## 4.7. Case Study 6: SISAR Programme (Ceará)

### 4.7.1. Introduction

The focus of this case study is on a sanitation programme, initiated in November 1992, aiming to deliver safe water and appropriate sanitation to rural villages in the Northern area of the State of Ceará - NE of Brazil (Figure 4.1).

Out of the regions of Brazil, the Northeast is the poorest one, presenting the highest rates of infant mortality, malnourishment and illiteracy in the country (Section 1.2.1.). The rural areas of the state of Ceará are representative of such a picture. The employment opportunities are limited and the main economic activities are usually crop plantations (basically domestic production), fishing and crafts (usually done by women and children).

The areas included in this programme usually have a health centre (with a "visiting" doctor on a weekly basis) and a primary school. The typical sanitation conditions prior to the implementation of the systems were of water collected from shallow wells (or nearest watercourse) and excreta buried or deposited in the backyards.

### 4.7.2. Background

- **Objectives**

This programme became known as the Rural Sanitation Programme of Ceará having as its main target the delivery of water and sanitation systems to rural communities through a "self-sustainable model". According to CAGECE (The Water and Sanitation Company of Ceará), the implementation of this sanitation programme had three main objectives:

- The recovery of citizenship;
- The reduction of water and excreta-related diseases; and,
- The improvement of the community's quality of life.

- **Adopted technologies**

The communities under this programme received both water supply and sanitation systems. The basic water supply systems were constituted by:

- Water source (90% wells with macro measurement);
- Minimum provision for water treatment (chlorination);
- Distribution reservoir; and,
- Household connections (100% measured).

The sanitation projects were based on two solutions: individual projects where the houses were located well apart or did not have a favourable topography (household level much below sewer level), and sewerage for areas with a higher population density.

The individual sanitation projects consisted of septic tanks followed by an anaerobic filter and the final infiltration of the effluent into the soil. The technology adopted for sewerage systems was the backyard condominial sewerage, and treatment was based on either waste stabilisation ponds or communal septic tanks.

Bathroom units were also provided for every residence. Its superstructure were made in precast concrete panels and located at the back of the plot.

- **Selection of the sites to be benefited**

The areas that received the programmes were geographically limited to the Northern part of the State (the region of Sobral). For their selection, a population size criterion was primarily used: the sites had to have between 250 and 3,000 inhabitants. The other requirements that the sites had to comply with were:

- Availability of water in sufficient quantity and adequate quality;
- Availability of electricity; and
- Existence of some level of community organisation.

By the end of this process, 45 districts were selected to take part in the programme.

- **Institutional arrangements**

The donors of the programme were: the Government of the State of Ceará (represented by CAGECE); KfW (a German Bank – Kreditanstalt für Wiederaufbau – as the financing agent); and the Federal Government (as the financial guarantee institution). Four main stakeholders were identified: CAGECE (as the responsible technical agency); the district prefectures (responsible for the payments of the electricity bill and the salary of the person operating the system); a German consulting firm (Kittelberger); and the residents' associations (indispensable for the development of community participation activities).

After 1996, SISAR (an institution to represent the community associations in the management of the sanitation programme) was created and became responsible for the management and O&M of the systems. Therefore, after the creation of SISAR, CAGECE assumed just a supportive role.

- **The implementation phase and community participation**

The implementation phase of the programme was launched between Nov 1992 and Jun 1997. The projects were designed by CAGECE and for construction a self-construction scheme was initially considered (using the labour of householders); however, having in mind that a day out of the householders from their usual activities might aggravate their already high level of poverty, CAGECE decided to hire a construction company to build the systems and encourage it to employ local workers as much as possible.

A consulting firm (AcquaPlan Consulting) was contracted to develop the activities related to community participation. The social activities were developed in parallel to the construction work and the aspects prioritised were:

- ***Community mobilisation:*** the community participation team started helping the areas without an established Residents Association to become organised, and then the planned activities were introduced; these were: presentation of the programme, explanation of the technology adopted, users' responsibilities and agreement on the rates to be charged for the service.

- ***Environmental and sanitation education:*** delivery of messages on the proper utilisation of the systems, hygiene habits and adequate storage of water.

- ***Training of personnel for the operation of the systems:*** The householders were invited to nominate three persons to attend a training course on the operation of the systems. The requirements for this were that the persons must: live in the community; be able to read and write; have good relationship and reliability; and be nominated by the community itself. The best qualified in the course was employed as the local operator receiving a salary of one Brazilian minimum wage to be paid by the local prefecture. The responsibilities of the operators were basically to keep the system units clean, operate the pumps, check the treatment units, solve blockage problems in the sewers and read the water meters.

Regarding the O&M of the systems, the operators performed the daily and simpler activities; however, until the beginning of 1996, CAGECE was the main organisation responsible for the system. The company provided the material necessary for its operation, spare parts and all technical assistance that the systems would require.

A charging policy for the system was considered a fundamental issue for the "sustainability" of the programme. Nevertheless, householders were expected to resist

paying for these services due to the common vote-catching practice of local politicians ("vote for me for free water and sanitation"). Thus, the tariff value was negotiated and gradually introduced (Table 4.14.).

**Table 4.14. –** Tariff values for the SISAR programme

| Date | No. of system in operation | Value of the tariff (R$ per month) | Consumption limit (per month) |
|---|---|---|---|
| Jul 1994 | 15 | 0.70 | unlimited consumption |
| Dec 1994 | 18 | 1.14 | unlimited consumption |
| Dec 1995 | 37 | 2.15 | *initially 5,000 l and then rise to 10,000 l |

*Additional tariff charged for exceeding consumption.

- **The SISAR organisation**

Considering that the programme was designed to be self-sustainable, SISAR – a Portuguese acronym for Rural Integrated Sanitation System – was created to manage the systems. The essence of SISAR is to organise the districts – which have similar sanitation projects, as well as, social/economic characteristics – into an association that not only represents them, but is also managed by them. Providing, therefore, a stronger structure for the physical sustainability of these small sanitation systems.


**Figure 4.59. –** The SISAR flow diagram

As shown in Figure 4.59 (above), SISAR comprises:

a. The **General Council** is composed of 1 representative from each householders association;
b. The **Administrative and Financial Council** is composed of 12 members: 7 from the householders associations; 3 from the prefectures; 1 from CAGECE; and 1 from KfW (represented by the German consulting firm Luso Consult).
c. The **technical sector** is composed of 8 people: 1 coordinator; 1 engineer, 1 maintenance technician, 1 social technician, 1 financial technician (treasurer) and 3 field workers.

Excepting the coordinator of the technical crew, who is designated and paid for by KfW, the other members of the technical sector have their salary paid by SISAR through the money collected from the tariff for usage of the systems. After the establishment of SISAR (1996), the value of the tariffs has been defined annually by a general assembly. The systems have then been charged as follows:

- residence = R$ 3.50 (10 $m^3$/month)
- commerce (big premises) = R$ 4.70 (10 $m^3$/month)
- commerce (small premises) = R$ 1.20 (10 $m^3$/month)
- public = R$ 4.70 (10 $m^3$/month)

The users have their water meters read by the local operator, who tells them how much their bill will be and the treasurer collects the tariff at each locality. By the time of the field survey (Jan/2000), the tariff was based solely on the water consumption without any additional charge for sewerage; however, an update of the survey in December 2000, showed that the water bills were about to be increased (from 15/12/2000) and a sewerage tariff was being implemented. Therefore, the new charging system adopted for residences is now as follows (values per month):

| Residences just served by the water system | Residences served by both water and sewerage systems | Residences just served by the sewerage system |
|---|---|---|
| R$ 4.00* | R$ 4.50* | R$ 1.50 |

* For residential water consumption up to 10 $m^3$ per month

The amount collected from the tariff is the only regular income received by SISAR. From this, a contribution to each residents' association is also made, as follows:

- Districts having up to 100 water connections = R$ 35.00
- Districts with more than 100 water connections = R$ 60.00

This contribution is to be used for small expenditures on the sanitation system, such as for telephone calls to the SISAR office, to buy cleansing material, small repairs (i.e. change light bulbs), etc. Some residents associations also add a charge of between R$ 0.50 and 1.00 per household per month to create a reserve fund for the association.

In order to empower SISAR and stimulate the districts (residents' associations) to join it, CAGECE stopped giving technical assistance to the systems. However, not all of the 45 districts that participated in the sanitation programme decided to join SISAR; 13 of them opted to manage their own systems independently and others decided to leave afterwards. Therefore, SISAR is now being composed by 27 districts (5,249 household connections).

A second phase of the programme (SISAR II) is currently being implemented. This time, however, the programme has the objective of attending areas located in the central part of the State, and, the SISAR I office is preparing a second maintenance crew to attend the 11 new districts of SISAR II.

### 4.7.3. The Areas Studied

Among the districts that received the sanitation programme, four were selected to participate in this study, they were:

- ***Serrota:*** This district is located at approx. 287 km Northwest of the city of Fortaleza – capital of the Ceará. The last 23 km is along an unpaved road and there is no regular public transport. Serrota has 203 houses with the majority of them concentrated in the highest (topographically) part of the area.

  The water supplied by the programme is collected from the dike Tucunduba, which is located about 300 m from the central point of the district (church square), this dike is also an important supplier of fish for the householders.

  Serrota has a residents' association that is being criticized by a dissident group; however, in the last election (Jan/2000) there was no opposition candidate and the group already in charge of the association was re-elected.
- ***Panacuí:*** The best access for the district of Panacuí is passing through the district of Serrota (above). However, the 10 km that separates the two districts is on a very badly maintained unpaved road, which is not possible to drive through during the rainy season. As in the case of Serrota, Panacuí is also located by the border of the dike Tucunduba (also the source of water for the water supply project). This district has 175 houses and the residents' association has been run by the same president for years without significant dissatisfaction among the householders.
- ***Parapuí:*** This district is located in the municipality of Santana do Acaraú, approx. 20 minutes by car from the city of Santana do Acaraú. In spite of the road giving access to the district being unpaved, Parapuí has a better-maintained and safer access than the two previous sites. The district has 220 households and the main economic activity is small-scale agriculture.

  The water used to supply the district is pumped from a deep well and the wastewater is treated in two waste stabilisation ponds. The residents' association has as its president a young woman who seems to be a strong

local leader. The main difference with this association is that it decided not to join SISAR and is managing its sanitation system independently.

- ***Juritianha:*** Located in the coastal area, this district has a much easier access than the areas described before, having a paved road crossing the site. It is part of the municipality of Acaraú and its population is approx. 1035 people.

  Fishing is one of the main economic activities of the district, which also has a better commerce than the other areas studied. Another important activity is making handmade lace, which is made by women and girls to supply the tourist market in the State capital.

  The water supplied is pumped from a deep well and the wastewater is being treated in a waste stabilisation pond or in a communal septic tank.

  The residents' association has just elected a new president, but the ex-president, who is now a local councillor, still has a strong participation.

### 4.7.4. Study Methodology

The data collected from the four areas studied (Panacuí, Parapuí, Serrota and Juritianha) were based on: **the project documents** (supplemented by informal interviews and visits to the projects units), and a **survey questionnaire**.

During the **study of the documentation,** information was collected on the institutional arrangements, on the project costs, the technical parameters applied and the social/educational activities developed. For the **survey**, the whole community was considered the target population and the questionnaires were applied in a sample of households selected systematically. The sample size for each area was: Serrota, 15%; Panacuí, 10%; Parapuí, 14% and Juritianha, 17.5% (N=30, 12, 31 and 36 respectively).

The questionnaire (Annex 8) comprised the following sections:

**Section I -** Identification / Social Economic Aspects
**Section II -** Participation of the community in the Programme
**Section III -** Technology Usage, Functioning and Satisfaction
**Section IV -** Health and Educational Programmes

### 4.7.5. Design of the Sanitation Units

➢ **The septic tanks**

The septic tanks, adopted for the houses that were located topographically out of the area attended by sewerage, followed the design presented in Figure 4.60.

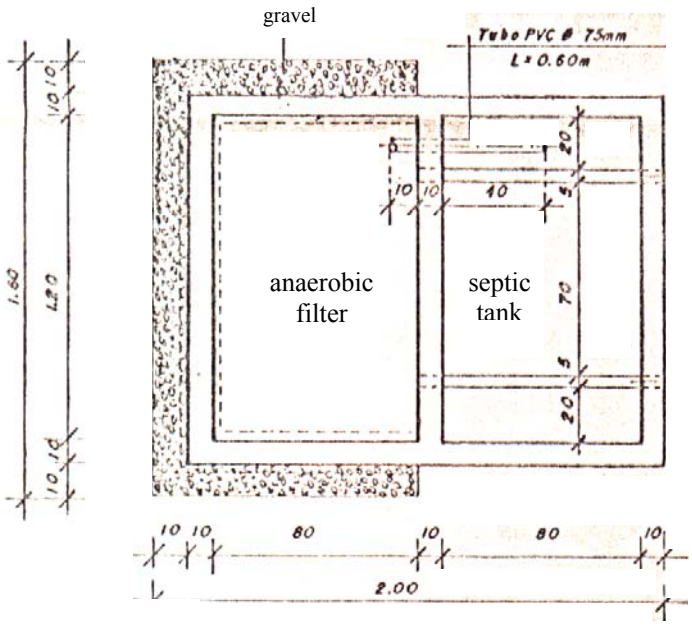


**Figure 4.60.** Dimensions of the septic tank and anaerobic filter (in cm).

- **The condominial sewerage connections**

The bathrooms constructed in the households in the area served by the condominial sewerage were connected to the network through inspection chambers, as illustrated in Figure 4.61.

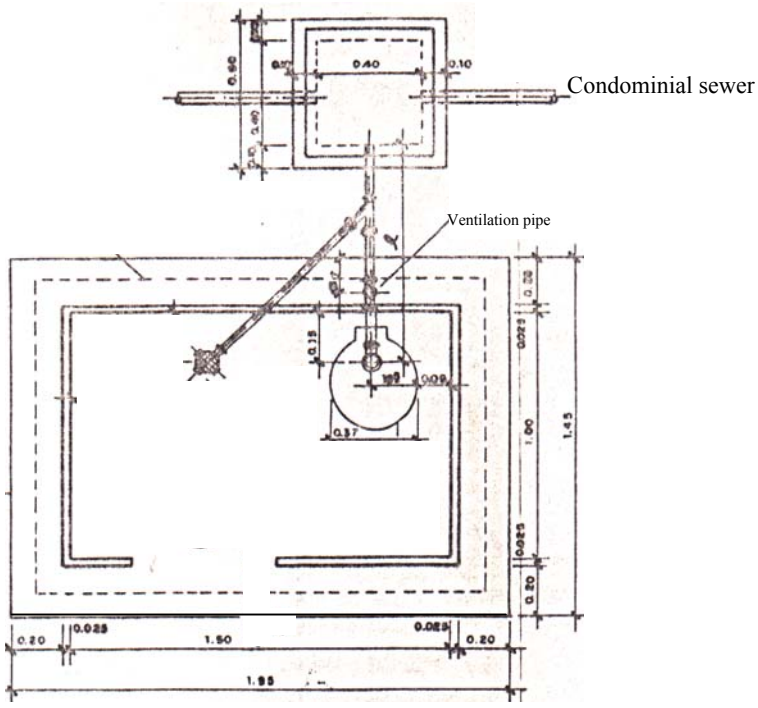


**Figure 4.61.** Bathroom connected to the condominial sewer through the inspection chamber

- **The bathrooms**

Independently of whether the sanitation option was an individual solution or sewerage, a bathroom was constructed for each residence that did not have the facility

or had an inappropriate unit. These bathrooms were built in precast concrete panels having a wooden door, a water-sealed drain and the toilet bowl (see Plates 4.65 to 4.67).

- **The design parameters for the sewers**

The parameters adopted by CAGECE and KfW for the design of the sanitation units were: contribution per capita, 100 l/person*day; return factor, 80%; coefficients $K_1$ and $K_2$, 1.20 and 1.50 respectively; minimum diameter of condominial sewers, 100mm; minimum slope of sewers, 5‰ and minimum cover to soffit, 40 cm.

The designers considered that due to the small size of the communities (smaller than 2,000 people), there was no need for a detailed hydraulic design of the sewers and adopted 100 mm for the entire network.

- **The wastewater treatment plants**

The waste stabilisation ponds were designed as facultative ponds considering a BOD contribution 45 g/person*day, a surface loading of 350 kg/ha*day and a maximum depth of 1.50 m.

### 4.7.6. Project Costs

The financial resources applied in the programme are shown below:

| Institution | Quantity | Restrictions |
|---|---|---|
| KfW (loan) | US$ 8.4 millions | 5 years interest rate (90-95) – i = 4.5% p.a. |
| KfW (donation) | US$ 1.5 millions | Exclusively for the payment of a German Consultant Group, during the implementation stage. |
| Ceará State | US$ 2.5 millions | For costs of personnel, transportation and administration. |

The cost of the systems was, in average, of US$ 183 per capita – US$ 105 for the water supply systems and US$ 78 per person for the sanitation systems (exchange values from January 1999-URL 21).

As to the charging scheme, the system initially presented a “non-payment” percentage of 55 to 60%. This high value certainly constitutes a concerning factor and, therefore, a programme for the reduction of this figure had been launched. Through this programme, the community that presents the lowest “non-payment” rate during a semester is awarded with R$ 250.00 (US$ 126) in materials to be used in the water and sanitation systems. It has also been organised events (a football competition) among the four districts with lower rate of non-payment (see a report in the SISAR informative paper – Annex 9).

**Plare 4.65.** A bathroom unit


**Plate 4.66.** The toilet bowl and drain

**Plate 4.67.** A septic tank/bathroom unit

Another action to reduce the number of users not paying their bills is to disconnect the service. However, this represents high operational costs for SISAR, which has to provide personnel transportation and training in service disconnection.

The last figure obtained for non-payment rate was that in November 2000, the value reduced to 37% (average among all 27 districts).

According to SISAR's technical consultant, the former tariff value (R$ 3.50) was "sufficient" to just cover the operational costs of both water and sanitation systems; however, it is still not "sustainable" in terms of coverage of costs related to depreciation and preventive maintenance. In fact, the average maintenance costs for the months of Jul-Aug/2000 (considered a typical period) was R$ 21,100.00 (an average of 4 reais – US$ 2.20 – per household) for both water and sanitation systems.

### 4.7.7. Institutional participation

A point of concern in the institutional arrangement of SISAR is the participation of the prefectures. They, in general, have not been reliable in their participation and fulfilment of their responsibilities towards the programme (see page 186).

In December 2000, just one prefecture (responsible for the district of Cruz) was fulfilling its agreement to pay the electricity bill for the system operation and the salary of the local operator. Another one (responsible for the district of Cruatá) was covering just the energy costs. For all the other districts SISAR was covering the costs of the salary of the local operator, and some of the districts were charging the users with R$ 0,70 in order to cover the energy costs and guarantee continuity of the service.

Moreover, some of the prefectures are among the "non-payers" users, i.e. not paying the water bill of public institutions such schools and health centres.

### 4.7.8. Field observation

- **General aspects of the areas**

The four areas studied present similar characteristics with respect to both physical layout and householder's habits. The presence of women and girls contributing to the domestic income through the production of handicrafts was very common.

- **The Serrota and Panacuí districts**

Serrota and Panacuí are districts located by the embankment of the dike Tucunduba, which is the source of water adopted by the programme for both districts

(Plate 4.68). The water treatment in each district is composed of slow sand filtration and chlorination (Plate 4.69). The treated water is stored in reservoirs and then distributed to the network. In Serrota, the water is also delivered to a public fountain that supplies a group of houses located away from the centre of the district.

The sanitation systems of both districts are based on condominial sewerage and septic tank units. In Serrota, the system was conceived as one basin that discharges into a waste stabilisation pond. This treatment unit has, in fact, been working as "an open tank" and the surface level has never reached the level of the outlet (Plate 4.70). The Panacuí sanitation system was conceived as three micro-systems, with each one having a waste stabilisation pond (Plate 4.71).

- **Parapuí**

The water source adopted for the Parapuí water supply system was a deep well. However, high levels of iron were identified in the water, requiring the incorporation of an aeration device. The treatment plant also has a slow sand filter and a chlorination unit (Plate 4.72). The sanitation system was topographically divided into two drainage basins with each network discharging into a waste stabilisation pond (Plate 4.73).

The Parapuí district manages its sanitation system independently from SISAR. This decision was taken through a householders' meeting in which the president of the association was one of the main proponents for the self-management of the system. The main contributor to this decision was the resistance of householders in transferring the financial resources collected from the tariffs. Thus, the residents' association manages the water supply and the sanitation systems without support from either SISAR or CAGECE. To be able to do that, the association charges the householders the same tariffs as SISAR and relies on the expertise of the local operator, who was trained together with all the others at the beginning of implementation of the programme. The association pays him the same salary that SISAR.

The Parapuí operator seems to be a confident professional and reported that there were no major problems in the O&M of the systems; and, when he needs advice he affirmed that can always contact other operators or the instructors from CAGECE or SISAR. In order to cover costs for spare parts for the system units, for services that cannot be carried out by the operator, or even for contracts for private technical assistance, the Parapuí association keeps a bank account into which is placed the money collected from the tariffs.

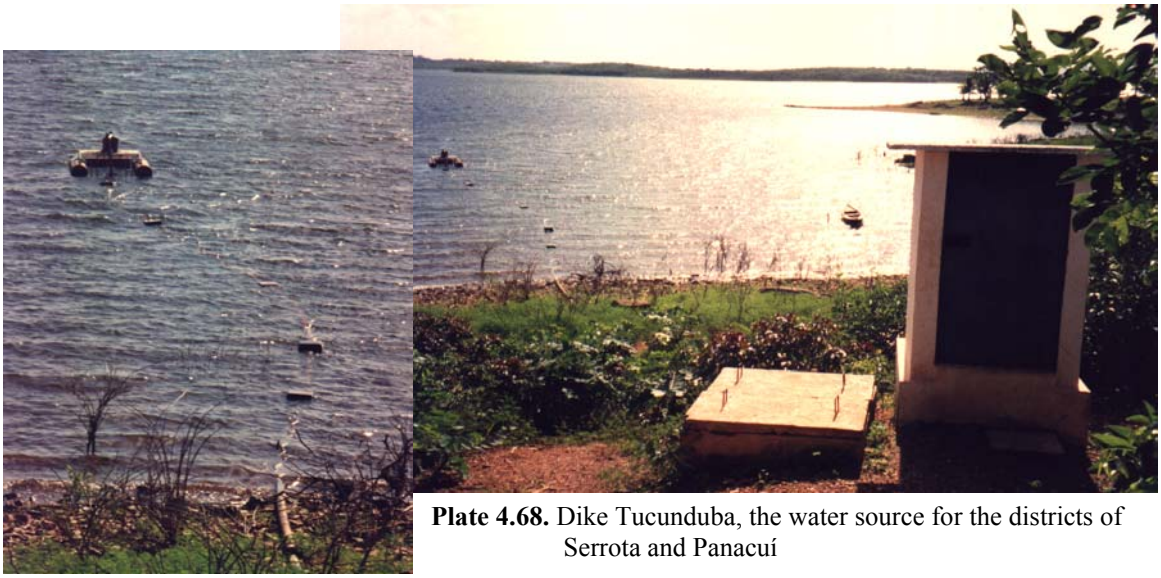

**Plate 4.68.** Dike Tucunduba, the water source for the districts of Serrota and Panacuí

**Plate 4.69.** The water treatment plant of Serrota (right) and Panacuí (left).

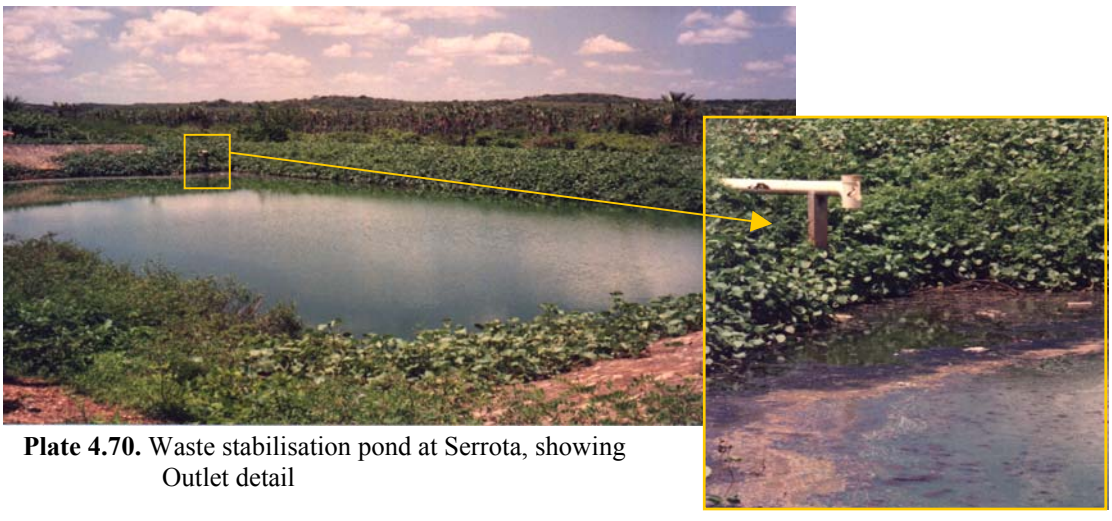

**Plate 4.70.** Waste stabilisation pond at Serrota, showing Outlet detail

**Plate 4.71.** The three waste stabilisation ponds at Panacuí.

**Plate 4.72.** The aeration and sand filtration of the water treatment plant at Parapui

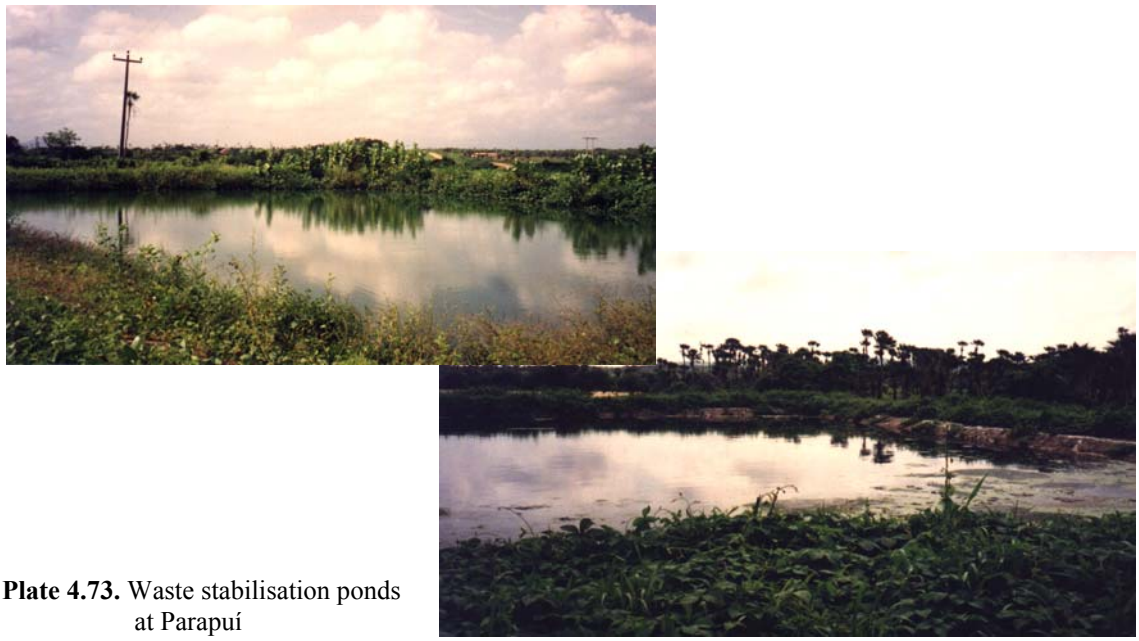

**Plate 4.73.** Waste stabilisation ponds at Parapuí

**Plate 4.74.** Waste stabilisation pond at Juritianha

Plate 4.75. **Communal septic tank at Juritianha**

- **Juritianha**

The district is associated to SISAR and its water supply project followed the basic scheme of the programme: water is collected from a deep well, chlorinated, pumped to a reservoir and then distributed by gravity throughout the district.

As a characteristic of this area, the majority of the households used to collect water from shallow wells through hand-pumps in their backyards. Therefore, for the majority of the community water was always available nearby. In spite of the public health risks of these wells (due to the proximity of latrines and vulnerability from domestic animals - including goats, chickens and horses), the householders reported a preference for the hand-pumped water, which, they say, is tastier than the water supplied by the programme (complaints about the chlorine). Thus, although nearly all the houses had initially received water connections, many continued to use their backyard water for some purpose and then when the water tariff started to rise (SISAR charging policy), householders started asking for the removal of their connections.

The sewerage system was designed as two micro-systems, one discharging into a waste stabilisation pond and the other into a communal septic tank (Plates 4.74 and 4.75). The effluent of the waste stabilisation pond discharges into a rock filter that, during this field study, was being rebuilt due to under-dimensioning (according to the field technician).

The septic tank was not in operation due to a blockage problem. The operator reported that, despite repairs that had already taken place, this unit had never functioned well. In fact, there seems to have a construction problem regarding the level of the tanks. To solve this, technicians were considering two alternatives: the reconstruction of the septic tank unit, or its abandonment (for the last alternative the option for the collected wastewater is to be pumped to the existing waste stabilisation pond).

## 4.7.9. Survey Questionnaire

- **Section I – Identification and Socio-economic Aspects**

The variables measured in this section were: occupation density, property ownership and the time that the families had been living in the area.

The four districts had household occupational densities varying from 4.2 (Serrota) to 5.7 (Panacuí), and the average for the four communities was 4.9 persons per household. The property ownership level revealed that more than 80% of the householders own their homes.

As shown in Figure 4.62, the majority of the families had been living in the houses for more than 7 years and had had, therefore, the chance to take part in the sanitation programme since its beginning.

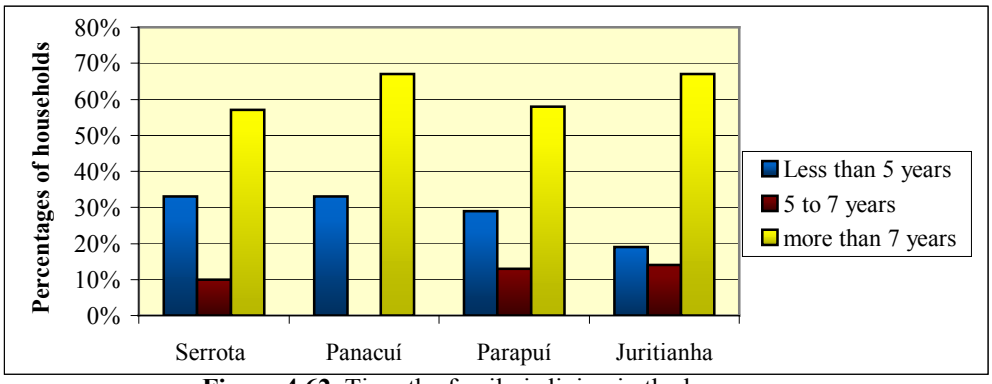


**Figure 4.62.** Time the family is living in the house

The monthly income for the households was not determined due to the characteristics of these rural villages (the great majority of families have no formal jobs and many of them live from domestic agriculture and fishing). This would have required a more detailed survey, which took into account not only cash incomes but also the cash equivalents of subsistence farming.

- **Section II –Water Supply**

In general, the water supply in the four districts was of a yard tap level and problems with the reliability of the systems were only associated with failures in the electricity supply.

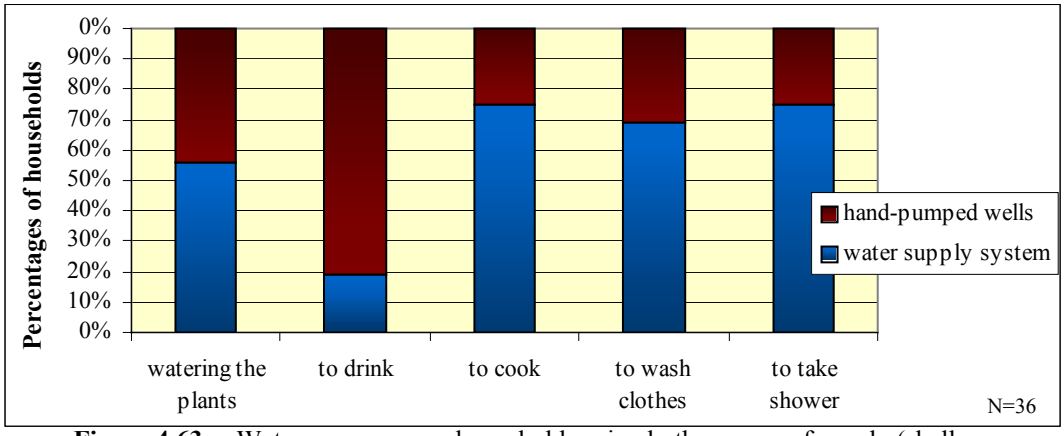


**Figure 4.63. –** Water usage among households using both sources of supply (shallow wells and treated water from the programme) in the district of Juritianha.

In the district of Juritianha (where householders also consumed hand-pumped water from shallow wells), 6% of the households were consuming water only from the wells, 42% were using solely the water supplied by the programme and 53% of the households were using both the water from the programme and water from the wells. As

shown in Figure 4.63, the majority (81%) of the households that were consuming water from both sources preferred to drink the water from the wells and more than 56% used the treated water for watering their garden plants.

- **Section III – Technology Usage, Functioning and Satisfaction**
  - **Technology usage**

The sanitation systems serve 100% of the households in the districts of Serrota and Juritianha, and the Serrota system had the highest number of households served by septic tanks instead of sewers (Figure 4.64).

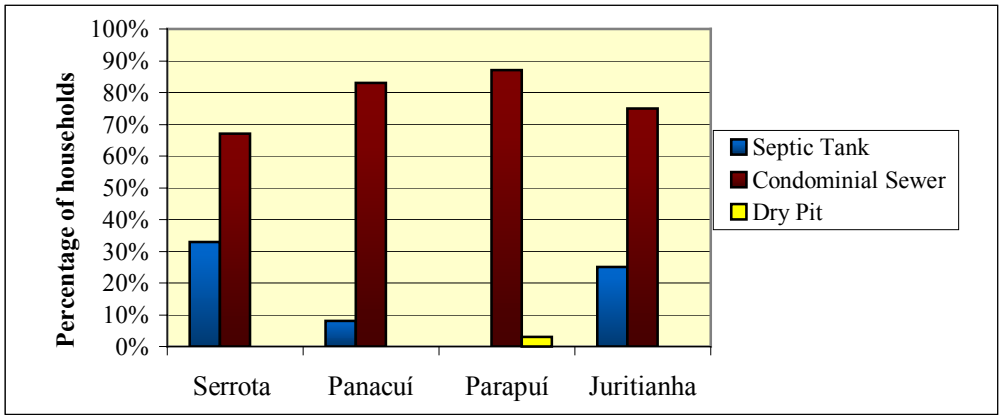


**Figure 4.64** – Sanitation solutions used by householders

Regarding the utilisation of the facilities, more than 83% of the householders declared that the whole family uses the bathrooms built by the programme. In Juritianha, this percentage was 100%, as shown in Figure 4.65.

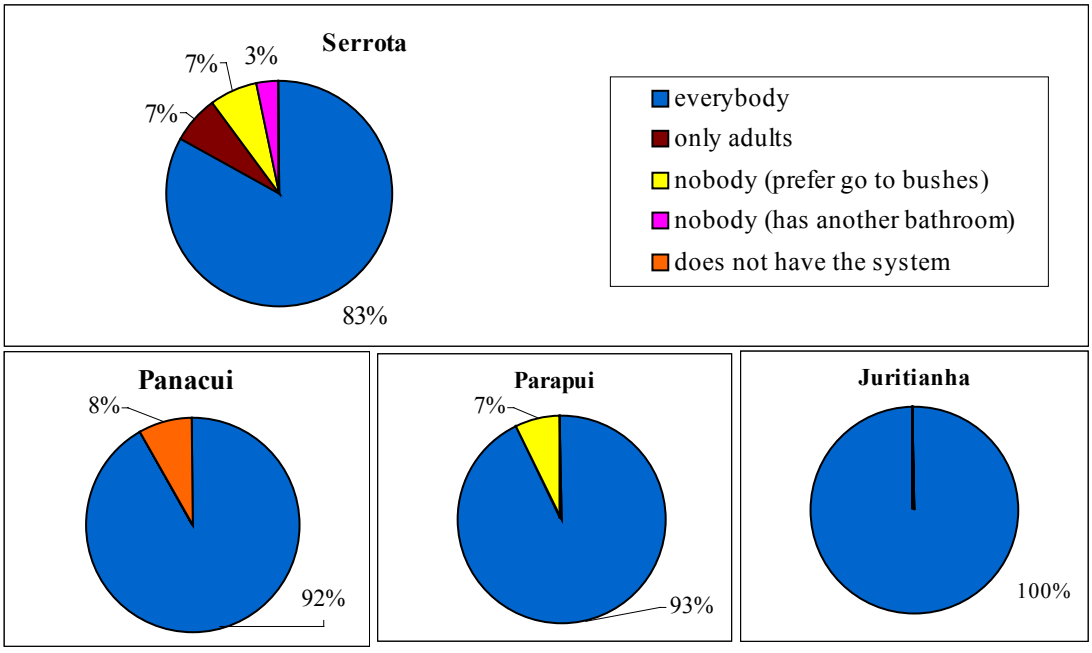


**Figure 4.65.** Usage of the sanitation facilities

- **Technology functioning**

According to the householders, the occurrence of failures in the condominial sewerage systems was not frequent. As shown in Figure 4.66, more than 70% of the users in the four districts never had any problem.

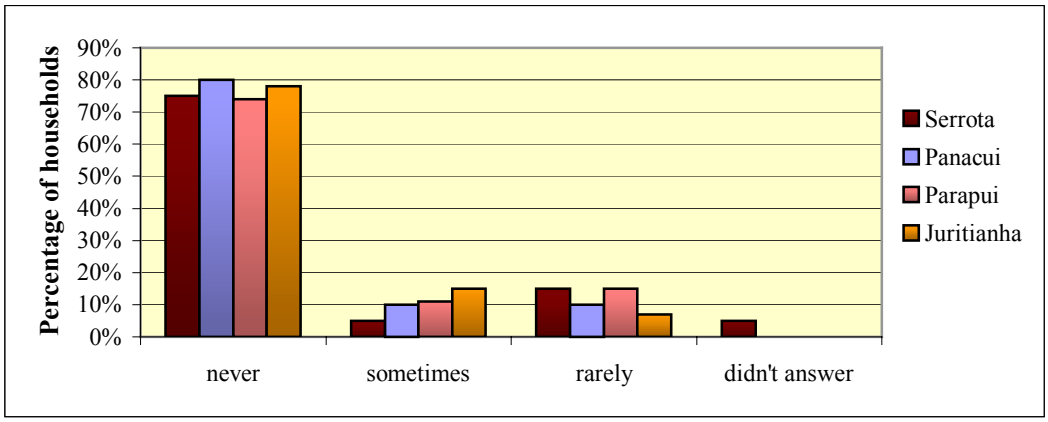


**Figure 4.66.** Frequency of sewers operational problem

Regarding the functioning of the septic tanks, 20% of the users in Serrota said that the facility had failures "sometimes" and 10% said that problems occur "rarely". The remaining 70% of septic tank users in Serrota and the users from the other districts said that problems "never" occurred.

In the sewerage systems, the type of problems reported was of blockage in the condominial sewers and in the household connections (Figure 4.67).

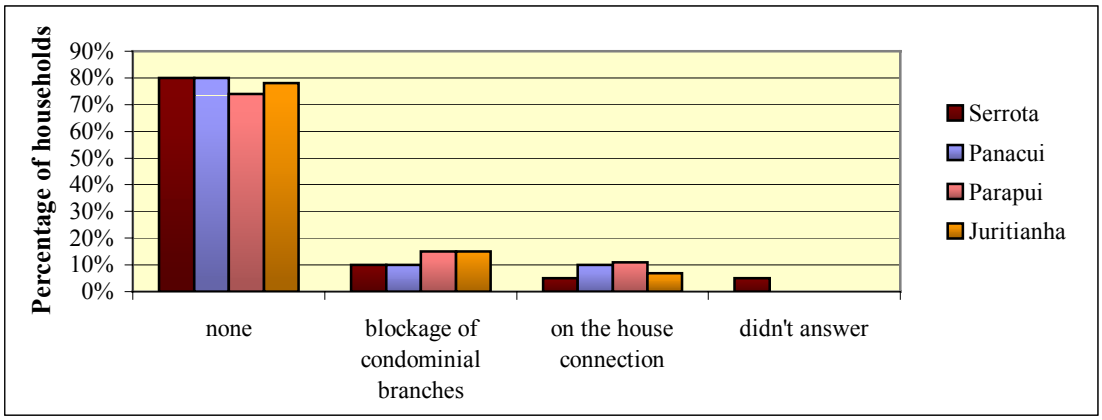


**Figure 4.67.** Type of operational problems in the sewerage systems

About who solves the problems that may occur with the sanitation systems, the great majority of householders (between 73 and 80%) answered that it was the local operator. Nevertheless, in Juritianha, 20% of the householders said that they did not know who was supposed to do this (Figure 4.68).

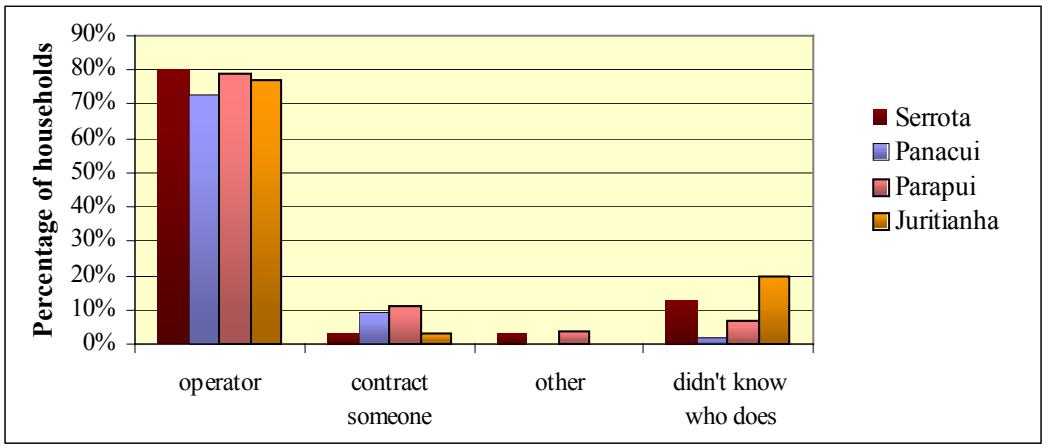


**Figure 4.68.** Person responsible for the maintenance of the sanitation system.

Among the householders that have requested the services of the operator, the great majority reported an attendance in less than 24 hours (Figure 4.69).

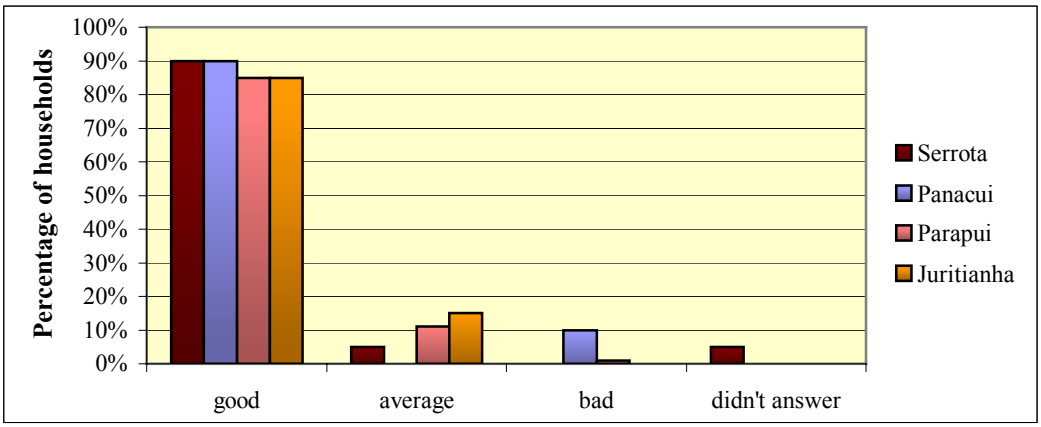


**Figure 4.69.** Time for the operator to attend a user's request for maintenance services.

- **Technology Satisfaction**

According to 85 to 90% of the households in the districts studied, the condominial sewerage was considered a good system (Figure 4.70).

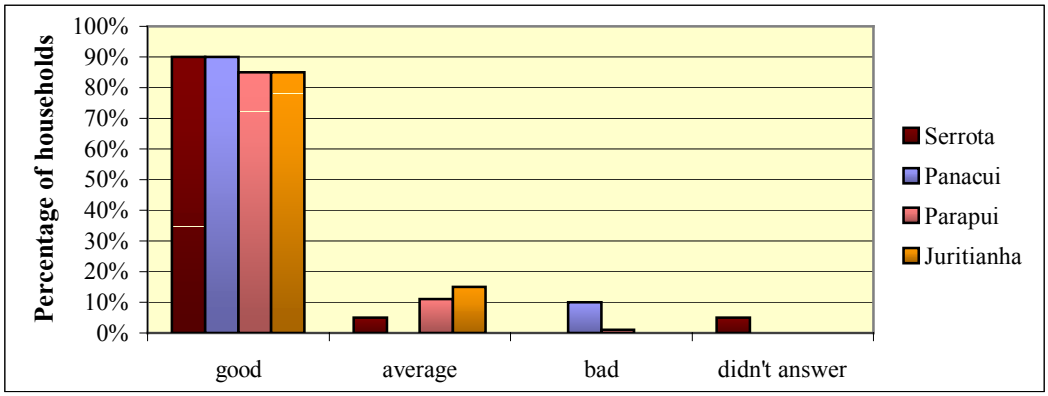


**Figure 4.70.** – Level of user satisfaction with the condominial sewerage system.

Among householders from the two districts with higher percentage of septic tank users (Serrota and Juritianha), the level of satisfaction was also relatively high: 60% for those from Serrota and 100% for those from Juritianha.

Finally, the values charged for the system was, in general, considered to be reasonable by the householders of the four districts (Figure 4.71).

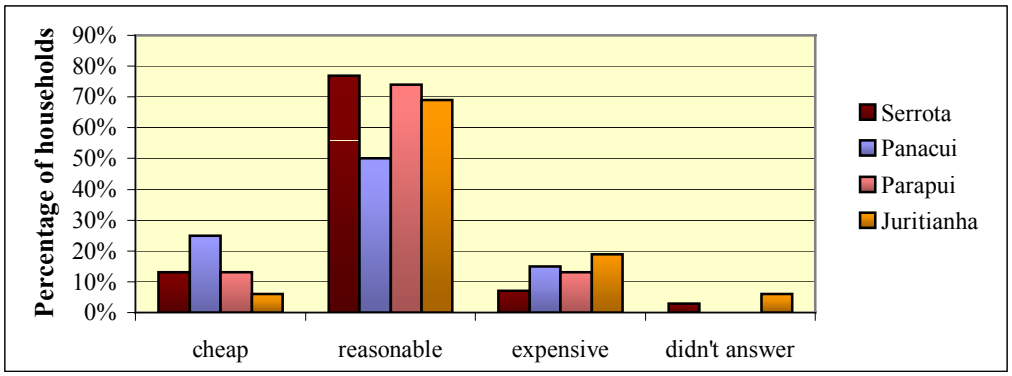


**Figure 4.71.** – Amount of money paid by the users.

### ❑ Section IV – Health and Educational Programmes

As already mentioned, this sanitation programme also had socio-educational activities, which focused on the appropriate usage of the new facilities, on the improvement of personal hygiene and on the empowerment of the community associations. However, when asked about educational messages the households in the four districts seemed to remember more the messages from a health programme from the Federal Government than those of the sanitation programme (Figure 4.72).

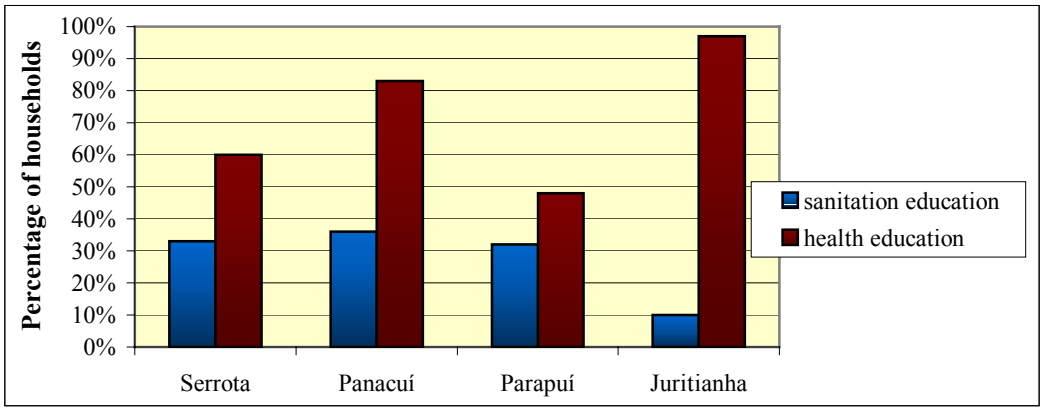


**Figure 4.72.** – Householders that remember educational messages from the sanitation programme and from the health programme.

Although the general feeling when visiting the communities was that improvements were still needed to the householders' personal hygiene practices, good health practices have started to be noticed. The following sequence of photographs exemplifies this (Plates 4.76-4.78).

**Plate 4.76. –** Household storage of drinking water.

**Plate 4.77. –** Children playing in the street (having few clothes, but wearing shoes).

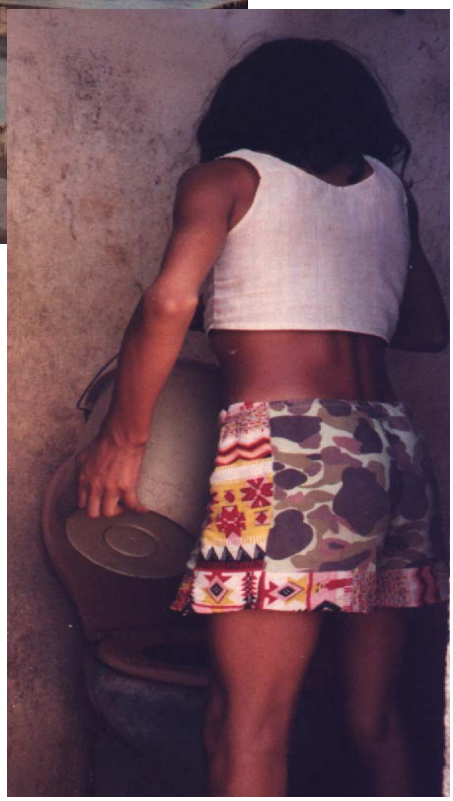

**Plate 4.78. –** A girl cleaning the toilet bowl.