CHAPTER-I

Conceptual Framework

1.0.0 Introduction:

The very existence of man depends upon the fulfillment of his three basic or fundamental needs i.e., food, clothing and shelter. Adequate shelter or in other words a house is a fundamental pre-requisite for each and every human being in terms of safety, security, self-esteem, social status, cultural identity, satisfaction and achievement. In fact, access to shelter and hygienic living conditions are crucial to human well-being as they directly determine the quality of life. Its importance has been highlighted over the years by the Universal Declaration of Human Rights in 1948 in its Article 25 (I) which says that, “Everyone has the right to a standard of living adequate for the health and well-being of himself or herself and his or her family, including food, clothing, housing, and medical care and necessary social services and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other problems related to livelihood in circumstances beyond his or her control”. In 2001, the United Nations Commission on Human Rights adopted its resolution entitled, “Adequate housing as a component of the right to an adequate standard of living”. Houses are the domicile or the habitation used by the people across the globe. In the pre-historic times, man did not have any permanent shelter and used to live in caves and under thick canopy of trees. Sometimes he lived on the platforms build on boughs of
trees to save himself from the danger of wild animals. Man’s economy at the primitive stage was limited to gathering and hunting and it continued for several thousand of years as nomadic form of life. In course of time, he learnt to domesticate animals like cows, buffalos, sheep, goat and other utility live stocks which induced him to lead a semi-nomadic life. But when he learnt cultivation of crops for food, under suitable ecological conditions, then he began to develop permanent dwellings which led to permanent shelters and a group of men develop a settlement. In simple a settlement is an aggregation of houses. Every individual desires to possess a house of his own either purchased or constructed or hired because it serves the domestic and personal need of family life. At the same time, housing provides working efficiency, emotional security and social identity and status to a family. **Lawrence (2004)** has said that, “Housing is meant to provide shelter and security and is considered a fundamental development process, in which the built environment is created, used and maintained for the physical, social and economic well-being and quality of life of individuals and households.” To simplify further the functional unit of a household makes a home for the family which is vital for psychological and emotional well being of every individual member of the family. A suitable home with adequate living rooms, access to sanitation, drinking water and electricity is important to every family of both rural and as well as urban areas. But most of the families cannot construct such a house with their own resources and thus are being deprived of minimum basic amenities of living.
The architectural designs of houses in a particular region and their settlement patterns reflect the indigenous knowledge of the people and also the nature of an area since housing is an outcome of environment and culture. The housing question is the most fundamental social problem relating to the environment and has a close relation between bad health, bad morals and bad citizenship. The physical, economic and cultural factors have forcefully determined the site, size, growth, pattern and spatial distribution of houses in a region. Among the physical factors climate, topography, relief, drainage, soil characteristics and vegetation have profound effects on house types. Besides, economic, religious and cultural factors play a great role in determining the types and distribution of houses in a region more particularly in rural areas. The rural dwellings of different parts of the world are in fact a replica or outcomes of different culture and traits evolved through time. Apart from that access to adequate transport and market facilities, availability of building materials, prices of building materials, technology, Government policies, rules and regulations also significantly determines the pattern and distribution of houses. Both rural and urban housing depends upon good site. The site selection of human settlement is given importance by human Geographers like Vidal-de-la-Blache (1952). According to Carl O Sauer and Chisholm (1962) water, cultivable land, defense, availability of fuel and building material etc. are important factors for selection of sites for houses. The prime determinants of site selection are elevated river banks, former river meanders, fertile soils, gentle hill slopes, availability of water for agriculture and livestock, open grazing fields, availability of domestic fuel and building materials,
defense, medical, market, transportation and recreational facilities all depending on priorities of the time of origin of the settlement.

The problem of adequate housing is indeed a global issue. Although the problem of housing is very adverse in the developing countries, even the most advanced countries of the world like USA and Britain are also facing housing crisis as well. Around 95 million population (one third) of United States are experiencing housing problems which includes huge payments of house rents, overcrowding, poor shelter quality and homelessness. Homelessness is not considered as a subject of public interest in the US society. Most of the US based Indian families are facing shortage of proper dwellings. According to the United Nation Statistics, about 1.6 billion people reside in sub-standard housing and 100 million are homeless. In the world, today approximately 1 billion people (32.00%) live in urban slums under miserable conditions. If this matter is not taken seriously, then the day is not far behind when the number of slums dwellers will increase over the next 30 years to the nearly 2 billion (Habitat for humanity, 2012). About one quarter of the world’s population does not have adequate shelter today. To focus this crisis of humanity, the UN General Assembly had proclaimed 1987 as the International Year of Shelter for the homeless.

India being a large and developing nation state suffers from all these ills. The scenario of housing assumes a very deplorable condition in the country. Among the states of India, Assam is severely lacking in adequate housing facility. However, the shortages
of dwelling units are more acute in rural areas compared to the urban counterparts, as expected. In fact one out of the three rural households belongs to the BPL category. The total shortage of the urban housing according to Twelfth Five Year Plan (2012-2017) estimated to be 18.78 million units and 43.67 million units in rural areas respectively.

In the district of Sonitpur of Assam the problem of adequate housing is more acute in rural areas. According to Census 2011, around 10.15 percent of the total rural population is living in a dilapidated dwellings compared to 4.53 percent in urban areas. Majority of the households in both rural and urban areas are seen to accommodate more people than their capacity or in other words are living in congested dwellings. The problem of housing shortages and lack of minimum basic amenities is more acute in rural areas compared to the urban households resulting in rural-urban disparity in social development. Interestingly, the houses vary in sizes and shapes from a large building to a single room. There are houses which are in a dilapidated or in non- livable conditions but even then these are occupied as dwelling units by the economically downtrodden and weaker sections. Most of the poor households lack minimum basic amenities such as sanitary toilet, safe drinking water and electricity. Thus, the possession of a shelter with all necessary amenities cannot be a dream of a poor man in the wake of the rising prices of the building materials, scarcity of land, financial crisis and the rapidly growing population. Although Government has implemented various housing schemes in rural areas for solving housing problem it has made very limited progress. In fact there is miles to go ahead to solve and understand the needs and demands of the rural folks. The
The concept of housing is indeed multi-dimensional. It is not merely a roof over head but rather it comprises of integrated issues like health, sanitation, access to safe drinking water, household amenities, access to transport network, employment, education and so on. All these aspects related to housing creates the scope for an in depth investigation.

1.1.0 Review of Literature:

Literature review of various relevant works related to housing and issues related to sanitation and basic amenities is comprehensively followed. Literature survey is arranged thematically and chronologically.

1.1.1 Definition of Housing:

Shelter is considered as one of the most essential need of mankind. Jean Brunhes (1952) put houses in the first group among the essential facts of human geography. Houses, roads, crop fields are essential facts of human occupation and the distinctive features of any landscape.

It is clearly reflected in the view of Chester (1975), who defines house as “the focal point of all human activity. It helps people to interact with each other and build relationship. A house serves common purposes like feeding the members, working, sleeping, child rearing, entertaining, leisure and many more activities”.
Varghese (1987) opines that “the importance of housing has been recognized universally since the dawn of the history. Even the Neolithic humans’ possessed this instinct for shelter and durable habitations build in these times are its manifestations”.

According to Kothari (1989) “housing is seen as an activity which empowers one to live with dignity in social, legal and environmental security and with adequate access to the essential resources of land, building material, water, fuel as well as civic amenities and finance”.

1.1.2 Relationship with Nature:

The human dwellings and settlement patterns are the outcome of culture, environment and economy. Bryan (1933) defined dwellings as “the most important universal element of cultural landscape”. Brunhes (1952) opined that “climate expresses itself through the form of its roofs”.

Houston (1953) expresses his view that “houses depict in any region the symbol of its regionalism, expressive of both of its physical milieu as well as socio-economic structure”.

Gist and Eva (1955) observed in their studies that “the architectural designs and the infrastructure required for the houses construction in modern times make it rather difficult to believe that man had ever lived in caves. Housing is now-a days a costly affair. They further said that housing in modern society involves a complex organization
which is inter-related with many facts of social life, economic, political, legal, sociological, medical and psychological needs”.

Olgyay (1963) opined that “climate has a pronounced effect upon various architectural designs and the climatic factors like the amount of rainfall, snowfall, directions of wind and storms, aspects of slope of sunrays are important”.

According to the Koenigsberger (1974), “the physical features like slope, climate, drainage, wind velocity, location of water bodies, sunrays, soil etc. are the dominant physical factors in locating the rural houses and their morphology”.

Marx (1975), a renowned economist remarked that “shelter are the most concrete expressions of human cultural activity and assumes various forms and names”.

Charles Correa (1976) pointed out that “the architecture of the rural house- the shape, size, the layout, the material used should be suitable to the local conditions and must be related with climatic and socio-economic conditions of the poor. He also said that in rural India the houses should have a verandah i.e. open space in front of the houses which serves as neighborhood meeting place”.

Doxiadis (1976) expressed that “in every civilization if the people were given opportunity to posses land then they will build their dwellings even with clay and with their own hands”.

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Lal (1990) has highlighted “the availability of local building materials in the construction of houses in the rural areas. He opined that throughout the world the traditional houses are constructed with only locally available building materials”.

Bhattacharya (2005) points out that “the character of village sites varies from place to place. In the plains of the Brahmaputra and Barak the houses are build in large clusters or small clusters as per allocation of the agricultural land”.

1.1.3 Emerging issues of Housing:

The shortage of adequate housing is the burning problem all over the world. However the problem is more acute in the developing countries particularly in the remote areas. Steedman (1975) rightly observed that of “the fundamental human needs of food, clothing, health and shelter are in order, where shelter is being categorically ranked as lowest priority in most of the Third World countries”.

Sengupta (1975) highlighted that “in the outskirts of a village or in the fields; hovels\(^1\) can be seen, a number of them usually thatched with branches and leaves. There are no windows, no doors, no courtyard and no raised verandah for guests. A family of four of five members has to live in one room and lay down in un-plastered floors when the darkness descends”.

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\(^1\)Oxford Dictionary defines ‘hovel’ a cottage that is unfit to live in; open sided shed or out house.
Smith and Thorns (1978) explained that the housing is one of the three basic needs of human beings, but it is still beyond the access of the disadvantaged section of the society.”

Madan (1979) examined the problems of rural development in developing countries and stated that “their complexity of problems increases due to variation in the structure of rural communities”. The village communities differ from one another due to degree of self sufficiency, isolation or contact with urban areas and growing of commercial crops”. He argued that the community development project can solve the problems of rural communities.

Majority of the households in the rural areas are lacking the minimum basic amenities of life. In this context, Stephen and Laquian (1979) expressed that “the most striking manifestation of rural poverty is the poor quality of their housing”.

Munjee (1982) opined that “when a person is deprived of housing, he or she is effectively deprived of a fundamental human right to live in peace and with dignity”.

Gaur (1996) expressed his view that “poverty in society leads to the social deprivation of the poor. Homelessness is expressed in social segregation. Hence, the removal of poverty and homelessness are the problem to be tackled simultaneously. In fact, planning for housing for the poor is a part and parcel of planning for the overall economic and social development”. 
In her article on rural housing, **Mishra (1996)** quotes the opinion of Gandhiji on the housing conditions in villages, “Instead of graceful hamlets dotting the land, we have dung heaps.” She further said that development of rural infrastructure is seldom given any importance in our country.

**Sharma (1996)** analyzed the problems and perspectives of rural housing in India. According to him “poverty, low income, population growth, westernization, changes in values and environmental factors are the major reasons for homelessness and low quality houses in the rural areas. The poor people of India lack all basic facilities. A need based house seems to be a luxury for them as they are incapable of meeting the rising cost of building materials. He suggested that strong political and properly designed strategy is needed to solve the housing problem”.

**Joshi (1997)** throws light on “the housing as a big challenge to society. Demand-supply gap in housing spheres shows that it is in short supply for both rural and urban settlements. Shelter-less people are looking for government built houses. Besides kutchha houses are being converted into pucca houses by economically forward moving groups”.

According to **Seventh Five year plan** (1987-1992), the development of housing must enjoy top priority in a society such as ours where housing amenities are far below the minimum standards that have been internationally accepted.
On making a study on the problems of rural housing in India, Dinesh and Jayasheela (2008) commented that an improvement in housing conditions in villages has manifold significance as it raises the level of living, provides greater opportunities for work and is vital element in the transformation of rural life. The Government has adopted many strategies and programmes, but it has not reached the interior and the most needed part of the country. They found that all round efforts and developmental activities of the Government at different levels as well as from people to achieve the goal of housing for every household in a sustainable manner is the need of the hour.

1.1.4 Housing Policies:

Rao (1979) made a comprehensive study on housing in the developing countries. He suggested that “a radical change is needed in the housing policies of the government to solve the housing problem”.

Devi (1989) in her studies on housing highlighted the existing housing policies and schemes in India. She explained the various reasons for housing problems and suggested the strengthening of the existing institutions like housing co-operatives and building societies for solving the housing problem.

Hirway (1989) examined “the inadequacies of the concept of the Panchayat Raj and the potentiality of the Panchayat Raj in India’s economic-political system. He opined that Panchayat Raj has to play the following three roles for success. Firstly, it has to bring
about decentralization of administrative and political power in the sense that it has to encourage self governance and mass participation in its working. Secondly, Panchayat Raj has to contribute towards strengthening the planning process at the micro-level and overall rural development and thirdly it has to improve the access of the (poor) masses to the highest level of decision making bodies.

**Miatra (1991)** draws the picture of housing schemes for the low income groups of North India. He suggested that “great care should be taken in choosing the location of house. In case of poor location in terms of accessibility or transportation network should be given the first priority to ensure the success of the scheme. There should be some agency to provide counseling to occupants as well as to encourage social responsibility so that areas of property are properly maintained”.

**Kumar (1996)** suggested that good housing policies alone will not ensure good results. There is a need to improve the delivery system for rural housing and housing policy should be reviewed periodically to tackle effectively the problem of shortage of dwelling units. He identified the involvement of NGO’s would lead to innovations in rural housing schemes. He further recommended the widening of IAY schemes to cover more people and it should not affect the interest of Schedule Caste and Schedule Tribe.

**Singh (1999)** examined the housing shortage in India and examined the role of IAY schemes in solving the problem. He observed that the expenditure incurred and the number of houses build under the scheme is progressing but it is also a fact that the
condition of constructed houses under the scheme is of too low quality to live. Secondly the finances available and the number of houses built are unable in solving the rural housing problem.

**Sahota (2005)** analyzed the different schemes for rural housing in India and examined the role of Indira Awas Yojana (IAY) in solving the housing problem. He found that there is a clear correlation between poverty and lack of housing: a poor person either does not have a house or lives in an unserviceable kutchha house. He remarked that special schemes for rural housing of the various State Governments have made very little progress due to paucity of resources.

**Rao and Seetharaman (2006)** on examining the shortfall of rural housing in India made two suggestions on building houses under IAY. Firstly the emphasis on building houses under this scheme must be on using raw materials available in rural area, which are most environmental friendly and would generate substantial employment in those areas too. Secondly houses must be built in accordance with specific needs of the various occupational groups inhabiting in the villages.

**Zainal (2012)** has stressed on the issue of considering housing conditions as a socio-economic indicator of urban poverty. He examined the relationship between the housing condition and the quality of life of urban poor in Malaysia and found that there are significant positive relationship between housing condition, health, safety and social support.
1.1.5 Sanitary and other basic needs:

Regarding the importance of sanitation and basic amenities among population, Kundu (1994) has pointed out that “a low figure for the percentage of households having an amenity in a state does not necessarily reflect non-availability of that amenity or the extent of its deprivation; it could be partially attributed to natural, social and cultural factors”.

Mukherjee (1996) suggested that “the poor households should be provided with basic infrastructural facilities like safe drinking water, sanitation and draining of sewages, power, road and transport. The poor households should participate in designing and planning the construction of their houses, its implementation and maintenance. It is only then, the poor households would experience improvements in their housing conditions in real sense of term”.

Raj (1996) has made a comprehensive study on the problems of rural housing in India. He said that “almost all rural households in the country has houses of some kind to live in, over one third of them has no access to electricity and safe drinking water. They are therefore more susceptible to a variety of illness transmitted through water. He concluded that rural housing and the extension of essential facilities to such housing should be given much priority than they have received so far”.
Stressing the need for sanitary toilets in every household *Nayar (1997)*, has correlated the housing amenities to health improvement and examined the conventional ideas that health promoting factors such as housing conditions, availability of drinking water, sanitary facilities that could contribute to health improvement among the population, sometimes even more significantly than health services.

1.2.0 **Significance of Study:**

As a third important basic need, housing generates income and employment, increases household savings and forms capital and thereby contributes towards economic growth. The shortage of adequate housing and non-availability of various amenities emerges as a major problem and public issue because of dissatisfaction with the prevailing conditions particularly in rural areas.

The shortages of dwelling units or crisis of housing are created due to population movement from rural areas to urban centers due to industrial development, exploitation of resources which flourishes urbanization process.

A building or a house stands on a suitable plot of land or build up area. But the land is a scare resource. The ever increasing population is creating immense pressure on the existing land resources which is limited. To add to this, due to the prevalence of the system of the hereditary ownership of land, the father’s land is fragmented among sons which results small cultural land-holding sizes.
The rising prices and non-availability of building materials such as thatches, woods, grasses, leaves, reeds, bamboos, bricks, stones, sand, cement, tiles, corrugated metal sheets, iron rods, asbestos and all other usable the housing problem is turning to be a major social issue. The building materials to construct concrete houses are not easily accessible by rural people due to the poor transportation network in the remote parts of the districts of Assam and Sonitpur is no exception.

With the development of industries, urbanization there is a spurt in population explosion, as men are bound to migrate from one place to another, to accommodate the increasing number of population. Before 1947, in the case of Assam, there was no major housing problem. Due to Indo-Pak partition in 1947 the country and as well as the state received a bulk of immigrants and refugees. The same migration pattern was repeated after 1971 due to partition of erstwhile East Pakistan (present Bangladesh) from erstwhile West Pakistan (present Pakistan). Due to the partition, many Bengali Muslims and Hindus entered into Assam and consequently into Sonitpur district which is burdened with neo-settlers. The continuity of illegal infiltration of immigrants specially Bengali Muslims from Bangladesh since partition occupying the low lying river banks or char land in the district is posing a serious threat to the demographic set up of the district and is imposing pressure on the existing civic amenities. At the same time, the flow of migrants has been going on from Nepal, Sikkim and Darjeeling district of West Bengal. These Nepali immigrants have settled in the foot hill zones of the district bordering the
Arunachal Pradesh and the plain areas particularly on the alluvial tracts where enough grazing land is available for their cattle.

The inter-state migration from Rajasthan, West Bengal, Orissa, Bihar and Punjab is also a common picture. These immigrant people contributed towards high population growth in the Sonitpur district. So, the issue of providing shelter to this ever growing population has become critical. This will consequently result a demand-supply gap in housing units in rural and urban areas particularly for the economically weaker section and lower income groups. These groups of population growth in the district may lead to the congested settlement as they have to be accommodated within limited land.

As the district is industrially backward, its housing policy and economic growth solely depends upon agricultural products. The modern housing materials (iron, cement, tiles) and technology (design and planning) are to be purchased from outside the district, so, the cost of transportation is too high for the needy population.

Thus, the study on housing problem in general with special emphasis on the rural areas of the district will go a long way to throw fresh light in all related issues besides adding new vistas to the existing knowledge of Settlement Geography. The study will also help the geographers, the academicians, planners, and various Government wings for economic planning, policy framing and developmental work.
1.3.0 Study Area:

The Sonitpur district it located on the North bank of Brahmaputra River; within longitudes 92° 16’ E - 93° 43’ E and latitudes 26° 30’ N - 27° 01’ N. The district is bounded by Arunachal Pradesh in the North, river Brahmaputra in the South, Lakhimpur district in the east and Darrang district in the west. The total Geographical area of the Sonitpur district is 5324 sq. km. The district headquarters is Tezpur and there are three subdivisions i.e. Tezpur, Biswanath Chariali and Gohpur. From the developmental angle, Sonitpur district is divided into 14 Development Blocks. Below the Block level set-up, there are Gaon Panchayats, each comprising a number of villages and governed by local-self bodies. The district comprises of 10 statutory towns and 4 major townships. The number of villages in the district has gone up to 1876 from 1798 in number as per Census 2011.

The Sonitpur district is located between the Mighty Brahmaputra and Himalayan foothills of Arunachal Pradesh. The district is largely comprised up of plains with some hills. There are number of River Island in Brahmaputra River locally known as Chars or Chaporis. The district falls in the sub-tropical climatic region and enjoys monsoon type of climate.

According to 2011 census, Sonitpur has the population of 19, 25,975, while according to 2001, total population was 16, 77,874, which indicates a growth rate of 15.67 percent over the decade. The population density is 365 inhabitants per sq. km. The
sex-ratio is estimated as 946 females for every 1000 males. While the literacy rate of the district is 67.34 percent according to census 2011.

1.4.0 Objectives of the Study:

(i) To study the problems of housing in general.
(ii) To examine the availability of local and modern building materials.
(iii) To analyze the nature of house sites, size, growth and their spatial distribution.
(iv) To examine the other basic household amenities related to housing like-electricity, drinking water sources, domestic fuel for cooking, drainage system, sanitation and existing bottlenecks.
(v) To study and find out the existing relation between the socio-economic base, internal structures of housing and other basic amenities on one hand and natural and human resource base of the area, socio-political organization, the production system mechanism, technology and the governance system on the other.
(vi) To find future needs and suggest measure for effective planning so that better housing and habitable environment can be developed, which will result in all round development of the area as a whole.

1.5.0 Research Questions:

In order to achieve the aforesaid objectives, the following research questions have been designed as follows:
1. Whether the nature of settlement, selection of site, type of dwellings, and availability of building materials for housing and structural designs in the region is determined by the physical, cultural and socio-economic factors?

2. Whether the presence of infrastructural facilities, sanitary conditions and the quality of housing is the indicator of socio-economic development in a region?

3. Whether the minimum basic amenities for a normal living are available to the majority in the region?

4. Whether the Government schemes like IAY for providing shelter for economically downtrodden sections is successfully implemented in the region?

5. What are the possible measures to be adopted for affordable and economically viable dwellings and making the sanitary facilities available for all households in the region?

1.6.0 Database:

The study has emphasized mainly on the socio-economic status of the rural population considering their housing conditions and access to basic amenities and sanitary conditions. For this purpose, data is obtained from both primary and secondary sources to supplement in making general observations. Primary data is collected at the village level with the help of questionnaires, interviews of village headmen and door-to-door household survey. The simple random sampling technique is used for the purpose of household survey. The sample size is taken as 30.00 percent so that it represents adequately the Universe of the district. For the study, the three sub-divisions of the district i.e., Tezpur, Biswanath and Gohpur are properly represented.
Table No. 1.6.0: Villages identified on the basis of social groups selected from different blocks

<table>
<thead>
<tr>
<th>Block</th>
<th>General</th>
<th>ST</th>
<th>SC</th>
<th>Tea tribe</th>
<th>Minority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rangapara</td>
<td>Barua goan</td>
<td>Kachari Pam</td>
<td>Kakati Chuburi</td>
<td>Fulbari</td>
<td>Arimara chak</td>
</tr>
<tr>
<td>Naduar</td>
<td>Nandikeswar</td>
<td>Dikorai Miri</td>
<td>Chenglimara</td>
<td>Borigoan</td>
<td>Laltapu</td>
</tr>
<tr>
<td>Sakomatha</td>
<td>Dekapathar</td>
<td>Dilisang</td>
<td>Petuli</td>
<td>Koylajuli</td>
<td>Rowmari</td>
</tr>
<tr>
<td>Biswanath</td>
<td>Maralgoan</td>
<td>Japowguri</td>
<td>Kamargoan</td>
<td>Bhimajuli</td>
<td>Fatika Basti</td>
</tr>
<tr>
<td>Chaiduar</td>
<td>Uttar Gahigoan</td>
<td>Batamari</td>
<td>Uttar Gopal Jaroni</td>
<td>Gadhar basti</td>
<td>No.14 Purupbari</td>
</tr>
<tr>
<td>Pub-chaiduar</td>
<td>Nigam</td>
<td>No.1 Chakala</td>
<td>Barghuli</td>
<td>Ghogra Basti</td>
<td>Badal Pathar</td>
</tr>
</tbody>
</table>

*Note: For instance a village is identified as General caste village or ST village if more than 50.00% of population residing in the village belongs to the same category.*
Fig. No.: 1.6.0: Framework showing sample design
Of these three sub-divisions two blocks from each sub-division i.e., all together six blocks has been selected out of total 14 blocks for a detailed study. The Naduar and Rangapara blocks under Tezpur sub-division, the Biswanath and Sakomatha blocks under Biswanath sub-division and the Pub-Chaiduar and Chaiduar blocks under Gohpur sub-division have been considered for the comprehensive study. A total of 300 households are surveyed from 30 villages from all of these six blocks having 5 villages from each block. These villages are considered purposively to represent different social categories of major inhabitants of the district as shown in **Table No. 1.6.0 and Fig. No. 1.6.0**.

Thus, 60 households belonging to each social group is considered for study as

Sonitpur district represents all sections of social groups or community more or less equally.

The details of the social classes are as follows:

a) General caste includes non SC and ST like Assamese, Bengali, Bihari, Nepali etc.

b) Schedule Caste includes Kaibratta, Jhalo, Malo, Namusudra, Doam and other SCs.

c) Schedule Tribe includes Bodo, Mishings, Karbi, Dimasa, Rabha and other STs.

d) Tea tribe is considered as the most socially and economically downtrodden community belonging to Mundas, Santhals, Orangs etc. tribes of exogenic origin in this study. The Tea Tribes are treated as OBC in Assam. During colonial rule they had migrated from different states of Central India to work in the tea gardens of Assam.
Their original *ST status* which they have been accorded in their respective states of origin from where they migrated is yet to be accepted by the State of Assam.

e) The Minority community is considered under religious category which are mostly immigrant Muslims who are highly vulnerable category as far as settlement geography is considered.

**1.7.0 Methodology:**

The data collected from field has been classified and tabulated into simple and cross tables, showing percentages and are graphically represented in the form of bar diagram and pie chart with the help of MS excel.

To determine the degree of concentration of households in an areal unit, the concentration index devised by J. Bernhard (1931) has been used.

The formula is as follows:

\[
Ci = \frac{HA}{S^2}
\]

Where, \(Ci\) = Concentration Index

\(H\) = Total number of houses
\(A\) = Area
\(S\) = Number of settlements in the areal unit

To assess the per capita availability of space, the crowding matrix method is used. Crowding matrix is determined by dividing the number of rooms by number of persons.
The data has been analyzed and presented in a systematic manner in order to derive an appropriate conclusion. For statistical analysis of all shots of information collected from field SPSS software package (version 9.05) is used. As for preparation of maps Arc GIS software (version 9.2) is used.

1.8.0 Limitations of the study:

This study is not free from certain limitations:

1. Housing deals with the science of architecture of man as much as the art of understanding the basic requirement of human being and development of dwellings for his need. But in this research study, under the discipline of environmental science covers more of social science the technical and engineering aspects of the houses under study is a casualty to a large extent. It means that the quality of housing structures and their life span from engineering point of view could not be assessed accurately.

2. In spite of adequate care that has been taken to cover the Universe as far as housing data is considered minor non-representation remains as purposive sampling has not been absolutely full proof for complete representation of housing information.

1.9.0 Organization of the work:

The entire work is organized into eight chapters:

The first chapter deals with the conceptual framework covering introduction to the research problem, significance of the study, review of literature, the study area,
objectives of study, research questions, data base and methodology, limitations of the study and organization of the work.

The second chapter deals with Geo- Environmental background of the study area covering the cultural history of the district, administrative set up, physical and socio-economic background which includes physiography, drainage, climatic condition, vegetation types, settlement, population composition, employment scenario, agriculture, industry and basic amenities and infrastructure which includes housing condition, provision of drinking water, availability of toilet facilities and electricity connection and transportation network as essential needs for living.

The third chapter deals with the study of determinants or parameters related to socio-economic factors based on primary data covering social status of population which includes age, gender, religion, educational qualification, household size, income, occupation, assets owned and rate of indebtedness of the respondents.

The fourth chapter highlights on the cultural ecology of housing which covers the criteria of site selection for settlement, spacing of dwelling units among different social groups, house patterns as followed by different architectural designs, density and growth of housing units over years and their spatial distribution.

The fifth chapter deals with housing and building materials covering different aspects related to the source and availability of different types of building materials of housing and their uses in construction of houses, age of dwelling units estimated on the
basis of year of construction and changing prices of the building materials and construction cost.

The sixth chapter deals with the problems of housing, sanitation and civic amenities covering the quantitative and qualitative assessment of housing and available household amenities for maintaining the minimal quality of living.

The seventh chapter is devoted to evaluation of the existing housing schemes and implementation which covers the history of housing policy and perception of beneficiaries towards the housing schemes.

The eight i.e. last chapter of the thesis contains summary, findings of study and suggests path ahead for better housing.