

## *Health and sanitation.*

### *Environmental health and socio-cultural conditions in two favelas in the city of Salvador, Bahia (Brazil)<sup>(1)</sup>*

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#### *Anthropology and Epidemiology: a Challenge to the Analysis of Health and Sanitation*

Historically, health anthropology applied to public health studies to analyse behaviour (Bourdillon, 1990) has been a response to a demand from epidemiology. Health anthropology has focused on interpreting culturally constructed universal symbols which have made communication possible between "social subjects" (Rodrigues Brandão, 1983) and has been dedicated to the discovery of those social structures that relate representation systems and actions with sickness.

The incorporation of health and sanitation anthropology into this research project is justified by our commitment to a model of Collective Health which means that the social sciences become an integral part of research into health (Canesqui, 1995). The epistemological and methodological contributions of the social sciences to the interdisciplinary studies of Collective Health allow for a better understanding of the health-sickness-health care processes from the perspective of the social actors (Nunes 1985, 1995).

The fruits of interdisciplinary projects combining health anthropology and epidemiology generate, above all, profound epistemological debates that endeavour to propose solutions through converging theoretical proposals such as ethno-epidemiology (Almeida Filho, 1998; Gil and Castiel, 1998), or socio-cultural epidemiology (Menéndez, 1998). These two proposals start from an epistemological reflection. First, from within epidemiological research, which attempts to overcome the methodological limitations

in the process of data collection and proposes the construction of new objects of knowledge. Second, which finds itself within the realms of anthropological research, and attempts to integrate the knowledges of the social groups, acknowledging the subjects as active participants in the epidemiological structuring. Consequently, anthropology, and more specifically ethnography, can provide new alternatives that integrate the role of the social subjects into the health process in a more relevant manner. As Almeida Filho (1998) proposes:

«In synthesis, ethno-epidemiology can be put into practice from the fundamental premise the phenomena, health-sickness, constitute social processes, and, as such, have to be seen precisely for what they are: historical, complex, fragmented, conflictive, dependent, and ambiguous and uncertain. It goes without saying that by adding new types of socio-cultural variables and pre-existing explicative structures does not resolve this issue, since simply acknowledging the inherent complexity is not sufficient. One has to respond effectively to the ambiguities and lack of definitions peculiar to this order of phenomena in the majority of its manifestations, and in connection with the historical-cultural nature of its derivations, in search of the meaning of risk and its determinants in society. I believe that the complexities and uncertainties in ethno-epidemiology, currently being developed, represents an opening for exploring new lines of research employing a trans-disciplinary approach which will allow for the construction of new paradigms in the field of collective health.» (Almeida Filho, 1998: 14)

Menéndez (1998) proposes, through health anthropology, a socio-cultural epidemiology that:

«(...) Could recover the meanings and practices that social groups give to their sufferings, problems, anguish, and pain, etc., related to the structural and procedural conditions that are in effect in a given historical situation. [...] Socio-cultural epidemiology lies in recognising the existence of an epidemiological structuring in the knowledge of the social groups which we have to reconstruct beginning with these people themselves.» (Menéndez, 1998: 80-81)

Publications from the perspective of epidemiology<sup>(2)</sup> discuss the issue of converging or diverging points in interdisciplinary approaches. The dialogue between these two disciplines points to a greater understanding of the phenomenon of infectious diseases. The contributions of anthropology to epidemiology are of a methodological nature (Dunn and Janes, 1986): about socio-cultural aspects linked to the causal groups identified by epidemiology, about epidemiological analysis results in order to construct anthropological theories and working hypotheses and around collaboration with epidemiology in research oriented towards prevention and participation in applied programmes.

In contrast, anthropologists now highlight, as the greatest epistemological problem of this approach by both disciplines, the loss of critical capacity resulting from an observation that identifies health problems as being medical. The relevant point here is to try and show how social groups fight for their health without reducing this to problems defined only by the hegemonic medical model. The main challenge is to move beyond the interests of such methodological approaches to construct a theory that would allow for elaborating models that would improve our understanding of the phenomenon of infectious diseases as experienced by the social actors.

### *Health and Sanitation Anthropology*

This study focuses on observing the socio-cultural knowledge and practices as a whole regarding health developed in thirty households located in the outlying areas of the city of Salvador that do not have a sewage system. This knowledge is constituted by the relationship between representations and practices beginning with power relations in hegemonic and subordinate relationships (Menéndez 1998). These representations and practices cannot be conceived in terms of separate explanatory categories, but rather as analytical tools developed to interpret a construction of social reality (Berger and Luckman, 1983). In other words, they only have meaning in the context of research that studies knowledge in the actual dynamics of social experience based on relations produced in the social, cultural, political, economic, and biological domains. The construction of representations and social practices is dynamic and interdependent, being impossible to divide the social experience into a grouping of previous ideas as determining factors for the practices. In addition, it is not possible either to separate social practices from the representations that give them order and meaning.

Scientists who support this separation defend the relevance of these representations as determining factors for the practices to such a degree that this tends to alienate the subject from the process of signification. For Alves and Rabelo (1998) the concept of experience, based on the phenomenological theory of Schutz & Luckmann (1973), overcomes the classic dichotomy between objectivity and the construction of the object, as it is based on intersubjectivity and acknowledges the priority of the practical dimension of the actions of subjects. In the case of becoming sick, it is the body, which makes the subject exist in the world, and the affliction is the way to express the sickness through the body. The introduction of the body into the world

is a process by which everyday life is the only referent for the praxis. Therefore, all human activity can only be understood through itself, through its practical itinerary, that is, through its praxis. Any division of social experiences into representations and practices, as if they were different activities and perfectly separable, is artificial and arbitrary, and, therefore, does not allow the researcher to understand the complex totality of the events.

Our main objective in this research project is to analyse the experience of becoming sick and health care in relation to basic sanitary conditions in the process of appropriating space. Becoming sick is a biological process that is very closely linked to social questions, as, from this perspective, one can understand how individuals interpret their health problems. In order to understand the process of becoming sick in the case of the city of Salvador, one has to take into account the variety of interpretations that exist concerning practices and public policies developed in a context of wide-ranging cultural diversity and marked social inequality. All societies have institutions, organisations, and professionals, whose task is to cure sickness and disease, and everyone uses, to one degree or another, these resources provided for them by their society. This is to say that the ordering of collective experience is closely linked to the therapy solutions constructed by the cultural system. These solutions are related to health care models offered by medical systems (traditional, popular, biomedical), and family networks (at the level of self-care and self-medication). The family is the sphere in which the first preventative and curative practices are developed, and it is precisely this sphere that has been least researched. Behaviour linked to these practices to prevent or cure sickness are socialised in the sphere of the family, and it is the woman who is the principal agent directly responsible for providing and applying this care process.

At the beginning of the 1980's, the increase in anthropological studies on popular therapies was directly related to research policies developed during the period 1981-1990, in turn influenced by the United Nations declaring this as "The International Decade of Providing Water and Sewers". These studies attempted to focus on the study of health problems in populations in general, caused by the absence of adequate sanitary conditions, in search of a greater understanding of the relationship between health and sanitation, and for the development of more efficient measures to reduce infant mortality rates. Within this context, primary health care programmes continued to be promoted as opposed to programmes for supplying water and sewage systems, from the middle of the 1970's, the principal reason given being economic considerations:

«This conjecture was based on the fallacious argument that the cost of each infant dysfunction, anticipated via the programmes for supplying water and providing sewers, was far greater than the corresponding costs for other primary health care measures, such as oral rehydration therapy, vaccinations, treatments for malaria, and breast feeding.» (Heller, 1997: 7)

Research into hygiene practices (Cairncross & Kochar, 1994; Almedom; Blumenthal and Manderson, 1997) has become one of priorities for research into the analysis of mechanisms of disease transmission resulting from the absence of sanitary conditions, and in the search for preventative solutions through primary health care programmes and health education. In this area of research, anthropology found a predominant role, above all within epidemiological projects on diarrhoeic diseases, in studies of social representations and practices linked to hygiene habits and house cleaning.

Sociological and anthropological approaches to the problems of sanitation have been mainly developed in geography (Hardin 1998; Chertow, 1998), and history (Strasser, 1998, Rosen 1994). In anthropological publications the lack of studies into sanitation is a clear feature, with the exception of those focused on the production of refuse (Rathje & Murphy, 1993; Stebbins, 1995). The majority of these studies concentrate on the area of the anthropology of consumption and only Stebbins (1995) tackles directly the problem of the lack of refuse collection related to health. Anthropology explored the subject of sanitation through health studies, changes in consumption habits, and environmental concerns. In the case of epidemiology, Léo Heller (1997) carried out a bibliographical study to analyse, understand, and systematise the relationship between sanitation and health. This study reviewed 256 epidemiological studies concerning sanitation, and attempted to offer answers provided in research publications concerning this relationship through historical, conceptual, and theoretical analysis.

### *Environmental Description of the Slums*

This research project is primarily based on the anthropological study<sup>(3)</sup> of the social experience of sickness and sanitary conditions in thirty households<sup>(4)</sup> in two outlying areas of the city of Salvador. Later on, a comparison will be made between the two communities Nova Constituinte (Periperí) and Baixa da Soronha (Itapuã), for the purpose of observing what socio-cultural differences and similarities exist in these two different outlying urban slums. These sanitary conditions are explored through the analysis of interviews<sup>(5)</sup> with the inhabitants of these two respective slums.

*Nova Constituinte* and *Baixa da Soronha* are located in the outskirts of the city of Salvador in the urban districts of Periperí and Itapuá. They are two urban districts, that we can consider as slum areas, that came about as a result of occupying these areas along the lines that squatters do. In both areas, the inhabitants have a common history characterised by political measures of socio-economic exclusion: the urban infrastructure conditions and environmental sanitation are inadequate, and the economic conditions are those of extreme poverty<sup>(6)</sup>. The total population of Nova Constituinte is 9,748, whilst Baixa da Soronha has a population of 2,671 (FIBGE, 1996). In both areas, the basic sanitation problems are characterised by an erratic refuse collection service, the lack of a sewage system, and the inadequate supply of running water. As regards income levels, the data from the FIBGE for 1996, gave the family average in Nova Constituinte as a minimum wage of 1.39<sup>(7)</sup>, and 2.44 for Baixa da Soronha.

### *Basic Sanitation and the Bahia Azul Programme*

Neither of these urban districts studied has a sewage system. There are two reasons why problems related to a lack of sewage system in Baixa da Soronha is a notorious fact for those living there. First, because it is an occupied area situated on a slope and therefore extremely vulnerable to floods during the rainy season; second, because it is a densely populated area with open sewers exposed in the middle of the narrow streets that represents a health risk to the children. In Nova Constituinte the open sewers and channels, or ditches, give off a similar stench, but they are less visible because there is a lower population density and the inhabited area is on a hill, which facilitates the draining of water. For the inhabitants, improvements to their district and housing conditions are directly associated with the building of a sewage system and a bathroom.

They consider the building of a sewage system as a public right, but in reality this is conditioned by political or electoral promises. Thus, the inhabitants recognise that they are the object of electoral campaigns, and this, in turn, makes them even more aware of the situation of exclusion in which they find themselves. On this subject, Iara (Nova Constituinte) believes that the issue of a sewage system is an electoral trap because as soon as the candidate wins the elections they forget their electoral commitment.

*«Our mayor, Imbassahy, owes us living here because when he was running for mayor, he went up and down all this here, shaking hands with the people, looking at our*

*problem... down here. He went as far as the part where the dirty water runs down, went down to see what could be done to so there'd be less contamination for the people. The thing is that now he's more interested in the city centre, improving the tourist centres, forgetting about the working people that helped him get elected mayor. Ah! Because we suffered through rains and more rains to get votes so that he'd be elected. The people of Nova Constituinte have to collect on this debt from him, Imbassahy.» Iara, Nova Constituinte (3/06/98)*

For the inhabitants of Baixa da Soronha the health problems are related to the lack of sanitary conditions, and, in the words of Lucia, the city council technical staff, after a number of visits to the area, reported what were the unhealthy conditions in the housing in this urban district. During one of these visits, she ironically remembers a question by one of these engineers: "Who said you could build your house over these sewers?" Ignorant accusations of this kind do not appear during the electoral periods:

*«During election time, because they turn up here much more when it's time to vote [...], the streets are full. Once a bunch of people turned up here, folders in their hands making notes about who knows what, and one said: 'Who said you could build your house over these sewers?' They talked. A lot of people talked about this one: 'Who said you could build your house over these sewers?' So, these people that turned up in the street spend their time measuring streets one by one, they're from the city council. This is more a health problem because of that sewer.» Lucia, Baixa da Soronha (24/10/98)*

For the inhabitants, the solution to this sewage system problem is a public / political responsibility issue. In the face of a lack of public policies they try to resolve the problem of flooding individually by re-channelling the water from the sewers that pass in front of their houses. In the opinion of some of the women, the lack of political responsibility in no way exempts them (the people of the area) from taking steps to avoid accidents. Flooding in the houses can also be caused by water from the sewer mixed with rainwater filtering through, or broken pipes that channel the water from the toilets to the septic tank. The people from the area also believe that these floods from the sewers are also a result of a lack of responsibility within the neighbourhood because they have not built a ditch to redirect the water flow.

During the process of occupying a piece of land in Nova Constituinte, the building of a kind of septic tank, in the form of a deep hole construction, is an option taken up by only a few families to get rid of human excrement. Those few women who have this kind of septic tank complain about the maintenance and poor construction quality which can lead to water filtering through, or blockages that end up making the situation even worse, adding to the problem of keeping the house clean. In the case of Rosa the

main problem is the construction because of the flow of subsoil water. She herself acknowledges the need for a sewage system:

*«[...] My problem here is a sewer, a sewer system we don't have. I dug a kind of septic tank hole at the end of the yard (quintal), and water seeped out. I had to cover it up. I dug another one, and water seeped out of that one too. So, to improve things around here, I think (we need) a sewage system, not so much for water; there's water; even though you can go two or three days without, we've always got water. In other places they can go two weeks or a month without. For me the water isn't such a big thing. The big thing is the sewage system. This street is full of mud and when it rains we slip over a lot.»* Rosa, Nova Constituinte (5/08/98)

The dirty waters are waters from the sewers that run through the yards, streets and open channels. Dirty waters are defined as those resulting from washing, washing clothes and dishes, and the more contaminated waters where urine and excrement are mixed together. Most of the families from Baixa da Soronha have a toilet, but the waste pipe goes directly into the open channel. In the case of Nova Constituinte, the majority of the families use “balão”, as a method for getting rid of excrement. It is deposited in newspapers or plastic bags and then put in the garbage close to the house or in the river known as a sewer for the houses in Vista Alegre. The only three households that have a toilet built their own septic tanks. Although they realise these require maintenance, none of them are in a position to provide the necessary and costly upkeep in order to maintain some kind of level of cleanliness in these tanks. Consequently, when the septic tank is full, the most common solution is to build another near the house. For others this is conditioned by the channelling of running water, usually located higher up from the septic tank.

*«The little that I have learned has taught me that we must be careful with the septic tank. The water mustn't come into contact with the contaminated places because this means our health. We are already poor; we don't have money to spend on a good diet, so are we going to spend it on medication? We can't! So, we're going to lay down another pipe [...] and lay it so we can use the septic tank in front. We'll have a pipe that will let us breathe, so there isn't a bad smell inside the house.»* Iara, Nova Constituinte (3/06/98)

In some cases the people burn the excrement, however, others prefer to bury it in their own yards rather than take it to the garbage dump:

*«You make a really deep hole in the yard near to the house and there it stays, and it gets thrown in there. When it's nearly full you cover it up and make another hole [...] They say it's better to throw it away, but even if it's in a closed bag inside another closed bag the smell still gets out. That's why I don't agree with this, because the bad smell stays in the yard. I prefer to bury it [...] They say it's better to bury it.»* Milena, Nova Constituinte (29/07/98)

Furthermore, the “balão” can even cause, on many occasions, fights between neighbours. For example, Marli decided not to throw away the ex-

crement near to her neighbour's home to avoid complaints. It was as a result of arguments and threats from this neighbour to report her to the Public Health authorities that resulted in her changing her mind:

*«We don't have toilet, if we need to go to the toilet, we have to go down there, in that stream down there, in those bushes down there, that's where we have to do everything. If I have to go, I have to go! We can do our business at night, at night, and go over there and dump it. Any way we can in those bushes, in that crazy river over there, whatever. A sewer! We have to do all our business there, dump it there, because before, I'm not going to deny it, I used to dump it over here. When there were bushes, those great big bushes at the foot of that 'araça' tree that's where we used to dump it. After so many arguments, when the people come from their hell they only look for an argument. I don't like to argue things out with nobody. I'm not one for arguing things out, if I have to argue with a person I smack them in the mouth, I'm for sitting down and smacking them in the face. It don't argue things out, I haven't got the patience for that [...] Dumped it time after time I did, I'm not going to deny it, because I'm not a liar. So, we used to gather it up and we dumped it there, him and the children the same as me, we all dumped it there, but to avoid arguments, because there was one who said he was going to call the Health authorities, I don't know, I don't know! Arguing and me listening over there at the door, he didn't see me. I said to him: 'What are you talking about?' And when he started on about us we'd already stopped dumping it there, when he started on about us we weren't doing the 'balão' any more, we were dumping it down there!!! At night we make use of it (the bushes), because you can get the call any time of the day or night. Midnight, any time. We head off for the bushes and there's no knowing who's down there. I stopped dumping things over here some three months back now.» Marli, Nova Constituinte (16/03/98)*

The women are of the opinion that the Bahía Azul project will improve the sanitary conditions. But, the construction delays, increase of mud in the streets, and the lack of safety during the construction work, have generated more difficulties for the people living there resulting in accidents, such as those involving a number of children and others during the period of this research. The risk of accidents occasioned by the building of the sewer covers is a constant worry:

*«Those from Bahía Azul came in here, put the covers here. When Bahía Azul came back, or another company, and finished the work, everything will be dug up again, what I mean is, there's going to be more mud, more holes, and lot of people falling over. I fell over as well, because of the problems with Bahía Azul. They dug over here, it filled up with mud, and I came by and fell over right by my front door. If I'd banged my head against one of these sewer covers I'd be dead. Why didn't they finish the job at the same time? [...] Then, he fell over (meaning her youngest son), he slipped again and the sewer stopped him [...] They should have done the whole channel, but they only did this. So, are they going to come back and do it again? I reckon there's a lot of hard labour here, a lot a work badly done, is it that they don't see we haven't got it! I myself dug two septic tanks, I'm not in a position to put one here because it'd fill up with water.» Rosa, Nova Constituinte (15/05/98)*

When the construction work was finished the sewer covers in the streets stuck out and were a danger to the children. Those who were in favour of the wastewater disposal programme quickly changed their minds when the people had to deal with the problems of the construction work (mud, holes, accidents, etc.). The lack of information about the increases in the rates bill for connecting the households to the system was a major concern for one person who acted as a go-between for the Bahía Azul programme in the area. Those inhabitants that took part in this research were given no information as to how much the rates would increase.

The degree of misinformation concerning how and when the households would be connected to the central sewage system, the fear of what fines would be in case of inevitable clandestine hook-ups to the sewage system, are only some of the main problems that the women associate with the Bahía Azul construction project. We would like to make the point that these women see the prospect of implementing basic wastewater disposal as a health benefit. Meanwhile, the waiting period involved for achieving this goal makes manifest the problems involved because, at the same time that people are obliged to change their daily habits, they have to face up to new difficulties. That is, mud, holes, enormous cement pipes scattered all over, that are the causes of accidents such as falls, and result in complaints against what, in fact, should be a right for the inhabitants. In the following narration, a woman is frightened of being fined for making a domestic connection to the sewage system before the sewage system is up and running. On this topic, Rosa gave an example of a neighbour who secretly connected his domestic pipe to the sewage system and was warned by the engineer that if he did not disconnect his pipe he would be fined:

*«I found out when they were in Nova Constituinte, they came by here saying they were going to build a sewage system. I stayed; I wanted to find out about it. A sewage system? When they got here I asked them. They told me: 'It's the Bahía Azul that's going to build a sewage system and you aren't going to have any more problems connecting you house to the septic tank, and then from there to the street. You won't have to build a septic tank at the back of the yard, you'll be able to take a bath, hook up the water, everything'. He told me: 'We won't be digging up the entire street'. They put a sewer; they laid down the pipes. But, up until now, they've put the sewers and pipes but there's not place where we can make a connection and make use of the Bahía Azul programme, as they're blocked off. They built a sewage system but we can't use it. If we try and use it the fine is two minimum wages [...]»*  
Rosa, Nova Constituinte (5/08/98)

In the occupation of Baixa da Soronha, where the sewage system was built during the period of data collection for this research project, the women expressed different opinions and ones of suspicion and distrust regarding

the city council's promises for entering into this wastewater disposal programme:

*«The very ones who run the council know about this here. They know what it's about. They were here a number of times, politicians. We had.... A lot of talks with politicians, they came here a number of times, including the engineers from CODE-SAL, people from the council, the mayor, city councillors, county councillors. They all know about this. [...] Bahía Azul is a sewage system project for the city isn't it? But the Bahía Azul that's going to take care of the sewers isn't the only thing that interests me. This project... after four meetings, getting the people together and explaining that it had to be built between November and January. We had meetings in a company here [...] and this group went to the last meeting at the Music Hall, in Largo de Abaeté. [...] A politician, one with another, reckons it should be this way, another reckoned that something else should be done, another reckoned nothing should be one, but the promise was so big that there were people there from the URBIS, from Caixa Econômica... So... for those that understood there was no problem, there wasn't going to be a problem [...] the promise was that it was going to be done between November and January. We're now in May. [...] Bahía Azul aren't going to take part in the work.» Jorge, Baixa da Soronha (08/05/98)*

In Nova Constituinte, the women consider what they are going to do in the future when the Bahía Azul wastewater disposal programme comes into effect, as some of them are holding back on certain alterations to their houses and are planning the building of a toilet for when they are connected to the sewage system:

*«I wanted to put a bathroom (points to the bathroom), and a toilet... The whole works because the installation is already there (she means the Bahía Azul sewer, and I'll build my toilet [...] when I've got the money [...]).» Ana Luiza, Nova Constituinte (31/03/98)*

### *Health and Sanitation*

Within the collective knowledge there is a direct association between basic sanitation and health. The relationship is qualitatively proportional; that is, a better quality of sanitation increases the level of health of a person. For the inhabitants to enjoy good health they need a healthy diet, and a sewage system and a refuse collection service are necessary. On this point, Deuzita highlights the sewage system as a principle element for the health of children:

- *«That sewer that runs along the back of the house is harmful and a lot at that.*
- *How do you think this problem of a sewer for the community can be resolved?*
- *By simply making a channel, which is what Bahía Azul is doing at the moment. They're making the channel, it's the only thing.» Deuzita, Baixa da Soronha (4/08/98)*

Among the representations concerning sewers, it is the presence of excrement that represents the greatest threat to health. The sewer indicates one of the excrement outlet strategies. In addition to the situation of accumulation of excrement in the sewers, there is the possibility of contamination in the refuse caused by rain which can result in being mixed with running water because of the precarious condition of the pipes. The lack of maintenance by the Water Company EMBASA only favours the proliferation of diseases, as Iara well observed, especially in relation to diarrhoea:

*«There's a kind of diarrhoea that's caused by the accumulation of everything where the rubbish is dumped, there are a lot of flies, mosquitoes, and mud and they get into the sewage system itself. You should see the amount of pipes that have come apart! Over here there are a number of pipes built by EMBASA that have separated.» Iara, Nova Constituinte (3/06/98)*

The increase of sewers, the stench that they give off, and the mosquitoes, are the causes of sicknesses that the majority of the people here are familiar with, and which can only be avoided by building a sewage system that is the responsibility of the state. To reduce the risk of environmental contamination caused by the sewers, the inhabitants are of the opinion that urban policies developed in Brazil up until now have to change in order to work to the benefit of those inhabitants living in these precarious conditions. The relationship between the environment and politics / policies is fundamental for understanding the following narrative which concerns the transmission of diseases:

*«[...] There were so many people making formal complaints about the sewers, that they were a hazard to the children, even causing intestine infection, so many things, causing tiredness, lack of air, everything was happening in Brazil. And so I complain about this, that because of the time these miserable sewers have been here, swarms of insects [...] I don't believe God is going to bring any disease to anyone [...] Here in Brazil there's a lot to be done that the presidents and councillors don't do. At the end of the day it's the person living here that suffers. These sewers need some serious work doing to them. Everything is rush, rush, rush in this land because of these sewers, and it's only going to stop when they fix this sewer. There are some days when that sewer stinks... you wouldn't believe the stench! That over there only brings bad things for the people because it's never going to bring anything good. The water running down over there is contaminated, it's like a bomb waiting to go off.» Ivana, Nova Constituinte (1/04/98)*

The increased presence of mosquitoes is directly related to the accumulation of water, be it from sewers, channels, ditches, or buckets where clean water is stored. The women believe that the risk of disease is greater from those mosquitoes that fly over the sewers than those that are close to the buckets of water. In a campaign by the city council to avoid dengue fever, the people were advised to cover their buckets to avoid the accumulated

exposed water in the houses. This campaign was relatively successful in changing habits, but the system of representations concerning the origin of dengue fever for some people is based on the idea that only those mosquitoes originating from sewers are the most dangerous. In this sense, the gravity of disease symptoms is related to ideas of contamination:

*«I keep it in tanks with lids, the bottles have got lids on. I don't leave any water open to the air. I'm frightened of the dengue fever mosquito. As bad luck would have it I caught dengue fever once; it wasn't in my house. When I came here from there I crossed that stream over there where the sewer runs. It was infested with mosquitoes. I crossed over one day, it was at night, I didn't feel right in my body and I thought I was going to pass out. My body was suffering, hot and cold at the same time. The next day I woke up with a fever, and I went to work like that, I felt giddy, nauseous and that pain and headache was so bad. I couldn't work all day long. I came home, I got there, I went to bed and my whole body was in pain. I went to see the doctor and he told me a dengue fever mosquito had bitten me. I was fifteen days in bed, the only thing I could have was orange juice, carrots, limes, and drinking salt solution so I didn't dehydrate.» Iara, Nova Constituinte (26/07/98)*

For her, the mosquitoes that live in the sewers are the cause of dengue fever. This is especially the case for the small stream sewer for the houses in Vista Alegre, whose stench attracts sickness and mosquitoes. In her house, the advice given by the Public Health authorities regarding water is of no use because the street brings the disease to her house and her body.

Another of the informants from Nova Constituinte, Ana Luiza, observes a strong association between the presence of filth, the increased presence of mosquitoes, and the origin of dengue fever. This sickness affects many of the population in this area, and because of the gravity of the symptoms they believe that a feeling of weakness in the body (*fraqueza*) is related to the danger which the sewers represent. This, and the question of refuse, are related to leptospirosis known as the “rat sickness” or “rat urine sickness”:

*«Dengue fever is caused by the mosquito that's because of the filth, because if the water is stagnant it gets dirty. The dengue fever mosquito bites a person and they can even die from it. A person gets sick, and a person also breathes in the stench from the sewer, and a person gets sick. You can't breathe. You've got to be able to breathe clean air, good air, and not a dirty air. You get home and you can smell urine in the air, you can smell the excrement in the air, rotting mud, you can smell, I can even get a headache if I come to a place where I'm breathing foul air. My head hurts, I begin to get a headache, and then this can give a person a problem “. Get sick, get dangerously sick, and die [...]. The filth only brings sickness, in the body, in the house, in the street. We have a lot of children that are running around all over the place, stepping on garbage. This is harmful, and the rat, the rat urine. With the rat urine you'll end up in hospital, it's dangerous.» Ana Luiza, Nova Constituinte (4/03/98)*

The foul smell represents one of the causes of infectious diseases. The system of representations concerning the foul smell of the sewer does not establish a separation of cause and effect. The system was developed as a result of great efforts during the period of hygienist medicine (Larrea, 1997), in the 18<sup>th</sup> and 19<sup>th</sup> centuries before the experimental discovery of the microbe, however, one can still see a deep-rooted association in the collective knowledge. For example, in Baixa da Soronha there are constant references to the foul smell from the sewer, which apart from producing discomfort has the ability to generate diseases such as parasitosis (verminoses), cholera, and leptospirosis. The foul stench inside the houses generates discomfort for the inhabitants who, in spite of being accustomed to living with these smells, complain about them and suffer as a result. In these sufferings they claim that the contaminated air is the origin of many sicknesses:

*«There's a fair range of parasites, different parasites, sometimes vomiting problems.... There's a cholera one. There was a lot around here [...]. There's that problem with dengue fever as well. [...]. There's that dead rat sickness [...] sewer rat poison.... A boy from around here said he had it. It rained and the street flooded. He went to the vegetable garden at his aunt's house. When he got there he started to run a temperature, fever and giddiness. He went to the hospital. When he got there the doctor said he had... What do you call that sickness? That rat urine sickness. They had to admit him into emergencies at Couto Maia [...]. It's not easy to cure... because after he stepped on it he got it; do you understand what I'm saying? He went to the vegetable garden and for sure he walked over there.»* Lúcia, Baixa da Soronha (24/04/98)

Simple covering one's nose cannot solve the problem of the foul smell from the sewer; that is, it is not simply a problem of the senses. It affects one's being in the world where life is organised around the pollution, contamination, decay, infestation, and decomposition. The smell of the rotting meat enters the house, the body and one's life. For some of the inhabitants, the smell of the sewer and the refuse are responsible for respiratory sicknesses known as asthma or tiredness that mainly affect the health of the children.

*«They're alright, but after a little while they start to get tired, it's the tiredness. I call it tiredness but people call it asthma. I think it's called asthma, 'dispinéia'. The doctors reckon its that, but I call it tiredness [...]. The rain, it hits the ground with that stench, you see a child's lungs aren't like mine. I'm already thirty four years old and he's five, and his lungs are more sensitive than mine [...].»* Rosa, Nova Constituinte (5/08/98)

The dirt from the streets inevitably enters into the house. This informant describes the relationship between the ground and the body and how prejudicial it is to the health of the children:

*«[...] The mud ground in this bit, it's the only ground they walk on. I reckon it's because of the ground from there where the parasites can get into your foot, the dust*

*when you sweep. A lot of dust gets stirred up, then you get the flu, you start sneezing, your nose starts to run. All of this is harmful.» Rosa, Nova Constituinte (5/08/98)*

In both communities, in addition to the foul smell and the evident increased presence of insects around the sewer and filth, the custom of going barefoot is considered by the women to be a main cause of infectious diseases. The majority of the women allude to the relationship between walking barefoot and parasitosis, although they acknowledge their failure to change this habit among the children. This is a habit practised in the house that extends into the street, or rather, in area surrounding the house, the neighbourhood, and to those places where one feels like walking. For these women, the dangers of this habit are greater among children than among adults. It should be pointed out that many of these children and women are lucky to have one pair of shoes which they tend to keep for when they go into the city or on some kind of errand:

*«Here we've got the sewage from below, from the house of one of the women here [...]. There's tin, a pile of rotting clothes, a pile of rubbish, and there's a lot of mosquitoes, a lot of things. Sometimes the children play barefoot [...] sometimes a marble falls in, they pick it up with their hands, then they put it in their mouth. That's what it is. The sewers running down there. All the time putting their hands in to get something [...].» Elza, Baixa da Soronha (7/08/98)*

In the group of social representations concerning the idea of contamination, the informants consider the presence of the sewer, refuse, mosquitoes, foul smell and filth to constitute the causal system of infectious diseases. Notwithstanding, the lack of public policies is a question that is very closely linked to this environment of sickness. As an example, the foul smell functions as a metaphor to allude to the lack of sanitation and the subsequent lack of health in the two communities under study. The housing conditions associated with overcrowding, particularly in Baixa da Soronha, constitute an increase in environmental contamination. In this quote from Deuzita, one can observe that the increase in urban overcrowding is prejudicial to health conditions:

*«For me contamination is that sewer in front over there. The rubbish... for me that's contamination, the rubbish from the house... the rubbish that comes from the sewer, the excrement all together. It's all-open in the street [...] running down the sewer, everything runs down...dead animal, dead rat, a lot of excrement. Anything you can think of runs down that sewer. Us here with the house like this over it. More people started moving in here and so there's more running down the sewer.» Deuzita, Baixa da Soronha (12/08/98)*

In the theory of causality founded on the principle of contamination they include the presence of bacteria, germ, and microbes:

*«Contamination must be like this, something smelling bad. Rubbish dumped anywhere, an animal dies and they dump it anywhere, a sewer with that excrement can*

*cause contamination. Excrement runs down it, microbes, and germs. It's contamination.» Marli, Baixa da Soronha (5/08/98)*

The references to smells, as much when talking about sensory discomfort as the theory of infection, constitute cognitive tools for developing a system of representations that associates precarious housing conditions with health. The use of olfactory metaphors for the origin of sicknesses in the system of transmission also constitutes a political mechanism for denouncing the conditions of social exclusion which places the majority of this social group a long way from urban improvements.

### *Conclusions*

In this study we have observed that the lack of basic sanitation represents a generating element for criticisms of public policies and the role of the State in the outlying urban slums. For the inhabitants of both areas the issue of sanitary conditions constitutes a “utopia”, and because of this, projects such as the Bahía Azul programme, are viewed with mistrust and suspicion. The dream of living in an uncontaminated urban area does not exclude them from looking for solutions to the problems of sanitation, such as the building ditches, channels, and sewers that re-channel the water supply and the rain. Meanwhile, they demand as a first priority, sanitary conditions as an acknowledged right for citizens, which later becomes an issue of health.

An analysis of the daily experience concerning the association between sanitation and health, constitutes a fertile research area that allows one to observe how the way of life, linked to the environmental space, is related to health care. Following on, the concept of contamination is the social category that best relates problems deriving from filth, produced by the accumulation of garbage and the presence of sewers in the streets, to the origin of infectious diseases. Since the representations that derive from the category of contamination express the idea of social order, the repeated contacts between filth increase the negative symbolic meaning leading to thoughts of the dangers of disorder and the origin of disease or sickness. “Filth only brings sickness, as much to the body, as to the house and in the street”, were the words of one of the women interviewed. This expresses the relationship of symmetry between the different elements that give shape to a same system of reference: sickness. What is applied to the person, the body, is also related to the society, the house, and the street. The social problems deriving from the built-up urban areas, associated with the social

exclusion from public services of wastewater disposal, are placed here in terms of contamination. This reference is a precept of political denunciation of the precarious material conditions experienced by the communities living on the outskirts of the city of Salvador. In this sense, the social practises of elimination and avoiding contact with filth must be seen as creative activities by individuals to organise their surroundings, as much in the political and moral sense as in the sense of daily life.

The question of basic sanitary conditions is perceived as a political project associated with improvements to the district. The application of the *Bahía Azul* programme, in this study, generates a whole set of expectations in the inhabitants linked to these changes in the urban conditions of their districts. In other words, we can say that although the sewage system represents for many a social right, the most important aspect regarding a wastewater disposal system refers to the connection of pipes that goes from the street to the house. In this sense it is the bathroom that would guarantee the individual toilet, an indicator to be considered. From house to street and vice versa, are the spaces where the people locate the social and individual representations such as filth, contamination, foul smells, feeling unwell, and many others, to signify the need to live in healthy surroundings. Healthy means streets without mud and with a refuse collection service, houses with bathrooms and clean water, as well as better medical care and diet.

For the inhabitants of both urban districts, sickness comes from the street and penetrates the house and the body. Externality and internality confer a unique place to represent the body for those who live in these poor areas of the city. Meanwhile, there are marked differences between these slums that are the focus of this study. These differences are hardly physical in nature but rather related to the individual contexts of the state of progress of the *Bahía Azul* programme. That is, one of the urban districts (*Nova Constituinte*) is undergoing a process of implementing the wastewater disposal programme; and the other (*Baixa da Soronha*) is living through a waiting period with regard to the implementation of this project. These two situations confer different ways of thinking about the sewage problem:

- Where the work has begun, the inhabitants are not passive observers of the installation of sewers; rather they admit to the necessity of connecting them to their houses. So, the house would become part of the street and the district, and the collection of houses linked by the subsoil would give shape to a city district equally connected between streets and houses. In the meantime, they confidently await the beginning of the connection unaware of the future rates to be paid and they cannot always count on sufficient economic means to dig up the ground and lay the pipes.

- Where the sewage system construction work has not begun, the inhabitants give a meaning to the Bahía Azul project as an invisible programme, although at the same time they expect it to happen. The expectations generated are the time process that conditions individuals to reflect on the question of wastewater disposal. They are not well informed concerning the implementation process in their area and do not understand why they have not yet been able to benefit from the programme as in neighbouring urban districts.

While they wait for a basic wastewater disposal system, the inhabitants of both urban districts reflect in their words the social devaluation, the problem of sicknesses, the precarious conditions of their sewers at present, but above all, the waiting that has become a new element inevitably incorporated into their daily life. That is, the social actors narrate their perception of the importance of sanitary conditions for health. They live in hope of other improvements (asphalt, housing, etc.) after the sewage system has been built. It is for this reason that the problems associated with the construction work are seen in a negative light as they do not foresee future improvements to their own district. Because they see the process of the programme as being dependent on promises made by politicians during electoral campaigns, they are suspicious as to whether the work will be finished and functioning. In Nova Constituinte, where the building of the sewage system was finished during the field research for this study, various problems were observed which were associated with the lack of safety during the construction work and the misinformation that they received during the period of construction and its subsequent implementation. In the case of Baixa da Soronha, the Bahía Azul programme generated expectations of improvements in the district, but a utopia linked to political interests, this being the reason why it was considered with suspicion and lack of credibility in the majority of the interviews.

The narratives of the social actors are negative references to the conditions of open air wastewater disposal, associated with the origin of sicknesses such as dengue fever, the rat sickness (leptospirosis), parasitosis, diarrhoea, and tiredness... The issue of sicknesses of the body, suffered as a result of the lack of sewers, is very closely related to their “sick houses”, their “sick district”. In addition to the foul smell being responsible for sickness, it constitutes a stigma of the sick environmental space.

Finally, it should be pointed out that anthropology and epidemiology have collaborated in this analysis to rethink and offer solutions to problems of health beginning with the experience of the subjects, as proposed by them. One of the proposals put forward by this paper is to try to encourage the development of ethnographic studies in the area of health anthropology and sanitation focused on the analysis of the experience of subjects who

live in areas with precarious sanitary conditions. In other words, this ethnographic study reveals the importance that the subjects give to the association between environmental political elements and health when referring to the absence of sanitation.

## Notes

<sup>(1)</sup> This article is the result of 18 months of ethnographic field work in two favelas in the city of Salvador de Bahia (Brazil). This anthropological study was developed within the interdisciplinary project of the Collective Health Institute of Federal University of Bahia and financed by the "Departamento de Recursos Hídricos" of the Bahia State.

We have used the term "favela" (similar to the word "slum" in English) in the absence of a more appropriate term to describe the communities living in the outskirts of Brazilian cities. It should be pointed out that the word "favela" has a negative connotation and the inhabitants of these urban areas avoid using it. Therefore, with the exception of the title of this article we use the term "urban area / district" or "local community" which is more in keeping with the image these people have of the area where they live.

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<sup>(2)</sup> See Almeida Filho, 1998; Gil e Castiel, 1998; Dunn and Janes, 1986; Trostle, 1986; Trostle and Sommerfels, 1996; Caldwell, 1993, and on medical and health anthropology (Menéndez, 1998; Grinberg, 1998; Inhorn, 1990; Inhorn and Brown, 1995; Helman, 1994; Kendall *et al.*, 1991; Massé, 1986; Symposium, 1997; Nichter and Kendall, 1991; Nations 1986.

<sup>(3)</sup> The ethnographic data collection fieldwork was carried out between December 1997 and September 1998. Four research workers in anthropology took part: two in Nova Constituinte and two in Baixa da Soronha.

<sup>(4)</sup> A household is a term used in this study to refer to kinship and grouped affinity relationships that manage survival and social reproduction strategies.

<sup>(5)</sup> To make these narratives more intelligible those of the research workers have been suppressed when the meaning or sense of what is being said is not altered.

<sup>(6)</sup> Guimarães, I. Brandão toma de Santos (1979) his definition of "urban poverty", refers to a specific historical notion socially related to way of life and material privation. In this kind of poverty one finds two aspects linked to urbanisation: «(...) this implies observing the city through two subsystems: an upper circuit which emanates directly from technological modernisation, represented through monopolies; and a lower circuit, formed by small scale activities that mainly serve the poor population» (Guimarães, 1998: 93)

<sup>(7)</sup> In 1998, minimum wage in Brazil corresponded to the figure of 138 reals. A real was valued at this time at 1.18 dollars. Now, in the year 2000, the basic salary is 153 reals and a real corresponds to 1.89 dollars.

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