CHAPTER – VII

FINDINGS, CONCLUSIONS, SUGGESTIONS AND RECOMMENDATIONS

A. FINDINGS AND CONCLUSIONS:

Following are the findings and conclusions that emerge from the Study:

➢ The housing problem is more or less chronic in the third world countries where an estimated two thirds of population, amounting to 1.2 billion people live below the poverty line.

➢ About 100 million people are estimated to be shelter less and in many cities of the developing countries 20-40 per cent of the people are scattered with no legal title and over 150 million people in the urban areas of the poorest countries have less satisfactory shelter.

➢ About one-fourth of world’s population does not have adequate shelter and lives in extremely unsanitary, unhygienic conditions. Even for the advanced nations of the world, housing is an insurmountable problem. In USA itself there are over four million houseless people.

➢ Among the democratic countries, the housing shortage is the largest in India. A total of 271 million people constituting 37.4 per cent of the population are below the poverty line in our country.

➢ In Calcutta an estimated 6 lakh people sleep on the pavements and in Mumbai about one lakh...
The National Building Organization (NBO) has estimated that in 1981, there was a shortage of around 2.1 crore dwelling units; this shortage rose to 2.47 crore units at the beginning of the Seventh Plan (1985-1990). There is a shortage of 18.8 million houses in rural areas and 5.9 million in urban areas.

The magnitude of the housing problem is gigantic in India. The rapid increase in population between 1985-1990 had generated roughly an additional requirement of housing units to the extent of 16.2 million of which 12.4 million was in rural areas and 3.8 million in urban areas.

India spends about 2 to 3 per cent of GNP (Gross National Production) on housing.

The United Nation had estimated that for developing countries like India the annual construction rate of 8 to 10 dwelling units per thousand people in the next two-three decades should be achieved in order to prevent further deterioration of housing situation.

The rate of house construction in India has been quite disappointing. It has been estimated that as against the requirements of 5 dwelling units per thousand population per year due to the growth of population alone, the net addition to the housing stock was only 2-3 dwelling units per thousand population per year up to 1971. Between 1971 and 1981 this rate increased to 4 dwellings per year.

The Government had adopted many policies and programmes for the promotion of housing. Various schemes are also adopted by the Government of India to various section of the people for the same purpose through the
National Housing Bank and other institutions by providing financial assistance with a view to solve the crucial problem of housing.

- The private sector in India is playing a crucial role in construction of houses. The largest part of the investment for housing has come from the private sector. During the Sixth Plan private sector accounted for an investment of Rs. 18,000 crore out of the total investment of Rs. 19,491 crore, whereas the share of public sector was insignificant at Rs. 1,491 crore.

- During the Seventh Plan period the private sector contributed Rs. 29,000 crore, whereas the public sector contributed Rs. 2,458 crore to the total investment for housing.

- The co-operative sector is also playing a crucial role in housing activities in India. They are providing housing for all sections of the people, especially those with limited means. They have already constructed 7 lakh houses or flats and almost the same number is under construction.

- In a state like Kerala, the problem of housing is even worse than the National scene. Housing has become an eternal problem due to high density of population, non-availability and high cost of land, financial constraints, increased cost of construction due to the hike in the cost of building materials, micro family system, etc.

- According to 1991 Census, there were 54.59 lakh houses and 55.13 households, indicating a numerical shortage 54 thousand houses as against 1.56 lakhs according 1981 Census.
The average size of household in Kerala works out to 5.3 persons, while it is 5.6 persons in India.

The projection of the Kerala State Planning Board states that the population would increase by 38 lakhs from 290 lakhs in 1991 to 328 lakhs in 2000 A.D. Assuming the average household size as 5.3, the number of houses required for accommodating the increased population would be 7.2 lakhs. Thus the total demand for construction of houses during 1991-2000 is approximately about 16 lakhs.

Kerala had developed its own housing concepts from time immemorial, which is unique in the sense that it is highly scientific, technical and adaptive to the environment. The location and the panoramic view of the site of the building and its surrounding of a Malayalee's house is exemplary.

The design and the architectural beauty of the houses of Malayalees' in olden days were not inimitable to another dwelling places in the country. The main building for instance, is scientifically designed in such a way that it must face the rising sun. The scientific reason behind the construction of western dwelling is that the building is opposite to rising sun.

Like caste prejudices, discriminations in the dwelling places according to the occupant's caste were also predominant in the former days. Each dwelling place is known by different names depending on the caste of inhabitants. The house of Paraya is called a 'Cheri '; the Blacksmith, the Goldsmith, the Carpenter and the Toddy drawer inhabit in houses called 'Pura or Kudy '; the temple servant dwells in a 'Wariam or Pisharam', the ordinary Nair abide in a
'Vidu or Bhavanam', while the man in authority of their caste dwell in an 'Idam', the king resides in 'Kottaram' or 'Kovilakam', the Namboodiri in an 'Illam', while his fellow of higher rank calls his house as a 'Mana' or 'Manakkal'.

Malayalees also have a pre-conceived notion as to the sites to be selected and rejected for the welfare of the inmates of his dwelling places. Lands having circular, semi circular, triangular, hexagonal, trident shaped, winno shaped land sites having the shape of the buttocks of fish, elephant and tortoise were totally abandoned by Malayalees.

Landholding of which one end is wide end and the other side tapering like the face of a cow; place where ash, charcoal, chaffy grains, bones, hairs, worms, etc., are seen or digged land having termite hills, the center of which is deep or with hollow interior portions or caves, soil having nasty smell and directed towards a corner are also considered to be unacceptable for the purpose of a dwelling place.

Places where cereals being cultivated, places of worships, places situated in close proximity to sea, river, hermitage, cattle shed and mountains were also avoided by Malayalees in order to prevent catastrophes. Construction of two storeyed or multistoried building was also considered to be undesirable.

Castes played a dominant role even in the selection of building site during those days. Brahmins exclusively deserved square shaped land and soil where sacrificial grass grows spontaneously and the soil having white colour the smell of ghee and sweet taste for the construction of their dwelling places.
The Kshatriyas were entitled to get places for the construction of their houses in areas where bamboo grows and soil having colour and smell of blood and stringent taste and the length of such site should not exceed one-eighth of its width.

Vysya's were allowed to their habitation in areas where 'Karuka' (agrostislineris) grows, yellow coloured soil having the smell of rice and bitter taste. Length of their site should be one-sixth of its width.

The Sudras were allowed to occupy landholding for the purpose of their dwelling where Attudarbha (Eragrostis Cynosuroides) grows spontaneously, soil having black colour, smell of liquor and pungent taste. Length of such land should not exceed one-fourth of its width.

On analysing the architectural measurements of the ancient 'Nalukettu' and 'Ettukettu', it can be seen that the southern wall of the 'Thekkinippura' and western wall of the 'Vadakkinippura' are 24 cm thicker than the rest of the walls. It was mainly to withstand the strong and intense rays of sun from the south and also the rays of sun in the evening from the west for which these walls were constructed so.

In ancient times, even the trees planted around a house had a practical purpose. Hence the tamarind tree was planted at the south. Though the width of a single leaf of the tamarind tree is very small, the total expanse of its branches and leaves are much larger than other trees. When a tamarind tree is planted at the south, the intensity of the sun's rays percolating through its
branches will be minimum and it has the ability to absorb the harmful ingredients of the sunlight.

- Documentary evidences reveals that there is no branch called 'Keralite Vaasthuvidya'. The 'Nalukettu', which is considered as the symbol of our Vaasthuvidya, is actually an evolution from the Middle Asian Pagodas and the village structure in the Aryan culture.

- The Three-dimensional, Pyramid-shaped and huge-sized roofs made out of small pieces of wood put together are the unique contributions of traditional Keralite architecture. Similarly, the practice of raising the 'Thekkini' and 'Vadakkini,' above the other storeyes is also a hallmark of traditional Keralite Vaasthuvidya, which enables to adjust to the sun's rays from the south and the west and also the cosmic radiation.

- The unique features of the Kerala style of architecture are largely due to the peculiar features of the production materials obtained here and the climatic conditions prevailing here.

- Abundant use of red bricks and wood are the essential features of native architecture. It is largely due to the use of these production materials that carpenters gained prominence in the domestic architecture in Kerala.

- It is observed that the word used for architecture in the native tongue is 'Thachusasthram'. This is derived from 'Thachan', which means carpenter and the other kinds of labourers like 'Sthapati', 'Soothragrahi', 'Vardhaki', etc., are non-existent.
Small windows, which are traditionally named to denote cow's eye, elephant's eye, etc., show the orientation of 'Malayalee' towards small-sized windows.

Thatching tiles are a very important contribution of the native architecture of Kerala. There is a widespread misconception that the Portuguese introduced this practice in Kerala. But the only architectural text in India where this practice of using thatching tiles is mentioned in the Keralite text 'Vaasthuvidya' written in the 12th century A.D. The sixteenth chapter of this work entitled 'Loshthavidhi' deals with the use of different kinds of tiles and their manner of production. This text was written much before the advent of the Portuguese.

The free flow of air and the pressure system are vital in the designing of a house. Similarly, the triangular shaped roof follows the Pythagoras Theorem.

If the taste, odour and colour of a particular piece of land are contradictory, building a house in that plot will not be favourable to the owner.

A plot that is low-lying at the east can be used for building houses as it can give prosperity to the owner. Similarly, if the Northern side is low-lying, the owner will enjoy material prosperity. But if the western side is low-lying, it will lead to loss of money and living in a plot whose southern side is lower than the other sides will lead to the demise of its owner.

It is observed that majority of the modern house builders doesn't take into account the scientific aspects of the traditional housing concepts of Kerala while constructing the residential houses.
As per the estimates of the National Building Organization (NBO), on the basis of the 1991 Census, there was a shortage of 8.23 million housing units in the urban sector. Some other estimate indicates that housing shortage will increase to 9.4 million units in 2001.

Available data on housing stock in urban and rural India suggest that between 1951 and 1991, population had increased about 235 per cent. However, the increase in the number of households was about 206 per cent. This indicates that the Government, in spite of its several housing programmes, was not able to achieve the demands created by the population explosion and for that matter no Government would be able to meet such huge demands.

In the urban housing scenario there are innumerable agencies, both public as well as private, in operation. In addition to these, massive housing schemes are implemented by the Housing and Urban Development Corporation (HUDCO) under the Ministry of Urban Affairs and Employment, National Co-operative Housing Federation, etc., and public institutions such as LIC, GIC and Banking sector are also contributing to their might through promotion of loans and advances to the employees and the promotion of the Co-operative Sector on a big scale.

In the private sector the promotion of housing schemes and construction of massive scale housing are being encouraged by the provision of adequate finances by National Housing Bank, RBI, Commercial Banks in the private sector. Corporations like HDFC's and specialised institutions, set up by Nationalised Banks, also provide adequate finances in this area.
State Governments have encouraged specific programmes and policies in the public and private sectors in construction activities and the new Housing Policy indicates the promotion of housing by way of providing adequate finances in the housing activity.

As per the NBO estimates, there was a shortage of 104 lakh houses in urban areas and this figure was projected to rise to 155 lakhs in 2001.

Rural housing is qualitatively different from urban housing in the sense that the housing activity is not very much based on the cash economy but depends to a considerable extent on land rights and access to resources.

As per the 1991 Census, there are 341 million households who are absolutely houseless and about 10.31 million households live in unserviceable Kutcha houses. The total housing shortage in the country is thus about 13.72 million.

The rural housing problem has arisen because of certain socio-economic factors of the rural society. The growing population pressures the emerging social requirements and the improving quality of life need newer, better and a large number of houses for the rural teeming millions.

On the basis of the review of the progress of rural housing, it can be seen that the housing shortage had marginally declined in the Sixties but the trend witnessed a reversal in Seventies.

Housing problem is essentially the problem of the poor and low-income groups. During the Eighth Plan, a target of 7.80 million new housing stock was set, out of which 6.29 million units were for economically weaker sections and low-income groups.
Consolidated figures at the all India level indicates that within a decade, the proportion of houseless households in rural India has declined from 0.47 per cent to 0.28 per cent.

There are many reasons behind houselessness and low quality of houses in rural areas. The major factors are Poverty / Low income, Population growth, Westernization / Value changes and Environmental factors.

The National Sample Survey (1974-1975) reveals that about 97 per cent of the households have no toilets and 93 per cent of the households do not have any bathrooms. Only 0.35 per cent of them were having water supply and 45 per cent of the households' living room was being used as kitchen and the remaining households were cooking their food in the open area in front of their houses.

In rural India about 55.54 per cent of the households are now having access to safe drinking water and this indicates that still we have about 45 per cent of deficiency in providing one of the most important amenities, that ultimately lead to better health. All India figures show that only 9.48 per cent of rural households are having toilet facilities.

At the All India level, in rural areas, there are 30.59 per cent Pucca houses, 35.65 per cent semi Pucca houses and 33.76 per cent Kutcha houses, which in true sense should not be called as 'a house' and it is observed that in rural areas both human beings and cattle live together in the 'house'. The unhygienic cohabitation is also the basic cause for several diseases in rural areas.
Apart from sanitary facilities, our rural houses are characterised with poor quality of building materials, unmatched building technology and unsuitable to village social structure. Moreover, the houses constructed under several housing programmes are either not occupied by the beneficiaries, misused, or deserted. This is particularly true in the case of housing colonies specified for Scheduled Caste and Schedule Tribes.

The National Housing Policy calls for a progressive shift from a subsidy based housing scheme to cost sharing or cost recovery cum subsidy scheme for rural housing. It also emphasises a progressive shift of rural housing strategies from target orientation to demand-driven approach.

The scheme of allotment of houses, house sites and constructing assistance to rural landless workers and artisans, including Scheduled Castes and Scheduled Tribes was initiated in 1971, during the Fourth Five Year Plan as the Central sector scheme which was later transferred to State sector in 1974.

During the Sixth Five Year Plan, the housing and Urban Development Corporation and the General Insurance Corporation had also entered the field of rural housing and began to provide loans for construction in rural areas.

The Seventh Five Year Plan set for itself the objectives of promotion and encouragement of Self-help housing with the provision of house sites to identified rural families in which the cost of houses are to be within the repayment capacity of the beneficiaries. The Seventh Five Year Plan also has provided stimulus for private housing, adoption of low cost housing techniques, etc.
A new programme, mainly 'Indira Awas Yojana' for the construction of housing units for SC/ST and free bonded labourers in rural areas, was initiated in 1985-1986 and subsequently included in Jawahar Rozgar Yojana (JRY), which has been operating since 1989. The endeavor during the Eighth Five Year Plan period was towards evolving an approach to rural housing which led to setting up of truly integrated micro-habitats and had addressed this scheme, especially the disadvantaged groups, including the poorest segment of SC/ST and the bonded labourers.

At present (from 1996) 'Indira Awas Yojana' (IAY), a Scheme to develop a microhabitat and to ensure a base for higher level of earnings for the beneficiaries is the single effective countrywide programme for solving the rural housing problem.

According to the Ministry of Rural Areas and Employment, the total rural housing gap was assessed to be to the tune of 143.1 lakhs units in 1991. This is expected to rise to a figure of 177.4 lakhs units by 2021. This assumes that all the existing houses will remain livable at least by 2021. If the above assumptions are excluded from the estimates, India faces a housing gap of 475.3 lakhs units by 2021 out of which 243.9 lakhs units housing gaps will remain in the rural areas.

The basic guidelines of the IAY specifies that beneficiary selection should be done at Grama Panchayat level in an open forum and the allotment of houses should be done in the name of the female member of the household.
Microhabitat approach, i.e., the provision of roads, drains, drinking water, etc., is to be encouraged by linking with the Jawahar Rozgar Yojana and Integrated Rural Development Programme in order to provide the income generation and skills upgradation component.

- The Government of India had fixed a total amount ranging from Rs. 14,000 to 15,800 per household earlier. Now the ceiling assistance, taking into account the overall rise in the cost of building materials for construction, of IAY unit is enhanced to Rs. 20,000 and Rs. 22,000 for plain and difficult areas respectively.

- The Ministry of Rural Development recently introduced another scheme to mitigate the rural housing problem known as Pradhan Mantri Gramodaya Yojana (Gramin Awaas), while the ministry is already implementing schemes including the IAY, in the sphere of rural housing, considering the magnitude of the task it has been felt imperative to supplement the efforts being made in this direction through the introduction of a comprehensive scheme which aims at reducing shortage of houses for Below Poverty Line (BPL) families in rural areas and also for assisting the healthy development of the habitat in this areas.

- To further improve the availability of housing finance in rural areas Government have decided to provide equity support of Rs.350 crore to HUDCO during the Ninth Five Year Plan period. Of this, Rs.200 crore have already been released and it is proposed to release Rs.100 crore in the next year. With these funds HUDCO will be able to finance the construction of
about 9,00,000 houses in the rural areas in the coming financial year. The Co-Operative sector and voluntary agencies will support the construction of another 1.5 lakhs houses.

- About 12 per cent of the population in India has no roof over their heads. Among the rest who own houses, people who own pucca house comprise only 41.61 per cent. The situation is marginally better in Kerala compared to the national scene.

- The projected housing shortage by 2000 A.D is about 410 lakhs housing units of which 62.2 per cent (255 lakhs) fall in rural areas due to increase in rural population. The population in India at present covers more than 100 crore as against 84 crore in 1991 and nearly about 4 crore in Kerala at present, as against 2.90 crore in 1991. Therefore the urgency of rural housing in all habitats planning programmes in the State hardly needs to be emphasised.

- The Nirmithi Movement, which was started and developed in Kerala, is propagating cost effective, eco - friendly building technology in the country has a viable approach towards solving the problem of growing housing shortage in the country.

- The housing shortage is estimated to have increased from 9 million dwelling units in 1951 to 21.1 million in 1981 to 39.1 million in the year 2001.

- Housing shortage has grown faster in rural areas as compared to the urban sector. The housing shortage which stood at 8.23 million in 1991 is expected to fall to 6.64 million in 2001 is due to the healthy investment from all quarters
and equalising the resources through various housing finance institutions and by broad basing the institutional set up in the housing sector.

- A differential interest rate policy operates for various categories of households with overriding emphasis on concessional rate of lending for Economically Weaker Sections (EWS) and Low Income Groups (LIG). The lower the household income, the lower the interest rate and vice-versa. Similarly, the lower the cost of shelter unit, the higher the HUDCO's loan component as part of the project cost. Where the unit cost is Rs. 7500 or below, in case of EWS, HUDCO finances the entire project cost.

- The Sample Survey conducted among 180 households in the district of Ernakulam reveals that 36.7 per cent of them belongs to the age group of 41-50 years, while 28.9 per cent of them represent the age group of 51-60 years. Households coming under the age group of 31-40 years come to 21.1 per cent, while those who are having the age group 61 and above represent 10 per cent of total. Only 3.3 per cent of the households come under the prime age of 21-30 years. Thus it can be observed that majority (65.6 per cent) of the households who have constructed their own houses come under the age group of 41-60 years and only a small portion of the households has finished the construction work at their prime age.

- It is observed that 93.3 per cent of the heads of the households are males and females consisted only 6.7 per cent. This shows that males have a dominant role especially in the construction of the houses.
As regards the marital status of the 180 house owners, there are 164 married (91.1 per cent) and 4 single (2.2 per cent) and 11 widower or widowed (6.1 per cent) and 1 divorced (0.6 per cent). This is an indication that majority of the house construction activities are being done by married couples.

33.9 per cent of the heads of the households having an educational qualification below S.S.L.C, 27.2 per cent are having S.S.L.C qualification, 9.4 per cent constitutes Pre Degree holders, 11.7 per cent Degree holders, 9.4 per cent are Post Graduate degree, 4.4 per cent professional Degree holders and 4 per cent of the households are having Technical qualifications.

The level of education of the respondents shows that out of 180 respondents 33.9 per cent of them are having qualification below S.S.L.C level while 66.1 per cent of them are having qualifications above the S.S.L.C level.

The State and the Central Government: employees (17.8 per cent) constitute majority of the house owners followed by farmers and businessman (14.4 per cent) unemployed and retired and coolies (10.6 per cent) bank employees (6.6 per cent) drivers and conductors (5.6 per cent), college employees and Government company employees (3.9 per cent), while Private company employee’s accounts for only 1.1 per cent of the total.

Details regarding children of households reveals that majority of the households (i.e., 55.6 per cent) have 2 children, 18.3 per cent of them have 3 children, 15.6 per cent have only one child and 5 per cent of the households have four children and above and 5.5 per cent of the households surveyed do
not have any child. This indicates that majority of the households surveyed are either micro or nuclear families.

- Majority of the families (64.7 per cent) are having only one earning member and 27.5 per cent of the families have two earning members. Families having 3 earning members accounts for 5.8 per cent while only 2 per cent have four and above earning members. This indicates that majority of the earning members have only one earning member whose savings have to be mobilised for the purpose of their own dwelling.

- 63.3 per cent of the families are observed to have 2 non-earning members. Families having one non-earning member ranks the second (25.3 per cent), followed by families having three non-earning members (10.1 per cent). Families having four non-earning members and above account only for 1.3 per cent of the total. Thus it can be inferred that majority of the households (74.7 per cent) are having more than 2 non-earning members, which has made it a difficult task to build their own houses.

- Hindus constitute majority (62.8 per cent) of the households surveyed. Christians and Muslims represent 32.8 per cent and 4.4 per cent respectively.

- Nairs constitute 34.4 per cent of the households surveyed, while Roman Catholics and Ezhavas account for 24.4 per cent and 21.1 per cent of the total number of households surveyed. Jacobites, Muslims, OBCs. / OECs and Scheduled Castes/ Scheduled Tribes constitute 6.7 per cent, 4.5 per cent, 3.9
per cent and 2.2 per cent respectively. Marthomites form only a small share (0.6 per cent) of the total number of households surveyed.

Among the respondents 56.1 per cent have constructed their own houses in their ancestral properties. Those who have built houses in the purchased land account for 40.6 per cent, while those who have constructed their houses with both the ancestral property and purchased land represent 3.3 per cent of the total.

It is observed that 31.1 per cent of the respondents have constructed their houses in plots having an area ranging from 20 - 49 cents and the area of the residential plots of houses ranging between 10 - 14 cents and 5 - 9 cents come to 20 per cent and 18.3 per cent respectively. The households whose area of the residential plot come to more than 50 cents represent 13.9 per cent of the total. Only 6.1 per cent of the households are residing in houses constructed in plots having an area of less than 5 cents.

All the households surveyed are residing in independent owned villas. There were no respondents observed as the owner of a house and residing either in rented houses or in quarters.

Majority (23.3 per cent) of the households surveyed are possessing houses having a plinth area ranging from 1,001-1250 sq.ft, while those who are having residential houses with a plinth area ranging between 1,251-1500 sq.ft, 901-1000 sq.ft. and 801-900 sq.ft. represent 15.6 per cent, 12.2 per cent and 10.6 per cent respectively. 10 per cent of the households are residing in houses having a plinth area of 701-800 sq.ft. 8.3 per cent of the households
reside in houses having a plinth area of less than 500 sq.ft. Those whose houses having a plinth are of 601-700 sq.ft. constitute 1.7 per cent only.

- Majority (41.1 per cent) of the respondents are residing in 5 - 10 years old houses, while those who stay in 2 - 5 years old houses represent 35 per cent of the total. 1 to 2 years old houses and houses having an age of less than 1 year represent 12.2 per cent and 6.1 per cent respectively. Only 5.6 per cent of the households are residing in houses having an age of more than 10 years.

- It is observed that households having 2 bedrooms constitute 38.9 per cent, while those with 3 bedrooms represent 37.2 per cent of the total. Those with one bedroom account for 13.9 per cent of the total. Households residing in houses having more than 4 bedrooms represent only 10 per cent of the total.

- Majority (39.4 per cent) of the households surveyed are residing in houses with only one bath attached room. Those having 2 bath-attached rooms account for 20 per cent, while those with 3 bath attached rooms come to 9.4 per cent of the total. Only 2.2 per cent of the households are having a facility of more than 4 bath attached rooms. 29 per cent of the households have no bath-attached rooms at all.

- Majority (93.3 per cent) of the households are residing in houses with Concrete roofs. Those residing in Tile-roofed houses and Asbestos - roofed houses represent 5.6 per cent and 1.1 per cent respectively. None of the households surveyed are residing in houses with Plaited Coconut leaves, Bamboo mats, etc.
Majority (45 per cent) of the households surveyed are residing in houses with cement floors. Houses with marble floors and mosaic floors account for 24.4 per cent and 22.2 per cent respectively. Houses with floor tiles and those with floors made of cow-dung represent 2.8 per cent each. Houses with mud floors represent 1.7 per cent, while those with ceramic tiles constitute only 1.1 per cent of the total. None of the houses are observed with granite floors or unburnt bricks.

About 83 per cent of the households possess Electric fans, while those having Electric and Ordinary Iron, Mixies and Colour Televisions represent 77.22 per cent, 76.67 per cent, and 72.78 per cent respectively.

About 50 per cent of the households possess Two-in-ones and those having Fridges and Bicycles represent 51.11 per cent and 43.33 per cent of the total number of households surveyed.

33 per cent of the households enjoy their own communication facilities such as Telephone, Codeless and Cellular phones and those who enjoy conveyance facilities of their own like Bicycles, Two-wheelers, Cars, Jeeps and Truckers constitute 43.33 per cent, 40.56 per cent, 9.44 per cent and 1.67 per cent respectively.

Households enjoying other facilities include Tape recorders (27.22 per cent), Cable T.V. (23.89 per cent), Grinders (18.33 per cent), Electric heaters (12.22 per cent), Washing machines (21.11 per cent), Vacuum cleaners (4.44 per cent), Geysers (4.44 per cent), Microwave ovens (2.22 per cent), Water
purifiers (1.67 per cent) Air conditioners (2.77 per cent), Computers (2.22 per cent), etc.

- 83.3 per cent of the households have made a detailed planning in advance with respect to the mobilisation of funds for the construction of their houses, while those who did not make any sort of advance planning about the mobilisation of funds constitute 16.7 per cent of the total.

- Majority (30 per cent) of the households during the Field Investigation have opined that they have constructed their houses due to the congestion felt by them in their joint families.

- The respondents who have been influenced by the social status in the construction of houses represent 25.6 per cent of the total.

- The respondents who have been motivated by the advises from relatives and family members for the construction of houses account for 15.6 per cent, while those who have been influenced by the family sentiments form 8 per cent of the total.

- The respondents who have been tempted by the scope for higher studies and recreational facilities of their family members in building their own houses represent 5 per cent of the total.

- The households who have been motivated by the idea as to the access to the market, transport and place of worship work out to 4.9 per cent.

- The respondents who found the construction of houses as a dire necessity for shifting from their rented houses represent 3.9 per cent of the total.
3.3 per cent of the households got the idea for the construction of their houses from the advises from their friends and in the case of 1.7 per cent of the households the idea of constructing a house of their own come to their mind with a view to reside with the people of same caste or religion.

Only a small percentage of the households have constructed their houses in order to maintain their cultural relations and due to the compulsory acquisition of their old residence for some development purposes by the Government and these constitute only a miniscule share (0.6 per cent) of the total.

In majority (42.8 per cent) of the cases, the households have made their own rough designs, modified by their Architect, while in the case of 16.1 per cent of the households their own designs without any change by anybody have been adopted for the construction of houses.

The respondents who have adopted other facilities and those who have made selection from various designs shown by the Architect account for 14.4 per cent and 13.3 per cent respectively.

The households who have made the selection of the designs on the basis of an already constructed house with some modifications constitute 5.6 per cent.

In the case of 2.8 per cent of the households, the designs of existing houses with some minimum modifications as suggested by the Engineer has been adopted, while those who have selected designs without any modifications and those who have adopted the designs prepared on the basis of their immediate disposable funds account for 2.2 per cent each.
In majority (33.3 per cent) of the cases, wife happens to be the main person who takes initiative for the construction of houses and in 27.2 per cent of the cases; the respondents themselves have taken the initiative for the construction of their houses.

18.9 per cent of the households surveyed have opined that their wife, children, parents, friends and close relatives have jointly taken the initiative in motivating them for the construction of their houses.

The respondents who have been motivated by their children, parents and close relatives represent 10 per cent, 6.9 per cent and 2.8 per cent respectively.

Friends happen to be the initiators only in the case of 1.1 per cent of the households.

It is observed that 79.4 per cent of the households have made their houses according to their financial capacity, while in the case of 20.6 per cent of the households the construction work of their houses have been started without thinking of their financial capacity.

Majority (86.7 per cent) of the households surveyed are observed to have involved in discussions with their spouses at various stages of their construction works, while in the case of 13.3 per cent of the households no such discussions have been carried out with their spouses.

90 per cent of the respondents are observed to have involved in discussions with their family members about the budget for the construction of their houses but those who did not involve in any serious discussions with their
family members with respect to their budget for the constructions constitute 10 per cent of the total.

- It is seen that 79.4 per cent of the households have not made any change in the original plan of their houses. Those who have changed their original plans once, twice, thrice and more than that represent 14.4 per cent, 3.3 per cent and 2.9 per cent of the total.

- In majority (76.7 per cent) of the cases the households have not been influenced by the advises of their friends and relatives in changing the original designs of their houses. But 23.3 per cent of the households surveyed are observed to have influenced by their friends and relatives in changing the designs of their buildings.

- Majority of the households (96.7 per cent) did not make any changes in their plans, while in the case of 3.3 per cent of the households the original plans have been changed after getting the permission from the local authorities.

- The field investigation reveals that majority (87.8 per cent) of the households has sought assistance for supervision from the Architect or the Contractor of works or any other person experienced in the concerned field.

- 12.2 per cent of the respondents have opined that they didn’t seek any sort of assistance from the Engineer or Contractor for the direct supervision of their house.

- Majority (55.2 per cent) of the households have made a lump sum payment of the remuneration as agreed with the Architects, Engineers or the Contractors for supervising the construction works at various stages till it is
completed. Those who have availed the supervision of works as a free service from the Engineer or the Contractor constitute 31 per cent of the total and those who have paid remunerations for such services as a fixed percentage of the total cost of construction represent 13.8 per cent of the total.

- Among the households surveyed, those who have not faced any serious problems from Engineers represent 92.1 per cent, while those who have faced some serious problems in the services of Engineers and Contractors account for 7.9 per cent of the total.

- There is a tendency from the part of the persons in Kerala to stick on to the traditional housing concepts like the *Thachusasthra* at the time of preparation of the designs of the houses. There is a general belief among the people that if the houses are built according to the rules of *Thachusasthra*, it will lead to an overall prosperity of the members of the households. It is observed that 81.1 per cent of the households have prepared the design of their houses on the basis of the *Thachusasthra*, while those who have not followed the rules of *Thachusasthra* at the time of preparation of the designs represent 18.9 per cent of the total.

- 47.8 per cent of the households surveyed have followed the *Thachusasthra* principles for the identification of the location of their houses.

- The respondents who have followed the *Thachusasthra* principles with regard to the location of the structural design constitute 17.2 per cent.
The households who have followed the same in respect of the location of their houses and structural designs constitute 16.1 per cent.

18.9 per cent of the respondents have opined that they have not followed the Thachusasthra principles at any stage of the construction of their houses.

In majority (70.6 per cent) of the cases the households have resorted to Self-supervision at various stages of construction.

The respondents who have given their construction work exclusively to the Building Contractors account for (9.4 per cent) of the total.

The households who have given materials and labour exclusively on a contract basis account for 7.2 per cent, while those who have pooled materials and given the labour on a time rate basis come to 6.7 per cent of the total.

The respondents who have supplied materials and hired the labour on a time rate and on a piece rate basis represent 4.4 per cent of the total.

Only 1.7 per cent of the households surveyed have given their works partially to the building contractors and partially on a piece rate basis.

It is observed that 41.1 per cent of the households have met their timber requirements exclusively from outside sources. Those who have met their timber requirements partially from the trees growing in their own property and partly from outside sources constitute 30 per cent, while those who have met their timber requirements completely from the trees growing in their own property represent 28.9 per cent of the total.
It is observed that in majority (73.9 per cent) of the cases the households have not used any substitutes for the minimisation of timber requirements and in the case of 26.1 per cent of the households, substitutes have been used not only for the minimisation of timber requirements but also for reducing the cost of construction and delay in getting the items in time.

It is also observed during the Field Investigation that those who reside in towns and cities have an inclination to adopt various timber substitutes when compared to the rural households. It is mainly because of the reason that there is a growing popularity for prefabricated wood substitutes among the people in cities and towns when compared to the counterparts in the rural areas.

Among the 47 households who have used wood substitutes in the construction of their houses, those who have used partially the concrete substitutes and partially the iron and alloy substitutes in the place of timber account for 61.1 per cent and those who have made use of the concrete substitutes only represent 27.6 per cent of the total. Those who have used alloy and iron substitutes alone in the place of timber come to 21.3 per cent of the total.

45.6 per cent of the respondents have opined that they have resorted to the minimisation of wood in the construction of their houses due to the scarcity of the required quantity and type of wood as insisted by the carpenters. In the case of 30.5 per cent of the households, economy has been the main reason behind the minimisation of wood and in the case of 22.0 per cent of the
households, undue delay in getting the ready-made finished timber products when compared to other wood substitutes. Only 1.7 per cent of the households have opined that minimisation of wood has been resorted by them for making Architectural show to the houses by using various modern and innovative models of wood substitutes.

- It is observed that 42.2 per cent of the households have mobilised their funds, both from their own sources and also from other financial institutions. Those who have mobilised their own funds and the funds from the relatives or friends account for 31.1 per cent, while those who have utilised their own funds only represent 18.9 per cent of the total. The households who have mobilised their funds along with the financial assistance received from the Government come to 7.8 per cent of the total.

- A range-wise analysis of the amount of loans availed by the households during the Filed Survey indicates that 24.66 per cent of the households have availed loans ranging from Rs. 25,000 – Rs. 50,000 and those who have availed the loan amounts ranging from Rs. 50,000 – Rs. 1,00,000 accounts for 18.49 per cent of the total.

- The respondents who have got the loan amount ranging from Rs. 1,00,000 – Rs. 1,50,000 and Rs. 2,00,000 – Rs. 2,50,000 represent 17.12 per cent and 11.64 per cent respectively.

- 7.54 per cent of the households have availed loan assistance of less than Rs. 25,000.
Only 1.37 per cent of the households have availed the maximum amount of housing loan, ranging between Rs. 5,00,000 – Rs. 8,00,000. None of the households surveyed have availed housing loans exceeding Rs. 8,00,000.

The households who have faced problems and those who have not faced any problem are more or less equal in number. 50.68 per cent of the households have faced problems in one way or other in availing the housing loans, while those who have not faced any such problems represent 49.32 per cent of the total.

71.67 per cent of the households have opined that they are satisfied as to the present facilities as they had expected, while 28.33 per cent of them have reported that the present facilities in their homes are not as per their expectations.

61.2 per cent of the households are observed to have made some provisions in the original plan of houses for the purposes of future expansion, while those who have not made any provisions for the future expansion of their houses constitute 38.8 per cent of the total.

From the Zone-wise analysis of the respondents, it is observed that majority of the heads of the households who have constructed their own houses come under the age group of 41 - 50 years in all the three zones.

Zone I ranks first when compared to the other zones with respect to the maximum number of households (29 households) coming under the age group of 41-50 years, followed by Zone II (24 households) and Zone III (13 households).
Zone I assumes the first rank in the case of maximum number of households (21 households) coming under the age group of 51 - 60 years.

Zone II and Zone III assume the second and the third rank in the case of households coming under the same age group with 16 households and 15 households respectively.

The Zone-wise analysis of the households indicate that the households coming under the age group of 21 - 30 are the lowest in Zone I and Zone II, when compared to the households coming under other age groups. It is also observed in Zone III that none of the households coming under the age group of 21 - 30 have constructed their own houses.

A Taluk-wise, Age-wise analysis of the heads of the households surveyed reveals that Kanayannur Taluk in Zone I and Kunnathunadu Taluk in Zone II assume the First rank in the case of households coming under the age group of 41 - 50 with 13 households each.

Aluva Taluk in Zone II ranks the second with 11 households coming under the age group of 41 - 50, followed by Parur and Muvattupuzha Taluk in Zone I and Zone III respectively with 9 households each.

Kothamangalam Taluk in Zone III assumes the lowest rank (4 households) among the Taluks in respect of households coming under the age group of 41 - 50 years.

It is observed that 88.4 per cent of the heads of the households in Zone I are males and females constitute 11.6 per cent only. In the case of Zone II males
represent 95.5 per cent and females represent 4.5 per cent only. In Zone III, males represent 97.8 per cent, whereas females represent 2.2 per cent only.

- Zone II ranks first in the case of males as the heads of the households (63 households), followed by Zone I and Zone II with 61 and 44 males who are the heads of the households.

- Zone I ranks first in the case of females who are the heads of the households followed by Zone II (3 households) and Zone III (1 household) respectively.

- A Taluk-wise sex-wise analysis of the heads of the households indicates that Kunnathunadu Taluk in Zone II ranks the highest (34 households) and Cochin Taluk in Zone I ranks the lowest (17 households) among other Taluks in respect of males who are the heads of the households.

- Kanayannur Taluk assumes the highest position (6 households) in respect of females who are the heads of the households.

- An analysis of the Zone-wise marital status of the respondents reveals that the maximum number (61 persons) of married couples are in Zone II while the lowest number of number (43 persons) of married couples who have constructed their own homes are in Zone III.

- The maximum number of widower/widowed (7 Persons) are the heads of the households are observed in Zone I while in Zone III it is the lowest (1 person).

- No physically separated persons are found in the area under the study. Single and divorced constitute a miniscule share in all the three zones.
It is also observed that Kunnathunadu Taluk in Zone II has the highest number of married couples (32 persons) who are the heads of the households and in the case of widowers / widowed Parur Taluk in Zone I assumes the highest position.

Among the households surveyed the maximum number of the heads of the households (25 persons) who have an educational qualification below S.S.L.C. are in Zone I, while the lowest number of households (14 persons) having an educational qualification below S.S.L.C. are in Zone III.

Zone II and I assume equal positions (20 persons each) with respect to the heads of the households who have S.S.L.C. as their basic qualification while Zone III the number of the heads of the households having the S.S.L.C. qualification are the lowest (9 persons).

Zone III assumes the highest position (8 persons) in the case of the heads of the households having Pre-degree as their basic qualification, while in the case of Zone II and I this comes to 7 persons and 2 persons respectively.

Zone I assumes the highest position in the case of the heads of the households who are degree holders (9 persons) while Zone III assumes the lowest rank with 4 persons only. Zone I also assumes the highest position in the case of heads of the households who are Postgraduates (8 persons).

Professionally qualified respondents are found to be the highest in Zone II, with 4 respondents. Zone II also assumes the highest position in the case of heads of the households who are technically qualified.
A Taluk-wise analysis of the heads of the households reveals that Aluva Taluk assumes the highest rank in the case of heads of the households who have an educational qualification of S.S.L.C (12 households), while Kunnathunadu Taluk has the highest position in respect of those households who have an educational qualification below S.S.L.C. (12 households).

Kunnathunadu and Muvattupuzha Taluks assume equal positions (6 households each) in the case of heads of the households having Pre-degree as their basic qualification.

Kunnathunadu (6 households) and Kanayannur (5 households) Taluks record the highest number of the heads of households having Degree as their basic qualification.

In the case of Postgraduate degree holders, Kanayannur Taluk ranks the first position (6 households).

The maximum number of professionally qualified respondents have been observed from Kunnathunadu, Aluva and Parur Taluks, while in the case of Technically qualified persons the same is observed from Aluva and Muvattupuzha Taluks.

A Zone-wise analysis of the heads of the households on the basis of their occupations indicates that Zone I assumes the highest position in the case of College employees (7), School employees (3), Private Company employees (2), Retired persons (9) and Coolies (9).
Zone II assumes the prime position with regard to the house owners who are Businessmen (13), State and Central Govt. employees (14), Govt. Company employees (4), Engineers (2), N.R.Is (2), Drivers and Conductors (6).

Zone III records the highest position in the case of the heads of the households who are Farmers (10), Bank employees (6) and Other categories (5).

The number of the heads of households who are advocates and who are working in the Service sector and Co-operative departments are almost insignificant in numbers at the zonal level.

Taluk-wise analysis shows that Kanayannur Taluk assumes the prime position in respect of the heads of the households who are College employees (4), School employees (2) and Drivers and Conductors (2).

Kunnathunadu Taluk ranks top in the case of heads of the households who are State and Central Govt. employees (9), N.R.Is (4), School employees (2) and Coolies (8).

Aluva Taluk assumes the highest position in respect of the heads of the households who are Businessmen (6), Govt. Company employees (2), Drivers and Conductors (2).

Muvattupuzha Taluk ranks top in respect of heads of the households who are Bank employees (4) and Other categories (4).

Kanayannur, Cochin, Kunnathunadu and Aluva Taluks share equal positions in the case of the heads of the households (4 persons each) who are retired,
while Aluva and Kothamangalam Taluks assume equal ranks in the case of farmers (6 persons each) who are the heads of the households.

Kanayannur and Aluva Taluks assume equal ranks in the case of the heads of the households who are Drivers and Conductors (2 persons each).

The Zone-wise analysis of the heads of the households on the basis of the number of children of the households reveals that Zone I assumes the highest position in the case of the heads of the households having one child (11 person), two children (38 persons) and in the case of three children (14 persons). Zone I also assumes the prime position in the case of house owners having four children and above. Zone II assumes the highest position in the case of households without any child.

From the Taluk-wise analysis it is observed that Kanayannur Taluk assumes the first position in respect of the households having one child. Muvattupuzha Taluk ranks first in the case of households having two children. Aluva and Cochin Taluks have equal share (7 persons each) in the case of house owners having three children. But in the case of households having four children and above the Taluks of Cochin and Kunnathunadu have equal positions (3 persons each).

The Taluk level analysis of households also indicate that the heads of the households without having any child are quite insignificant when compared to the heads of the households who have more than one child.

Zone III assumes the highest position (15 households) in the case of households consisting of one earning member, while Zone II assumes the
prime position in the case of households (7 Households) comprising of two earning members.

- Zone II and Zone III assumes equal positions (3 households each) in the case of households with three earning members.

- Households having four earning members and above are insignificant when compared to other categories of households.

- Muvattupuzha Taluk has the highest position in the case of house owners having one earning member, while in the case of two earning members in the family, the Taluks of Cochin and Aluva shared equal positions with three households each. Kunnathunadu Taluk assumes the first position (3 Households) in the case of households having three earning members in their family.

- Zone III assumes the highest position (15 households) in the case of households consisting of one non-earning member, while Zone I assumes the prime position in the case of households (44 households) comprising of two non-earning members. Zone II assumes highest position (6 households) with three non-earning members. Households having four non earning members and above are insignificant when compared to other categories of households.

- Kunnathunadu and Koathamangalam Taluks have the highest position in the case of house owners having one non-earning member (8 households), while in the case of two non-earning members in the family, Aluva Taluk has the prime position (18 households). Aluva Taluk assumes the first position (4
households) in the case of households having three non-earning members in their family.

- The Zone-wise religion-wise analysis shows that the maximum number (44 households) of Hindu households are in Zone II, while the maximum number (27 households) of Christian households are in Zone I. Zone II has also the maximum number (6 households) of Muslim households.

- Taluk-wise religion-wise analysis reveals that Muvattupuzha and Kanayannur Taluks assumes the highest position with the maximum number of Hindu households (19 households) and Christian households (13 Households) respectively. The maximum numbers of Muslim households (4 households) from the respondents surveyed are observed from Kunnathunadu Taluk.

- A Zone-wise analysis of the heads of the households on the basis of their castes indicates that Zone II assumes the highest position in the case of Nairs (27), OBCs/OECs (5), and Muslims (6).

- Zone I assumes the prime position with regard to SCs/STs (3), Jacobites (6), Roman Catholics (18), Marthomites (1) and Latin Catholics (2).

- Zone III records the highest position in the case of heads of the households who are Ezhavas (14).

- The number of the heads of the households who are Namboodiris and Other upper castes are almost insignificant in numbers at the zonal level.

- Taluk-wise analysis shows that Kunnathunadu Taluk assumes the prime position in respect of the heads of the households who are Nairs (16).
Muvattupuzha Taluk ranks top in the case of heads of the households who are Ezhavas (8).

Aluva Taluk assumes the highest position in respect of the heads of the households who are OBCs/OECs (3), while Kanayannur Taluk ranks top in the case of heads of the households who are Roman Catholics (10).

Kanayannur and Kunnathunadu Taluks share equal position in the case of the heads of the households (3 persons each) who are Jacobites, while Kunnathunadu Taluk assumes the highest position in the case of Muslims (4 persons each) who are the heads of the households.

Heads of households who are Namboodiris, Other upper castes, Latin Catholics, Penthacoasteas and Converted Christians are almost insignificant in numbers at the Taluk level.

The Zone-wise analysis of the nature of ownership of land shows that the maximum numbers of persons who have constructed houses in their ancestral property are in Zone II (37 persons), while the maximum numbers of households who have built their houses in the purchased land are in Zone I (32 persons). Construction of houses in ancestral and purchased land and other categories are insignificant in all the three Zones.

Taluk-wise analysis of the nature of ownership of land reveals that Parur and Aluva Taluks assume the highest positions with the maximum number of households (16 households each) who have constructed houses in their ancestral property, while Kanayannur Taluk has the prime position in respect
of households who have constructed houses in the purchased land (15 households).

- It is observed that Zone I ranks first when compared to the other zones with respect to the maximum number of households who have constructed their houses in plots having less than 5 cents (6 households), 5 - 9 cents (15 households) and 15 - 19 cents (11 households), while Zone II assumes the first position in respect of construction of houses in plots having 10 - 14 cents (13 households) 20 - 49 cents (26 households) and 50 cents and above (11 households).

- A Taluk-wise analysis of the heads of the households surveyed also reveals that Kanayannur Taluk in Zone I assumes the First rank in the case of households who have constructed their houses in plots having less than 5 cents (3 persons) and in the case of plots having 15 - 19 cents (6 persons).

- In the case of construction of houses in an area of 5 - 9 cents, Parur Taluk has the highest position (7 persons). Kunnathunadu Taluk has the prime position in the case of construction of houses in plots having 10 - 14 cents (8 persons), 20 - 49 cents (15 persons) and houses in an area of 50 cents and above (6 persons) respectively.

- The Zone-wise analysis of the heads of the households on the basis of nature of ownership of houses shows that Zone I, with 69 households, ranks first in the case of owned houses and Zone II, with 66 houses and Zone III, with 45 houses, ranks second and third positions.
Taluk-wise nature of ownership of houses reveals that Kunnathunadu Taluk in Zone II (36 households) assumes the highest position, followed by Aluva (30 households), Muvattupuzha and Kanayannur (37 each), Parur (24 households), Cochin and Kothamangalam (18 each).

It is observed that Zone I ranks first when compared to the other zones with respect to the maximum number of households having houses with plinth areas up to 500 sq.ft., 501 - 600 sq.ft., 601 - 700 sq.ft, 701 - 800 sq.ft., 801 - 900 sq.ft., 901 - 1,000 sq.ft., 1,251 - 1,500 sq.ft. and 1,751 - 2,000 sq.ft.

Zone III assumes the first rank in the case of households having houses with a plinth area up to 501-600 sq.ft. But Zone II has the prime position in the case of households having houses with a plinth area up to 1,001 - 1,250 sq.ft..

A Taluk-wise analysis of the heads of the households surveyed reveals that Parur Taluk in Zone I assumes the first rank in the case of households who have constructed their houses having a plinth area up to 500 sq.ft. (4 households) and Muvattupuzha Taluk (4 households) assumes the first position in the case of households who have built their houses having a plinth area ranging from 501 - 600 sq.ft..

Parur, Kanayannur, Cochin and Kothamangalam Taluks have equal positions (1 household each) in the case of households with houses having a plinth area ranging from 601-700 sq.ft.
- Cochin (6 households) and Kunnathunadu (5 households) Taluks have the highest positions as far as the households with houses having a plinth area ranging from 801 - 900 sq.ft. and 901 - 1,000 sq.ft. are concerned.
- Kunnathunadu Taluk has the prime position in the case of households who have constructed houses in an area of 1,001 - 1,250 sq.ft. (13 households) and 2,001 sq.ft and above (2 households).
- Kanayannur and Kothamangalam Taluks ranks first in case of houses with an area of 1,251-1,500 sq.ft. (7 households) and 1,501-1,750 sq.ft. (2 households) respectively.
- In case of houses having a plinth area ranging from 1,751-2,000 sq.ft., Parur, Kanayannur, Kunnathunadu, Aluva and Kothamangalam Taluks share equal positions with 2 households each.
- It is observed that Zone I assumes the first position in case of houses with an age of less than one year (6 households) and in case of 2-5 years old houses (28 households), while Zone II has the first position in the case of 1 - 2 years old houses (9 households), 5 - 10 years old houses (29 households) and also in the case of more than 10 years old houses (5 households).
- A Taluk-wise, Age-wise analysis of the households surveyed reveals that Kanayannur Taluk in Zone I assumes the first rank in the case of houses having the age of less than 1 year (3 houses) and 2 - 5 years (13 houses).
- In the case of 1 - 2 years old houses, Kunnathunadu and Muvattupuzha Taluks share equal positions (6 houses each). Kunnathunadu Taluk also assumes the first position in the case of houses with an age of 5 - 10 years
(16 houses). In the case of more than 10 years old houses, Aluva Taluk has
the prime position (4 houses).

The Zone-wise analysis of the heads of the households on the basis of the
number of bedrooms reveals that Zone I assumes the highest position in the
case of the heads of the households having one bedroom (15 households)
and two bedrooms (28 households).

Zone II assumes the highest position with 36 households and 9 households
respectively in the case of households having three bedrooms and four
bedrooms and above.

From the Taluk-wise analysis it is observed that Muvattupuzha Taluk
assumes the first position in respect of the households having one bedroom
(9 households), while Kanayannur and Kunnathunadu Taluks hold the first
position in the case of households having two bedrooms (12 households
each).

Kunnathunadu Taluk ranks first in the case of households having three
bedrooms with 20 households. But in the case of households having four
bedrooms and above, the Taluk of Aluva assumes the highest position
(5 households).

From the Zone-wise analysis of the heads of the households on the basis of
the number of Bath attached rooms, it is revealed that Zone II and Zone III
assumes the highest positions in the case of the heads of the households
having one Bath attached room (38 households) and two Bath attached
rooms (17 households) respectively.
Zone I has the highest position in the case of houses with 3 Bath attached rooms and 4 bath attached rooms and above. Zone I also assumes the first position in case of households without any Bath attached rooms (24 households).

From the Taluk-wise analysis it is observed that Aluva Taluk assumes the first position in respect of the households having one Bath attached room (20 households).

Muvattupuzha Taluk ranks first in the case of households having 2 Bath attached rooms (12 households).

Kanayannur Taluk ranks first in the case of households having 3 Bath attached rooms (5 households).

Parur, Kanayannur, Kunnathunadu and Kothamangalam Taluks share equal positions in the case of households having 4 Bath attached rooms and above.

Cochin Taluk has the prime position in respect of households without any Bath attached rooms (10 households).

It is observed that 66 households in Zone I are having concrete roofs and in Zone III there are 4 households with tiled roof.

A Taluk-wise analysis of the heads of the households indicates that Kunnathunadu Taluk in Zone II ranks the highest (33 households) position in the case of households having concrete roofs, while Kunnathunadu, Muvattupuzha and Kothamangalam Taluks share equal position in respect of households with tiled roofed houses (2 households each).
Households who have constructed their houses with plaited coconut leaves, bamboo mats, etc., are not observed among the respondents who have been covered during the Field Investigation.

From the Zone-wise analysis of the Type of floor, it is revealed that Zone I has the highest position in respect of houses having cement floors (33 households) and marble floors (21 households).

Zone III assumes the highest position in respect of houses having floors with mosaic floor (14 households). Houses having Mud, cow dung, unburnt bricks, tiles, ceramic tiles and granites are found insignificant in the survey.

A Taluk-wise analysis of the heads of the households indicates that Kunnathunadu Taluk in Zone II assumes the highest (20 households) position in respect of houses having cement floors.

In the case of houses having mosaic floors, Aluva, Muvattupuzha and Kothamangalam Taluks share equal position (7 households each). But Kanayannur Taluk has the first position (12 households) in the case of houses having Marble floors.

A Zone-wise analysis of the heads of the households indicates that Zone I assumes the highest position in the case of households having facilities like Radios (33), Tape-recorders (20), TVs. (Black and white) (7), Cable TVs. (9), Grinders (14), Fridges (37), Sewing machines (19), Washing Machines (16), Electric fans (57) and Cars (8).

Zone II assumes the prime position with regard to Tape-recorders (20), Two-in-ones (39), Colour TVs. (51), VCPs/VCRs (24), Cellular phones (27), Mixies
Electric heaters (10), Vacuum cleaners (4), Electric irons (54), Computers (2), Bicycles (31), Two-wheelers (26) and Jeeps (3).

- Zone III records the highest position along with Zone I in the case of households having Black and white TVs. (7). Zone III also has the prime position in respect of households possessing Invertors/Generators (2).

- Taluk-wise analysis of the respondents reveals that Muvattupuzha Taluk assumes the prime position in respect of households having facilities like Radios (20), Tape-recorders (13), Black & White T.Vs (4), Electric heaters (6) and Invertors (2).

- Kunnathunadu Taluk assumes the highest position in respect of households having Two-in-ones (25), Colour T.Vs (28), V.C.Ps./V.C.Rs. (14), Codeless phones (14), Grinders (6), Mixies (31), Fridges (21), Vacuum cleaners (3), Air conditioners (2), Electric irons (30), Electric fans (31), Two wheelers (16) and Jeeps (2).

- Cochin Taluk shares the prime position along with Muvattupuzha Taluk in respect of households possessing Black and White T.Vs (4). Parur Taluk has the highest position in the case of households having Cable T.Vs. (9).

- Aluva Taluk assumes the highest position in respect of households possessing Grinders (6) and Bicycles (16).

- In case of households having Sewing machines (10), Washing machines (10), Water purifiers (2) and Cars (6), Kanayannur Taluk ranks the first position. But Kothamangalam Taluk has the highest position in the case of households using Geysers (3).
From the Zone-wise analysis of households with regard to the planning about their funds for the construction of houses, it is revealed that Zone I has the first position (61 households) in the case of planning of households in respect of the funds for construction of houses.

Zone II and Zone III share the second and third positions respectively in the case of the same with 55 households and 34 households each. But Zone II and Zone III share the first position, with 11 households each, in the case of households who did not make any planning about their funds for the construction of houses.

A Taluk-wise analysis of the heads of the households indicates that Kunnathunadu Taluk in Zone II ranks the highest position (31 households) regarding the households who have made planning about their funds for construction, while the Taluks of Aluva and Kothamangalam share the first rank, with 6 households each, in the case of households who have not made any planning about their funds for the construction of houses.

The Zone-wise analysis of the households on the basis of the idea generated for the construction of their houses indicates that majority (25 households) of the households in Zone II have constructed their houses due to the congestion felt by them in their joint families. The maximum numbers of respondents (11 households) in Zone II have also opined that the advices from their relatives and family members have motivated them for the construction of their houses.
The highest numbers of respondents (4 households) in Zone III are observed to have constructed their houses by considering the scope for higher studies of their children and the availability of recreational facilities.

Necessity for shifting the rented houses has influenced majority of the households in Zone I in generating the idea for the construction of their houses. Attainment of social status on the construction of their houses have influenced majority of the households in Zone II in generating the idea with respect to the construction of their houses.

Family sentiments and advices from the friends have influenced majority of the households in Zone I for thinking about the construction of their houses.

The maximum numbers of households (14 households) in the Aluva Taluk have reported that congestion in the joint family is the main reason behind the idea for the construction of their houses.

Majority of the households (7 households) in Parur Taluk have opined that family sentiments are the main reason behind the idea for the construction of their houses, while in Kunnathunadu Taluk, majority of the households (8 households) have been influenced by the advices from their relatives and family members with regard to their idea generation about the construction of their houses.

In Kanayannur Taluk, majority of the households (9 households) have been influenced by the attainment of social status on construction of their houses.

A Zone-wise analysis of the selection of design reveals that majority of the households (32 households) in Zone I have prepared their own designs for
the construction of their houses which have been modified later by their Architects.

- Zone II ranks the highest (13 households) in respect of the households who have accepted the designs, prepared by the Architects, based on their individualistic needs and facilities.

- Zone II and Zone I assume equal positions with 10 households each in the case of households who have made selection of the designs of their homes from various designs shown by their Architects.

- The maximum number of households (18 households) in Kunnathunadu Taluk have adopted their own designs, modified later by the Architect, while in the case of Aluva Taluk, the highest numbers of households (7 households) are observed to have adopted the designs prepared by the Architect, based on their personal needs and other facilities.

- The households who have taken the designs of houses which have been constructed earlier, with some modifications, are found to be the maximum (4 households) in the case of Muvattupuzha Taluk, while the highest numbers of households (4 households) who have chosen the designs of their houses from various designs shown by the Architect are observed to be in Parur Taluk.

- A Zone-wise analysis of the initiators in the construction of their houses indicates that wife happens to be the main person who has taken initiative for the construction of houses in the case of majority of the households in Zone
II. Zone II also assumes the highest position in the case of households who have been self-motivated for the construction of their houses.

- Zone I assumes the highest position among other zones in the case of those who have been influenced by children as well as those who have been persuaded by parents. This zone also assumes the highest position among other zones in respect of households who have been influenced jointly by wife, children, parents, friends and other close relatives.

- A Taluk-wise analysis of the initiators in the construction of their houses indicates that wife happens to be the main person who has taken initiative for the construction of the houses in the case of majority of the households in Aluva Taluk. Aluva Taluk also assumes the highest position in the case of households who have been self motivated for the construction of their houses.

- Cochin, Kunnathunadu and Kothamangalam Taluks share equal positions among other Taluks in the case of those who have been influenced by children. Kanayannur Taluk ranks first where parents are the main initiators in the construction of houses.

- Muvattupuzha Taluk assumes the highest position in respect of households who have been jointly influenced by wife, children, parents, friends and other close relatives.

- Zone I and Zone II are observed to have equal position with 52 households each who have constructed houses according to their financial capacity. It is also observed that the respondents who have constructed their houses
without considering their financial capacity are the maximum (17 households) in Zone I.

At the Taluk level, those who have constructed their houses according to their financial capacity are observed to be the maximum (28 households) in Kunnathunadu Taluk, while those who have built their houses without considering their financial capacity are observed to be the highest in the case of Parur and Kunnathunadu Taluks with 8 households each.

It is observed in Zone I that majority of the heads of households have constructed the houses after making discussions with their wives. It is also observed that the highest numbers of households (8 households) who have constructed their houses without making discussions with their wives are in Zone I.

At the Taluk level, those who have made discussions with their wives and those who did not make any discussions with their wives for the construction of houses are found to be the highest in Kunnathunadu Taluk (29 households and 7 households respectively).

Zone I and Zone II are observed to have equal position with 60 respondents each who have constructed houses after making discussions with their family members about the construction budget. It is also discernible that the maximum numbers of respondents who have constructed their houses without making any discussions about the construction budget with their family members are in Zone I.
At the Taluk level analysis, it is observed that those who have constructed their houses after making discussions with family members about the construction budget are found to be the highest in Muvattupuzha Taluk (25 households), while those who did not make any discussions with family members regarding the construction budget are found to be the maximum in Kanayannur Taluk (5 households).

The maximum numbers of households who have not made any changes in the original plan of their houses (56 households) and the maximum numbers of households (12 households) who have changed their plans once, are found to be in Zone I. The number of households who have changed their plans twice, thrice and more than that are insignificant in all the zones, when compared to the numbers of households who have not made any changes and those who have changed their plans once.

It is also observed that among the Taluks, Kunnathunadu Taluk assumes the prime position in respect of households who have not made any changes in the original plan of their houses, while Kanayannur and Cochin Taluks share equal positions with 5 respondents each who have changed their original plans once.

The maximum numbers of households (24 households) in Parur Taluk in Zone I are found to be influenced by the advices of their friends and relatives in changing the original designs of their houses, while those who have not been influenced by the advices of their friends and relatives in changing the
original plans of their houses are found to be the highest in Aluva Taluk (29 households) in Zone II.

Those who have changed their designs after getting acceptance from the local body are found to be the highest in Zone III (3 households), while those who didn’t make any changes in their original plans are observed to be the maximum in Zone I (67 households).

A Taluk-wise analysis of the households indicates that Kanayannur and Kothamangalam Taluks share equal positions with respect to the households who have changed their designs after getting acceptance from the local body, with 2 households each, while in the case of Kunnathunadu Taluk, the majority of the households (35 households) have not changed their original plan of their houses after getting acceptance from the local authority.

Zone I assumes the highest position in respect of households (11 households) who seek assistance for the supervision of the construction of their houses, while Zone II, with 65 households, ranks first in respect of the households who have not sought any assistance from a supervisor for the construction of their houses.

At the Taluk level analysis of the respondents, it is revealed that Muvattupuzha Taluk, with 7 households, has the highest position among other Taluks in respect of the households who have sought assistance from supervisors for the construction of their houses. Kunnathunadu Taluk in Zone II assumes the highest position (35 households) among other Taluks in
respect of the households who have not sought any assistance for the construction of their houses.

- An analysis of the Zone-wise details regarding the payment of remuneration for the work of supervision reveals that all the three zones have equal positions (3 households each) with regard to the services rendered free of cost by the supervisor.

- Zone I assumes the prime position in the case of households who have paid the remuneration as a lump sum amount (7 households) and as a percentage of the total cost (2 households) for the services of the architects.

- The Taluk-wise analysis shows that Parur and Muvattupuzha Taluks rank the highest, with 4 households each, regarding the payment of remuneration for supervision, which is paid as a lump sum amount to the services of the Engineer.

- The respondents who have availed Free services of the Engineer and those who have paid the remuneration as a percentage of the total cost are found to be insignificant at the Taluk level.

- Among the households surveyed, the maximum numbers of the households who have utilised the services of the architects throughout the period of construction of houses are observed in Zone - I (10 households).

- The respondents who have utilised the services of the architects at the stages of foundation, main structure, concreting, etc., are found to be almost insignificant in numbers, both at the Zonal and at the Taluk levels.
Kanayannur and Muvattupuzha Taluks assume equal positions (4 households each) in utilising the services of the architects throughout the period of construction of the houses of the respondents surveyed.

It is revealed from the Zone-wise and Taluk-wise analysis of the respondents that Zone I with 14 households, and Muvattupuzha Taluk (in Zone III) with 8 households assumes the prime positions in respect of the households who have not faced any problems while utilising the services of the Engineers.

A Zone-wise analysis of the classification of houses on the basis of the traditional and non-traditional designs reveals that Zone II assumes the prime position in respect of the households (58 households) who have prepared the designs of their houses on the basis of Thachusasthra, while Zone I ranks first (16 households) in respect of the households who have not adopted Thachusasthra while designing the houses of their own.

Taluk-wise analysis of the heads of the households surveyed reveals that Kunnathunadu Taluk assumes the first position (33 households) in respect of households who have designed the houses on the basis of Thachusasthra, while Parur Taluk in Zone I assumes the highest position with 7 households who have not adopted Thachusasthra at the time of designing the houses.

The Zone-wise analysis of the respondents indicates that Zone I assumes the highest position (29 households) in respect of the households who have followed the Thachusasthra principles for the identification of the location of their houses,
Zone II ranks first in the case of the households (13 households) who have followed the *Thachusasthra* principles with regard to the location of the structural designs of the houses. Zone II also assumes the prime position in respect of the households who have followed the *Thachusasthra* principles in determining the location and structural designs of the houses (15 households).

5 respondents in Zone II have opined that they have not followed the *Thachusasthra* principles at any of the stages of the construction of their houses.

Kunnathunadu Taluk with 16 households ranks first among the Taluks in the case of the households who have followed the *Thachusasthra* principles for the identification of the location of their houses, while 9 households in Aluva Taluk in Zone II have opined that they have followed the *Thachusasthra* principles for the location of the structural designs of their houses.

Parur and Aluva Taluks share equal positions, with 6 households each, in the case of the households who have followed the *Thachusasthra* principles for selecting the location and structural designs of their houses.

In the zonal analysis, it is observed that majority of the households (53 households) in Zone I have resorted to self-supervision at various stages of construction. Zone I also assumes the highest position (7 households) in the case of the households who have given their construction works exclusively to building contractors.
Zone II and Zone III assume equal positions, with 5 households each, in the case of the households who have given their works by providing materials only and labour on a contract basis. Zone II also ranks first in the case of those who have pooled materials by themselves and given the labour on a time rate basis (7 households).

Taluk level analysis shows that Kunnathunadu Taluk assumes the highest position in the case of the households who have resorted to self-supervision at various stages of construction of their houses (25 households) and also in the case of households who have given their works exclusively to the building contractors (6 households).

Aluva Taluk in Zone II assumes the prime position in the case of the households (6 households) who have provided materials only and given labour on a time rate basis for the construction of their houses.

From the Zone-wise analysis of the respondents on the basis of the need for timber requirements managed by them, it is observed that Zone II ranks first (22 households) in respect of the households who have completely met their timber requirements from their own properties for the construction of the houses and also in the case of respondents who have partially met the timber requirements from their own properties and partially from the outside sources (21 households).

Zone I holds the prime position, with 38 households, who have met their complete requirements of timber from the outside sources.
Taluk level analysis shows that Aluva Taluk stands first, with 12 households, who have met their timber requirements from their own property for the construction of their houses, while Muvattupuzha Taluk in Zone II assumes the prime position, with 13 households, who have met their timber requirements partially from the trees growing in their own properties and partially from the outside sources.

Parur and Kunnathunadu Taluks, with 16 households each, share equal positions in the case of the households who have met their timber requirements completely from the trees growing in their own properties.

Zone-wise analysis of various materials used for minimizing the use of wood reveals that Zone I assumes the highest position (18 households) in respect of the households who have used substitutes for the minimisation of timber requirements.

Zone I and Zone II share equal positions (51 households each) in the case of the households who have not used any type of substitutes in place of wood for the construction of their houses.

Taluk-wise analysis of the respondents reveals that the maximum numbers of households (10 households) who have used substitute materials for the minimisation of timber requirements in constructing their own houses are in Aluva Taluk, while Kunnathunadu Taluk, with 31 households, ranks first in the case of the households who have not used any type of materials for the minimisation of the timber requirements in construction of their houses.
It is observed that a total number of 7 households in Zone I, along with 10 households in the same zone, have utilised fully concrete substitutes and partially concrete and partially iron/alloy substitutes respectively, instead of using wood in constructing their own houses. Zone III ranks first in the case of the households (7 households) who have utilised iron and alloy substitutes fully for the construction of their houses.

Kanayannur and Kunnathuandu Taluks share equal positions (3 households each) in respect of households who have utilised concrete substitutes alone for the construction of their houses, while Aluva Taluk assumes the highest position (7 households) among those households who have used partially concrete and partially iron/alloy substitutes in place of wood.

Kothamangalam Taluk assumes the prime position in the case of the households (4 households) who have used completely the iron and alloy substitutes in place of wood.

Zone I and Zone II are observed to have equal positions, with 19 households each, who have constructed their houses with minimum quantity of wood due to the economy on minimization of wood for the construction of their houses. Zone I also assumes the highest position (49 households) in the case of the households who have constructed their houses without considering the economy on minimization of wood for the construction of their houses.

At the Taluk level analysis, the Taluks of Aluva and Muvattupuzha share equal positions, with 10 households each, in respect of the households who have been influenced by economy on the minimization of wood for the
construction of their houses. Kunnathunadu Taluk has the highest position in the case of the households (26 households) who have no such objectives in the minimisation of wood for the construction.

➢ The respondents who have opined that the Architectural show of the houses on using various modern and innovative models of wood substitutes are found to be insignificant during the Field Investigation.

➢ Zone II ranks first in respect of the households (16 households) who have utilised their own funds for the construction of their houses, while Zone I assumes the highest position in the case of the households who have mobilised their own funds and funds from relatives and friends (23 households). Zone I also assumes the prime position in respect of the households (30 households) who have mobilised the funds, from their own sources as well as from other financial institutions. Again, Zone I has a prime position with regard to the households who have mobilised their own funds and the financial assistance from the Government (6 households).

➢ Taluk-wise analysis reveals that Aluva Taluk, with 9 households, has the highest position in respect of the households who have mobilised their own funds for the construction of houses. Aluva Taluk also assumes the highest position in case of the households (11 households) who have mobilised funds from their own sources and from relatives and friends for the construction of their houses. Aluva and Muvattupuzha Taluks share equal positions in respect of the households who have mobilised their own sources of funds and funds received from the Govt. (3 households each).
Muvattupuzha Taluk ranks first in the case of the households (13 households) who have mobilised the funds from their own sources and also from other financial institutions.

Zone I assumes the highest position (6 households) in the case of the households who have availed loan to an extent of less than Rs. 25,000 and also in the case of those who have availed housing loans ranging from Rs. 25,000 – Rs. 50,000 (20 households).

Zone II ranks the highest position in the case of households who have obtained housing loans ranging from Rs. 50,000 – Rs. 1,00,000 (16 households) and also in the case of households who have received loans to the extent of Rs. 1,00,000 to Rs. 1,50,000 (12 households).

The highest numbers of households who have availed housing loans ranging from Rs. 1,50,000 to Rs. 2,00,000 (6 households) and Rs. 2,50,000 to Rs. 3,00,000 (8 households) are found in Zone I.

Zone II and III assume equal positions, with 7 households each, in the case of the households who have obtained housing loans ranging from Rs. 2,00,000 to Rs. 2,50,000.

At the Taluk level analysis, Parur and Aluva Taluks assume the highest positions among other Taluks in the case of the households who have availed housing loans amounting to less than Rs. 25,000 with 3 households each, while Parur Taluk ranks the highest position (9 households) in the case of households who have obtained housing loans ranging from Rs. 25,000 to Rs. 50,000.
Kunnathuandu Taluk, with 10 households, assumes the prime position among other Taluks in respect of households who have availed housing loans ranging from Rs. 50,000 to Rs. 1,00,000.

Muvattupuzha Taluk with 11 households assumes the highest position among other Taluks in the case of households who have availed housing loans ranging from Rs. 1,00,000 to Rs. 1,50,000.

Kothamangalam Taluk has recorded the highest numbers of the households who have obtained housing loans, ranging from Rs. 1,50,000 to Rs. 2,00,000, while the Taluks of Kunnathunadu and Muvattupuzha have registered the maximum numbers of households who have availed housing loans ranging from Rs. 2,00,000 to Rs. 2,50,000.

The highest numbers of households who have constructed their houses by availing housing loans, ranging from Rs. 2,50,000 to Rs. 3,00,000 are found in Kanayannur Taluk.

It is observed that only a limited number of households in Kunnathunadu Taluk have availed the housing loans ranging from Rs. 5,00,000 to Rs. 8,00,000 and none of the households are reported to have availed housing loans exceeding Rs. 8,00,000 from any of the Taluks in the area under study.

It is in Zone I that the maximum numbers of households (37 households) who have faced problems in availing housing loans, while the highest number of households (54 households) who have not faced any such problems associated with the availing of loans for the construction of their houses are found in Zone II (28 households).
➤ At the Taluk level, the highest numbers of the households who have faced problems in availing housing loans are observed in Kanayannur Taluk (21 households), followed by Aluva (15 households) and Kunnathunadu Taluks (10 households). The highest numbers of households who have not faced any problems in availing the housing loans are seen in Kunnathunadu Taluk (18 households), followed by Muvattupuzha (16 households) and Kothamangalam (9 households) Taluks.

➤ The households who are satisfied with the present facilities of their houses are found to be the maximum in Zone II (48 households), followed by Zone I and Zone III with 47 households and 34 households respectively.

➤ The respondents who are not satisfied with the present facilities of their houses are observed to be the maximum in Zone I (22 households), while it is the lowest in Zone III (11 households).

➤ Among the Taluks, the highest numbers of households who are satisfied with the present facilities of their houses are seen in Kunnathunadu and Aluva Taluks (24 households each), followed by Muvattupuzha (23 households) and Parur (21 households) Taluks.

➤ It is observed that the maximum numbers of households (15 households) who are not satisfied with the present facilities of their houses are in the Kunnathunadu Taluk.

➤ Households who are not satisfied with the present facilities of their houses are found to be the lowest in Aluva and Kothamangalam Taluks (3 households each).
Zone III assumes the highest rank, with 24 households, in respect of the households who have made provisions for extension of their houses in future, followed by Zone I and Zone II with 23 households each.

The respondents who have not made any provisions for extension of their houses in future are observed to be the maximum in Zone I (46 households).

The households who have not made any provisions for extension of their houses in future are observed to be the lowest in Zone III (24 households).

Among the Taluks, the highest numbers of households who have made provision for extension of their houses in future are seen in Muvattupuzha and Kunnathunadu Taluks (16 households each), followed by Kanayannur, Cochin, and Kothamangalam Taluks (7 households each).

The maximum numbers of households (22 households) who have not made any provisions for the extension of their houses in future have been identified from Aluva Taluk.

Ranking of the problems faced by the owners of the houses in the order of their severity indicates that shortage of the water is the most important problem faced by the owners of the houses surveyed, followed by High electricity charges, High building tax, High maintenance cost, Lack of facilities like air passage, transportation, etc, Environmental problems (water pollution, air pollution etc.), Problems for the removal of garbage and other kitchen waste, Spurious neighbourhood relations, Lack of facilities for parking vehicles and for outdoor recreation of children, Problems with regard to drainage, Dissatisfaction with regard to structure and other facilities, Inability
to maintain the house clean and tidy. Under utilisation of existing house and Difficulty in the extension work as desired due to stringent rules and regulations of local bodies.