

Environment and Urbanization

<http://eau.sagepub.com>

Habitat and health in the municipality of Sao Paulo

Pedro Jacobi

Environment and Urbanization 1990; 2; 33

DOI: 10.1177/095624789000200205

The online version of this article can be found at:
<http://eau.sagepub.com/cgi/content/abstract/2/2/33>

Published by:



<http://www.sagepublications.com>

On behalf of:



[International Institute for Environment and Development](http://www.iied.org)

Additional services and information for *Environment and Urbanization* can be found at:

Email Alerts: <http://eau.sagepub.com/cgi/alerts>

Subscriptions: <http://eau.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.co.uk/journalsPermissions.nav>



Habitat and health in the municipality of Sao Paulo

Pedro Jacobi

I. INTRODUCTION

THIS PAPER DESCRIBES housing and living conditions and basic service provision in different kinds of low-income settlement on the periphery of Sao Paulo metropolitan area and contrasts the housing and health problems there with those in central districts. It then presents the findings of a study on how people living in the different low-income settlements on the periphery understand the relationship between health and the environment as viewed through their homes, the area where they live and the means of transport used to travel to and from work. The study also considers creches and schools attended by the children. It is based on research into 120 families living on the periphery of Sao Paulo.⁽¹⁾

The research considers the relationship between living conditions and family health as understood by the population interviewed. It seeks to identify, in an objective manner, actual and potential health problems experienced by each family because of their living conditions. On the one hand, there are actual health problems connected, in the judgement of the interviewees, to characteristics of their home; on the other hand, there are problems believed to arise because of these same characteristics.

This research was carried out in two areas (east and north) of the metropolitan area of Sao Paulo.⁽²⁾ In each area, four types of settlement were considered: slum dwellings (or *favelas*), shared dwellings or tenements (*casas coletivas*), precarious or temporary housing (*casas precarias*) and self-built dwellings on housing lots characterized by a relatively recent occupation and inhabited by a low-income population (*conjunto habitacional*).

The relationships between health and habitat⁽³⁾ are explored through dwelling places, the local environment and, within the limits of this study, the places (excluding work) where people spend most of their time. These include their homes, the neighbourhoods, the means of transport they use to go to and from work, the creches and schools attended by their children, and places used for leisure.

This study of the living environment takes into account two aspects: first, the character of the environment and associated health risks; and secondly, the relationship of this environment to the concrete health problems of the population, analyzed through the perspective of the people themselves. In considering the relationship between habitat and health, the existence of the wider inter-sectoral context of the problems of health must be remembered. The relationship and interaction between day-to-day circumstances, health and access to services must be understood. It must be recognized that the possibilities for good health are closely associated with the socially created living environ-

Environment and Urbanization, Vol. 2, No. 2, October 1990

33

Dr. Jacobi is Professor at the Faculty of Education of the University of Sao Paulo and a researcher at the Centro de Estudos de Cultura Contemporanea. His recent book *Movimentos Sociais e Politicas Publicas: Demandas por Saneamento Basico e Saude, Sao Paulo 1974-84 (Social Movements and Public Policies: The Demands for Health Care and Basic Sanitation, Sao Paulo 1974-84)* will be included in *Book Notes in the next issue of Environment and Urbanization*.

His address is CEDEC, Rua Airoso Galvao 64, Sao Paulo, SP 05002, Brazil.

1. The research was originally published under the title of *Urbanization, Health Policies and Popular Participation* (1989). This investigation was co-ordinated by Pedro Jacobi in agreement with the Institute of Health of the Secretary of Health of Sao Paulo for the Pan-American Health Organization and the Instituto de Planejamento Economico e Social (IPEA).

2. The municipality of Sao Paulo is only one of 38 municipalities that, since 1974, have made up the Metropolitan Region of Sao Paulo. The Metropolitan Region covers 8,051 square kilometers, of which 1,509 square kilometres are the municipality. The total population of the Metropolitan Region is estimated to be about 18 million in 1990.

3. Habitat is taken to include all the material conditions necessary for the satisfaction of essential needs of the individual and that guarantees their reproduction (dwellings, infrastructure, public services and access to such services).

ment.

The point of reference for the study is considered to be the locus of production of the most deprived social sectors, creating an urban environment characterized by segregation and exclusion..

II. SAO PAULO: A CITY OF INEQUALITY

a. The Context

The formation of large Brazilian cities has been characterized by the adoption of an urban standard with significant inequalities. A major feature of urban development is expansion through the city's periphery. This began at the beginning of the 1940s and continues today. The occupation of the periphery or, more precisely, the incorporation of numerous peripheral residential quarters into the urban area, generally takes place without planning, creating unstructured urban areas with substandard infrastructure.. The process of marginalization continues, generating a segregated and poorly ordered space and excluding a vast sector of the population from adequate urban services. The city of Sao Paulo can be divided into two. One is inhabited by higher income groups with full access to basic infrastructure and services, a low rate of population growth, a significant concentration of residential buildings and satisfactory levels of health care. The other is made up of peripheral areas characterized by a high rate of population growth, a low level of income, and poor health conditions combined with serious infrastructural problems. The *regionalization of deprivation* occurs because there is a significant reduction in the availability of urban benefits on moving from the centre to the periphery. This social-spatial segregation results in further problems such as an increased time needed by those living on the periphery to travel between the place of residence and work. The municipality of Sao Paulo is an example of these spatial disparities in the allocation of the so-called benefits of urbanization. The segregated character of the city is manifested in the correlation between income level and access to health services, hygiene and education, which translates into significant spatial inequalities between the city centre and periphery.

The population on the periphery experiences worse living conditions than those living in central and intermediate areas.⁽⁴⁾ This is evident in the rates of mortality for certain preventable diseases, such as those associated with malnutrition, bad living conditions and a poor level of basic sanitary services. Mortality rates from pneumonia (often related to poor living conditions and malnutrition) are far higher on the periphery, as is the risk of death due to diarrhoeal diseases related to the lack of access to basic sanitation.

The conditions of health of the population also depend on the services available to combat and prevent disease and its consequences. The *regionalization of deprivation* is evident in the data on sanitary conditions and medical facilities as well as hospital provision. The inequalities existing in hospital provision and basic sanitation, and in the distribution of hospital beds and in the sewerage system, establish a close correlation between low income levels and lack of services. The regional pattern in mortality statistics is closely connected to the relationship between income and access to certain services, both of which are lower in peripheral areas. Similar trends are seen in the development of the school system. There are clear regional variations in educational segregation with high truancy and failure rates in the periphery. The reproduction of inequalities continues. The extension of the rights of

4. The historic centre of Sao Paulo comprises 3.5 per cent of the population, the centre as developed with the expansion of the city comprises of 27.5 per cent and the periphery 69 per cent.

citizens depends primarily on their organizational capacity and the ability of marginalized groups to articulate their demands. The social movements have presented themselves principally in the form of pressure groups, acting on the state to press their demands. There is a clear dynamic evident in the development of the concept of collective rights and the extent of public awareness about the level of deprivation which is directly associated with the increased perceptions of citizens.

Within the context of Brazilian urbanization, and more precisely of the metropolitan region of Sao Paulo, the negative effects of this pattern of urban development amount to a matrix of inequality and the reproduction of poverty that only serves to reinforce the maintenance of statistical inequalities between the central and peripheral suburbs.

Public policies related to sanitation, housing and health have failed to adequately respond to the rights of citizens and to address this inequality. The importance of such policies is shown by the fact that the extension of certain public services, in particular the water supply network, has had an impact on basic social indicators such as infant mortality rates. Improvements in basic sanitation (between 1975 and 1978, 3.1 million more people in the metropolitan area gained access to piped water) have resulted in a significant reduction in infant mortality rates. Other factors such as the addition of chlorine to drinking water, nutritional supplements for pregnant women and wet nurses, the extension of clean milk supplies to children and the growth in immunization coverage, help explain the decline in the mortality rate. However, this rate still increases in relation to the distance from the centre, confirming the regional character of deprivation. Deaths among children less than one year old are equal to 97 per thousand in the periphery, declining to 63 and 52 in the intermediate and central areas of the city.

The delay in solving problems of drainage in Greater Sao Paulo is contributing to the maintenance of high levels of infant mortality. The relationship between basic sanitation and health is clear; between 1975 and 1983 there was an increase from 58 per cent to 90 per cent in the number of homes with piped water and a corresponding decline from 88 to 46 in the average number of deaths per thousand births. In the municipality of Sao Paulo, the death rate varies between 80 to 41, reflecting differences between central and peripheral areas. This figure equals 29 in the areas where families with higher income levels live, but 61 in the poorest areas. As the availability of piped water declines, the incidence of cases of diarrhoea, largely caused by polluted water, becomes one of the principal causes of infant mortality.

About 90 per cent of the inhabitants of Greater Sao Paulo are served with treated water and 52 per cent of the population of the metropolitan region have mains sewerage, this figure having increased by 8 per cent in five years. Despite this, only 5 per cent benefit from primary treatment, that is to say, organic wastes being removed prior to the sewage being discharged into the rivers

b. Poverty and Deteriorating Living Conditions in Sao Paulo.

Housing conditions in low-income areas have deteriorated rapidly in recent years. As a consequence of the economic recession of the 1980s, the housing standards of the waged population have declined and there has been an increase in the number of organized invasions of land.

Increased poverty means that more than one and a half million families can no longer afford adequate housing in the municipality of Sao Paulo

5. A more exact definition of a *favela* is temporary housing of different kinds, which may be illegal, and which is found on public or private land waiting urban renewal.

6. According to the Census of *Favelas* in the Municipality of Sao Paulo

alone. Inequality in the distribution of income, with more than 40 per cent of the economically active population receiving less than three times the legal minimum salary (equal to US\$ 43 a month in 1990), makes it difficult for the poor to find accommodation.

The current housing policy (implemented by the *Companhia de Habitacao do Municipio de Sao Paulo*, an agency of Brazil's *Sistema Financeiro de Habitacao*) has, up to the middle of 1985, allocated 70,000 living units, considerably less than current demand. The majority of the population have to solve their own accommodation problems. This has led to a significant growth in substandard dwellings - an unmistakable sign of the limited purchasing capacity of people on low incomes. There is a growing number of urban "quasi-nomads" (low-income families without permanent employment who live in high risk areas and temporary housing) and a dramatic increase in land invasions and the occupation of empty residential properties.

Slum-quarters (*Favelas*)⁽⁵⁾

For the population inhabiting the *favelas*, the situation in the municipal area has steadily deteriorated. At the beginning of the 1970s, the number of huts located in *favelas* in Sao Paulo was 71,840 with an average of five people in each. By 1983, there were 1,086 *favelas*, with more than 95,000 huts (a 24 per cent increase since 1980) and a population in excess of 550,000 inhabitants. By 1985, the number of inhabitants had increased to 630,000, reaching 818,872 in 1987 (7.8 per cent of the total city population) with a total of 150,500 huts.⁽⁶⁾ Between 1973-1987 the total population of the municipality increased from 6.6 million to 10.6 million (61 per cent). At the same time there was a corresponding increase of 1,040 per cent in the *favela* population.

The process of marginalization also affects the *favela* population, with the greatest increase of *favelas* - both settlements and huts - taking place in areas outside the central core of the city. Within this overall spatial distribution, the *favela* census of 1987 indicates that 47 per cent of the total *favela* population of the municipality is concentrated in the southern region of the city. Sixty one per cent of the *favelas* have between two and 49 dwellings whereas less than 1 per cent have more than 1,000 dwellings. Sao Paulo is characterized by a large number of small *favelas*.

Land Invasions

As a consequence of the increasing deterioration in the living conditions of low-income groups since the beginning of the 1980s, the occupation of urban land has become an established collective practice. Between 1981 and 1984, 60 land invasions (involving 10,000 families) took place in unused tracts of land in the south, east and north of the municipality. According to data supplied by the Pastoral Commission of the Landless of the Diocese of San Paulo (*Comissao Pastora dos Sem Terra da Arquidiocese de Sao Paulo*), the Movement of the Landless (*Movimento dos Sem Terra*) involved some 100,000 people and 200 land invasions between 1980-87. The people took over empty areas (totalling more than 500,000 square metres), part public and part private property. The principal reason for this action is that the erosion of salaries due to inflation had reduced the possibility of finding affordable accommodation. The great majority of occupying families had a family income of 2.3 times the legal minimum salary and had no means of paying their existing rent (which averaged twice the legal minimum salary).

Tenements and Precarious Housing on the Urban Periphery

Other forms of accommodation which have now become widespread in Greater Sao Paulo include tenements, rented rooms with no security of tenure and temporary (or "precarious") buildings. The population inhabiting such dwellings grew from 615,000 inhabitants (9 per cent of the total population of Greater Sao Paulo in 1975) to 1.7 million in 1980. At present, 3 million people (about 28 per cent of the total population) are thought to live in such accommodation. As in the *favelas*, the population living in tenements is increasing all the time in the peripheral zones of

Table 1: The Number and Proportion of People Living in Inadequate Housing in Greater Sao Paulo, 1989.

Housing type	Population (000)	Percentage of G. Sao Paulo
Favelas	818	7.8
Tenements	2,978	28.2
Precarious housing	2,420	23.0
Total	6,216	59.0

Source: Municipal Council of Sao Paulo, Secretariat of Housing and Urban Development, Censo de Favelas do Municipio de Sao Paulo (Census of the favelas of the Municipality of Sao Paulo), Sao Paulo, 1988 and Municipal Secretariat of Housing and Urban Development, Co-ordination of Information, Technical Advice and Research.

the city.

Table 1 shows the number of people living in inadequate housing in 1989. More than 60 per cent of the houses in the three groups are built by the residents themselves. In the *favelas*, about half the houses are built with durable materials such as bricks and mortar. A significant proportion of the population lives in tenements with insecure tenancies, principally located in the peripheral areas. The owners of these self-built dwellings often sublet part of the property.

III. HEALTH AND HOUSING

OUR RESEARCH ASSESSED the housing conditions of the people interviewed. It considered the materials used in the construction of the houses and other such details. Information was collected on the condition of the water supply and the methods used for removing waste waters and effluents. The research team asked about particular housing problems directly connected to the health conditions of the residents, for example, the existence of damp and draughts. Finally, interviewees were asked about the relationship between housing conditions and the health problems experienced by the family. There were two aspects to this part of the research: first, the relationship between the housing conditions and the health problems actually experienced; and secondly, the relationship between housing conditions and problems of health to which residents believe themselves susceptible because of the quality of the housing.

a. Construction Materials and Sanitation.

The largest single type of construction material was brick (38 per cent

of all houses). Houses of wood (22 per cent) were typical of the *favelas* but they were also encountered in areas of self-built housing. The major part of these dwellings had no finishing. (Generally houses with internal finishing were also externally finished.) Cement and ceramic flooring materials were the most common.

A significant proportion of the dwellings did not have ceilings. Cement tiles or slabs served as a ceiling without any internal covering of any kind. This resulted in problems of water penetration and damp. Most dwellings possessed internal divisions usually made from masonry blocks or wood. Less than 5 per cent of the dwellings used wardrobes, cupboards or curtains as dividers - these were principally in the *favelas*.

Most dwellings were connected to the mains water supply, confirming official figures on the extent of the municipal mains network. There were major shortcomings in the removal of waste water and sewage, since just over one half of houses were connected to a sewage system. The most common solutions for the removal of waste water and sewage in dwellings not connected to the municipal network included throwing waste into gutters running next to the houses, using the streets, or emptying waste into ditches or canals leading to gullies.

Approximately half of the dwellings had problems arising from the infiltration of water or from dampness. A significant number of interviewees reported draughts inside their dwellings which many viewed as a contributory factor to ill-health in the cold season.

b. Links between Housing and Health Conditions

In all the settlements, at least one member of the family has had some illness because of housing problems. The principal problems referred to affect children most of all and problems related to respiratory diseases are the most prominent. Cold draughts of air, the excavation of holes, cold floors, water penetration and the lack of ventilation are the principal causes for the incidence of bronchial illness, colds, influenza and pneumonia. The quality of water is another factor which results in particular problems for infants and children: diarrhoea and dehydration were the most common problems identified. In addition, the interviewees mentioned that the presence of excessive chlorine in the water caused vomiting, nausea and fever.

The risk of contracting diseases or having health problems is related to the poor quality of construction that allows houses to become cold or damp, leading to problems such as colds and influenza, pneumonia, sinusitis, bronchial complaints, breathing difficulties and lung disease, apart from coughing, hearing and throat problems. A number of those interviewed mentioned the danger of respiratory problems due to a lack of ventilation in their homes. Many interviewees referred to the problems connected with the presence of animals and insects such as rats, spiders, ticks and fleas. Others mentioned illnesses such as cancer, pneumonia and leptospirosis. Some interviewees discussed the lack of hygiene and suggested that contaminated water was responsible for worms, diarrhoea and dehydration, and for skin diseases.

Most interviewees did not give an exact reply when asked about problems arising from the lack of sewerage, yet nearly all stated that the lack of mains, principally sewerage mains, was responsible for a large number of illnesses and organic diseases. Of all those interviewed, 75 per cent replied that this factor was related to the incidence of health problems; 20 per cent replied that they did not know or their replies were not relevant. Among those who identified a relationship, most gave general statements such as various or many illnesses. Most replies

related the lack of mains water supply to problems of worms, dehydration in children, yellow fever, diarrhoea, infectious and contagious diseases. The replies in Box 1 seek to clarify some of the links reported by the interviewees.

Box 1: Residents' Comments on the Links Between Water and Health

"If it were a little treated it would not cause problems, but a little undertreated may bring worms - piped water needs to be treated since the pipe alone doesn't improve anything." Favela, eastern zone.

"When water is lacking the people have to stick to the reservoir and that is not clean, the water is stagnant, it can cause diarrhoea." Self-built housing, eastern zone.

"This is how I have lived (with water from the well); diarrhoea, pneumonia, yellow fever, the child does not develop, itches on the body, ill in the throat, and unhealthy." Tenements, northern zone.

IV. NEIGHBOURHOODS AND HEALTH

THE INVESTIGATION REVEALED a wide range of health problems connected to the locality in which the families lived. When asked about problems in the district or neighbourhood that were considered prejudicial to health, the interviewees replied that the absence of a sewage collection system constituted the principal problem, followed by refuse in the streets and on waste grounds, the rats, the lack of pavements on the streets (which exacerbates problems with dust) and problems with the gullies and rivers (that flood with heavy rainfall, accumulate refuse, and provide a habitat for animals and insects). Some interviewees identified

Box 2: Residents' Comments on Health Problems

"The river is not piped. In winter, the filth remains in the river (at the bottom) and, in the heat, there comes a nasty smell." Favela, eastern zone.

"The gully, the stagnant water, the unpaved street, the sewerage should be piped. The water of the gully is stagnant and all the dirty water from the bath is discharged there, they should provide mains sewerage or pipe the river. And put asphalt on the street." Favela, eastern zone.

"People are ignorant, the lack of hygiene causes lice, diarrhoea, skin diseases, all this is not to do with the neighbourhood as such but it is rather that people don't look after personal hygiene." Self-built housing, eastern zone.

their neighbours as the source of the problem, as they sometimes threw out garbage and waste water without respecting communal areas.

The answers given in Box 2 indicate the kind of problems experienced:

The major and most frequently cited problems associated with hygiene are the presence of dead animals on wasteground and the bad smell from the cesspits in settlements not served by mains sewerage. The presence of rats is the most pressing problem. As one family said: "...one cannot

leave anything on the table otherwise they eat it - they fight for food with the children." Interviewees indicated their concern about the presence of rats and their awareness of the different diseases they transmit; however, a very limited number quoted the problem of leptospirosis.

It is, however, important to emphasize other replies relating to the relationship between the neighbourhood environment and health: there is a significant level of violence, air pollution is a general problem in the city, and many public agencies neglect the poorest districts of the city "...the attendance of SABESP (the city water and sewage company) is very poor which is not the case in the city. If a drain is blocked, SABESP takes some 15 days to come and clear it..." Precarious housing, northern zone.

To consider more thoroughly certain aspects of the relationship between the neighbourhood environment and health, the research looked at health problems connected with flooding, the presence of refuse, and the existence of scrub and waste ground.

The settlements studied that were located near to gullies were principally in the eastern zone (the *favela* and an area of precarious housing) and in the northern zone (the *favela*, precarious housing and tenements). Those living in such areas were asked about illnesses and health problems linked to the gullies; fever and rat sickness were commonly mentioned. Other problems were skin diseases, insects (including flies, mosquitoes and cockroaches) and worms. Illnesses particularly associated with the gullies were: yellow fever, typhus, dengue, pneumonia, bronchitis, verminosis, infection, food poisoning, influenza, scabies, chilblains, allergies and lack of appetite.

Consulted about the relationship between health problems and flooding, many interviewees replied that floods bring sickness but they were not always able to be specific. A significant number of replies referred to "fever"; rats and diseases from rats were also mentioned, as were problems connected with refuse and the risk of buildings collapsing. The following illnesses were cited: pneumonia, bronchitis, respiratory problems, influenza, chills, rheumatism, aches in the legs, infection, rat fever, rat sickness, itching, scabies, chilblains, skin problems, tumours, verminosis, anaemia, agues, yellow fever, typhus, leptospirosis, dengue. Other factors mentioned include bad smells, the presence of dead animals caused by floods, the damp remaining in houses and the danger of drowning especially in the case of children.

In the case of refuse, references were again made to the risk of disease and the health problems resulting from flooding and the open gullies. In addition to the rats, which are the greatest problem, the presence of spiders, flies and cockroaches were also identified. Bad smells were mentioned, in many cases being associated with headaches and nausea. Other associated problems include fever and illnesses of the skin (allergies, chilblains, itching, mycosis and sores). The following illnesses were identified in relation to the problem of refuse: yellow fever, anaemia, worms and verminosis, infections, headaches, epidemic diseases, chilblains, leptospirosis, pneumonia, typhus, bubonic plague, hydrophobia, mycosis, diarrhoea, dehydration and yellow fever. References were made to snakes and scorpions, the risk of accidents to children, the smoke from burning refuse and the associated dangers, and the accumulation of garbage in gullies causing flooding. Box 3 includes some references to the problems and illnesses associated with various settlements.

With regard to diseases and health problems resulting from the brushwood and the waste ground, once again the rats were mentioned in practically all cases. Also identified were insects, animals (principally snakes and scorpions), and the filth and the refuse. The illnesses cited

Box 3: Residents' Comments on Problems Arising from a Lack of Garbage Collection

"It brings problems, contagious disease, there are always mosquitoes that come into the home, blood diseases, causes ugly diseases - yellow fever, anaemia." Favela, northern zone.

"It brings flooding problems on account of the state of the river - the refuse blocks the flow of the water, when it rains a lot the river overflows and floods the houses with water." Favela, eastern zone.

"People don't put the rubbish on the rubbish-heap on the right days; the truck comes three times a week and the refuse lies there attracting flies which means disease." Self-built housing, eastern zone.

"It causes a bad smell that can be dangerous. It brings rats, cockroaches, it may also bring the dengue mosquito." Tenements, eastern zone.

were: leptospirosis, dengue, typhus, yellow fever, meningitis, hydrophobia-rabies, epidemic disease, hookworm and hepatitis.

The main sources of pollution identified were the dust in the streets, the presence of refuse, smoke from burning rubbish and open drains. As a result, there were respiratory and lung problems. Nearly all replies included a reference to such problems as bronchitis and influenza/colds. Among other replies were the following: problems of blood pressure, cardiac problems, nasal allergies, blocked noses, nausea and vomiting, hearing problems, hydrophobia-rabies, leptospirosis, food poisoning, infections, meningitis and dengue.

V. PUBLIC INFRASTRUCTURE AND HEALTH

PEOPLE LIVING IN blocks of flats, subdivisions and tenements were aware of the existence of creches and children's play areas. A smaller proportion of people living in *favelas* knew about such facilities. Public schools are evenly distributed throughout the municipal area, and there are few differences between areas. All people have access to, or at least knowledge of, public schooling.

A significant number of people stated that their children make use of some of the educational facilities in the neighbourhood where they live. However, a large number of children do not use them; the main reasons for this include personal problems, lack of vacancies, lack of facilities and dissatisfaction with the level of assistance offered.

The majority of interviewees say that there are no damaging effects to health arising from daily attendance at schools and creches. The few identified problems include a lack of hygiene, poor quality building construction and bad school lunches. These factors reinforce the arguments of those that ascribe the existence of problems to a lack of maintenance of the facilities.

VI. TRANSPORT AND HEALTH

A NUMBER OF questions were asked about the impact of transport on health. These allowed the research team to analyze the interpretations and perceptions of the interviewees in their capacity as users. Most of those interviewed consider that the main problems arise because of the

excess of passengers, the delay, the shortage of buses and the discomfort of the journey.

During rush hours, long queues form at terminals in both the periphery and the central area. The overloaded vehicles are frequently unable to pick up more passengers at subsequent stops. Most buses are permitted to carry a maximum of 36 persons seated and 40 standing but this is not normally enforced and more than 90 passengers are often carried; on occasion, up to 120 people have been crushed together. Overcrowding may provoke minor incidents such as trampling, fights and disputes. Many passengers are unable to alight at the desired point or, when they do, find that their clothing is torn. Buses are often damaged and are poorly maintained.

Transport problems make it hard to move around the city. Increasing difficulties of moving between home and work have hit the people with the lowest incomes hardest, especially those living in the periphery. The deterioration in transport conditions is evident in the excessive journey time, the high cost of fares, the poor level of comfort, the irregularity of bus services and the unsatisfactory service provided by the suburban train network. In general, the central areas are better served, with a greater concentration of transport services.

When asked whether they have had any health problem attributable to the transport system, the great majority state that they have not suffered any injury. When asked about the possibility of suffering health problems, the replies are divided; many refer to the lack of safety and overcrowding and, in certain cases, to the effect of delays on psychological and emotional well-being.

What is confirmed is that, in the majority of cases, the interviewees do not isolate factors relating to work and transport but see them as forming part of a process characterized by a growing deterioration in the conditions of work, this aspect being sufficiently analyzed in academic and technical studies.⁽⁷⁾ Box 4 provides some illustrations of the arguments presented above.

The issues dealt with in this section demonstrate that the inter-sectoral dimension is present in people's perception of their daily lives,

Box 4: Residents' Comments about Transport

"I get tired at work and even more on account of the transport difficulties. The people wait and become uneasy." Tenements, northern zone.

"It attacks the nervous system. You become terrified about arriving or not arriving. The job is tiring but it does not exhaust one as much as the transport. It goes for whatever one does, coming on foot, loaded. I have never got a seat on that bus." Self-built housing, eastern zone.

"At times I get really tired at work, but the worst aspect is the transport which is so tiring." Favela, eastern zone.

The most bitter complaint concerns the exhaustion resulting from the unsatisfactory conditions of transport, the long journey only serves to accentuate the tiredness felt as a result of work.

"That question is obvious. Why do people arrive tired out after two and a half hours at the end of the working day?" Inhabitant of Loteamiento Popular in the eastern zone.

7. For example, see: Brant, Vinicius Calderira, *Sao Paulo - Trabalhar e Viver* (Working and Living in Sao Paulo), Editora Brasiliense, Sao Paulo, 1989; Ribeiro, Herval and Francisco Lacaz, *De que adoecem e morrem os trabalhadores em Sao Paulo* (What workers in Sao Paulo get sick from and die of), DIESAT/IMESP, Sao Paulo, 1984; and Seade Foundation, *Mercado de Trabalho na Grande Sao Paulo* (The Labour Market in Greater Sao Paulo), SEADE-DIEESE, Sao Paulo, 1989.

Although in the speeches of the public sector officials concerned with these areas there is an awareness of the need to take into account such inter-relationships, at the level of actual policy little is done.

providing an explanation for the presence of diverse factors. The criticisms levelled at the state of transport emphasize the failure of public policy, and the poor organization of the system, with the consequent daily subjection of great numbers of workers to a poor quality service, all of which leads to physical and psychological stress. The long periods occupied in travelling on public transport leads to a reduction in the hours for rest, recreation and family activities.

The aggravation and deterioration in the quality of traveling conditions is also reflected in an increase in the number of journeys on foot (a fact verified in this investigation) as well as a reduction in the mobility of people.

VII. SOCIAL ACTORS AND THE HABITAT/HEALTH EQUATION

THE INTERVIEWEES in the different settlements have a clear conception of the relationship between habitat and health. Although they clearly acknowledge the existence of this relationship when questioned, in practice, few people assert the incidence of these effects in their day-to-day life or in their homes, neighbourhood, work-places, social facilities and means of transport. They are not aware of the interdependence between their daily environment and their health. Nor do they have an opinion of the potential impact of public policies.

On the basis of evidence gathered from different officials working in the fields of habitat and health, it is possible to develop a framework that explains why there are no public policies to increase awareness of the links between health, sanitation, habitat and transport. Although in the speeches of the public sector officials concerned with these areas there is an awareness of the need to take into account such inter-relationships, at the level of actual policy little is done.

The statements of different health professionals and administrators demonstrate the need for effective co-ordination, also involving technical staff. This is the only way that problems of health can be tackled effectively, developing wide-ranging solutions which include consideration of habitat issues. At present, the administration is unable to offer development proposals of an inter-sectoral character and communities are forced to take responsibility for services which the government is not prepared to support.

a. Technical and Service Management

Doctors interviewed agree that the environment affects the general health of the population and many argue that there is a direct relationship between the living environment and the most common pathologies. Only massive investments in basic sanitation, the doctors argue, notably channelling the gullies and developing a sewage system, can improve the health of the population. It is difficult to implement an effective public health plan if conditions encourage the spread of infectious and contagious diseases due to the lack of basic sanitation.

Increased awareness of the inter-relationships between health and habitat, and a campaign to improve health, may draw together many different organizations. However, despite the existence of resources, doctors believe that significant action is not being taken because political and administrative factors prevent the integration of activities between the different levels of government.

Despite such institutional problems, it is possible for the doctors to take limited action. However, many of these professionals avoid the real

This investigation has shown that there is little precise understanding of the relationships between health and the condition of the environment.

problems and fail to adequately help the users of the health service. They fail to recognize the relationship between a patient's health and their living environment, particularly in the peripheral districts. Preventive action is often not taken; many of the most needy families have little information and a poor education, and do not know what measures to take. Little is done to stop the continuation of infectious and contagious diseases.

b. The Leadership of the Districts

The statements of community leaders interviewed in the northern and eastern districts make quite clear their views about the inter-sectoral dimension of the health question, and the issue of participation. In the words of one community leader in the periphery of the northern zone: "The demands relating to health are related to others, because to discuss the health question it is necessary to discuss the cost of living, the place where people live."

All community leaders demonstrated that they know about the relationship between habitat and health, as illustrated by the following quote from one leader in the eastern zone: "The question of habitation has everything to do with health, starting from the low salary that makes it difficult to construct an adequate house. The majority of people in the region live badly, in homes without ventilation or in huts. All this is related to the state of health. It starts with the salary which is miserable and does not provide the prerequisites to build a decent home, apart from the food that is no good."

These statements reflect both the crisis of the public sector (the segmentation of public services whether for operational or political reasons) and the anomalies existing between proposals and the actual implementation of these policies. As a result, in practice there is little evidence that practical action is being taken.

People's struggles are principally connected to maintaining existing health centres which are often short of staff. Problems may also arise with respect to professional staff, who sometimes show little real interest in the problems of the people. Conflicts sometimes occur with the professional personnel because these people are unaware of the problems of people in the periphery. When good professional staff who are prepared to discuss the problems of the people are found, they are generally removed or transferred

VIII. CONCLUSIONS

ONE ASPECT WHICH needs stressing is that there are no major differences between the perceptions of people living in the different types of housing, and their understanding and awareness as to how public services operate and their connection with people's daily needs.

It is clear that the people interviewed, whether they feel they have been, or in fact have been affected by the impact of their precarious living conditions on their health, consider that the precarious nature of their environment may affect their state of health. The perception of the inter-sectoral nature of the health question is fairly well-known, but there is a clear discrepancy between theory and practice in the question of how health policy can be successfully combined with other social policies.

This investigation has shown that there is little precise understanding of the relationship between health and the condition of the environment. Therefore, one conclusion is that there is a need for people to be better

informed about the links between the environment in which they live and their health. The replies demonstrate that the interviewees are aware that there are connections between the quality of the environments experienced and the quality of their health, but they know little about the precise causes of ill-health and the implications of particular environmental conditions.

With regard to the relationship between the most important environments for the interviewees (home, district, the workplace and transport) and their state of health, the most critical cases studied were those associated with the *favelas* and the tenements. These dwellings are in the poorest structural condition of those included in this survey. Often large families live in simple walled-in huts on a very small areas which are frequently susceptible to flooding, landslides and fire. In these areas, we also found brick houses built for letting and therefore very small, poorly finished, lacking thermal insulation, and with inadequate sanitary and washing facilities.

The poor physical environment in the neighbourhoods of the *favelas* and the tenements were recognized as being a critical factor in determining the health problems experienced by their residents. The problems identified by interviewees include the poor construction of the houses, the absence of pavements and other infrastructure (principally mains sewerage, canalization of the gullies and drains for rainwater) as well as the presence of waste land in the immediate proximity where rubbish, rats and insects accumulate. It is in these areas that the poorest families are found, many of whom work in the most difficult conditions.

The environment around the self-built housing and precarious housing areas is better both in respect the home and the neighbourhood. The problems referred to by residents relate more to the provision and quality of the facilities linked to the services, above all those of health, transport, security and education.

All the groups investigated made the same complaints about transport facilities: long waiting times, slow journeys, discomfort and the high cost of fares relative to the family budget.

Bibliographical Sources

Sao Paulo Municipality's Mayor's Office (1985), *Plano diretor do municipio*. (Master Plan of the Municipality of Sao Paulo), Sao Paulo, 1985.

Jacobi, Pedro (1985), "Política pública de saneamento básico e saúde e reivindicações sociais no município de Sao Paulo, 1974 - 1984", Doctoral thesis of the University of Sao Paulo (mimeo).