**Table 6: Minimum Plot Sizes for Different Uses**

Category of Use/ Occupancy	Minimum Plot Size (sq.m)
Educational Buildings	1000
Community/ Multi-purpose Hall	2000
Petrol Pump	500

### 3.43.4 COMMON AREAS

#### COMMON PLOT

Common Plot for the development of tenements, flats, group housing, and subdivision of land for industrial uses shall be required as under:

1. For Residential use:
  - a. In a building land parcel of 1500sq.m or more in area, a common plot shall be mandatory.
  - b. The minimum area of the common plot shall be 10% of the total site area and shall be provided preferably in a central place.
2. For Industrial use:
  - a. No common plot need to be provided for site area up to 5000sq.m

- b. In a building unit of more than 5000sq.m in area, the common plot shall be provided at the rate of 8% of the area of the site layout.
3. The common plot area shall be exclusive of approaches, margins/ setbacks and parking area. No projection shall be permitted in common plot.
4. Minimum size of the common plot shall be 300sq.m, with no side less than 12m.
5. 20% of area of the common plot may be permitted for the construction of community building on ground floor only, for the common use of residents with required margins; rest of the common plot shall be kept open to sky.

No construction except an electric sub-station shall be permitted on the roadside of the common plot.

6. The area of the common plot may be permitted to be sub-divided provided that the common plot has a minimum area of 300sq.m with no sides less than 12m.

For group housing, or for a building with ground floor plus two upper floors, further subdivisions of the common plot shall be allowed by the Implementing Authority.

#### **CONSOLIDATED OPEN PLOT (COP) (Excepting in the Urban Core)**

- A minimum consolidated open plot (COP) of 30% of the area of the site shall be provided for commercial and mixed development.
- The said consolidated open plot may be inclusive of the margins and approaches to be provided on such a site in so far as margins/ setbacks are contiguous and approaches are passing through the COP. The area of this COP shall not be deducted for the consideration of the Total Built-up Area of a building unit.
- The minimum width of the consolidated open plot shall be 15m.
- COP shall be provided compulsorily covering the full frontage of the site. In case of buildings with four and above floors, the minimum width of such COP shall be 5.5m plus required margins and in the case of low-rise building the minimum width of such COP shall be 2.5m plus required margins/ setbacks provided that such COP shall be used for visitor's parking only.
- Except in the case of Cinema, or Theatre, 50% of the total COP shall be allowed to be used as parking space including the driveway and parking aisles.
- No construction shall be allowed in the COP except the electric sub-station, subject to minimum roadside margin.
- In the case of mixed development the COP shall be provided as above subject to the following conditions:

- a. Separate area of 300sq.m or 10% of the required COP, whichever is more shall be provided exclusively for the use of residents, provided no parking shall be allowed in such common area.
  - b. Separate access shall be provided for the residents and the common area exclusively.
- Ancillary structures such as underground water-tank, overhead tank, electric substations, common garages for scooters and cars, etc. shall be permitted on the corner of the common open space of 500 square meters or more area, only up to 10 percent of the open space area, and up to maximum of 200 square meters.

#### **SPECIAL REQUIREMENTS FOR OPEN SPACES**

- Community open space in plotted development for Urban Village/ temporary settlements shall be spread as extended street areas with the standard of 0.1 hectare per 100 plots.
- In the case of layouts above one hectare area and having more than 50 plots, an open space of at least 700 square meters shall be provided at one place, adjoining community facilities such as a nursery school, community welfare centre etc.
- In the case of layouts with more than 100 plots, an open space of a minimum of 1000 square meters should be provided at one place.

#### **3.44 Tree Plantation**

Tree plantation at the rate of one tree for every 50sq.m of land, shall have to be undertaken and maintained in all layouts. These trees shall preferably be planted as per the urban design guidelines.

#### **3.45 On-Site Physical Infrastructure**

In all layouts larger than two hectares, or containing forty or more plots, an area of at least one percent of the site shall be provided for garbage collection arrangement, electric substation, water supply storage reservoir/ pumping station, etc. This space shall be provided such that it is located on a major internal road of the layout and as per the directions of Sarpang Thromde and the Department of Power.

#### **3.46 Collection and Discharge of Water**

Every site development shall provide channels at the lower elevation/ level of the site which collects rainwater runoff over the site and discharges this runoff into public storm water drains. The lower plot shall provide an easement or allow/ provide a right of way or channel for the discharge of storm water runoff from natural sources or adjacent plots of higher elevation into the public storm water drains.

## 4. APPENDIX A

### 4.0 Appendix 1: List of Details to be shown on Proposed Land Development Plan/ Subdivision Plan (wherever applicable)

- (i) The boundaries of the plot and plot level in relation to neighbouring road level.
- (ii) The highest and lowest levels of the plot and average slope with direction thereof.
- (iii) The position of the plot in relation to neighbouring streets and name of the streets
- (iv) Width of the proposed streets and internal roads.
- (v) Sub-division of the land or plot or building unit with dimension and area of each of the proposed sub-divisions and their use in conformity with these regulations.
- (vi) Dimensions and areas of open space and common amenities plots provided for under these regulations.
- (vii) All the existing buildings and other development standing on or under the site.
- (viii) The position of buildings and of all other buildings and construction which the applicant intends to erect.
- (ix) The means of access from the street to the buildings or the site and all other building and constructions which the applicant intends to subdivide.
- (x) Yards and open spaces to be left around the subdivided buildings to secure free circulation of air, admission of light and access.
- (xi) The width of street in front and of the street at the side or rear of the subdivided building.
- (xii) The direction of north point relative to the plan of the site or the buildings.
- (xiii) Any physical feature such as trees, wells, drains, pipelines, high-tension lines etc.
- (xiv) Existing streets on all sides indicating clearly the regular line for streets if any prescribed under the Structure Plan and passing through the building units
- (xv) The location of the building in the plot with complete dimensions.
- (xvi) A plan indicating parking spaces, with egress and ingress if required under these regulations
- (xvii) The positions of the building units immediately adjoining the proposed development.
- (xviii) The position of every water closet, privy, urinal, bathrooms, cess pool, well or cistern in connection with the building other than those shown in the detailed plan.
- (xix) The lines of sewers on the site and/or building, the size, depth and inclination of every sewer and the means to be provided for the ventilation of the sewers.

- (xx) The position and level of the outfall of the sewer.
- (xxi) The position of sewer, where the sewerage is intended to be connected to sewer.
- (xxii) Tree plantation required under regulation No.4.3.

#### **4.1 Appendix 2: List of Details to be shown in Drawings/ Plans for Obtaining Building Permission**

##### **DRAWING GUIDELINES**

Drawings with complete design information and details, but not limited to the following, shall be submitted to the Implementing Authority for scrutiny and approval.

##### **A) ARCHITECTURAL DRAWINGS**

- a) Site plan shall be drawn to scale and shall include the position of the proposed building in the plot showing the dimensions of the plot boundaries, set back lines and showing the approach road, location of septic tanks, soak pit, roof drainage, and drainage plan. The site plan shall clearly show any proposed widening right of way, no build line where a 30m or a 15m clearance is required from rivers, major streams, minor streams, cliffs, ledges, etc. are required as indicate by the latest official site plan issued by Sarpang Thromde (for safety and environmental protection)
- b) Site plan shall include a schematic drawing showing information on adjacent plot like building line, permanent features, drainage, access road, septic tank and soak pit location.
- c) Layout plan of each floor, elevations of all sides of the building, sections through toilets and staircases, details of doors, windows, traditional cornices, railing/parapet, opening and other methods of ventilation, details of toilet and kitchen.
- d) Proposed parking layout as prescribed under this regulation
- e) A digital copy of the drawings for reference, if available.
- f) Drawings shall have proper title block indicating name and signature of owner, Architect, type and number of storey, location, date, revision number and date, scale, and north direction.
- g) The following minimum scales shall be followed:
  - Site Plan 1:500
  - Elevation/plan/section 1:100
  - Stair case/toilet/kitchen details 1:50
  - Door/windows/cornice details 1:25

**B) STRUCTURAL DRAWINGS**

- a) A copy of design calculation notes.
- b) Design codes used shall be listed on the drawing.
- c) Loads (assumed or actual) shall be listed on the drawing.
- d) Material properties shall be listed on the drawing.
- e) Assumed soil bearing capacity or soil investigation report shall be attached.
- f) Foundation plan, truss layout plan showing truss and purlin spacing, beam and slab layout plan for each floor showing clearly the staircase opening, shaft opening and any other openings and depressions.
- g) Concrete and reinforcement details for foundation, beams, slab, staircase, lintel, cornice, projections, zhu and rabsey, wall, etc.
- h) Truss elevations and connection details showing the holding down details.
- i) Details of separation gap indicating the location of such gap on the plan wherever required
- j) Details of splice locations and splice length for beams, columns, slab and staircase.
- k) For Load bearing walls, details of plinth band, lintel band, roof band including vertical bars at corners, opening jambs, wall junctions to be shown.
- l) Foundation details indicating depth of foundation and plinth level.
- m) Dimensions shall be clearly indicated for all structural members
  - Anchorage of beam bars in an external beam – column junction
  - Column ties and Beam stirrups details
  - Retaining details in case of foundation founded on different levels
- n) Drawings shall bear proper title block indicating name and signature of owner, Structural Engineer, type and number of storey, location, drawing title, date, revision number.

**C) ELECTRICAL CONNECTIONS**

- a) Single line diagram of total electrical system showing incoming terminal point and distribution network.
- b) Electrical layout plan showing positions of light points, power points, any other outlets, switches and wiring diagram.



- c) Tapping off junctions, switchboards, and distribution circuits for power and lighting from SDB and phase distribution (in the case of multiphase installations) shall be indicated clearly on the wiring layout plan.
- d) Sub distribution boards showing circuits and respective loads and protection devices.
- e) Power distribution boards for large multi-storey buildings showing floor- wise distribution from main control board and incoming power line.
- f) For multi-storied / complex buildings, design calculations shall be submitted.
- g) Drawings shall bear proper title block indicating name and signature of owner, Electrical Engineer, type and number of storey, location, drawing title, date, and revision number.

#### **ADDITIONS AND/ OR ALTERATIONS TO EXISTING INSTALLATIONS**

The following information shall be submitted for additions and/or alterations to existing Installation:

- a) Polarity test results
- b) Insulation test results
- c) Earth continuity test results
- d) Earthing test results
- e) Capacity, condition and specification of existing spare circuits
- f) Rating, specification and condition of existing incoming mains control gear
- g) Composite (existing and proposed) layout plans for all floors

Note: For factories, relevant by laws shall be followed as per Bhutan factory, electricity rules or relevant international standards.

#### **LEGEND SHALL SHOW**

- a) Type and wattage of fixtures
- b) Type of SDBs
- c) Type of PCBs and connected load
- d) Type of MCBs
- e) Switches and Switchboards
- f) Junction boards

#### **COMPOUND ELECTRIFICATION WORK**

- a) Fixture and fitting specification

- b) Foundation details for support poles etc.
- c) Terminal box details.
- d) Size and type of cable proposed to be used.
- e) Single line diagram showing
  - (i) Connections
  - (ii) Phase distribution
  - (iii) Circuitry

#### **TELEPHONE CONNECTIONS**

Submitted drawings shall indicate symbols and legend. All points, junctions, routes ducts, telephone terminal cabinet are to be clearly indicated.

Drawings shall bear proper title block indicating name and signature of owner, Concerned Engineer, type and number of storey, location, drawing title, date, and revision number.

#### **D) DRAINAGE AND SANITATION**

- a) Plan showing Kitchen, bathroom and WC outlets.
- b) Plan showing location of septic tank and soak-pit or sanitary pipe lay out to the nearest sewer line, including manholes, wherever it exists.
- c) Drainage layout plan connecting to the nearest storm water drain.
- d) Sewer design shall be in accordance with plumbing code of practice.
- e) Materials and sizes of pipeline.

#### **E) WATER SUPPLY**

- a) Layout plan of internal plumbing system of each floor with details of pipe sizes and material.
- b) Water meters shall be provided for each dwelling unit.
- c) Plumbing design shall be in accordance with plumbing code of practice.
- d) Materials and sizes of pipe line
- F) Drawings shall bear proper title block indicating name and signature of owner, Engineer, type and number of storey, location, drawing title, date, and revision number.

**4.2 Appendix 3: Registration of Architect, Engineer, Structural Designer, Developer****APPLICATION FOR REGISTRATION**

The Implementing Authority shall register Architect, Engineer, Structural Designer, and Developer.

The registration may also be done by an Institute/Organization recognized by the Royal Government of Bhutan. Application for registration as Architect, Engineer, Structural Designer, Developer, shall be in the prescribed form. Registration shall be valid for the period of five years or part thereof and shall be renewable or part thereof.

**REVOCATION OF REGISTRATION**

A registration shall be liable to be revoked temporarily or permanently by the Implementing Authority or the recognized Institute/Organization. If the registered person is found guilty of negligence or default in discharge of his responsibilities and duties or of any breach of any of these Regulations, it would lead to cancellation of his/her registration unless the Implementing Authority is satisfied with the justification/show cause.

**GENERAL DUTIES AND RESPONSIBILITIES APPLICABLE TO ALL:**

- I. They shall study and be conversant with the provisions of the Local Government Act of Bhutan, 2009, the rules made there under, the Sarpang Development Control Regulations - 2010, and the other instructions circulated by the Implementing Authority and the provisions in force from time to time along with the instructions printed/mentioned on prescribed application forms and permission letter.
- II. They shall inform the Implementing Authority of their employment/assignment / resignation for any work within 7 days of the date of such employment / assignment / resignation.
- III. They shall prepare and submit all plans either new or revised when necessary, required documents and other details they are required to do so in a neat, clean and legible manner and on a durable paper properly arranged and folded in accordance with the provisions prevailing time to time.
- IV. They shall submit plans, documents and details without any scratches or corrections. Minor corrections will be permitted with proper initials. They shall correctly represent all the site conditions including grown up trees.
- V. They shall personally comply with all requisitions/ queries received from the Implementing Authority in connection with the work under their charge, promptly expeditiously and fully at one-time. Where they do not agree with requisitions/ queries, they shall state objections in writing; otherwise for non-compliance of any requisition/query within stipulated time, the plans and applications shall be filed forthwith, and shall not be re-opened.
- VI. They shall immediately intimate to the owners the corrections and other changes they make on the plans, documents and details as per requisitions/queries from the Implementing Authority.

- VII. They shall clearly indicate on every plan, document and submission, the details of their designation such as registered Architect, registered Engineer, registered Structural Designer, etc. with registration number, date, full name and their address below the signature for identification.
- VIII. They or their authorized agent or employee, shall not accept the employment for preparation and submission of plans-documents and supervision of any work if the same is intended or proposed to be or being executed or already executed in contravention of these Regulations and any orders made there under and any Regulations or rules for the time being in force.
- IX. The registered person shall apply for undertaking the responsibility for the particular work in the forms prescribed by the Implementing Authority.
- X. The registered person shall provide the information and undertaking for the work undertaken by him in the forms prescribed by the Implementing Authority from time to time.

## **ARCHITECT**

### **(A) QUALIFICATION AND EXPERIENCE**

A person holding a Bachelors Degree in Architecture/Diploma in Architecture (Equivalent to Bachelors of Architecture) with 2 years of work experience.

### **(B) SCOPE WORK and COMPETENCE**

- I. Preparation and planning of all types of layouts and submission drawings and to submit certificate of supervision and completion for all types of buildings.
- II. Supervision and execution of construction work as per specifications and drawings prepared by authorized registered structural designer and engineer.

### **(C) DUTIES AND RESPONSIBILITIES**

- a) He/she shall be responsible for making adequate arrangements to ensure not only that the work is executed as per the approved plans but also in confirmation with the stipulations of the National Building Code (Building Code of Bhutan 2003) standards for safe and sound construction and non-hazardous, functioning of the services incorporated in the building and for making adequate provisions for services and equipment for protection from fire hazards as per the stipulations of the Building Code of Bhutan 2003 in the buildings and shall obtain N.O.C from the Chief Fire Officer (in case of special buildings) or concerned designated Authority/consultant before applying for occupation certificate.
- b) He or she shall, on behalf of the owner, apply for the progress certificates, completion certificates and the occupation certificate and obtain the same as required under the regulations.
- c) If the services of the registered architect are terminated, he shall immediately inform the Implementing Authority about his termination and the stage of work at which his services have been terminated. The registered architect appointed as replacement of the preceding architect shall inform about his appointment on the job, and inform the Implementing Authority of any

deviation that might have occurred on the site with reference to the approved drawings and the stage at which he is taking over the charge. After Implementing Authority has inspected the site for his report, the newly appointed architect shall allow the work to proceed under his direction.

- d) The registered architect appointed on the work shall inform the Implementing Authority immediately on discontinuation of the services of the registered/structural designer, construction contractor, clerk of works, site supervisor, plumber or electrician and shall not allow the work to continue till the vacancy is filled by appointment of another person and the certificate of appointment of such person is submitted in the office of the Implementing Authority.
- e) He or she shall instruct the relevant agency that adequate provisions are made for ensuring the safety of workers and others during excavation, construction and erection.

#### **(D) REGISTRATION:**

- a) The registration fee if any shall be payable as prescribed by the Implementing Authority or the recognized Institute/ Organization from time to time.
- b) The Implementing Authority may black-list an architect in case of serious defaults or repeated defaults and shall inform The Royal Institute of Bhutanese Architects (RBIA) to take suitable action against such person under the provisions of The Royal Civil Service Commission. The registration shall be liable to be revoked temporarily or permanently by the Implementing Authority in such cases of negligence or default.

### **ENGINEER**

#### **(A) QUALIFICATION AND EXPERIENCE**

A degree in Civil Engineering or any equivalent qualification, recognized by The Royal Civil Service Commission. In addition to the qualifications stated above, the applicant should have at least five years experience in professional work if he is a holder of a Diploma in Civil Engineering/or equivalent.

#### **(B) SCOPE OF WORK and COMPETENCE**

- a) Preparation and planning of all types of layouts and submission drawings and to submit certificate of supervision and completion for all types of buildings.
- b) Supervision and excavation of construction work as per specifications and drawings prepared by authorized registered structural designer.
- c) He/she can prepare and submit structural details and calculations for buildings of load bearing structures.

#### **(C) DUTIES AND RESPONSIBILITIES**

As per the duties and responsibilities as specified for architect, with reference to engineer in place of Architect.

**(D) REGISTRATION**

- I. The registration fees if any shall be payable as prescribed by the Implementing Authority or the recognized institute or organization from time to time.
- II. If he/she is found negligent in his/her duties and responsibilities. The Implementing Authority may black-list an Engineer in case of serious defaults or repeated defaults and shall inform The Royal Institute of Bhutanese Engineers, to take suitable action against such person. The registration shall be liable to be revoked temporarily or permanently by the Implementing Authority in such cases of negligence or default.

**STRUCTURAL DESIGNER****(A) QUALIFICATION AND EXPERIENCE**

A Degree in Civil Engineering or any equivalent recognized by The Royal Civil Service Commission. In addition to above qualification, the applicant should have at least five years experience in structural design, two years of which must be in a responsible capacity in form of structural designer.

**OR**

A Master's degree in structural engineering from a recognized institute and at least two years experience in structural design work.

**OR**

A Doctor's degree in structural design from a recognized institute and at least one year experience in structural design work.

**(B) SCOPE OF WORK and COMPETENCE**

To prepare and submit structural details for -

- (i) All types of Buildings.
- (ii) Special structures.

**(C) DUTIES AND RESPONSIBILITIES**

- a) To prepare a report of the structural design
- b) To prepare detailed structural design and to prescribe the method and technique of its execution strictly on the basis of the Building Code of Bhutan 2003 or relevant international standards.
- c) To prepare detailed structural drawings and specifications for execution indicating thereon, design live loads, safe soil bearing capacity, specifications of material, assumptions made in design, special precautions to be taken by contractor to suit the design assumptions etc. whatever applicable.
- d) To supply two copies of structural drawings to the site supervisor.

- e) To inspect the works at all-important stages and certify that the work being executed is up to the satisfaction of the Architect/Engineer.
- f) To certify the structural safety and overall structural soundness of the building to the Architect/Engineer.
- g) To advise the Owner/ Architect/ Engineer for arranging for tests and their reports for soil, building material etc. for his evaluation and design consideration.
- h) S/he shall prepare the revised calculations and drawings in case of any revision with reference to the earlier submission of drawing and design in a particular case.
- i) To submit the certificate of structural safety and over all structural soundness of building to Implementing Authority.

#### **(D) REGISTRATION**

As specified for architect, with reference to structural designer place of Architect.

#### **DEVELOPER**

##### **(A) QUALIFICATION AND EXPERIENCE: -**

The person/ firm acting as Developer shall be of proven merits and experience.

##### **(B) DUTIES AND RESPONSIBILITIES.**

- I. Any person acting, in the capacity of the owner shall be the bonafide owner or authorized agent of the owner for developmental work proposed. S/he shall satisfy the Implementing Authority that s/he is the actual owner of the property of the authorized agent of the actual owner to undertake total responsibility as the owner, employer and manager of the property and its development and of all the assets and liabilities of the property and the project.
- II. S/he shall appoint a registered Architect/ Engineer to plan, design, prepare drawings and specifications and to direct the execution of the work in accordance with the requirements of these regulations.
- III. The appointment of the registered Architect/ Engineer shall mean that he has authorized the Architect/ Engineer to do all things necessary and to take all adequate measures for preparing the design, drawings and specifications for the project and to appoint on his behalf appropriate persons to act as registered, clerk of works site supervisor, required for the proper execution of the project and to retain on behalf of the owner any other specialist or expert required on the work of the project.
- IV. S/he/ Architect/ Engineer shall give written information to the Implementing Authority about the commencement of the execution work. He shall see that the registered Architect/ Engineer fulfill all requirements of Implementing Authority.

- V. S/he shall not cause or allow any deviations from the approved drawings in the course of the execution of the project against the instruction the instruction of Architect/ Engineer/ Site Supervisor/ Clerk of Works/ Structural Designer and shall bear all responsibility for any irregularity committed in the use and function of the building or its parts for which the approval has been obtained.
- VI. S/he shall inform the Implementing Authority immediately if the services of the Architect/ Engineer appointed on the project are terminated or has ceased to function due to any reason and shall not allow any work to proceed till another Architect/Engineer is appointed on the project.
- VII. When no registered construction contractor or site supervisor is required to be appointed and not appointed he shall be responsible for their duties and responsibilities under the Regulations.
- VIII. S/he shall not commence the use of building or shall not give the possession to occupy the building to any one before pertaining to the occupancy certificate from the Implementing Authority.
- IX. S/he shall provide adequate safety measures for structural stability and protection against fire hazards likely from installation of services like electrical installation, plumbing, drainage, sanitation, water supply etc. wherever required under the regulations.
- X. S/he shall exhibit the names of registered persons only, on site and no additional names will be exhibited/ displayed.
- XI. S/he shall explain the construction design and its intended use as per approved plan only, to the prospective purchaser of the premises under construction.



### 4.3 Appendix 4: Color Codes to be used in Plans/ Drawings

Table 7: Color Codes to be used in Plans/ Drawings

Sr. No.	Item	Site Plan	Building Plan
01	Plot Line	Thick Black	Thick Black
02	Existing Street	Green	-
03	Future Street if any	Green Dotted	-
04	Permissible Lines	Thick Black Dotted	-
05	Open Space	No Color	No Color
06	Existing Work	Blue	Blue
07	Work proposed to be demolished	Yellow Hatched	Yellow Hatched
08	Proposed Work	Red	Red
09	Work without permission, if started at site	Gray	Gray
10	Drainage and Sewerage works	Red Dotted	Red Dotted
11	Water Supply works	Black Dotted	Black Dotted

### 4.4 Appendix 5: Scrutiny Fees and Service and Amenity Fee Payable at the time of Application for Land Development/ Building Permission

Table 8: Service and Amenity Fee

Sr. No.	Category	Service and Amenity Fees (Nu. Per Sq.m of Built-up Area)
01	Residential/ Institutional Building Use	Nu. 30/sq.m
02	Commercial/ Industrial Uses	Nu. 50/sq.m

75% concession for land pooled areas and areas with Betterment Charges.

Scrutiny Fee: The minimum scrutiny fee for land development / building permission shall be Nu. 3000.00 or Nu. 16.14/sq.m whichever is more. Fee for renewal of development / building permission shall be Nu. 500.00.

Sr. No.	Category	Fee
01	Issuance of Official Site Plan	As approved by City Committee

## 4.5 Appendix 6: Summary of Critical Dimensions

### MAXIMUM CARPET AREA (sq.m) OF SHOPS IN CONVENIENCE SHOPPING CENTRES

General	: 20
Food grain or ration shops	: 50
Groceries, confectioneries, general provision shops	: 50
Medical and dental practitioners' dispensaries or Clinics, pathological or diagnostic clinics and pharmacies	: 50
Wood, coal and fuel shops	: 30
Cloth and garment shops	: 50
Restaurants and eating houses	: 50
Shoes and sports shops	: 75
Taxi stand office	: 10

### DWELLING UNIT

At least one room of minimum carpet area of 9sq.m with a minimum side dimension of 2.5m and a WC

### HABITABLE ROOM

Minimum height	: 2.7m measured from finished floor to finished ceiling.
Minimum width	: 2.5m.

### LIGHT HOME WORKSHOP

Maximum floor space	: 20sq.m.
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### LIGHT INDUSTRY

Maximum floor space	: 500sq.m.
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### LOFT/ ATTIC

Maximum height	: 1.2m.
Maximum area	: 30% of the floor area of the room.

### MEZZANINE FLOOR

Maximum height	: 2.3 m.
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**SERVICE ESTABLISHMENT**

Maximum floor space : 50sq.m.

**WATER CLOSET (WC)**

Minimum floor area : one square metre.

**TEMPORARY KIOSKS**

Maximum dimensions for “temporary” public telephone booths, milk booths, and newspaper stalls:  
2mx2.5m

**NO DEVELOPMENT ZONES**

All areas within 50m from the edge of the river and within 15m from the major streams or gulley more than 3m in depth, or on within 30m of the edge of a cliff, or under a cliff or precipice (within 30m).

**CRÈCHE**

Any construction site with minimum built-up area 5000sq.m (shall provide a crèche or day care centre for the laborer’s children, should even one, or more, women be employed on site.

**4.6 Application for Construction of Building in Urban Centres***(Please type or write in clear block letters, use additional sheet if necessary)*

To:

The Chairperson/ Thrompen

Urban Centre .....

1. Name of applicant:.....

2. Sex: Male ( ) Female ( )

3. Date of Birth:                      Day      Month      Year      Age  
(   )      (   )      (   )      (   )

4. Citizenship Identity Card No. ....

5. Permanent Address: .....

6. Present Address: .....

7. Postal Address:.....

8. Contact details:      Telephone No. (residence)                      :.....

Telephone No. (office)                      :.....

Fax No.                      :.....

E-mail address                      :.....

9. Land ownership:

- Government Allotment (Allotment order no & date) .....
- Purchased from the open market (Registration no & date) .....
- Allotted under Kasho (Copy of Kasho to be attached) .....
- Inherited/exchanged/gifted (Details of previous owner to be attached).....
- Subdivided (Approval letter no & date) .....

10. Plot details: Plot No:..... Area:..... sq.m, Dimensions:.....

11. Declaration: The information supplied in this application form is correct to the best of my knowledge and if there are any discrepancies, I shall be personally responsible for the same and I am prepared to face any disciplinary or legal action against me.

Date: ..... Place: .....

Signature:

For official use only

Noting of the dealing officer with regard to land holdings, building construction, etc.

Recommended (   )      Not recommended (   )

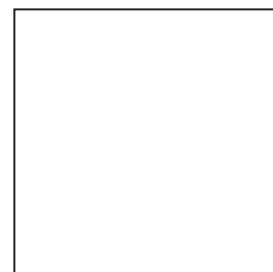
Name &amp; Signature of the Dealing Officer: .....

Signature of Thrompon/Chairman : .....

City/Municipal Corporation

Remarks (if any):

Passport size Photo



#### 4.7 Appendix 8: Application for Occupancy Certificate

To:

The Thrompon/Chairman,  
City/Municipal Corporation,

.....

Sir,

I hereby certify that the addition/ alteration/ construction of building on Plot/ Thram No. .... in ..... Lam, in .....town has been completed on ....., according to the approved building plan/ drawings, vide permit No. .... dated.....

The work has been completed to our best satisfaction. Workmanship and all the materials (type and grade) have been used strictly in accordance with the approved documents/drawings and relevant standards, codes of practice and specifications. Provisions of the Bhutan Building Rules, conditions or orders issued there under have not been transgressed/ violated in the course of the work. The building is fit for use for which it has been added/ altered/ constructed. The necessary 'Occupancy Certificate' may be issued.

Signature of the Owner: .....

Name & Address: .....

Telephone No. (residence): .....

Telephone No. (office): .....

Fax No.: .....

E-mail address: .....

Dated:

**4.8 Appendix 9: Occupancy Certificate**

To,

.....  
.....  
.....  
.....

Sir/Madam,

With reference to the application dated ..... regarding the addition/ alteration/ construction of building on plot/Thram No. .... in street/ Lam..... , .....in .....town has been inspected on date ..... and found that the building is fit / not fit for occupation.

Instruction / Remarks (if any):

Thrompen/Chairman  
City/Municipal Corporation  
Dated:



#### 4.9 Appendix 10: Local Area Plan

The third tier of the proposed Development Management System pertains to the specifics of a given area towards translating the Development Control Regulations proposed in the structure plan at town level to plot level. For implementation and working reasons, these are called as Local Area Plans. At any situation, it is the structure plan which rules over the local area plan of an Urban Village and the link between them extends at various levels. All the nonnegotiable elements and components like roads, various environmental protection areas, population accommodation needs, noted in the structure plan must be conserved in the local area plans. On the other hand, it is the basic necessity of the local area plan to rationalize the proposals of the structure plan.

These local areas will form basic units of planning and could be perceived as a tool to translate the broader goals that are outlined in Sarpang Structure Plan in to a practical setting. On one hand it will facilitate the implementation of the specific objectives of the structure plan and on the other the plan will illustrate the implementation of precincts sanctions within the local area and at individual plot level. It will also address local issues like provision of amenities at comfortable walking distance and restructuring of land parcels into a rational urban system.

The local areas generally, but not necessarily, will cover an Urban Village identified in the structure plan. Normally these are areas bounded by major roads, rivers, surface drains or other natural boundaries. At places where there is no established natural boundary they follow the existing cadastral boundaries. Within these defined areas, the urban systems are laid out completely respecting the guidelines provided by the Development Control Regulations in a workable and implementable manner. The distribution of various precincts proposed in the Sarpang Structure Plan will also be rationalized in the Local Area Plans.

At places, where the Local Area Plan covers the entire Urban Village, a high-density housing zone with a village square in centre will be identified. These local areas will be developed as a self-sustainable unit in terms of infrastructure, services and amenities needs. The Village Square with the basic amenities for Urban Village will be generally located along a public transport movement corridor, so that the Village Square becomes the central focus of the Local Area Plan. The idea is to provide compact, walkable communities, surrounded by medium-density residential plots, which in turn is surrounded by low-density development. All the plots falling in a local area plan will be rationalized. Roads and other infrastructure services including water supply networks, sewerage networks, storm water drains, street lighting and solid waste management will be laid out in a hierarchical manner so that all the plots in the local area are well served.

In Sarpang, one such Local Area Plans have been prepared for the town as a part of the Sarpang Structure Plan.

## 5. APPENDIX B

### 5.0 Selected Investment Plan

#### 5.0.1 INTRODUCTION

The Investment Plan for Sarpang is prepared as a part of the Sarpang Structure Plan, with the prime objective of the long-term wellbeing of the people of Sarpang and their environment, through an innovative approach and the provision of cost-effective services. To ensure sustainable communities and bring about lasting improvements to quality of life of individuals, families and neighborhoods, we need integrated policies, investment and action across a range of economic, social, physical and environmental issues.

This coordinated approach aims to deliver

- Access to economic opportunities (e.g. through new businesses and improved transport) along with the skills and support (e.g. training, child care and other support services) to take advantage of these opportunities;
- Improvements to the local environment, open spaces and facilities;
- Good quality and responsive public services (e.g. education, health and neighborhood services such as street cleaning, roads and lighting, and safety);
- Safer communities; and,
- Genuine community engagement in shaping the place they live.

This leads to an approach of making a balanced infrastructure investment programme. The Programme will:

- Invest in environmental, transportation and social infrastructure; and,
- Maximize economic efficiency through innovative investment mechanisms like revolving and securitization funds and grants (where necessary).

The main goal is to achieve improved quality of life, increased environmental and health protection, reduced levels of homelessness and improved community well-being.

The main sectors of investment would be:

#### 1. Environmental Infrastructure:

- a. Solid-waste management systems, including programs for reducing, reusing and recycling, waste diversion such as composting, upgrades of existing landfill sites;



- b. Water and wastewater systems, including water and wastewater treatment plants, distribution and collection systems (covering potable water, sanitary and other effluents and storm waters), and water conservation; and,
- c. Protection of ecologically sensitive lands and natural heritage.

## **2. Transportation Infrastructure:**

- a. Repair and upgrade of roads and bridges;
- b. Construct new roads as proposed in the transportation plan; and,
- c. Mass public transport system.

## **3. Social Infrastructure:**

- a. New affordable housing;
- b. Improved health services;
- c. Recreational facilities for children and youth; and,
- d. Revitalization, including housing intensification; and heritage preservation.

The investment will benefit in the form of

- Improved productivity and competitiveness;
- Local job creation and training;
- Community economic development;
- Increased community safety; and,
- Reduced levels of homelessness and the related costs of emergency shelters, health and social services.

## **5.0.2 EXECUTIVE SUMMARY**

The preparation of the Sarpang Structure Plan is the primary task of the Department of Human Settlement (DHS) under the Ministry of Works and Human Settlement (MoW&HS), Royal Government of Bhutan (RGoB). This Investment Plan Report presents and discusses projects which are proposed as a part of the Sarpang Structure Plan. Looking at the demographic studies it reveals that population will reach a figure of 11,323 while the accommodation capacity of Sarpang town would be much higher, 21,181 by the year 2035 (Reference: Sarpang Structure Plan Vol. 01, Chapter 4, Population Projection and Planning Standards).

The Investment Plan proposal can act as a reference to plan carefully, to take care of the infrastructure needs of this growing population. This Plan deals in detail with infrastructure projects. It aims to help various departments to work together more efficiently and to execute the projects in a coordinated way and to provide greater transparency for the community on the infrastructure strategies and projects. Along with this process the implementing authority should also stress on the issues of maintenance and of implication for the provision of new infrastructure; on the possibilities for multi-year budgeting for infrastructure projects, and on new technologies and their implications for infrastructure.

While making the proposals for action three major criteria are used to assess the merits of an infrastructure project.

They should:

- Meet a clear social need;
- Be consistent with existing government policies and requirements; and
- Produce more benefits than costs.

The community's need for an infrastructure project may emerge from a number of factors. The report takes in to consideration population factor: population growth, population movements and the characteristics of new population distribution. The community's need for infrastructure may also stem from the demands of economic change over and above that required simply to sustain a growing population.

The Sarpang Structure Plan is prepared considering four key policy points within which strategies, plans, initiatives and individual infrastructure projects would fit.

These are:

- Integrating environment protection into all activities;
- Encouraging economic development and employment growth;
- Achieving greater social justice for all members of the community and creating livable towns; and,
- Delivering more financially responsible programs that reduce public debt and unfunded liabilities.

Some of the most important initiatives aimed at helping, meet these commitments are:

- Reducing pollution from storm water and sewage;
- Integrating land use and transport planning;

- Investing in information technology infrastructure;
- Improving access to affordable housing; and
- Enhancing recreational and cultural infrastructure.

The Investment Plan specifies the proposed projects and recommendations that will deliver these initiatives.

As per the analysis of the proposed projects mentioned in the 'Proposals for Action', the Investment for the Sarpang Town (within the proposed municipal boundary limits) will be about Nu. 1,864.831 Million (USD 41.407 Million) and within Municipal Limits and outside the Municipal Limits add to Nu. 2,659.416 Million (USD 59.065 Million) up to the year 2035, for the projects of various SECTORS.

### **5.0.3 PROPOSED PROJECTS: COST ESTIMATED (SECTOR WISE)**

Sarpang Structure Plan proposes various projects under the following SECTOR heads. The cost estimates are carried out for the same projects.

#### **Utilities and Infrastructure**

- Water Supply Scheme and Network System
- Sewerage Management and Network System
- Storm Water Management and Watershed Development
- Soil Waste Management System
- Electrical Distribution System
- Street Lighting System
- Telecommunication System
- Local Area Plan Implementation and landscape designing and;
- Transportation System

#### **5.0.3.1 Water Supply System**

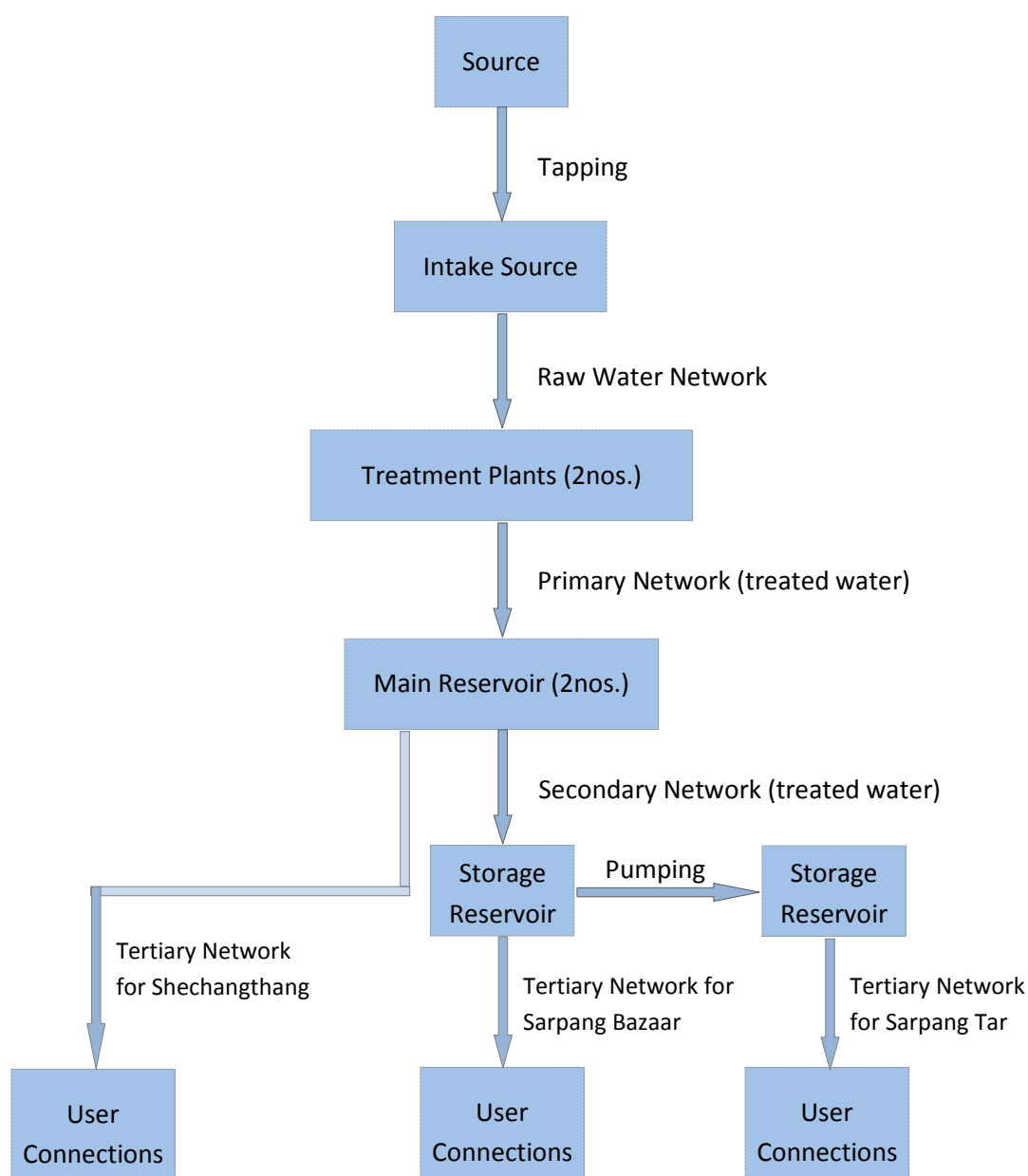
The main objective of the proposed Water Supply System is to

- To ensure an efficient and regular supply of potable treated water for the entire area under the present and proposed extended municipal boundary.

- To ensure adequate tapping of the available water sources and after treatment, to utilize them as a part of the town water supply network.
- To enable a decentralized network of sources and supply networks to reduce and distribute the anticipated load on the central network, in the future, on to other subsidiary ones.
- To establish a cost efficient network, this would maximize the use of the gravity flow mechanism, thus efficiently utilizing the local terrain characteristics, reducing the need for expensive pumping facilities to the bare minimum.

Considering this framework, the following system of supply is proposed:

**FIGURE 4: FLOW DIAGRAM OF THE PROPOSED WATER SUPPLY NETWORK SYSTEM**



**Table 9: Summary of Cost Estimate of the Proposed Projects for Water Supply System and its Network**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Water Supply Scheme & Network System	<b>178.782</b>	<b>3.973</b>	84.076	21.200	40.606	16.450	16.450

*Note: for detailed calculation please refer to Appendix*

The costing for the Water Supply System is arrived at considering the proposed system of flow from source to the intermediate reservoirs and then to the distribution expected within the proposed municipal limits. Pricing of the water supply consumption should be as per the metered consumption for each unit and would vary according to the precinct it is located in. A detailed pricing mechanism could be evolved for different grades of development and income groups as per the density of the development. Looking at the proposed systems, there would be a phase-wise expansion of the current manpower capacities engaged in the management and maintenance of the urban water supply network, to cover and manage the other recommended treatment plants and other facilities in the outlying areas.

### Conclusion

The estimated cost for the entire water supply network system for Sarpang Thromde is Nu. 178.782 million. This is a huge expenditure, but it is a necessity looking at the overall progress of the town. The entire scheme of implementation of the water supply system should be worked-out taking into consideration the amount to be invested and amount to be recovered from the consumers. At the same time the manpower and maintenance tasks have to be considered, as the system would have different control points. The implementing authority must establish this mechanism.

#### 5.0.3.2 Sewerage Management System

The main objective of the proposed Sewerage Management System is to

- To ensure an efficient sewerage and waste water disposal system with respect to maintaining high standards of health and hygiene in Sarpang.
- To lay the sewerage network mainly along the natural drains and off the road networks. This will have a major advantage of not blocking the vehicular traffic during sewer repairing operations, which is a chronic problem on several main roads today.
- To enable a decentralized sewer network and to reduce and distribute the anticipated load on the central network.

- To establish a cost efficient network, by installing sewerage treatment plant.

For the purpose of facilitating an efficient sewerage System, the network lines which come from the territories to come at a point where pathways are proposed and then the lines follow the pathway running along the rivulets to the treatment plants. This pathway alignment will enable to locate the lines for maintenance and would also provide an access to the manholes.

**Table 10: Summary of Cost Estimates of the Proposed Project for Sewerage Management System**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Sewerage Management & Network System	185.650	4.126	55.350	41.450	41.350	35.850	11.650

*Note: for detailed calculation please refer to Appendix*

The costing for the Sewerage Management System is arrived at considering the various projects mentioned and the mechanism proposed for the same.

### Conclusion

The estimated cost for the entire sewerage network system for Municipal Area is Nu. 185.650 million. It is a large expenditure over the years but it is a necessity looking the overall progress of the town. The entire scheme of implementation of the sewerage network system should be worked-out taking into consideration the amount to be invested, and the amount to be recovered from the consumers. At the same time enough manpower and maintenance tasks have to be considered as the system would have different control points. An appropriate mechanism for implementation must be established by the implementing authority.

#### 5.0.3.3 Storm Water Drainage system, Flood Protection and River Training work

The main objective of the proposed Storm Water Drainage System is to:

- To ensure an efficient storm water disposal system with respect to maintaining high standards of health and hygiene in Sarpang.
- To lay the network of the storm water drainage mainly along the off the road networks.
- To establish a cost efficient network, by constructing storm water drainage channels wherever possible with loads according to areas of collection, thereby reducing on the exposed networks and the possibility of causing serious hygienic problems.

**Table 11: Summary of Cost Estimates of the Proposed Projects for Storm Water Drainage System, Flood Protection and River Training Works**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Storm Water, Flood Protection & River Training (within municipal boundary)	<b>814.920</b>	<b>18.109</b>	431.340	331.000	19.360	18.260	14.960
Storm Water, Flood Protection & River Training (within & outside municipal boundary)	<b>1,578.540</b>	<b>35.079</b>	431.340	667.600	217.360	164.560	97.680

*Note: for detailed calculation please refer to Appendix*

The costing for the Storm Water Drainage System and flood protection and River Training work is arrived considering the various projects mentioned in the Structure Plan Report.

### Conclusion

The estimated amount for the entire storm water drainage system for Sarpang Municipal Area is Nu. 814.920 million and Nu. 1578.540 for area beyond municipal boundary. It is a large expenditure over the years but it is a necessity looking to the overall progress of the town.

#### 5.0.3.4 Solid Waste Collection and Disposal System

The proposed Solid Waste Collection and Disposal System aim at

- Managing the Solid waste at source level by segregating the wastes into recyclable and reusable wastes, organic wastes and other rubbish.
- The main objective of the proposed Solid Waste Collection and Disposal System is to
- To manage and minimize the volume of solid waste carried to the landfill site.
- To alter the methodology of solid waste collection and disposal system.
- To manage the solid waste at the source level.
- To extend the services of the solid waste collection network to all the proposed precincts.
- To decentralized the solid waste management system to other institutions and organizations. Large institutions should have their own facilities.

- To promote awareness among the public in managing the solid wastes.

**Table 12: Summary of Cost Estimates of the Proposed Solid Waste Collection and Disposal System**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Solid Waste Management System	<b>31.765</b>	<b>0.706</b>	10.805	6.080	6.080	6.080	2.720

*Note: for detailed calculation please refer to Appendix*

### Conclusion

The estimated amount for the entire solid waste management system for Sarpang Municipal Area is Nu. 31.765 million. It is a large expenditure over the years but it is a necessity looking to the overall progress of the town. All the projects mentioned aim to minimize and manage the volume of the solid waste collected at the landfill site. Introduction of strict monitoring system, introduction of public participation and privatization of the solid waste management, will minimize the responsibilities and ease the management process for Sarpang Thromde. These systems will also induce awareness among the public.

#### 5.0.3.5 Electrical (Power) Distribution System

The main objective of the proposed Electrical Power Distribution System is to:

- To provide sufficient electricity requirements to maximum consumption areas.
- To establish a proper mechanism by establishing maintenance centers at key locations.
- To convert the overhead lines network to underground network wherever necessary and feasible.

Pricing of the electrical distribution system should be worked-out as per the number of connections (by strict monitoring) and the investment to be done for the systems.

**Table 13: Summary of Cost Estimates of the Proposed Electrical (Power) Distribution System**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Electrical (Power) Distribution System	<b>112.050</b>	<b>2.490</b>	39.100	37.100	20.700	14.150	1.000



## Conclusion

The estimated amount for the entire electrical distribution system for Sarpang Municipal Area is Nu. 112.050 million. It is a large expenditure over the years, but it is a necessity looking at the overall progress of the town. The entire scheme of implementation of the electrical distribution system should be worked-out taking into consideration the amount to be invested and amount to be recovered from the consumers. Separate facilities to be established by the implementing authority.

### 5.0.3.6 Street Lighting

The main objective of the proposed Street Lighting System is to:

- To add a character to the streets of different types by providing various types of illumination characteristics.
- To add greater visibility to the vehicular traffic thus reducing the number of accidents.

The costing for the Street Lighting System is arrived considering the various transportation projects proposed.

**Table 14: Summary of Cost Estimates of the Proposed Project for Street Lighting System**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Street Lighting	<b>47.438</b>	<b>1.021</b>	11.000	15.475	9.175	8.388	3.400

*Note: for detailed calculation please refer to Appendix*

## Conclusions

The estimated amount for the entire street lighting system for the Sarpang Municipal Area is Nu. 47.438 million. It is a large expenditure over the years but it is a necessity looking the overall traffic condition of the town. The entire scheme of implementation of the street lighting system should be worked-out taking into consideration the immediate requirements.

### 5.0.3.7 Telecommunication System

The main objective of the proposed Telecommunication System is to:

- To upgrade the network system in areas of high demand.
- To increase the capacity of the existing and newly built stations in a phased manner considering the population and the number of connections.

The costing for the Telecommunication System is arrived considering the various proposed tasks. Accordingly, the entire planning network would have to be done from each of the proposed Urban Village roads after executing a detailed survey.

**Table 15: Summary of Cost Estimate of the Proposed Telecommunication System**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Telecommunication System	<b>46.630</b>	<b>1.036</b>	13.705	14.925	7.050	7.050	3.900

*Note: for detailed calculation please refer to Appendix*

## Conclusion

The estimated amount for the entire telecommunication system for Sarpang Municipal Area is Nu. 46.630 million. It is a large expenditure over the years but it is a necessity looking the overall demand of the town and its extended limits. The entire scheme of implementation of the telecommunication system should be worked-out taking into consideration a detailed survey of the immediate requirements and also the future demand.

### 5.0.3.8 Transportation System

The main objective of the proposed transportation system is to:

- To strengthen the inter-town linkages.
- To reduce the emission levels in the town by promoting the Public Transit System and by discouraging the use of private vehicles.
- To encourage a pedestrian oriented transportation system by enhancing safety and convenience
- To complement the proposed land use pattern with appropriate transportation and pedestrian linkages.
- To create opportunities for the citizens of Sarpang to meet new people and make new friends, which they meet sitting next to them in public transport.

The costing for the Transportation System is arrived taking into consideration the town's present situation. A detailed survey has to be executed on the proposed roads and further make a study on its implication on the surrounding areas of the roads.

**Table 16: Summary of Cost Estimate of the Proposed Transportation System**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Transportation System	<b>429.400</b>	<b>9.542</b>	148.800	167.100	56.400	32.900	24.200

*Note: for detailed calculation please refer to Appendix*

### Conclusion

The estimated amount for the entire transportation system for the Sarpang Municipal Area is Nu. 429.400 million. It is a large expenditure over the years but it is a necessity looking the overall traffic movements of the Town, its extended limits and the safety of the public. The entire scheme of implementation of the transportation system should be worked-out taking into consideration a detailed survey of the immediate requirements and also of the future demand.

#### 5.0.3.9 Local Area Plan Implementation and Landscaping:

The main objectives of the proposed Local Area Plan implementation and Landscape design is:

- To establish permanently the boundary limits of Sarpang Thromde
- To demarcate the local area plan of Shechagthang Urban Village as per the final approved plan with permanent bench markings
- To implement a beautiful landscape design on both sides of the reclaimed river bank and the important road junctions and proposed Golf Course of international level from tourist point of view

**Table 17: Summary of Cost Estimates of the Proposed Local Area implementation and Landscaping:**

Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
	(Nu.)	(US \$)	2011-15	2016-20	2021-25	2026-30	2031-35
	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
Local Area Plan Implementation & Landscaping							
Inside ML	<b>18.197</b>	<b>0.404</b>	9.607	4.707	3.883	0.000	0.000
Inside & Outside ML	<b>49.162</b>	<b>1.092</b>	9.607	17.657	11.583	7.850	2.466

*Note: for detailed calculation please refer to Appendix*

The costing of the system is arrived taking into consideration the town's present situation, future growing prospects and importance. A detailed survey has to be executed on the proposed reclaimed area and further make a study on its implication on the total township.

## Conclusion

The estimated amount of the entire system for within Sarpang Municipal Area is Nu. 18.197 million and Nu. 49.162 million inclusive of the area inside and outside the Municipal Limits (ML). It is a large expenditure over the years but it is a necessity looking to the overall location and importance of the town. The entire scheme of implementation of the landscape design should be worked out taking into consideration a detailed survey of the immediate and future prospects of the town.

## 5.1 Project Implementation and Project Management

### 5.1.1 IMPLEMENTATION

The Structure Plan is implemented through a variety of means including Local Area Plans prepared for various zones. The implementation may be done through the following methods

- Urban Strategy and Action Programme
- Economic Strategies
- Guidelines for Developer's Contributions
- City Conservation/ Forest Protection Strategy
- Recreation Strategies
- Tourism Strategies
- Urban Fringe Countryside Management Plan
- Local Transport Plans

Supplementary planning guidance does have to be prepared in order to assist in implementing the strategy. The particular supplementary planning guidance should contain broad guidelines about the requirements for developer contributions towards the services and facilities needed to support new development.

It is proposed that implementation of the Sarpang Structure Plan, Sarpang Thromde would be the Implementing Authority. There is an immediate requirement to set up a Municipal Corporation at Sarpang by recruiting technical professionals in the engineering and management fields.

Also, Sarpang Thromde along with the Department of Human Settlement (DHS) should explore the commissioning of the external or international consultants for design and project management of the jobs. Corporation representatives can be a part of the team so as to get trained and also as a means of direct exposure to the work.

The records from the Construction Development Board confirm that contractors under various categories are capable for executing projects of different scales, thus strengthening the capacities of the building construction contracting industry.

A provision in the projects implementation process is that the work should not be necessarily awarded to the lowest cost bidder. Should be ensured this provision will take care of the quality of the job. But, again this may not suffice, and, a very strict monitoring by a team of technical professionals has to be lined-up for close supervision and monitoring.

With the execution of the projects there has to be a back-up of a very strong maintenance team. This team will ensure regular monitoring and maintenance of the jobs being executed to keep them intact and functioning.

### 5.1.2 RESOURCES

The Implementing Authorities have a good idea of the resources that are likely to be available to implement the Structure Plan's proposals. This includes taking account of the city's economic policies, the financial policies of implementing agencies and the likely availability for the use of land, labor and other material resources. As the Structure Plan sets out policies and proposals for land use in broad terms and over the long term, such an assessment can only be made in general terms and will inevitably be subject to some uncertainty.

The Structure Plan provides the strategic precinct planning framework for the decision making by a wide range of public and private sector bodies and agencies whose contribution will be necessary to implement the Plan. In preparing the Plan consultation took place with concerned bodies regarding amongst other matters the use of resources. The Implementing Authority will need to work with these other bodies and agencies to secure the necessary resources to implement the Plan. Making effective use of resources will necessitate genuine partnership working both between the Implementing Authority and various bodies and organizations operating at the strategic and more local levels and with local communities.

Public investment includes funds made available from Local Authorities and those secured from the Government via bidding arrangements as for the Local Transport Plans and from other organizations. The restrictions on public expenditure means that much will depend on securing private finance to implement the development requirements proposed in the Plan.

The above mentioned guidelines dealing with requirements for developer's contributions towards the services and facilities required to support new development will be particularly relevant in this respect.

### 5.1.3 MONITORING

Monitoring plays an important part in the Structure Plan implementation process. In order to assess the effectiveness and progress of the Plan, policies should be regularly monitored by the Implementing Authority.

There are two main elements of the monitoring process:

- Scrutiny of emerging Local Area Plans in terms of their conformity with Structure Plan policies.
- Identification of appropriate indicators and the continuous monitoring of social, economic and environmental data to assess the effectiveness of the Structure Plan.

The second element will be undertaken by the use of a selected number of key indicators and targets that will measure specific policies or groups of policies. It will provide a consistent basis to judge whether the Plan is achieving its objectives, and to identify where policies need to be strengthened, maintained, changed or removed as part of future reviews.

The following factors have been taken into account in identifying the key indicators

- The ability of the Structure Plan to influence the indicator;
- The overall objectives of the Plan set out in Strategy Policy;
- The policies themselves;
- The availability of source data; and,
- Their compatibility with other national, regional and local indicators.

The indicators will monitor progress towards meeting the targets set by the Plan. The measurement of such indicators will provide an initial indication of the effectiveness of the policies. However, further analysis will be required to be undertaken to give a more informed consideration. The analysis of indicators and implementation of the policies through Local Area Plans will provide an opportunity to identify areas requiring further investigation and, where appropriate, the need for new policy responses in a future review of the Structure Plan.

Table 18: Executive Summary of the Investment Plan Proposals

Sr. No.	Sector	Estimated Cost		Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
		(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
		(in Mn.)	(in Mn.)	(in Mn.)	(in Mn.)	(in Mn.)	(in Mn.)	(in Million)
1	Water Supply Scheme & Network System	178.782	3.973	84.076	21.200	40.606	16.450	16.450
2	Sewerage Management & Network System	185.650	4.126	55.350	41.450	41.350	35.850	11.650
3a.	Storm Water, Flood Protection & River Training (within municipal boundary)	814.920	18.109	431.340	331.000	19.360	18.260	14.960
3b.	Storm Water, Flood Protection & River Training (within & outside municipal boundary)	1,578.540	35.079	431.340	667.600	217.360	164.560	97.680
4	Solid Waste Management System	31.765	0.706	10.805	6.080	6.080	6.080	2.720
5	Electrical Distribution System	112.050	2.490	39.100	37.100	20.700	14.150	1.000
6	Street Lighting	47.438	1.021	11.000	15.475	9.175	8.388	3.400
7	Telecommunication System	46.630	1.036	13.705	14.925	7.050	7.050	3.900
8	Transportation System	429.400	9.542	148.800	167.100	56.400	32.900	24.200
9	Local Area Plan Implementation & Landscaping							
9a.	Inside ML	18.197	0.404	9.607	4.707	3.883	0.000	0.000
9b.	Inside & outside ML	49.162	1.092	9.607	17.657	11.583	7.850	2.466
	<b>Total (within ML)</b>	<b>1,864.831</b>	<b>41.407</b>	<b>803.783</b>	<b>639.037</b>	<b>204.604</b>	<b>139.128</b>	<b>78.280</b>
	<b>Total (within &amp; outside ML)</b>	<b>2,659.416</b>	<b>59.065</b>	<b>803.783</b>	<b>988.587</b>	<b>410.304</b>	<b>293.278</b>	<b>163.466</b>

Note:

- The cost estimates have been derived from: Project mentioned in 'Proposals for Action' in the Sarpang Structure Plan, and the quantification of items of works have been calculated from the proposed layouts etc.
- The costs estimated mentioned above are excluding 'inflation' component. During the process of finalization and approval of a particular proposal necessary inflation index rate needs to be implied and then the final cost to be arrived at.
- 1 US Dollar = Nu. 45

## 5.2 Detailed Tables for Investment Plan

Table 19: Cost Estimate for the Proposed Water Supply Scheme and Network System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>1.0</b>	<b>Source</b>											
1.1	Intake Structure and Sand Trap	2	Nos.	600,000	1,200,000	1.200	0.027	0.600	0.000	0.600	0.000	0.000
1.2	Monitoring and Maintenance Facility	2	LS	400,000	800,000	0.800	0.018	0.400	0.000	0.400	0.000	0.000
1.3	Raw Water Sump	1	LS	10,500,000	10,500,000	10.500	0.233	10.500	0.000	0.000	0.000	0.000
	<b>Total</b>				<b>12,500,000</b>	<b>12.500</b>	<b>0.278</b>	<b>11.500</b>	<b>0.000</b>	<b>1.000</b>	<b>0.000</b>	<b>0.000</b>
<b>2.0</b>	<b>Main Plant</b>											
2.1	New Treatment Plant - 01	1	Nos.	11,500,000	11,500,000	11.500	0.256	11.500	0.000	0.000	0.000	0.000
2.2	New Treatment Plant - 02	1	Nos.	11,500,000	11,500,000	11.500	0.256	0.000	0.000	11.500	0.000	0.000
	<b>Total</b>				<b>23,000,000</b>	<b>23.000</b>	<b>0.511</b>	<b>11.500</b>	<b>0.000</b>	<b>11.500</b>	<b>0.000</b>	<b>0.000</b>
<b>3.0</b>	<b>Reservoirs</b>											
3.1	Main	2	Nos.	5,600,000	11,200,000	11.200	0.249	5.600	0.000	5.600	0.000	0.000
3.2	Storage & Distribution	2	Nos.	5,600,000	11,200,000	11.200	0.249	11.200	0.000	0.000	0.000	0.000
3.3	Fire Fighting (static water tank)	2	Nos.	400,000	800,000	0.800	0.018	0.400	0.000	0.400	0.000	0.000
	<b>Total</b>				<b>23,200,000</b>	<b>23.200</b>	<b>0.516</b>	<b>17.200</b>	<b>0.000</b>	<b>6.000</b>	<b>0.000</b>	<b>0.000</b>
<b>4.0</b>	<b>Distribution Network pipelines</b>											
4.1	Raw Water Line from Source to Treatment Plant	300	Rmt.	3,200	960,000	0.960	0.021	0.480	0.000	0.480	0.000	0.000
4.2	Treatment Plant to Main Reservoir	300	Rmt.	3,200	960,000	0.960	0.021	0.480	0.000	0.480	0.000	0.000



Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
4.3	Main Reservoir to Storage Reservoir	2,500	Rmt.	3,200	8,000,000	8.000	0.178	8.000	0.000	0.000	0.000	0.000
4.4	Storage Reservoir to Distribution Reservoir	2,500	Rmt.	3,200	8,000,000	8.000	0.178	8.000	0.000	0.000	0.000	0.000
4.5	Fire Hydrant System (pressurized)	5,000	Rmt.	4,000	20,000,000	20.000	0.444	5.000	5.000	5.000	2.500	2.500
4.6	Distribution Network pipelines	10,000	Rmt.	2,500	25,000,000	25.000	0.556	5.000	5.000	5.000	5.000	5.000
	<b>Total</b>				<b>62,920,000</b>	<b>62.920</b>	<b>1.398</b>	<b>26.960</b>	<b>10.000</b>	<b>10.960</b>	<b>7.500</b>	<b>7.500</b>
<b>5.0</b>	<b>Total (1 + 2 + 3 + 4)</b>				<b>121,620,000</b>	<b>121.620</b>	<b>2.703</b>	<b>67.160</b>	<b>10.000</b>	<b>29.460</b>	<b>7.500</b>	<b>7.500</b>
<b>6.0</b>	<b>Miscellaneous</b>											
6.1	Water Meter Installation	4,000	Nos.	6,000	24,000,000	24.000	0.533	6.000	6.000	4.000	4.000	4.000
6.2	Maintenance Facility	2	LS	500,000	1,000,000	1.000	0.022	0.200	0.200	0.200	0.200	0.200
6.3	Material Stock- Pipes	1	LS	15,000,000	15,000,000	15.000	0.333	3.000	3.000	3.000	3.000	3.000
6.4	Material Stock- Valves, etc.	1	LS	5,000,000	5,000,000	5.000	0.111	1.000	1.000	1.000	1.000	1.000
	<b>Total</b>				<b>45,000,000</b>	<b>45.000</b>	<b>1.000</b>	<b>10.200</b>	<b>10.200</b>	<b>8.200</b>	<b>8.200</b>	<b>8.200</b>
<b>7.0</b>	<b>Other related costs</b>											
7.1	System Design Cost (5%) of 5.0	5	%		6,081,000	6.081	0.135	3.358	0.500	1.473	0.375	0.375
7.2	Supervision and Administrative Cost (5%) of 5.0	5	%		6,081,000	6.081	0.135	3.358	0.500	1.473	0.375	0.375
	<b>Total</b>				<b>12,162,000</b>	<b>12.162</b>	<b>0.270</b>	<b>6.716</b>	<b>1.000</b>	<b>2.946</b>	<b>0.750</b>	<b>0.750</b>
	<b>Total (5 + 6 + 7)</b>				<b>178,782,000</b>	<b>178.782</b>	<b>3.973</b>	<b>84.076</b>	<b>21.200</b>	<b>40.606</b>	<b>16.450</b>	<b>16.450</b>

Note:

a) The item rate costs mentioned are inclusive of cost of material and labor including concrete channel and safety covers.

b) The system proposed of treatment plants, reservoirs and water supply network is tentative based on the structure plan proposals and should be systemized by executing a proper survey for the

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)

source, for positioning of the reservoirs and further distribution network of pipelines with respect to its diameter, type of type and it's laying.

c) After the detailed survey the entire system should be designed by a Expert in Water Supply System.

d) The System Design Cost is notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.

e) In [6.0] Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

**Table 20: Cost Estimate for the Proposed Sewerage Scheme and Network System**

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>1.0</b>	<b>Collection</b>											
1.1	Group Collection Center	20	Nos.	1,000,000	20,000,000	20.000	0.444	4.000	4.000	4.000	4.000	4.000
	<b>Total</b>				<b>20,000,000</b>	<b>20.000</b>	<b>0.444</b>	<b>4.000</b>	<b>4.000</b>	<b>4.000</b>	<b>4.000</b>	<b>4.000</b>
<b>2.0</b>	<b>Treatment Plant</b>											
2.1	New Treatment Plant - 01	1	Nos.	37,000,000	37,000,000	37.000	0.822	9.000	9.000	9.000	9.000	1.000
2.2	New Treatment Plant - 01	1	Nos.	30,500,000	30,500,000	30.500	0.678	7.500	7.500	7.500	7.500	0.500
2.3	New Treatment Plant - 01	1	Nos.	9,000,000	9,000,000	9.000	0.200	3.000	2.000	2.000	2.000	0.000
	<b>Total</b>				<b>76,500,000</b>	<b>76.500</b>	<b>1.700</b>	<b>19.500</b>	<b>18.500</b>	<b>18.500</b>	<b>18.500</b>	<b>1.500</b>
<b>3.0</b>	<b>Sewerage Network Pipelines</b>											
3.1	Laying of New Sewerage Pipeline	20,000	Rmt.	2,500	50,000,000	50.000	1.111	20.000	10.000	10.000	5.000	5.000
	<b>Total</b>				<b>50,000,000</b>	<b>50.000</b>	<b>1.111</b>	<b>20.000</b>	<b>10.000</b>	<b>10.000</b>	<b>5.000</b>	<b>5.000</b>
<b>4.0</b>	<b>Total (1 + 2 + 3)</b>				<b>146,500,000</b>	<b>146.500</b>	<b>3.256</b>	<b>43.500</b>	<b>32.500</b>	<b>32.500</b>	<b>27.500</b>	<b>10.500</b>

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)		(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>5.0</b>	<b>Miscellaneous</b>											
5.1	Mechanized Pressure Cleaners	8	Nos.	2,000,000	16,000,000	16.000	0.356	4.000	4.000	4.000	4.000	0.000
5.2	Maintenance Facility	2	LS	1,000,000	2,000,000	2.000	0.044	0.500	0.500	0.500	0.500	0.000
5.3	Material Stock- Pipes	1	LS	5,000,000	5,000,000	5.000	0.111	2.000	1.000	1.000	1.000	0.000
5.4	Material Stock- Ancillary, etc.	1	LS	1,500,000	1,500,000	1.500	0.033	1.000	0.200	0.100	0.100	0.100
	<b>Total</b>				<b>24,500,000</b>	<b>24.500</b>	<b>0.544</b>	<b>7.500</b>	<b>5.700</b>	<b>5.600</b>	<b>5.600</b>	<b>0.100</b>
<b>6.0</b>	<b>Other related costs</b>											
6.1	System Design Cost (5%) of 4.0	5	%		7,325,000	7.325	0.163	2.175	1.625	1.625	1.375	0.525
6.2	Supervision and Administrative Cost (5%) of 4.0	5	%		7,325,000	7.325	0.163	2.175	1.625	1.625	1.375	0.525
	<b>Total</b>			<b>0</b>	<b>14,650,000</b>	<b>14.650</b>	<b>0.326</b>	<b>4.350</b>	<b>3.250</b>	<b>3.250</b>	<b>2.750</b>	<b>1.050</b>
	<b>Total (4 + 5 + 6)</b>			<b>0</b>	<b>185,650,000</b>	<b>185.650</b>	<b>4.126</b>	<b>55.350</b>	<b>41.450</b>	<b>41.350</b>	<b>35.850</b>	<b>11.650</b>

**Note:**

- a) The item rate costs mentioned are inclusive of cost of material and labor.
- b) The system proposed of treatment plants and sewerage pipeline network is tentative based on the structure plan proposals and should be systemized by executing a proper survey with respect to group collection points, network of sewerage pipelines with respect to its diameter, type of type and it's laying.
- c) Item Rate for item no. (3.1) includes pipeline cost, manholes and inspection chambers.
- d) After the detailed survey the entire system should be designed by a Expert in Sewerage System.
- e) The System Design Cost is notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.
- f) In (5.0) Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table 21: Cost Estimate for the Storm Water Drainage System, Flood Protection and River Training Works

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)		(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
1.0	Collection Structures											
1.1	Collection Structures	20	Nos.	900,000	18,000,000	18.000	0.400	3.600	3.600	3.600	3.600	3.600
	Total				18,000,000	18.000	0.400	3.600	3.600	3.600	3.600	3.600
2.0 (A)	Flood Protection and River Training (A) within Municipal Area											
2.1	Retaining Wall with hand packed stone masonry in CC mortar 1:2:4 with railing	4,200	Rmt.	64,000	268,800,000	268.800	5.973	134.400	134.400	0.000	0.000	0.000
2.2	Internal Retaining Wall as above	4,000	Rmt.	25,000	100,000,000	100.000	2.222	50.000	50.000	0.000	0.000	0.000
2.3	Rough Excavation & banking earth for reclamation 50m wide	2 x 1,500	Rmt.	64,000	192,000,000	192.000	4.267	96.000	96.000	0.000	0.000	0.000
2.4	Channel cutting in hard rock 50m wide & 1m deep	1,500	Rmt.	24,000	36,000,000	36.000	0.800	36.000	0.000	0.000	0.000	0.000
	Total (2.0 (A))				596,800,000	596.800	13.262	316.400	280.400	0.000	0.000	0.000
	Total 1.0 + 2.0 (A)				614,800,000	614.800	13.662	320.000	284.000	3.600	3.600	3.600
2.0 (B)	Flood Protection and River Training (B) outside Municipal Area											
2.1	Retaining Wall on banks & proposed Golf Course as above 2.1 above	6,800	Rmt.	64,000	435,200,000	435.200	9.671	0.000	180.000	120.000	90.000	45.200
2.2	Rough Excavation & banking earth for reclamation	1,115,000	Cu.mt	200	223,000,000	223.000	4.956	0.000	90.000	60.000	43.000	30.000
2.3	Channel cutting as 2.4 above	1,500	Rmt.	24,000	36,000,000	36.000	0.800	0.000	36.000	0.000	0.000	0.000
	Total (2.0 (B))				694,200,000	694.200	15.427	0.000	306.000	180.000	133.000	75.200

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
	<b>Total 2.0 (A) + 2.0 (B)</b>				<b>1,291,000,000</b>	<b>1,291.000</b>	<b>28.689</b>	<b>316.400</b>	<b>586.400</b>	<b>180.000</b>	<b>133.000</b>	<b>75.200</b>
	<b>Total 1.0 + 2.0 (A) + 2.0 (B)</b>				<b>1,309,000,000</b>	<b>1,309.000</b>	<b>29.089</b>	<b>320.000</b>	<b>590.000</b>	<b>183.600</b>	<b>136.600</b>	<b>78.800</b>
<b>3.0</b>	<b>Storm Water Drain Network</b>											
3.1	Covered Storm Water Drains	38,000	Rmt.	2,000	76,000,000	76.000	1.689	36.000	10.000	10.000	10.000	10.000
3.2	Open Storm Water Drains	4,000	Rmt.	1,600	6,400,000	6.400	0.142	3.400	1.000	1.000	1.000	0.000
3.3	Storm Water Drain Channels	5,000	Rmt.	7,000	35,000,000	35.000	0.778	25.000	5.000	3.000	2.000	0.000
	<b>Total</b>				<b>117,400,000</b>	<b>117.400</b>	<b>2.609</b>	<b>64.400</b>	<b>16.000</b>	<b>14.000</b>	<b>13.000</b>	<b>10.000</b>
<b>4.0 (A)</b>	<b>Total (1 + 2A + 3)</b>				<b>732,200,000</b>	<b>732.200</b>	<b>16.271</b>	<b>384.400</b>	<b>300.000</b>	<b>17.600</b>	<b>16.600</b>	<b>13.600</b>
<b>4.0 (A+B)</b>	<b>Total (1 + 2A + 2B + 3)</b>				<b>1,426,400,000</b>	<b>1,426.400</b>	<b>31.698</b>	<b>384.400</b>	<b>606.000</b>	<b>197.600</b>	<b>149.600</b>	<b>88.800</b>
<b>5.0</b>	<b>Miscellaneous</b>											
5.1	Mechanized Pressure Cleaners	2	Nos.	1,000,000	2,000,000	2.000	0.044	1.000	1.000	0.000	0.000	0.000
5.2	Bull Dozer for River Bed Cleaning	1	Nos.	7,500,000	7,500,000	7.500	0.167	7.500	0.000	0.000	0.000	0.000
	<b>Total</b>				<b>9,500,000</b>	<b>9.500</b>	<b>0.211</b>	<b>8.500</b>	<b>1.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>6.0</b>	<b>Other related costs</b>											
6.1	System Design Cost (5%) of 4 (A)	5	%		36,610,000	36.610	0.814	19.220	15.000	0.880	0.830	0.680
6.2	Supervision and Administrative Cost (5%) of 4 (A)	5	%		36,610,000	36.610	0.814	19.220	15.000	0.880	0.830	0.680
<b>6 (A)</b>	<b>Total</b>				<b>73,220,000</b>	<b>73.220</b>	<b>1.627</b>	<b>38.440</b>	<b>30.000</b>	<b>1.760</b>	<b>1.660</b>	<b>1.360</b>
6.3	System Design Cost (5%) of 4 (A+B)	5	%		71,320,000	71.320	1.585	19.220	30.300	9.880	7.480	4.440

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)		(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
6.4	Supervision and Administrative Cost (5%) of 4 (A+B)	5	%		71,320,000	71.320	1.585	19.220	30.300	9.880	7.480	4.440
<b>6 (A+B)</b>	<b>Total</b>				<b>142,640,000</b>	<b>142.640</b>	<b>3.170</b>	<b>38.440</b>	<b>60.600</b>	<b>19.760</b>	<b>14.960</b>	<b>8.880</b>
<b>7.0</b>	<b>Total (4 (A) + 5 + 6)</b>				<b>814,920,000</b>	<b>814.920</b>	<b>18.109</b>	<b>431.340</b>	<b>331.000</b>	<b>19.360</b>	<b>18.260</b>	<b>14.960</b>
<b>8.0</b>	<b>Total (4 (A+B) + 5 + 6)</b>				<b>1,578,540,000</b>	<b>1,578.540</b>	<b>35.079</b>	<b>431.340</b>	<b>667.600</b>	<b>217.360</b>	<b>164.560</b>	<b>97.680</b>

Note:

a) The item rate costs mentioned are inclusive of cost of material and labor.

b) The Support System (2.0 A & 2.0 B) is proposed and needs a very critical approach on the design of the system. An expert should be employed to explore the Support System proposed.

c) Item Rate for item no. (3.0) includes cost of excavation, concrete trenches and covers.

d) After the detailed survey the entire storm water system should be designed by a Expert to work as a back-up system during emergencies.

e) The System Design Cost is notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.

f) 7.0 denotes the cost of storm water drainage and river training work only inside the Municipal Limits

g) 8.0 denotes the total cost of storm water drainage and river training works inside and outside the Municipal Limits

Table 22: Cost Estimate for the Proposed Solid Waste Management System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>1.0</b>	<b>Collection Structures</b>											
1.1	Land Fill Site	1	LS	4,500,000	4,500,000	4.500	0.100	4.500	0.000	0.000	0.000	0.000
1.2	Large Pick-up bins	30	Nos.	400,000	12,000,000	12.000	0.267	2.400	2.400	2.400	2.400	2.400
1.3	Refuse Collector	4	Nos.	3,200,000	12,800,000	12.800	0.284	3.200	3.200	3.200	3.200	0.000
<b>2.0</b>	<b>Total</b>				<b>29,300,000</b>	<b>29.300</b>	<b>0.651</b>	<b>10.100</b>	<b>5.600</b>	<b>5.600</b>	<b>5.600</b>	<b>2.400</b>
<b>3.0</b>	<b>Miscellaneous</b>											
3.1	Maintenance of Refuse Collectors		LS	1,000,000	1,000,000	1.000	0.022	0.200	0.200	0.200	0.200	0.200
	<b>Total</b>				<b>1,000,000</b>	<b>1.000</b>	<b>0.022</b>	<b>0.200</b>	<b>0.200</b>	<b>0.200</b>	<b>0.200</b>	<b>0.200</b>
<b>4.0</b>	<b>Other related costs</b>											
4.1	Supervision and Administrative Cost (5%) of 2.0	5	%		1,465,000	1.465	0.033	0.505	0.280	0.280	0.280	0.120
	<b>Total</b>				<b>1,465,000</b>	<b>1.465</b>	<b>0.033</b>	<b>0.505</b>	<b>0.280</b>	<b>0.280</b>	<b>0.280</b>	<b>0.120</b>
	<b>Total (2 + 3 + 4)</b>				<b>31,765,000</b>	<b>31.765</b>	<b>0.706</b>	<b>10.805</b>	<b>6.080</b>	<b>6.080</b>	<b>6.080</b>	<b>2.720</b>

Table 23: Cost Estimate for Electrical Distribution System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)		(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>1.0</b>	<b>Transformers</b>											
1.1	Transformer	3	Nos.	3,000,000	9,000,000	9.000	0.200	3.000	3.000	0.000	3.000	0.000
	<b>Total</b>				<b>9,000,000</b>	<b>9.000</b>	<b>0.200</b>	<b>3.000</b>	<b>3.000</b>	<b>0.000</b>	<b>3.000</b>	<b>0.000</b>
<b>2.0</b>	<b>Electricity Distribution Lines</b>											
2.1	Underground Lines	8,000	Rmt.	5,500	44,000,000	44.000	0.978	15.000	15.000	10.000	4.000	0.000
2.2	Overhead Lines	15,000	Rmt.	2,500	37,500,000	37.500	0.833	13.000	13.000	7.000	4.500	0.000
	<b>Total</b>				<b>81,500,000</b>	<b>81.500</b>	<b>1.811</b>	<b>28.000</b>	<b>28.000</b>	<b>17.000</b>	<b>8.500</b>	<b>0.000</b>
<b>3.0</b>	<b>Total (1 + 2)</b>				<b>90,500,000</b>	<b>90.500</b>	<b>2.011</b>	<b>31.000</b>	<b>31.000</b>	<b>17.000</b>	<b>11.500</b>	<b>0.000</b>
<b>4.0</b>	<b>Miscellaneous</b>											
4.1	Maintenance- Yard Facility	1	LS	2,500,000	2,500,000	2.500	0.056	1.500	1.000	0.000	0.000	0.000
4.2	Material Stock- Wires	1	LS	7,500,000	7,500,000	7.500	0.167	2.500	1.500	1.500	1.000	1.000
4.3	Material Stock- Ancillary, etc.	1	LS	2,500,000	2,500,000	2.500	0.056	1.000	0.500	0.500	0.500	0.000
	<b>Total</b>				<b>12,500,000</b>	<b>12.500</b>	<b>0.278</b>	<b>5.000</b>	<b>3.000</b>	<b>2.000</b>	<b>1.500</b>	<b>1.000</b>
<b>5.0</b>	<b>Other related costs</b>											
5.1	System Design Cost (5%) of 3.0	5	%		4,525,000	4.525	0.101	1.550	1.550	0.850	0.575	0.000
5.2	Supervision and Administrative Cost (5%) of 3.0	5	%		4,525,000	4.525	0.101	1.550	1.550	0.850	0.575	0.000
	<b>Total</b>				<b>9,050,000</b>	<b>9.050</b>	<b>0.201</b>	<b>3.100</b>	<b>3.100</b>	<b>1.700</b>	<b>1.150</b>	<b>0.000</b>
	<b>Total (3 + 4 + 5)</b>				<b>112,050,000</b>	<b>112.050</b>	<b>2.490</b>	<b>39.100</b>	<b>37.100</b>	<b>20.700</b>	<b>14.150</b>	<b>1.000</b>



Note:

a) The item rate costs mentioned are inclusive of cost of material and labor.

b) The Support System (2.0) is proposed and needs a very critical approach on the design of the system. An expert should be employed to explore the Support System proposed.

c) Item Rate for item no. (3.0) includes cost of excavation, concrete trenches and covers.

d) After the detailed survey the entire storm water system should be designed by a Expert to work as a back-up system during emergencies.

e) The System Design Cost is notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.

**Table 24: Cost Estimate for Proposed Street Lighting System**

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
				(Nu.)	(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)	(Million)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>1.0</b>	<b>Street lighting</b>											
1.1	On proposed new roads	18,000	Rmt.	1,500	27,000,000	27.000	0.600	6.000	9.000	5.000	4.000	3.000
1.2	On existing roads	9,000	Rmt.	750	6,750,000	6.750	0.150	1.500	3.000	1.000	1.250	0.000
1.3	High Masts (in selective areas)	4	Nos.	2,500,000	10,000,000	10.000	0.222	2.500	2.500	2.500	2.500	0.000
<b>2.0</b>	<b>Total</b>				<b>43,750,000</b>	<b>43.750</b>	<b>0.972</b>	<b>10.000</b>	<b>14.500</b>	<b>8.500</b>	<b>7.750</b>	<b>3.000</b>
<b>3.0</b>	<b>Miscellaneous</b>											
3.1	Material Stock- Wires	1	LS	1,500,000	1,500,000	1.500		0.500	0.250	0.250	0.250	0.250
	<b>Total</b>				<b>1,500,000</b>	<b>1.500</b>	<b>0.000</b>	<b>0.500</b>	<b>0.250</b>	<b>0.250</b>	<b>0.250</b>	<b>0.250</b>
<b>4.0</b>	<b>Other related costs</b>											
4.1	Supervision and Administrative Cost (5%) of 1.0	5	%		2,187,500	2.188	0.049	0.500	0.725	0.425	0.388	0.150
	<b>Total</b>			<b>0</b>	<b>2,187,500</b>	<b>2.188</b>	<b>0.049</b>	<b>0.500</b>	<b>0.725</b>	<b>0.425</b>	<b>0.388</b>	<b>0.150</b>
	<b>Total (2 + 3 + 4)</b>			<b>0</b>	<b>47,437,500</b>	<b>47.438</b>	<b>1.021</b>	<b>11.000</b>	<b>15.475</b>	<b>9.175</b>	<b>8.388</b>	<b>3.400</b>

Note: a) The item rate costs mentioned are inclusive of cost of material & labor.

b) In (3.0), a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system

Table 25: Cost Estimate for Tele-Communication System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)		(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
1.0	Telecommunication System											
1.1	Up-gradation of present exchange	1	LS	7,500,000	7,500,000	7.500	0.167	4.000	3.500	0.000	0.000	0.000
1.2	Underground Network	12,000	Rmt.	2,000	24,000,000	24.000	0.533	6.000	8.000	4.000	4.000	2.000
1.3	Overhead Network	7,000	Rmt.	1,300	9,100,000	9.100	0.202	2.100	2.000	2.000	2.000	1.000
2.0	Total				40,600,000	40.600	0.902	12.100	13.500	6.000	6.000	3.000
3.0	Miscellaneous											
3.1	Material Stock- Wires	1	LS	4,000,000	4,000,000	4.000	0.089	1.000	0.750	0.750	0.750	0.750
	Total				4,000,000	4.000	0.089	1.000	0.750	0.750	0.750	0.750
4.0	Other related costs											
4.1	Supervision and Administrative Cost (5%) of 5.0	5	%		2,030,000	2.030	0.045	0.605	0.675	0.300	0.300	0.150
	Total				2,030,000	2.030	0.045	0.605	0.675	0.300	0.300	0.150
	Total (2 + 3 + 4)				46,630,000	46.630	1.036	13.705	14.925	7.050	7.050	3.900

Note:

a) The item rate costs mentioned are inclusive of cost of material and labor.

b) In (3.0) Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies in the system.

Table 26: Cost Estimate for the Proposed Transportation System

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>1.0</b>	<b>Roads</b>											
<b>1.1</b>	<b>Upgrade existing roads</b>											
a	Primary, Secondary & Access	12,000	Rmt.	4,000	48,000,000	48.000	1.067	16.000	16.000	6.000	5.000	5.000
	<b>Total</b>				<b>48,000,000</b>	<b>48.000</b>	<b>1.067</b>	<b>16.000</b>	<b>16.000</b>	<b>6.000</b>	<b>5.000</b>	<b>5.000</b>
<b>1.2</b>	<b>New Roads</b>											
a	Primary Roads	3,000	Rmt.	13,000	39,000,000	39.000	0.867	13.000	13.000	7.000	3.000	3.000
b	Secondary Roads	10,000	Rmt.	7,500	75,000,000	75.000	1.667	25.000	25.000	10.000	8.000	7.000
c	Access Roads	2,000	Rmt.	4,000	8,000,000	8.000	0.178	3.000	3.000	1.000	1.000	0.000
	<b>Total</b>				<b>122,000,000</b>	<b>122.000</b>	<b>2.711</b>	<b>41.000</b>	<b>41.000</b>	<b>18.000</b>	<b>12.000</b>	<b>10.000</b>
<b>1.3</b>	<b>Bridges</b>											
a	New Bridge (60m x 20m)	1,200	Sq.mts	100,000	120,000,000	120.000	2.667	50.000	70.000	0.000	0.000	0.000
b	Widening of existing culverts/ new	10	Nos.	400,000	4,000,000	4.000	0.089	2.000	1.000	1.000	0.000	0.000
	<b>Total</b>				<b>124,000,000</b>	<b>124.000</b>	<b>2.756</b>	<b>52.000</b>	<b>71.000</b>	<b>1.000</b>	<b>0.000</b>	<b>0.000</b>
1.4	Develop and Improve Road Junctions	10	Nos.	2,000,000	20,000,000	20.000	0.444	5.000	5.000	5.000	5.000	0.000
1.5	Construct Pedestrian Footpaths	34,000	Rmt.	2,000	68,000,000	68.000	1.511	18.000	18.000	18.000	7.000	7.000
1.6	Bus Stops	20	Rmt.	100,000	2,000,000	2.000	0.044	1.000	0.000	1.000	0.000	0.000
	<b>Total</b>				<b>90,000,000</b>	<b>90.000</b>	<b>2.000</b>	<b>24.000</b>	<b>23.000</b>	<b>24.000</b>	<b>12.000</b>	<b>7.000</b>
<b>2.0</b>	<b>(1.1 to 1.6)</b>				<b>384,000,000</b>	<b>384.000</b>	<b>8.533</b>	<b>133.000</b>	<b>151.000</b>	<b>49.000</b>	<b>29.000</b>	<b>22.000</b>

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
<b>3.0</b>	<b>Miscellaneous</b>											
3.1	Road Cleaning Equipments	2	Nos.	1,000,000	2,000,000	2.000	0.044	1.000	0.000	1.000	0.000	0.000
3.2	Maintenance Facility	2	Nos.	500,000	1,000,000	1.000	0.022	0.500	0.000	0.500	0.000	0.000
3.3	Material Stock	1	LS	4,000,000	4,000,000	4.000	0.089	1.000	1.000	1.000	1.000	0.000
	<b>Total</b>				<b>7,000,000</b>	<b>7.000</b>	<b>0.156</b>	<b>2.500</b>	<b>1.000</b>	<b>2.500</b>	<b>1.000</b>	<b>0.000</b>
<b>4.0</b>	<b>Other related costs</b>											
4.1	System Design Cost (5%) of 2.0	5	%		19,200,000	19.200	0.427	6.650	7.550	2.450	1.450	1.100
4.2	Supervision and Administrative Cost (5%) of 2.0	5	%		19,200,000	19.200	0.427	6.650	7.550	2.450	1.450	1.100
	<b>Total</b>			<b>0</b>	<b>38,400,000</b>	<b>38.400</b>	<b>0.853</b>	<b>13.300</b>	<b>15.100</b>	<b>4.900</b>	<b>2.900</b>	<b>2.200</b>
	<b>Total (2 + 3 + 4)</b>			<b>0</b>	<b>429,400,000</b>	<b>429.400</b>	<b>9.542</b>	<b>148.800</b>	<b>167.100</b>	<b>56.400</b>	<b>32.900</b>	<b>24.200</b>

**Note:**

- a) The item rate costs mentioned are inclusive of cost of material and labor including concrete channel and safety covers.  
b) After the detailed survey the road alignment and the cross-section to be finalized with a Road Designer/Expert.  
c) The Road Design Cost is notional consultancy fees for the system design and the Supervision and Administrative Cost is assumed at five percent of the total cost of investment.  
d) In (3.0) Miscellaneous, a tentative provision of materials stock is proposed so as to be prepared for any emergencies.

Table 27: Cost Estimate for Local Area Plan Implementation and Landscaping

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
				(Nu.)		(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
1.0	Local Area Plan Implementation											
1.1	Extended Boundary Limits	680	Acre	1,000	680,000	0.680	0.015	0.340	0.340	0.000	0.000	0.000
1.2	Demarcation (Shechangthang)	836,500	Sq.mt	4.25	3,555,125	3.555	0.079	2.000	1.000	0.555	0.000	0.000
	Total (1.0)				4,235,125	4.235	0.094	2.340	1.340	0.555	0.000	0.000
2.0	Landscape Design											
2.1	Landscape Design along river banks (Municipal Area)	250,000	Sq.mt	50	12,500,000	12.500	0.278	6.500	3.000	3.000	0.000	0.000
2.2	Landscape Design along river banks (outside Municipal Area)	150,000	Sq.mt	50	7,500,000	7.500	0.167	0.000	2.000	2.000	2.000	1.500
2.3	Landscape Design of Golf Course (outside Municipal Area)	413,000	Sq.mt	50	20,650,000	20.650	0.459	0.000	10.000	5.000	5.000	0.650
2A	Total (2.1)- inside municipal area				12,500,000	12.500	0.278	6.500	3.000	3.000	0.000	0.000
2B	Total (2.1) + (2.2) + (2.3)- inside & outside municipal area				40,650,000	40.650	0.903	6.500	15.000	10.000	7.000	2.150
3.0	Total (1.0) + (2A)- inside municipal area				16,735,125	16.735	0.372	8.840	4.340	3.555	0.000	0.000
	Total (1.0) + (2A) + (2B)- inside& outside Municipal Area				44,885,125	44.885	0.997	8.840	16.340	10.555	7.000	2.150
4.0	Other related costs											
4.1	Landscape Design Cost (5%) of (2A)	5	%		625,000	0.625	0.014	0.325	0.150	0.150	0.000	0.000

Sr. No.	Item Description (in brief)	Quantity	Unit	Estimated Rate	Estimated Cost			Phase 01	Phase 02	Phase 03	Phase 04	Phase 05
					(Nu.)	(Nu.)	(US \$)	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035
					(Nu.)	(Million)	(Million)	(in Million)	(in Million)	(in Million)	(in Million)	(in Million)
4.2	Landscape Design Cost (5%) of (2B)	5	%		2,032,500	2.033	0.045	0.325	0.500	0.500	0.500	0.208
	<b>Total</b>				<b>2,657,500</b>	<b>2.658</b>	<b>0.059</b>	<b>0.650</b>	<b>0.650</b>	<b>0.650</b>	<b>0.500</b>	<b>0.208</b>
4.3	Supervision and Administrative Cost											
4.3A	(5%) of 3.0 within Municipal Area	5	%		836,756	0.837	0.019	0.442	0.217	0.178	0.000	0.000
4.3B	(5%) of 3.0- inside & outside municipal area	5	%		2,244,256	2.244	0.050	0.442	0.817	0.528	0.350	0.108
	<b>Total</b>				<b>8,396,013</b>	<b>8.396</b>	<b>0.187</b>	<b>2.184</b>	<b>2.334</b>	<b>2.006</b>	<b>1.350</b>	<b>0.524</b>
	<b>Total (3) + (4.1) + (4.3A)</b> within municipal area				<b>18,196,881</b>	<b>18.197</b>	<b>0.404</b>	<b>9.607</b>	<b>4.707</b>	<b>3.883</b>	<b>0.000</b>	<b>0.000</b>
	<b>Total (3) + (4.2) + (4.3B)</b> within & outside municipal area				<b>49,161,881</b>	<b>49.162</b>	<b>1.092</b>	<b>9.607</b>	<b>17.657</b>	<b>11.583</b>	<b>7.850</b>	<b>2.466</b>

Note:

a) The boundary limits of Sarpang Thromde needs to be established permanently.

b) Local Area Plan needs to be demarcated as per the final approved plan with permanent bench marking.

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