CHAPTER III

METHODOLOGY

A detailed step-by-step procedure was adopted as methodology in carrying out the research, which is presented below under the following sequential heads.

I. Research Design

(a) Theoretical Framework or Conceptual scheme

The study aimed at having an analysis in gestant of the dynamic interplay of different variables that result in the utilization of community facilities. The variables were grouped into different categories to facilitate conceptualization.

The theoretical framework represented in Figure 9, emphasizes the conceptual theme of the research study. Resources are a pre-requisite for the achievement of goals. Among the non-human resources, community health facilities (hospitals, health centres), educational facilities (schools, libraries) and recreational facilities (parks, playgrounds), are available for either free use by families or on charge of a nominal fee. Nevertheless, optimum utilization of these selected facilities is seldom seen.

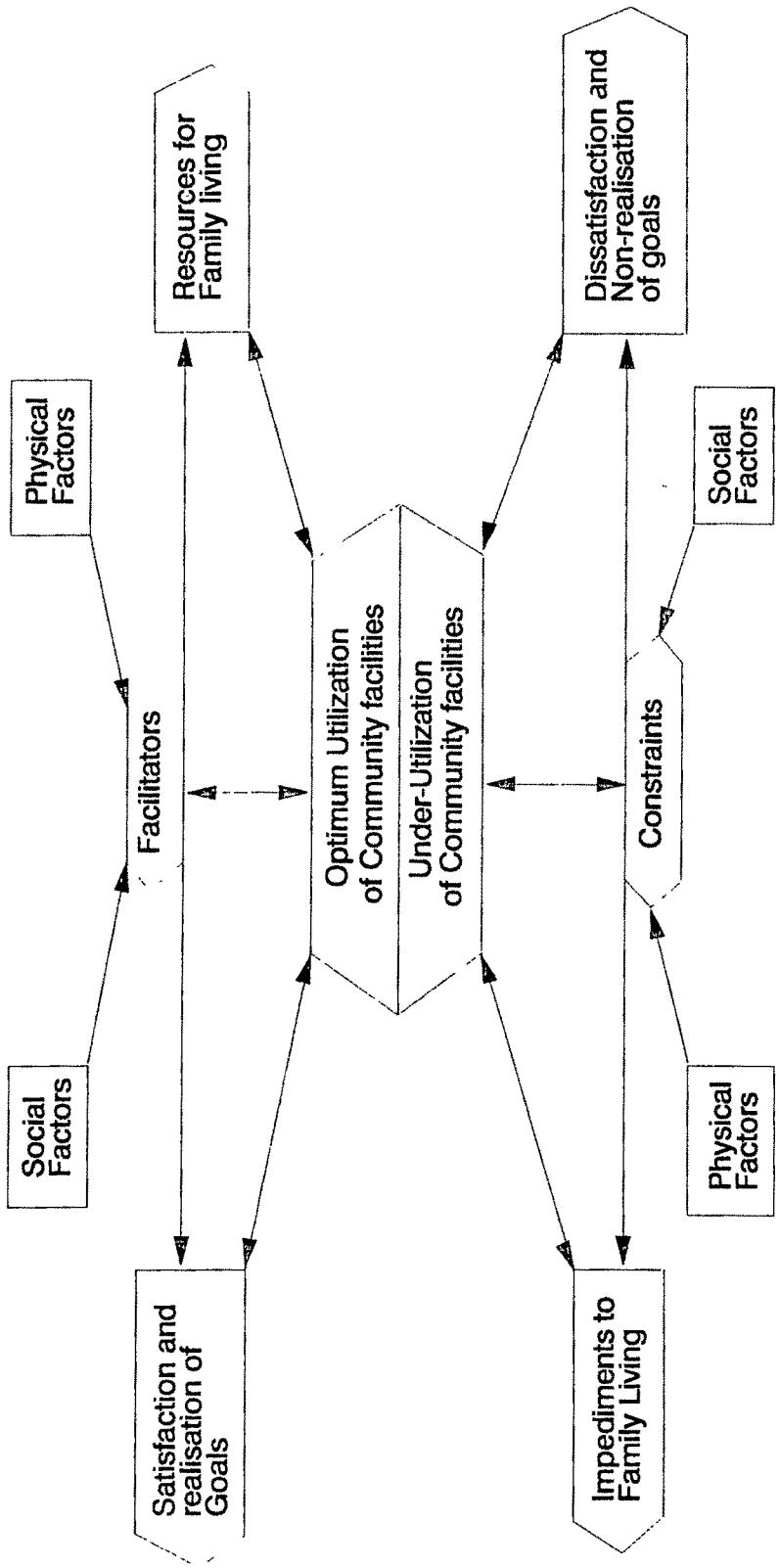

FIGURE 9

PARADIGM DEPICTING THE INTER-RELATIONSHIP OF CAUSAL AND CONSEQUENTIAL VARIABLES AFFECTING UTILIZATION OF COMMUNITY FACILITIES.

There are certain social (demographic and economic) and physical (housing, neighbourhood, resource availability, situational factors, characteristic features of facilities etc.) factors which may facilitate or constrain the optimum utilization of the selected community facilities. A study of the facilitating factors would apparently reveal, community facilities being used as a resource for family living and hence instrumental in achieving satisfaction through realization of goals. On the contrary, there could be certain social and physical factors in the environment of family living, which constrain the optimum use of community facilities. Since the family depends on its environment for sustenance, these environmental factors could either enhance or restrict the families' use of resources. When constraints impede the use of community facilities as resources, there is underutilization or non-utilization, which leads to dissatisfaction and non-realization of specific goals. Hence, the facilitating and constraining factors apparently reveal the extent of resource utilization by families. The two-way arrows depicted in the figure indicate interdependance of variables.

In brief, the conceptual scheme within which the variables for the study were selected, is shown diagramatically. The scheme is quite generally applicable to the use of any kind of community facility and not to those of health, education and recreation alone.

(b) Operational definitions

The following concepts, operationally defined, were

utilized for purposes of the research.

(1) Community facilities.- These are selected government services, available for use as resources, by families, towards realization of set goals. They are either free of charge, or, require payment of a most nominal charge, for their utilization. The facilities selected for the study are:

(a) Health facilities - Hospitals, health centres, family planning counselling programmes, immunization programmes, sanitary facilities, etc.

(b) Educational facilities - schools, libraries, Balwadis, adult literacy programmes, pre-schools, museums, etc.

(c) Recreational facilities - Parks, playgrounds, zoos, lakeviews, picnic spots, swimming, boating, fishing etc.

Facilities are the institutions and services are the functions of these institutions.

(2) Optimum utilization.- The best or most favourable use (in terms of kind of use, period and frequency of use) of specified community facilities, in the light of set goals.

(3) Under utilization.- The least or most unfavourable use (in terms of kind of use, period of frequency of use) of specified community facilities in the light of set goals.

(4) Social factors.- Those factors relating to the family and having its impact on the community or society, and

thereby, which may influence the use of community facilities, like family type, size, income, education, occupation etc.

(5) Physical factors.- Those factors which have material, qualitative or quantitative meaning, which may influence the use of facilities, like housing, neighbourhood, features of facilities, etc.

(6) Facilitators.- The physical or social factors which may act as catalysts, or promote the optimum utilization of the specified community facilities.

(7) Constraints.- The above features (Physical or Social) which may impede, hinder or obstruct the optimum utilization of the specified community facilities.

(8) Satisfaction.- The happiness or contentment that families feel through optimum utilization of community facilities and hence realization of related goals.

(9) Dissatisfaction.- The unhappiness or discontentment that families feel through under or non-utilization of community facilities and hence non-realization of related goals.

(10) Proximity.- It refers to the location of the facility or service centre, in terms of its nearness to the residential area of the community. For purposes of the study, any facility which is within a walking distance of three to four furlongs, or a mile-and-a-half, to be reached by a vehicle, will be considered 'close'. Beyond these distances, the location of the facility would be regarded as being 'far'.

(11) Community.- A community is a group of people living in a contiguous area, who, have some shared values, attitudes, customs, interests, and institutions. It is a structure of relationships through which a localized population provides its daily requirements, and collectively, the members of which, share a common territorial area as their base of operation for daily activities.

(c) Variables

The use of community facilities involves a dynamic interplay of various forces/factors, which either directly or indirectly influence the optimum or under-utilization of facilities and services. A detailed list of variables included under different groups are described below, while their measurement or the scoring procedures adopted, will be discussed later.

It is, of course, not possible, theoretically or otherwise to postulate any definite cause - consequence relationship between any two variables, especially in such complex situations, as human behaviour with organizations- more so when it involves the poor, low, socio-economic strata of the city's population, who may be generally influenced in their behaviour by attitudes, customs, beliefs, traditions, complexes, superstitions, etc., to a most pronounced degree. These factors have, however, not been included in the study. The causal directions indicated by arrows in the paradigm, need, therefore, be taken only as representing the hypotheses on which the study design has

been built.

The variables selected for the present research, alongwith their relationships, is represented schematically in Figure 10. The sketch emphasizes two points:

(i) The independent set of variables, acts, through the intervening variables, as well as upon the dependent variables; and,

(ii) The intervening set of variables acts as independent variables, so far as the dependent set of variables is concerned. What is not shown here, though implicity present, are the feedback loops, leading from the dependent variables, acting both upon the intervening and independent variables, which tend to monitor the family managerial behaviour, as well as shape the existing matrix.

In the discussion that follows, the dependent variables, and rationale for selecting the independent and intervening variables, are highlighted. The impact of awareness of the existence of facilities, as an intervening variable, has not been studied independently, but implicitly involved, and qualitatively assessed.

(c.1) Dependent variable

The dependent variable is a variable, the total variance of which, is the object of the study; in this study, the utilization of community health, educational and recreational facilities and services, as influenced by the independent

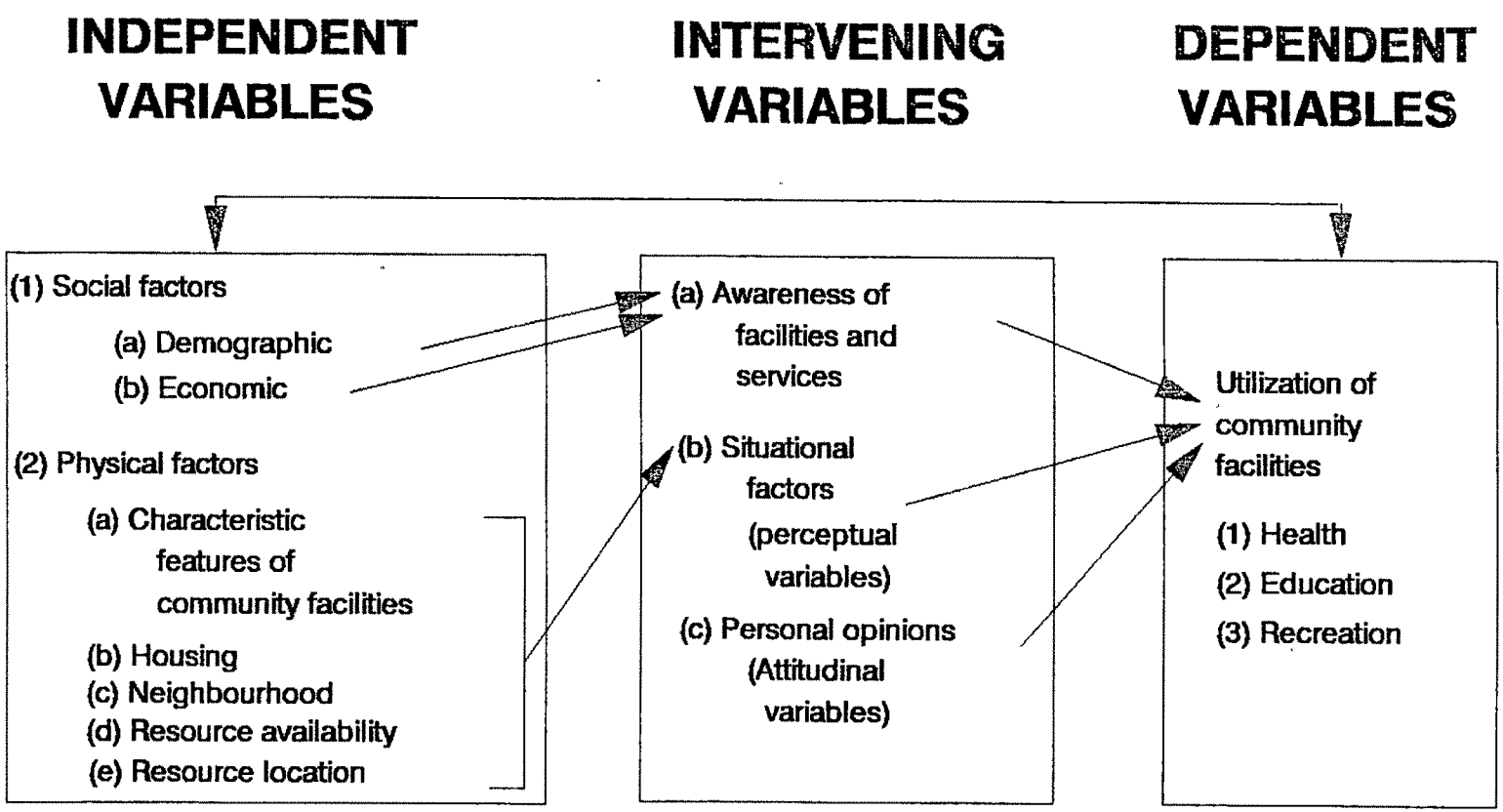

FIGURE 10

SCHEMATIC REPRESENTATION OF INTERACTION OF VARIABLES

variables. The use of facilities is governed by several factors, some of which play a direct, crucial role and others indirectly influence the same. One approach to understanding the functioning of a community services system is in terms of its utilization. Use of a service is a major, tangible expression of the demand, if not the need, for that service, and of the system's responses to perceived needs and expressed demands. As an event, use is universally and readily recognized by both consumers and providers of community services and can be considered a valid measure of the interactions between the two. Since no research shows the dependence of this variable on other exogenous and controlled variables, it was chosen, therefore, as the major dependent variable in this study. In epidemiological terms, this study therefore focuses on use as well as non-use of services and seeks to identify and describe, at both individual and area or system levels, the factors which affect use.

(c.2) Intervening variables

The intervening variables are awareness of existence of facilities and services, situational factors and personal opinions of respondents. The intervening variables act as dependent variables, being directly influenced by the social and physical factors as well as the satisfaction derived in achievement of goals. They also operate as independent variables in their relationship to utilization of community facilities.

(c.2.i) Awareness of facilities and services.- The awareness of existence of facilities and services, would apparently influence utilization of the same. Being unaware of the availability of facilities and services would act as a constraint in the family's utilization of the resource. This perceptual variable has not been studied separately, but implied as a direct variable affecting use of facilities. This variable functions as an intervening variable, as, the extent of awareness varies from family to family and is influenced by some of the personal and family variables. Since it directly influences the use of facilities in a most obvious manner, it was qualitatively assessed and represented in frequency and percentage figures.

(c.2.ii) Situational factors.- The use of community facilities is influenced by the varying situations or predicaments that families are exposed to. For instance, the location of a family's residence in terms of its distance from the respective facilities, the time and energy available, cost of travel, health status of the family, locational area of the facility etc., all influence the use of facilities in one way or another. These situations again, differ from family to family. Since the situational factors that the families are put in, have a role to play in utilization of facilities and services, they were considered potent enough to be incorporated in the investigation.

(c.2.iii) Personal opiniens.- The personal opinions of respondents as attitudinal variables, just like the

perceptual variables, tend to affect the respondents' behaviour in terms of use of community facilities. Respondents' opinion regarding the different facilities and services will differ from one to another, and based on each one's opinion, behaviour, in terms of use of facilities will vary. Since personal opinion of respondents directly influences, use of facilities, it was desired to measure this variable to ascertain its relationship with the utilization of community facilities.

(c.3) Independent variables

A variable which explains or influences the observed variance of a dependent variable, is an independent variable. For instance, perceived morbidity independently influences use of health services, or enabling or resource factors. The independent variables are classified into two categories, viz. (i) social factors which comprise demographic and economic variables, as well as health status of families, (ii) physical factors which include characteristic features of community facilities, housing, neighbourhood, resource availability, resource location.

(c.3.i) Social factors

The personal and family characteristics and economic variables which comprise this category seemed to have a definite bearing on resource use, as revealed through several researches (Lynch, 1967; Anand and Srinivase, 1972;

Sapru et.al., 1975; Mukherjee, 1982; Sholapurkar, 1983).

Demographic variables.- This category includes family variables such as family type and family size. Since it was envisaged that the type of family, and family size, as obtained by the total number of adult members and children in each family, would influence the use of facilities, these two variables were included in the research study.

Health status.- This was another family variable which was made available in quantitative and qualitative forms, to suggest the level of health status, prevailing in each family. The probability that individuals will seek care, once they have defined themselves, or have been defined as ill, or in need of care, illustrates the basic fact, that, the principal determinant of use, is the level of either real or perceived morbidity in the sample. Perceived morbidity, then, is viewed as the force which initiates decision-making about whether or not care should be sought.

The assessment of health-care related behaviour, assumes that it is a complex function, not only of how an individual perceives his personal state of health but also of his attitudes, his expectations and his perceptions concerning health care and health services. Since the most important determinant of health services use, is perceived morbidity, this is used as a controlling variable. A controlling variable, is a variable used to adjust for the influence of one or several attributes, so that comparisons of another

attribute can be made on the assumption that, the former is held constant; in this study, perceived morbidity is a controlling variable, so as to permit the assessment of differences in the use of health services, attributable to factors other than perceived morbidity. As health status is a determinant of perceived morbidity, and has a significant bearing on use of health services, it was necessary to include this variable as a determinant of health facility use.

Economic variables.- This aggregate of variables comprise the family's total monthly income, educational and occupational level of head of the family. In other words, the socio-economic status of families comprising the above three variables, together make up the economic variables which form the social factors.

Monthly family income.- Income is known always to influence the consumption behaviour of families. It is defined as net disposable income from various sources. An inverse relationship is expected between this independent variable and the dependent variable of 'use of facilities.' In other words, lower income necessitates maximum use and generally, higher income projects lesser use of community facilities. To establish this relationship and explore its authenticity, this variable was found to be of crucial value to the study.

Education.- Literacy level is known to be a determinant of values, beliefs, attitudes and goals, and since

these influence behaviour, education should influence the use of facilities through similar mechanisms. Generally speaking, better education should lead to a better understanding of one's environment, and educated persons should perceive the benefits of community services differently from those with little formal education, all other things being equal. Also, higher levels of education are generally associated with a higher social position, more income and correspondingly more resources for facility use. In societies where individuals pay directly for health care, for instance, differential use of health services by groups at different educational levels, has indeed been observed (Wilder, 1968), and even in societies, where financial barriers to health care have been removed, differential use patterns persist among social groups, (Willcocks, 1969; Kalimo, 1971). Education, therefore, although primarily regarded as a predisposing concept, can be related to both predisposing and enabling factors. The predisposing factors comprise situational, socio-cultural, cognitive and attitudinal variables that are postulated to influence the type and strength of any relationship involving an action by delineating the cultural setting or circumstances in which such action occurs. In the present context, predisposing factors are those personal factors, that act as deterrents from, or catalysts for, the use of services, as distinct from enabling factors, which are parameters set exclusively by the socio-economic environment. Predisposing factors, therefore, consist of personal characteristics, some of which are acquired

and reflect the social background of the respondents.

Enabling factors are considered to be parameters which cannot be changed by the individual at all or can be changed to only a limited degree, because the specific factors in this category will depend largely on the extent to which the government, or some other agency takes on responsibility for the care of citizens.

Several studies from the review of literature show the influence of education on facility use (Pathak, 1981; Yesudian, 1981; Dutta et.al., 1982). Hence it was included in this investigation as a significant variable.

Occupation of head.- The occupational status of the head of the family was another economic variable which seemed important for this study, as earlier research too, had revealed its importance, as an enabling factor, in the use of community facilities. The higher the occupation, the better will be the utilization of services, so it is generally assumed. Due to its probable significant influence, as proved by other studies as well (Pathak, 1981; Yesudian, 1981; Dutta et.al., 1982), it was thought necessary in this research work.

(c.3.ii) Physical factors

The variables comprising this category were characteristic features of community facilities, housing, neighbourhood, resource availability and resource location. Since no research that came by way of the investigator, shows evidence

of any probable influence of some of these factors on community facility use, it was thought imperative to include these variables.

Characteristic features of community facilities.- This refers to the features that are characteristic of each facility or existing, as such, in each facility. Generally speaking, the quality of a facility will influence its use as revealed through earlier research (Greater London Council, 1968; Dee, 1970; Gopalan, 1979). The better the characteristic features, the more frequent the use. To explore this possibility, the variable was found to be essential.

Housing.- The type, size and location of residence, has a crucial role to play in the use of facilities and services. Size and type of house, indicating space availability inside and around the structure, may influence use of recreational facilities and to a certain extent educational facilities. Studies have emphasized the influence of location of residence on the utilization of community facilities (Delhi Pilot Project, 1961; Banavasi Seva Ashram, 1979; Dee, 1970; North West Regional Study, 1972; Ram et.al., 1976; India Population Project, 1981; to name a few), but none reviewed, have shown the impact of house design or house type on utilization. Since, housing was found to be a provoking factor in the use of facilities, it was also incorporated as a physical variable.

Neighbourhood.- A neighbourhood is usually thought of, more in geographical terms, as a distinct part of a town or

city which may be distinct by virtue of certain boundaries like roads, rivers, railways, parks, etc., and marked out from other neighbourhoods by a certain homogeneity of housing within the area. Ruth Glass defines neighbourhood as a territorial group, the members of which meet on common ground within their own area for primary social activities and for organized and spontaneous social contacts. Carpenter, defines neighbourhood as "a self-conscious primary grouping, capable of influencing behaviour (Mann, 1965)." Since neighbourhood as a variable influences behaviour, and no research was conducted using this variable, within the review done by the investigator, it was found useful in determining its influence upon the use of community facilities, and hence this variable was rationally incorporated.

Resource availability.- Only when a resource is available, can persons make use of it. This is an obvious variable, as non-availability would mean non-use. But if availability meant non-use, then it is a factor that needs probing. Hence, though the variable is an implied one, it seemed necessary to study its influence on utilization, whether availability was the reason for greater use and non-availability for lesser use or non-use or vice-versa.

Availability and accessibility are important determinants of services use. If availability of a regular source of service refers to the fact that the respondent or her family has established contact with a place, and if accessibility is defined as the time required to reach a source of

service, it is of interest to investigate how such factors influence the process of obtaining the service. Hence, this variable too was included in the research design.

Resource location.- The location of the community facility, that is, near or far away from the place of residence, seemed crucial in its influence, on use of the facility. The further a facility is located, the lesser would be its anticipated use and the closer its location, the greater would be its expected usage, so it is generally visualized. Several researches as indicated, reveal that distance is a factor governing utilization of facilities (Foley, 1957; Anand and Srinivase, 1972; Sapru et.al., 1975; Ram et.al., 1976; Mukherjee, 1982, to name a few). Likewise, this research study too, held the same value for the variable, "resource location", as, many a times, this becomes the main influencing factor in the decision making behaviour of families, while a choice of facility use is to be made.

In view of the above observations, it was considered appropriate to incorporate all the above mentioned variables in the research design, of the present investigation.

II. Topography Of Hyderabad City

Hyderabad, one of the few twin cities of the world, the Capital of Andhra Pradesh, India, is the sixth largest city of the country, sprawling over an area of about 192 square kilometres or seventy-four square miles with a popu-

lation of 2.15 million as per the decennial census of 1981. It is a confluence of three religious communities viz., the Hindus, Muslims and Christians. The city has the greatest cosmopolitan characteristics than any other in the South, as it was the capital of the trilingual state till 1956. The urban agglomeration extends over an area of 960 square kilometres, including the Municipal area, the peripheral rural area, cantonment and the Osmania University Campus - all put together might account to a total population of 2.565 million in 1981. The present estimated population is about 3.00 millions.

Until 1960, the twin cities viz. Hyderabad and Secunderabad were governed by the two separate local authorities under a statute called Hyderabad and Secunderabad Municipal Corporations Act, 1955 (Act II of 1956). It was in August, 1960 that the twin city Corporations were merged into one city forming a "Greater" Hyderabad Municipal Corporation by an amendment to the HMC Act, 1955 (Act II of 1960).

Historical background

In the sixteenth century, the city of Hyderabad was inaugurated by Qutab Shahi Kings of Golconda and since then it has grown continuously. It prospered under the secular reign of the Golconda Kings.

The present Hyderabad Urban District has come into existence in August, 1978 with the bifurcation of the

erstwhile Hyderabad District into Ranga Reddy & Hyderabad District (City Family Welfare Bureau, 1984).

Administration

For the first time in the year 1934 the representatives of the people were given a statutory base under a princely rule and the Municipality status of the city was upgraded to that of a Statutory Corporation.

After Independence (1947) the statute was revised once in 1950 by which greater authorities and powers were delegated to the body. The present Hyderabad Municipal Corporation with hundred elected representatives known as "Councillors" constituting the General Body headed by H.W.Mayor and the Chief Executive called 'the Commissioner' govern the city. According to this later legislation (Act II of 1956) of the state which came into force from the first day of February 1956, there are three statutory authorities on whom the administration of the city vests, viz:-

1. The Commissioner - Chief Executive
2. The Standing Committee - Finance Controlling authority
3. The Corporation - The General Council

The function of each of these authorities have been distributed, keeping in view, the various recommendations of the Commissions appointed by the Government of India for the whole country from time to time to allocate resources and devolve power and authority in the local bodies in accordance with the Constitution of India.

Geographical Features

Perched on the top of Deccan Plateau at a height of nearly 1750 feet above the Mean Sea Level, and on gray and pink gravities - among the world's oldest River Musi, the tributary of River Krishna runs through the city, separating the Old and New parts of the city. The city grew gradually due to increase in Commerce and due to its eminence in November, 1956, as the capital of the sixth largest State of India, the Andhra Pradesh.

The climate of the city is fairly equitable. However, of late citizens are experiencing erratic climate. Rainfall is fairly reliable, the normal rainfall of the District being 771.6 MM, AREA. The Hyderabad City Municipal Corporation spreads over about 171.10 square kilometre. It had a population of 20.93 lakhs, nearly seventy-nine per cent and ninety-per cent of the District area & population respectively (City Family Welfare Bureau, 1984).

The City of Hyderabad is a leading administrative, educational, industrial and commercial centre of the country. The city has undergone extensive population growth and economic development since 1956 when it became the capital of the newly formed linguistic state of Andhra Pradesh. There has been a phenomenal increase in its population, an expansion of the incorporated area, and a transformation of social & cultural setting, both urban and suburban.

Twenty suburban centres can be clearly identified around

the central city of Hyderabad, based on the following two principles.

1) Daily commutation
2) Dependence of suburban settlements on the Central city for the supply of essential services such as water, electricity, telephone, transport etc.

These suburban centres of Metropolitan Hyderabad, are not fashionable and exclusive residential areas of higher and middle income groups, nor are they industrial suburbs, comparable to those around large cities in industrially advanced countries, except in a few cases.

A metropolitan area is defined as the concentration of atleast half a million people living within an area in which the travelling time from the outskirts to the centre is not more than forty minutes. The Metropolitan region is one based on the nodal functions of the city (Director of Town Planning, 1972).

These are peripheral villages which have undergone functional and morphological changes, either through a large-scale and sudden transformation of the old Village millieu, or through a process of evolution. They are of varied functional character such as industrial, residential (dormitory), educational, military and tend to exhibit varying levels of urban amenities and varying degrees of social, economic and spatial integration with the central city (Gopi, 1978). Although the city may lack the more acute problems faced by the larger metropolitan

cities, it is growing fast and has a sizeable slum population, though proportionately smaller than that in the larger cities.

One hundred and six slums were identified in Hyderabad-Secunderabad in 1962 (Bureau of Economics & Statistics, 1964), the number increased to 283 in 1972 and seventy-four new slums were added to the list at the end of 1976 (Rao, 1977). Since 1962, therefore, there has been a threefold increase of slums in the twin cities. While the city population increased by 43.72 per cent during the years 1961 - 71, the slum population during 1962 - 72 increased by 132.3 per cent. The slum population in 1962 was ten per cent of the total city population and it is now over twenty per cent of the city population. This percentage of course is much higher for other Metropolitan cities like Bombay, Calcutta, Madras and Lucknow, where it is twenty-five per cent, thirty-four per cent, twenty-four per cent and twenty-five per cent of the total population respectively. (Naidu, 1978).

The City of Hyderabad, as is well known, was once a beautiful place, with wide roads, many open places, large number of trees and gardens. It enjoyed an equitable climate throughout the year. With the urbanization of Hyderabad city, the big gardens and greeneries raised by Nawabs and Nobles during the erstwhile Nizam's rule are making way for the housing colonies and industries. This has resulted in the ecological imbalance, and the situation today is that the city which was once famous for its cool weather,

has now become a city with a high temperature and without greenery. The haphazard urban development has taken a heavy toll of various aspects of lung spaces and recreation facilities. It has been an endeavour on the part of the Municipal Corporation of Hyderabad, to provide sufficient lung space and greenery in the city, where parks, playgrounds and green belts can be established, and planting of a very large number of trees both on the avenues and in the open places. In all, new layouts forty per cent of the area is left as lung space, wherein roads, playgrounds, parks/green belts are laid.

Suitable areas have been identified for development of major parks, small parks, green belts, playgrounds and for tree plantation. A systematic implementation of the above programme has been taken up. During the last few years a large number of new layouts have been sanctioned, wherein, open areas earmarked for parks and playgrounds are now identified to be enclosed at once, so that they could be saved from encroachment and misuse.

III. Research Frame-Work

a) Sample selection

(a.1) Selection of the locale

The study was carried out in the city of Hyderabad, capital of Andhra Pradesh, wherein low-low and low-middle income pockets in four areas representing a cross-sectional spread of the city, were identified.

The twin cities of Hyderabad and Secunderabad are

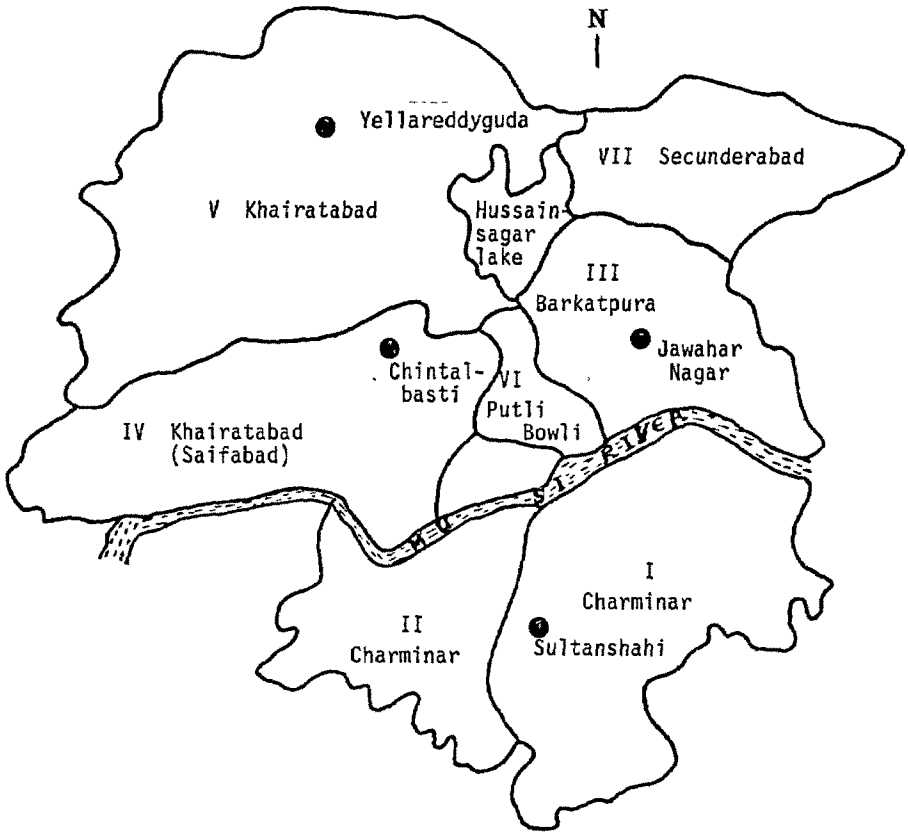

FIGURE 11

MAP SHOWING THE CIRCLE-WISE SEGMENTATION AND LOCATION OF SELECTED AREAS FOR DATA COLLECTION IN THE CITY OF HYDERABAD.

Source: Facts. 1984-85, on family welfare in Hyderabad city, City Family Welfare Bureau, Muncipal Corporation of Hyderabad.

divided into seven circles, which come under the Administrative divisions of the Municipal Corporation of Hyderabad (City Family Welfare Bureau, 1984). The seventh circle represents the Secunderabad division which was not considered in the sample selection. From the remaining six circles, which sum up the city of Hyderabad, four circles were selected namely, circles I, III, IV and V, which represented a cross-sectional coverage. A glance at the Map alongside (Figure 11) would reveal this. In each of the circles were several prominent localities from which one was selected at random, in each case, representing each circle. Hence, four prominent localities viz., Charminar (South-East), Chikadpally (North-East), Khairatabad (South-West) and Yusufguda (North-West), were identified, which were found to be an appropriate representation of the city as the locales for the research work (Figure 12).

As each locality was extensively large, one residential pocket in each of the four localities was purposively identified and selected, representing two low-income groups from which the sample was drawn for the study. The identification of these four residential pockets was mainly done with the clue that they held a majority of mixed Low-low-Income (LLI) Low-Middle-Income (LMI) strata of households, which were the categories required for response to the schedule for the research work. The identified pockets of low economic strata in each locality were as follows. (Refer Map, Figure 11).

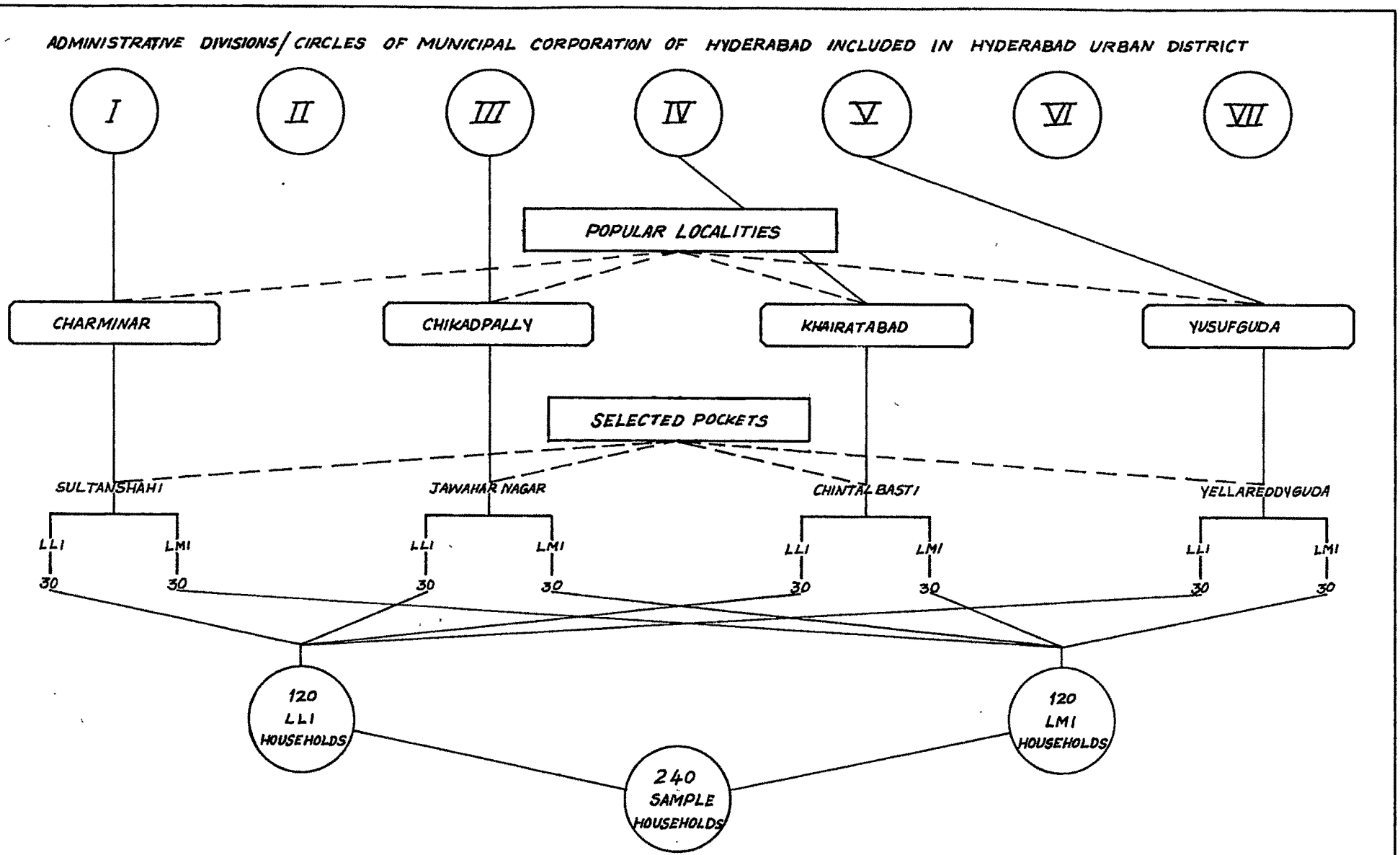

FIGURE-12

SCHEMATIC REPRESENTATION OF SAMPLING PLAN

Circle	Locality	Identified Pocket
I	Charminar	Sultanshahi
III	Chikadpally	Jawaharnagar
IV	Khairatabad	Chintalbasti
V	Yusufguda	Yellareddyguda

(a.2) Population

The city of Hyderabad is the sixth largest in India with a total population of 2.15 million as per the decennial census of 1981. The four identified pockets had a mixed total number of 12,506 households comprising of low-low, low-middle and high income groups. The total number of households per pocket from which the sample was selected, were as follows:

	Pocket	Number of households
(1)	Sultanshahi	1,800
(2)	Jawaharnagar	4,875
(3)	Chintalbasti	3,575
(4)	Yellareddyguda	2,256
	Total households	12,506

The sample from each pocket was selected from each of the total number of households, after deleting those households that fell under the high income category.

(a.3) Sample size

The total sample for the study comprised 240 households taking sixty households from each of the four identi-

fied locales and pockets. In each of the sixty sampled households, thirty belonged to the LLI category and thirty belonged to the LMI category. Thus, in all, there were 120 Low-Low-Income households and 120 Low-Middle-Income households, forming a cross-sectional, lower economic - strata - grouping of the city, (Figure 12).

(a.4) Sampling procedure

Consequent to identifying the locales of the study, they were explored to further identify pockets of low-economic-strata localities in each area, as mentioned earlier. The lower economic strata of households were identified as necessary for eliciting information pertaining to this study on optimum utilization of community facilities as, it was felt that this economic stratum was in dire need of free or low-cost community facilities, and not so much the middle or high economic strata, who could afford facilities/services of health, education and recreation, even by a liberal expenditure of finance. Hence, the lower economic strata had got to be queried on factors which influenced optimum utilization of community facilities. The homemaker or head of the family, in each case, represented the primary respondent, depending upon the confidence with which either was able to understand and answer the questions put forth. In some cases, the child/children too supplied authentic information, particularly to those questions pertaining to utilization of government educational facilities such as schools, libraries, etc.

In order to obtain wider base for generalizability, the

method of sampling followed in this study can be described essentially as purposive-cum-random multi-stage sampling, as various stages of sampling i.e. circles, locales, pockets and households, were done. Deliberate-judgement sampling was employed at the time of selection of circles, locales and pockets, while quota-sampling was the method resorted to, while alloting sixty households from each of the four locales, thirty of Low-Low-Income(LLI) and thirty of Low-Middle-Income(LMI), to make up the total/Overall Sample(OS), of 240 households. However, each quota of sixty households was selected purely by the systematic random sampling technique, as mentioned.

The criteria for selection of the sample were as follows:-

At the locale level, purposive selection of four locales was made on the basis of a -

(i) cross-sectional coverage of the city

(ii) Low Socio-economic structure of the locales

A complete listing of all households in the identified pockets, in each of the selected locales was done. From this exhaustive listing of households (almost 250 to 300 households in each pocket) which contained the total monthly family income from all sources, and the total number of family members, the per capita income of the families were obtained by dividing the total family income by the total number of family members.

$$\text{Per capita monthly income} = \frac{\text{Total monthly family income}}{\text{Total number of family members}}$$

However, children below six months were not considered while calculating the per capita income as their consumption was not very significant. Accordingly, families which had a per capital income of Rs.115.00 or less per month, were classed under the LLI category, while those with a per capita income of above Rs.115.00 and below Rs.250.00 per month were categorized as LMI (Source: A Research Project on the feasibility of solar cookers in Urban and Rural Areas undertaken by the Department of Home Management, College of Home Science, Andhra Pradesh Agricultural University, Hyderabad, A.P., India, in collaboration with Sonnenkorb - Luneburg, Germany - 1983-84, p.26).

Hence, a family of five members with a total monthly income of Rs.500.00 would belong to the LLI category as Rs.500.00 ÷ 5 = Rs.100.00 while, another family of four members with a total monthly income of Rs.500.00 would be classed under LMI as, Rs.500.00 ÷ 4 = Rs.125.00.

In this manner, listed families of all the four pockets representing the population were categorized into the two income groups. Some households which had a higher per capita income, and incidentally fell in the listing, had to be ignored and only those in the list which fell under the selected per capital income, representing the lower economic strata, were considered while selecting the sample. Hence, from the eligible list of households, every second household in each income group was counted by systematic random sampling method,

till a total of sixty representative households in each pocket, that is thirty of LLI and thirty of LMI were available and this comprised the sample of 240 households, which provided data to the research schedule.

(b) Tool formation

(b.1) Selection of the tool and technique

The interview schedule was found to be the only pertinent tool, which would adequately and appropriately draw information, pertaining to the research work, from the lower economic strata of households, who evidently had to be interviewed in order to elicit reliable information from them. Hence, the interview schedule using the interview technique, formed the tool and technique for collecting information. Among all tools, the interview schedule was by far, identified as the most authentic and optimum means of obtaining the maximum reliable information. Also, in the interview technique both the interviewer and the interviewee are in a position to establish a close bond/rapport very easily, which seems imperative for only survey type of research, where reliable information is to be given top priority.

Hence, the interview technique on account of its following apparent advantages was the most feasible medium, employed to elicit information, pertaining to the present study. This technique was chosen for the following reasons:-

(1) To get complete and reliable information.

(2) To allow for clarification of doubts which in turn facilitates data collection.

(3) To establish rapport with respondents, that helped to elicit confidential and authentic information.

(4) To safeguard against non-returns and incomplete responses.

(5) To record information through observation in the schedule, for supporting the data.

(6) To personally observe certain unusual situations to incorporate it in answers.

(7) To provide a chance for the researcher to evaluate the sincerety and insight of the interviewer.

Hence, inspite of being time consuming, the interview method was found most suitable.

(b.2) Construction of the tool

After gaining acquaintance with the purpose of the study, the broad and specific objectives were listed, which were used as a framework/guideline to formulate the schedule.

The tool comprised two sections - section A, which contained questions pertaining to the background information of the families and section B, which contained four sub-sections relating to information which delved into meeting the objectives listed. Section B, Part I was constructed in a structured manner which led to eliciting information regarding awareness and extent of use of selected community facilities (health, educational and recreational) by families. The health status of families was also obtained in this section of the schedule. Section B Part II, was again

structured to obtain information relating to the extent of satisfaction, derived by families in achieving broad health, educational and recreational goals using the community facilities. SectionB, Part III, which formed the crux of the study, involved a laborious attempt at listing the probable factors influencing the optimum utilization of each community facility. Here, an exhaustive list of statements, as factors influencing the optimum utilization of each community facility was prepared and grouped under characteristic features, situational factors and respondents' opinions. Each statement could be accepted by the respondent as a constraint or a facilitator which influenced the optimum utilization of each community facility, together with mentioning the frequency of utilization of the facility under the influencing factor. In this way score weightages of influencing factors and extent of use, could successfully be obtained for each category of selected community facilities. By providing both positive and negative answers, as probable response to each influencing factor, representing the polar concept, there was no particular bias to any of the statements and the respondents were at liberty to answer according to their own set opinion. Hence, the polar concept here proved rewarding, as it provided the two extremities as response to each factor, one of which may be selected by each respondent in each case. Section B Part IV had again a structured list of statements representing typical features in each community facility and the respondents were asked whether they considered each feature Most Desirable (MD), Desirable (D), or Not Essential (NE). This purported to obtain information on the features desirable in each community facility by families.

At the tail end of the schedule, the range of service viz. the farthest distance over which families were willing to travel/go to avail the services of the community facilities, was attained for the basic facilities under health, education and recreation. This information on range of service was elicited in approximate kilometres/furlongs and was found necessary as it would give a clue as to whether the present distance of each community facility was a major constraint or facilitator in its optimum utilization (Appendix I).

(b.3) Validity of the tool

The tool thus constructed, was very detailed and exhaustive, evidently bearing the possibility of eliciting much information. All the same, it was seen to be too lengthy, as was also criticized by the team of twelve judges to whom the schedule was given for their expert opinion, in order to establish its content and construct validity. The readied tool was given to twelve experts selected from eminent institutions in the city of Baroda, viz. Faculty of Social Work, Baroda Citizen Council (BCC), Faculty of Education, Faculty of Management Studies, Centre for Advanced Studies in Education (CASE) and the Faculty of Home Science, Maharaja Sayajirao(M.S.) University of Baroda. From the twelve schedules distributed to the judges, for their critical scrutiny and comments, eleven were received and ten were found to be completely evaluated, and hence these ten were considered for validating the schedule. However, the suggestions of the eleventh expert were also incorporated. As hundred per cent of the judges

criticized the length of the schedule, it was appropriately briefened. Several other pertinent suggestions and modifications as per the pointers by the judges were incorporated, thus enabling a more precise tool. Incidentally, only section B, Parts I and II were found to require certain changes, while the remaining part of the schedule was adequately approved by all the judges. Section B, Part II, which contained the segment on goal aspiration and achievement pertaining to the use of community facilities, was critically briefened as the judges remarked that the number of goals were too detailed. Hence, they were clubbed to form Broad Health, Educational and Recreational goals, thus cutting short the length of the schedule considerably.

Therefore, the schedule was tested for its validity by free and thorough criticism by eminent experts, whose suggestions served to make the schedule more meaningful and sharp.

(b.4) Reliability of the tool

The validated tool was used for the reliability test where a sample of thirty lower economic strata households were identified in one of the locales, viz. Khairatabad - Chintalbasti, following the same procedure as described under sampling procedure. First, a listing of all households in an identified pocket viz. Chintalbasti, deriving the Income group by calculating the per capita Income, was done. In this way the list was divided into LLI and LMI

households, and those which had a higher per capita Income than Rs.250.00 per month, or a very low per capita income. Out of the total listing, which amounted to hundred households, the latter two groups of households having a high and a very low (below Rs.115.00 per month) per capita Income, were ignored and the remaining were considered. From the list of thirty-nine LLI and thirty LMI, every second house was ticked off and in all, fifteen LLI and fifteen LMI households, represented the sample of thirty households for the pretesting of the schedule. Each of these households was approached and after establishing a sound rapport, the interview was held. The respondents reacted most positively in imparting with their responses to the schedule. Each schedule took about one-and-a-half hours for completion and could be adequately comprehended by the respondents.

(b.5) Finalizing the tool

The pretesting of the schedule helped in re-organizing the tool into a better shape, but no significant changes were found necessary. Section B Part I was re-organized and made more clear-cut, certain redundant and superfluous statements in Part III of the tool were deleted and a few additional statements in Part IV were made. Also the tool was given to a statistician for scrutiny with regard to its viability for statistical test applications. Consequently, the format of certain questions were recast in order to obtain information in a manner that could be better quantified and statistically analysed. Again, certain statements/minor questions which

seemed to contribute no significant information that could be statistically analysed, were suggested for removal. Thus, a more crisp schedule emerged, responses to which, could well be put to various statistical tests. In this way the final interview schedule gained ~~in~~ its ultimate form. The finalized schedule was translated into the Telugu language, and edited by an expert in the Telugu Department of the Central University of Hyderabad. This Telugu version of the schedule (Appendix II) proved useful while interviewing respondents whose sole means of communication was the Telugu language alone, and by using this schedule, consistency of thought was maintained by posing questions in the same manner to all such respondents.

IV. Data Collection

(a) Administering the tool and data collection

Employing the help of the listed households which formed the sample in each locale and pocket respectively, the investigator visited each alternate house that was tick marked, by systematic random sampling, and interviewed the respondent/s utilizing the schedule. Prior to this, it took almost fifteen to twenty minutes to establish a rapport underlining the purpose of the visit and the fruits it would bring to the respondents, if clear and authentic answers were provided. The content of the schedule was accepted very sportingly by the respondents who found the subject most encouraging. Hence they were interviewed in each case for about one hour and fifteen minutes. Each question was put forth by the

investigator in English, Hindi or Telugu, whichever language was best understood by the respondent. Here, the investigator had to take the help of an interpreter, while questioning in Telugu, as the former was not very fluent in the same language. The translated questionnaire in Telugu proved useful here, to maintain consistency while questioning. The questions were very enthusiastically accepted and most spontaneous and true answers given. In this way, authentic and frank responses were obtained to the schedule, though it was a very laborious task going from house to house and interviewing respondents for over an hour in each house, so as to get complete information to the schedule. In many cases the respondent would get exhausted or distracted by the time three-fourths of the schedule was completed, when the investigator had to use effective tactics to pump some enthusiasm into the respondents again. Thereafter, once more the respondents would revive themselves and answer wholeheartedly. A most time-consuming and arduous task, the data collection took a long period (four to five months) for completion, enabling only six to seven households to be interviewed in a day. Some households at first even refused to allow entry by the investigator but later, on convincible explanation by the investigator and the respondents already interviewed, they came by, and allowed the interview to be held. At length, the investigator found that the rapport established was so strong, that everyday, the respondents would be waiting outside their homes and would beseech for their household to be interviewed. Even the non-sampled

households requested the investigator to interview them, though this was not possible and a convincing explanation was given. This survey type of interview brought a lot to the limelight, by which the investigator was enlightened a great deal about the problems of the lower economic strata of the City of Hyderabad. The investigator could personally talk to the respondents and get a lot of first-hand information regarding the community facilities of their respective areas. The period of data collection stretched from September 1986 to December, 1986.

V. Analysis of Data

Data analysis involved the evaluation of data through household interview schedules, to which responses were elicited from 240 households/individual respondents, within four locales of Hyderabad City. The analysis of data was done after applying the various techniques of scoring to the relevant sections of data in the schedules. A detailed description of scoring procedure adopted for the following two parts of the schedule-data, is outlined below.

(1) Section B, Part II.- Goal aspiration pertaining to the use of selected community facilities and extent of satisfaction in goal achievement.

(2) Section B. Part III.- Factors influencing optimum utilization of selected community facilities (Appendix I).

(a) Scoring Procedures Adopted

(a.1) Goal aspiration and achievement through use of community facilities

A systematic procedure was adopted, for scoring this section of the schedule, in order to quantify and then assess the level of satisfaction derived by families in goal achievement, through the use of community facilities.

A six-goal-item list was made to represent the broad health, education and recreation goals of families and the degree of satisfaction derived in goal achievement through the use of community facilities, was measured against a four-point continuum scale. The home-makers were asked to indicate the degree of satisfaction, they and their families derived, in the achievement of the six broad goals, each under health, education and recreation, by the use of community facilities. To facilitate uniformity of responses, the respondents were asked to indicate the degree of satisfaction on the ladder, where the bottom represented 'Dissatisfied' (D) response scored as 0, and the top represented 'Very satisfied' (VS) response scored as 3, next 'Satisfied' (S) scored as 2 and Undecided (UD) scored as 1. The six goals under each category appear under section B Part II of the schedule which can be referred to in Appendix I of this report. The frequency distribution for the various degrees of satisfaction for each goal under health, education and recreation were then obtained for the LLI (120 households) and LMI (120 households) households separately, for all the four

locales/pockets from which the sample was drawn. The frequencies for all the four pockets against each degree of satisfaction for Broad health goals were summed up and multiplied by the given respective scores as shown below:-

Example for Health Goal Three

Degree of Satisfaction	Locales / Pockets (LLI)				Total Frequency	Weighted Score
	(1) f	(2) f	(3) f	(4) f		fxScore
VS	0 +	2 +	3 +	12	17	17x3 = 51
S	18 +	14 +	15 +	5	52	52x2 = 104
UD	0 +	11 +	4 +	6	21	21x1 = 21
D	12 +	3 +	8 +	7	30	30x0 = 0
				Total weighted score		176

The product obtained was the weighted score for each degree of satisfaction, regarding the LLI group of households (120) for health goal three. These weighted scores were totalled and then divided by the number of households, to obtain the mean satisfaction score for health goal three i.e. $176 \div 120 = 1.46$.

A similar procedure was adopted for the remaining health goals under the LLI. Thereafter the same was done for each health goal with regard to the LMI category also. In each case, a mean satisfaction score for the six broad health goals were computed income-wise. Together with this, the Grand Mean Health Goal Satisfaction Score were also obtained

by adding up all the mean satisfaction scores for the six broad health goals, income-wise and then dividing the sum by six (number of goals in the category of health).

Example:-

Mean satisfaction score for health goals(LLI)

Health goal	Mean score
1	1.49
2	1.48
3	1.46
4	1.32
5	1.28
6	1.38
Total :	8.41

$8.41 \div 6 = 1.40$

Grand Mean Health Goal Satisfaction Score for LLI = 1.40

In this way the Grand Mean Health Goal Satisfaction Score for the LLI and LMI category was computed separately. In addition, the mean broad health goal satisfaction score for Goal three for the entire sample was also computed by summing up the total weighted scores of degrees of satisfaction of both Income Groups and dividing the figure by 240 (total sample). This gave the Mean Satisfaction Score for the broad health goal three, for the entire sample (Refer Appendix III).

Example:-

Goal Three : LLI Total weighted score	=	176
Goal Three : LMI Total weighted score	=	154
Total	=	330

$$330 \div 240 = 1.38$$

Mean Satisfaction Score for health goal three of entire sample - = 1.38

This procedure was repeated for the remaining five health goals also. In all, there were six Mean Satisfaction Scores relating to the Overall Sample (OS), also. Again the Grand Mean Satisfaction Score for the broad health goals concerning the entire sample, was also computed, by summing up all the six mean satisfaction scores for each health goal, and dividing the sum by six as done earlier income-wise. This gave the Grand Mean Satisfaction Score for broad health goals, for the entire sample. In this way three Grand Mean Scores for each set of goals was obtained, viz.-

(1) Grand Mean Satisfaction Score of health goals for LLI
(2) Grand Mean Satisfaction Score of health goals for LMI
(3) Grand Mean Satisfaction Score of health goals for OS

A similar procedure was adopted for the educational and recreational goals also. In short, there were nine Grand Mean Score values available at the end of the computation.

In order to asess the overall mean degree of satisfaction that the respondents obtained, a score grading was

worked out to decide, into which degree of satisfaction, each of the computed mean score values fell. For this, the following grading was done.

Degree of Satisfaction		Score grading
Very Satisfied	(VS)	Above 2
Satisfied	(S)	1 to 2
Undecided	(UD)	0.5 to 1
Dissatisfied	(D)	Below 0.5

With the help of this score grading, the degree of satisfaction attached to the mean score values computed, could be assessed for each of the categories of health, education and recreation, under each income group, as well as the entire sample.

(a.2) Factors influencing optimum utilization of selected community facilities

As seen from the interview schedule, (Appendix I), Section B Part III, which forms the crux of the research data, contains an exhaustive list of statements regarding the characteristic features, situational factors and respondents' opinions regarding the facilities under each category of health, education, and recreation. Each statement contains two responses, one positive and one negative, with regard to the statement, which, in every case is held for response, against a frequency continuum of Frequently (F), Occasionally (O), Rarely (R), and Never (N). Each statement is a condition having alternative responses, which may

influence the utilization of community facilities. The respondents were to identify one alternative response, which applied to each of them, and then, indicate the frequency of use, under the given circumstances. It was necessary to quantify these responses and frequency of use responses, for them to be easily put through statistical analysis and interpretation. Hence, each response was given a score, the statement score called 'Feature Score' and the frequency of use score called 'Frequency Score'. Response to the positive alternative, was given score two while that to the negative, score one. The weightages given to the frequency of use F, O, R, N were 3, 2, 1, 0 respectively. In this manner, each schedule contained a number of scores, each under characteristic features, situational factors and respondents' opinion. Thereafter, the total feature score and the total frequency scores were obtained for each schedule, under each head. Hence, now there were three pairs of scores, for each schedule/respondent under each facility viz:-

1. Characteristic Feature Score - CFSC
2. Characteristic Feature Frequency Score - CFFRSC
3. Situational Factor Feature Score - SFFSC
4. Situational Factor Frequency Score - SFFRSC
5. Respondents' Opinion Feature Score - ROFSC
6. Respondents' Opinion Frequency Score - ROFRSC

These six scores for each respondent, represented, in quantified form, the data pertaining to the factors influencing utilization of health facilities. In a similar manner scores were computed for educational and recreational facilities

(Appendix IV). These scores were later used for statistical computations and data interpretations. The Mean scores and Standard Deviations were also derived for each of the three types of scores under health, education and recreation, that revealed, which of the three sets of features were most or least influential in facility use, whether it was the characteristic features (enabling factors), situational factors or respondents' opinions (predisposing factors).

(b) Statistical Analysis Of Data

The data collected by the interview schedule from 240 households, spread over a cross-sectional quadrilateral coverage of the city of Hyderabad, emerged very extensive. The data were organized and subjected to appropriate treatment and processing, being first coded locality and income-wise. The coded data were de-coded, and results tabulated in the form of summary tables of frequency and percentage distributions.

A combination of quantitative and qualitative analyses, was made for analysing the tabulated and summarized data, in order to draw conclusions, as per the scheme presented earlier in Figure 9. More specifically, however, the data were subjected to the following general and special analyses, by way of simplistic and multivariable analyses, where relational statistics supplement the descriptive results. The entire analysis was represented by two income groups that the sample comprised, viz., Low-Low-Income(LLI) and Low-Middle-Income (LMI) and in certain cases, a

representation of the Overall Sample (OS) also was made, in addition.

(b.1) Descriptive Statistics

The data were presented in frequencies and percentages for the following information:-

(1) The Demographic variables which include personal characteristics like, age, education and occupation of the head of the family, and, family characteristics, such as family type, family size, age composition of children, family income and family earners.

(2) The perceptual variables such as awareness of facilities and services and the utilization of services under health, education and recreation.

(3) Data pertaining to the degree of desirability of significant features in each community facility.

(4) Data related to the desired range of service, regarding the main community facilities, as expressed by respondents.

Measures of Central tendency such as Means and Standard Deviations were computed for the following data, and represented income-wise in each case.

(1) Data showing the ranges of monthly family income, which were presented in frequency and percentage distributions as well.

(2) The degree of satisfaction derived by respondents in achieving major family goals under health, education and recreation. Mean scores were computed and the resultant degrees of satisfaction were assessed for each goal, and later Grand mean scores for all the goals together under each area, were computed.

(3) The information representing factors influencing the optimum utilization of community facilities and frequency of use, quantified as 'feature' and 'frequency' scores, of characteristics features, situational factors and respondents' opinion, under health, education and recreation. Mean scores and Standard Deviations were computed for each type of score.

(b.2) Relational Statistics

The data were also analysed statistically, through multivariable indices of associations. All the factors that were assumed to have any bearing on the frequency of utilization of health, educational and recreational community facilities, were studied in relation to this dependent variable termed 'frequency of use' or 'Utilization of facilities/services'.

(1) Multiple Regression Analysis of the dependent variable 'frequency of utilization' were done on the following independent variables, for each of the facilities under health, education and recreation.

(a) Frequency of use of health facilities and services was

regressed on:-

(i) Social factors, like the demographic variables including type of family, size of family, health status of the family, and economic variables such as income, education and occupation of the head of the family.

(ii) Physical factors such as characteristic features of health facilities services, situational factors, respondents' opinion regarding health facilities/services, housing, neighbourhood, resource availability and resource location.

(b) Frequency of use of educational facilities/services was regressed on:-

(i) Social factors, like the demographic variables including type of family, size of family and economic variables such as income, occupation and education of the head of the family.

(ii) Physical factors, such as characteristic features of educational facilities/services, situational factors, respondents' opinion, resource availability and resource location.

(c) Frequency of use of recreational facilities/services was regressed on:-

(i) Physical factors such as characteristic features of recreational facilities/services, situational factors, respondents' opinion, housing, neighbourhood, resource availability and resource location.

The Multiple Regression Analysis formula was used for testing the influence of the above variables on the dependent variable 'frequency of use'. The standard regression model is written as;

$$Yth = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \ldots\ldots + \beta_k X_k + U,$$

where:

Yth (Ytheoretical) = the predicted variable or the dependent variable, to be explained in terms of a finite number, K, of explanatory variables, or independent variables, X_1, X_2, X_3 ..... X_k (that is error-free variables), those which can be observed without errors.

Y is subject to an observational error.

β_o, β_1, β_2 .....β_k = the 'regression coefficients'. β_1 measures the effect of variable X_1 on Y, the dependent variable. X_1 is used with its effect β_1, X_2 is used with its effect β_2 and so on. In other words,

β_1 = the coefficient of X_1 (independent variable)

β_2 = the coefficient of X_2 (-do-)

β_3 = the coefficient of X_3 (-do-)

β_k = the coefficient of X_k (-do-)

depending on the number of independent variables studied.

β_o = the intercept which is a Constant, independent of the levels of X - variables.

U = Stochastic (random), which is assumed to be distributed like an undecided error, as there is no way of knowing the reasons why the error occurs. Errors are distributed with Zero mean and a constant variance.

The regression coefficients, β_o, β_1 ..... B_k and the distribution parameter μ_u^2 are unknown, and have to be "estimated" from a sample of observations,

$$Y_i : X_{1i}, X_{2i}, ... X_{ki}$$

This small sample forms the Data Base.

$i = 1, 2, 3, 4$

Sample size = n

Ordinary Least Squares provides estimates of the unknown parameters using these data.

The Multiple Regression Analyses, revealed whether there was a significant influence of any independent variable. This test showed 't' values representing significant and not significant factors.

(2) From the 't' values, in each case, the significant factors were picked, and again, put through a Step-wise Regression Analysis, wherein each significant variable was entered one at a time in steps, to test the independent influence of each variable, separately, one after another, on the dependent variable. The Step-wise Regression procedure revealed 't' values suggesting true significance or non-significance of variables. Ultimately, these significant factors were considered to have a distinct influence on the utilization of the respective community facilities, by the urban poor families.

It was seen in some instances, that the factors which showed 't' values that were observed as being less significant under the Multiple Regression Analyses, emerged as highly significant factors, when put through the Step-wise Regression Analyses, as the latter removed the excess "noise" caused by the non-significant variables which interacted in the former test, along with other variables. There was also a distinct difference in the 't' values when both the statistical tests were computed on the same data, using the same variables. The formula used for the Step-wise Regression Analysis was the same as that for the Multiple Regression Analysis.

(3) In order to obtain a single composite index of scores for frequency of use and various features (characteristic features, situational factors and respondents' opinion) the individual respondent scores were subjected to Principal Component Analysis, used for dimension reduction. This test was computed at getting a compact summarization of scores for feature and frequency of use, of facilities/services, by reducing the three different scores for each family, in each case, into a single standardized score, with as little loss of information as possible. The first Principal Component is a combination of the three original scores into a single score in standard form, which brings out the individual to individual differences to the maximum extent. The Principal Component Analysis was made for the three scores on each family, so that a single

score is obtained, which best distinguishes between families or brings out the differences in families. The Eigenvector Coefficients thus revealed whether the three variables in each case (frequency scores and feature scores), of a single family, are given equal weightage or not.

In other words, the Principal Component Analysis is a method of Reduction of variables, by the method:

$$\text{Standardized Scores} = \frac{\text{Value of score} - \text{Average of score}}{\text{Standard Deviation of score}}$$

Therefore,

$$P_1 = f(x_1, x_2, x_3)$$
$$P_2 = f(\text{ -do- })$$
$$P_3 = f(\text{ -do- })$$

where, for example, x_1, x_2, and x_3 were the three variable scores, characteristic feature score, situational factor feature score and respondents' opinion feature score, which were reduced or compactly summarized as P_1 (single score), in the case of health facilities for one family and likewise for all others. In the same way, the frequency scores for health, were reduced to a single variable score P_2 for the same family and likewise for all others, The Linear Combination of the original variables, thus become reduced to P_1, P_2, P_3 and so on, which differ in each case. Thus, the Principal Component Analysis, which basically aimed at getting a compact summarization of data by reducing a large number of variable scores, into a small number of

combined scores, without losing much information, was found to be a very pertinent test, in the case of this section of the schedule data.

(4) The Canonical Correlation Analysis, was a test statistic which was done to find out the combined correlation between the two sets of variables. The Feature and Frequency Scores (Characteristic Features, Situational Factors, and Respondents' Opinion), which represented the two sets of variables, were put through the Canonical Correlation test to find out the extent of correlation between the two sets of scores, by not taking them individually, but as two separate scores as, for example, Health Frequency score and Health Feature score. Hence the Principal Component Analysis, reduced the three scores in each case, into a single score, which was later used for computing the Canonical Correlation Analysis.

The reduced variable scores were P_1 (summarized feature scores) and P_2 (summarized frequency scores) and the above test was applied to these two new scores.

For example:- Suppose one set has four variables and another set has two variables, measured on the same individuals. Then, one can combine the first four variables into a single score by the formula,

$(U_1 = X_1 W_1 + X_2 W_2 + X_3 W_3 + X_4 W_4)$

and similarly, the second set can be combined into another score as:

$(V_1 = Y_1 W_1' + Y_2 W_2')$.

The correlation between U_1 and V_1 is in a sense, the correlation between the two sets of variables. However, this correlation depends not only on the inter-relationships among the X's and Y's but also on what W's and W''s are chosen. The first Canonical Correlation is defined as the largest possible correlation between the U and V, as defined above, and the corresponding scores U and V are called the first Canonical pair of variables (which in a sense summarizes the X's as a single score and Y's again as a single score having the highest correlation between them). Other pairs of Canonical variates are similarly defined, by defining new scores U_2 V_2, U_3 V_3 etc., such that they are uncorrelated with the earlier defined variates and have under this condition the largest possible correlation.

The minimum level of significance, adopted to study the influence of various factors upon the utilization of facilities/services under the present investigation was 0.05 level of probability. However, the 0.10 level of probability was also incorporated to suggest some influence and therefore, all the levels were described with hierarchical degrees of influence such as extremely significant (0.0001), highly significant (0.001), very significant (0.01), Significant (0.05) and somewhat significant (0.10). All the data have been handled and presented by methods designed to foster consistency and coherence and to facilitate comparisons. A part of the summary tables were framed by the Computer Services of the Central University of Hyderabad, on the

Workhorse Personal Computer, Hindustan Computers Limited, while, the remaining tabulation, and entire statistical analysis, was done at the Department of Statistics and Computer Programming, ICRISAT, (International Crops Research Institute For Semi-Arid Tropics), Pattencheru, Hyderabad, on the Computer, Vax 11/780 with Fortran (FTN) Carriage Control - ICRISAT Computer Services, Digital Equipment Corporation - VAX/VMS Version V4.7. On the basis of this detailed account on "Methodology" including the analysis procedure, the report for the present investigation was drafted.

VI. Data Interpretation

After subjecting the data through appropriate treatment and processing, the results were synthesized into a more crystallized form. The presentation of the tabulated data through summary tables, results of statistical applications, giving evidence to judge the postulates, and finally the discussion and interpretation of results are detailed in the proceeding chapter on 'Results and Discussion'. The entire data have been presented and interpreted by income-wise comparisons between the Low-Low-Income and Low-Middle-Income groups.

> "Comparative studies release us from boundaries of our habits of thought, and show us the wide gamut of patterns possible in human interaction".
>
> Ruth Benedict, Patterns of Culture.