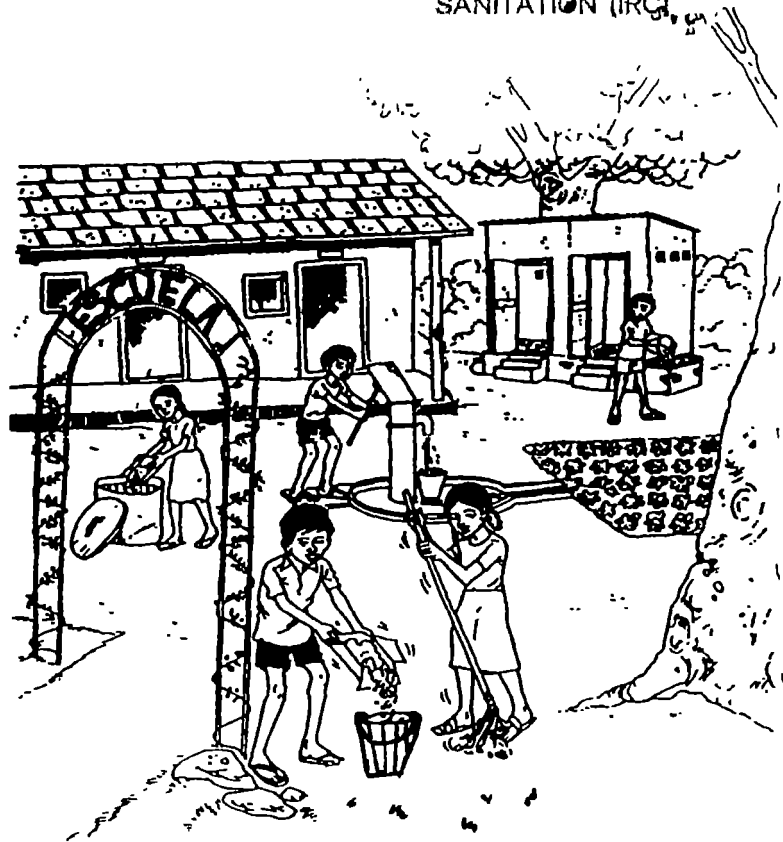


# SCHOOL SANITATION AND HYGIENE EDUCATION IN LATIN AMERICA

*Summary report of a workshop on problems  
and options for improvement*

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SANITATION (IRC)



**Cali, Colombia, 22-27 March 1993**

**PAHO WHO IRC**



## **Summary**

Schools in many parts of the world lack basic sanitation and drinking water facilities and the teaching of good hygiene practices. Because transmission of water and sanitation related diseases can take place in schools, from a public health point of view, it is important that schools maintain a standard of hygiene conducive to good health. The school environment also has a considerable influence on children's behaviour, and provides an opportunity to teach children at an early age behaviours that can lower their risk of disease

In March 1993 a workshop was held in Cali, Colombia to assess the current situation in schools in seven Latin American countries and to recommend areas for improvement. Case studies were conducted in each country to provide background information on the regional situation. Although the findings are not necessarily representative of Latin America as a whole, a set of common problems were identified: insufficient access to safe water supply (especially in rural areas); inappropriate design of facilities for children; poor operation and maintenance of both water supply and excreta disposal facilities; poor solid waste collection and drainage; lack of practical training of students in hygiene education; insufficient teacher training and educational materials for hygiene education; and lack of community involvement in making school improvements.

On the other hand, teachers and school principals place importance on school sanitation and children are aware of good hygiene practices. Some schools and country programmes offer positive examples of how improvements can be made. The workshop recommended further raising awareness of the need to improve the school environment, enhancing collaboration between concerned government ministries, and further training of teachers and other school staff. In addition, the workshop concluded that continued research on this topic was needed in each country, and that more information support would be required to make improvements. Participants created country work plans which they will seek to implement following the workshop.

### **The Workshop was**

**Organized by:** The Panamerican Health Organization, (PAHO), Washington, D.C., USA.  
World Health Organization, Geneva, Switzerland  
IRC International Water and Sanitation, The Hague, Netherlands

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## **PART A. WORKSHOP PROCEEDINGS**



## Background

Primary school children are much more amenable to behaviour change than adults. They are able to learn at an early age, adapt their behaviours and therefore lower their risks to diarrhoeal and other water and sanitation related diseases. They are the next generation of parents and offer the best hope for sustainable change. The school environment is highly influential on children's behaviour. Schools should therefore have proper sanitary facilities and education stimulating low-risk behaviour.

The need to combine a healthy school environment and participatory hygiene education was the overriding conclusion of a study conducted by IRC for WHO in 1988. An overview of 200 teaching and reference materials indicated that strengthening school hygiene education is urgently required, but cannot be wholly effective when the school hygiene facilities are insufficient or in a poor condition or lacking altogether. Studies in a few countries, carried out in 1991 and 1992 confirmed that schools often lack facilities or have inadequate and unhygienic facilities and that hygiene education activities are not linked to real practice. Fortunately however, the studies also showed that innovative experiments have been started in several schools, often by teachers, to improve the conditions and the nearby environment.

This workshop, held from the 22nd to the 27th of March 1993 in Cali, Colombia was intended to raise awareness and identify practical options for improvement of the situation in Latin American countries. It was attended by 17 participants from Bolivia, Colombia, Cuba, Dominican Republic, Ecuador, Guatemala, Honduras, Nicaragua and Peru, four representatives of the international organizations involved in the workshop (WHO, PAHO and IRC) and a moderator.

## Objectives

The workshop had three objectives:

- identify and document current experiences with sanitation and hygiene education at schools.
- improve the participants' knowledge needed for the development of proper plans and programmes.

- ensure active follow-up.

## Preparatory work

Each participating organization reviewed the existing conditions and hygiene education practices in some 10 to 20 schools in their country and collected some general data concerning the health, water and sanitation situation. This work was done to prepare for the workshop in Cali and give it a real field focus. The results provided a good idea of the current state of school sanitation and hygiene education in the participating countries. They were also used during the workshop to identify the problems and options for improvement and as a source of information.

A background document containing resource materials and experience from different countries was prepared by IRC.

## International support

The workshop resulted from a collaborative effort among WHO, IRC, PAHO, UNICEF, CEPIS and PLAN International as well as several NGOs, like IDEAS in Peru and CINARA in Colombia.

## Principles underlying the workshop

Certain underlying beliefs guided the discussions during the workshop:

- education coupled with the provision of sound sanitary facilities is essential to improve the quality of life for children, with schools being an effective point of delivery for hygiene and development interventions.
- children should be brought into the development process as active participants, and if appropriately involved, they can be effective agents of change within their families and be a stimulus to community development.
- communities should be included in planning and implementation and follow-up of school sanitation and hygiene education programmes. School programmes can benefit as much from communities as communities can from school programmes.

### Objectives of Case Studies

The stated objectives of the case studies were:

- to get an idea of the sanitary conditions and hygiene education activities in schools;
- to identify problems and options for improvement;
- to collect training and educational material;
- to prepare a report and visual tools for presentation at the workshop.

### Methodology of Case Studies

The organizations in charge of the studies in the participating countries used a list of key questions, provided by IRC, (see Annex 3) to develop their own methodologies for collection of the required information. Most studies were supported by different Ministries or related institutes and NGOs. In Guatemala the study started in collaboration with the PAHO country representative.

The investigators varied from an experienced teacher in a rural area in Nicaragua to a multidisciplinary team consisting of sanitary engineers, educators, architects and students in Colombia. The investigators belonged to international organizations (UNICEF in Ecuador and Honduras), a regional organization, CINARA, NGOs like IDEAS, private entities like AGISA and a city link programme between Delft (the Netherlands) and Estili (Nicaragua). The studies covered the Pacific Coast, the Andean Region and the Amazon Region in rural, peri-urban and urban areas. The studies included pre-primary, primary, secondary schools public, private, traditional or Escuela Nueva, mixed or segregated schools.

Different techniques were used to collect the information:

- questionnaires;
- observations;
- interviews and discussions with directors, teachers, cleaners, pupils, parents or other community members;
- games and participatory exercises, like drawings and story telling by children in Colombia.

Schools were usually visited more than once. An initial visit was made to get acquainted and collect general information and to make an appointment for the second visit. During the second visit data were collected and discussions and interviews were held. In some cases a third visit was made to refine the data or to provide feedback about the results of the study to the teachers involved. In a few cases selected schools could not be visited because the holidays had started. In one case no visits were possible due to a strike.

Some studies (Peru, Ecuador, Colombia) included interviews with representatives of Ministries, institutes and NGOs to collect information about policies, programmes, experiences and tools developed for school sanitation and/or hygiene education programmes.

Whereas each individual case study may not be representative for its country, together the studies provide a broad and realistic picture of the situation.



### General findings

While life expectancy in Latin America has increased and under-five mortality has dropped significantly, the situation is still not very positive in comparison with the situation in industrialized countries. The number of people without access to health services, safe water supply and sanitation is still high. This is most evident in rural areas (but also in high density low income areas) whereas the situation in urban areas is normally better (see Table 1).

Eighty percent of the school-aged children in Latin American countries are enrolled in schools but only

60% of these children complete four years of school. Considerable differences exist between the enrolment of children in schools in rural and in urban areas and between the enrolment of boys and girls. In Guatemala, for example, on average illiteracy amounted to 43.4% of the population in 1986, but for indigenous women this figure was 80%. The high infant mortality rate amongst the indigenous population is believed to be linked with this illiteracy. During recent years, however, Latin American countries have made great efforts to increase enrolment in primary and secondary schools.

**Table 1. Water, sanitation and health services coverage in selected countries of Latin America**

Country	Rural population with access to			Urban population with access to		
	water services % 1987-90	sanit services % 1987-90	health services % 1987-90	water services % 1987-90	sanit services % 1987-90	health services % 1987-90
Colombia	87			88	85	..
Cuba						
Ecuador	37	34	30	75	75	90
Peru	22	17		78	71	
Dom. Rep	28	36		86	77	
Nicaragua	10	39	60	78	35	100
Guatemala	41	48	25	91	72	47
Honduras	60	44	65	89	88	85
Bolivia	15	13	36	77	55	90

In many Latin American countries the budget for primary education is three to four times higher than the budget for health services. However, the economic crisis in countries like Peru had a considerable impact on the provision of social services like health and education. National investment in the education sector in Peru has decreased from 20% to 13% during the last few years. Despite these reductions the education budget remains considerably higher than the health budget,

which implies that schools should be considered as a prime foci for hygiene and development interventions.

Only a few figures are available at national level on water supply and sanitation services in schools. In Peru figures from 1986 indicate that only 15.6% of the schools in the country had conventional water supply, waste water disposal and electricity, while in Lima 58.1% had access to these services.

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The construction of schools and sanitary facilities is often the responsibility of the Ministry of Education or a related department or institute. These organizations determine the technical specifications of the facilities. In other countries, institutes linked to the Ministry of Health provide guidelines for construction of sanitary facilities. Organizations that may influence the planning and construction of school sanitary facilities are international and bilateral organizations like OPS/WHO, UNICEF, USAID, CARE, PLAN International, GTZ and Visión Mundial and local NGO's like Plan Padrinos in Colombia. Unfortunately, many of these organizations are working in isolation.

More could be done with the available resources, particularly if cooperation and coordination at national and institutional level were improved. This would have a considerable impact on the efficiency and effectiveness of projects and programmes in the field of health, water and sanitation.

## **Specific findings on schools**

### **1. Water supply facilities**

Water supply facilities found at the schools during the reviews include taps connected to the distribution system (only in urban areas), showers, drinking fountains, standpipes and handwashing facilities. These facilities, however, are often in a very poor condition and not in full working order. Breakdowns were reported in all case studies, varying from broken, incomplete or damaged parts to total breakdown of the system. Repairs are paid either by the school or by the parents of the students. Although schools in urban and high density low income areas are often connected to the municipal water supply system, they suffer from intermittent and irregular supply, lack of pressure and poor water quality. During the breaks between lessons, when many children at once want to drink water or wash hands, the supply is often insufficient. To meet the shortfall, several schools have installed drums or storage tanks as complementary systems. In some cases children take boiled water from home for consumption at school.

In many rural areas schools have no water supply at all and have to rely on water sources that often yield

poor quality water, such as rivers, irrigation channels and springs. These schools normally store some water, usually in drums, inside or outside the classrooms.

### **2. Excreta disposal facilities**

Most schools have some facilities for excreta disposal. In urban and high density low income areas many different technologies exist, sometimes even within the same school. Most frequently found were the conventional water closet and urinal with a connection to the sewerage system. Other systems included water closets connected to septic tanks or leaching pits and ventilated pit latrines. However, some schools in urban areas had no facilities at all, as was observed in Lima, Peru. The water closet is the most widely accepted and desired system in many parts of Latin America, despite problems caused by irregular water supply (or no supply at all), resulting in blockages and breakdowns.

In rural areas the pit latrine is the most common system, usually without a ventilation pipe. A few composting latrines were mentioned in case studies, but these usually functioned imperfectly.

### **3. Design guidelines and norms**

Design guidelines and norms are being introduced in several countries. Often, however, these do not take into account either the specific requirements of the local conditions or local preferences and are applied too rigidly. But even the development of appropriate design guidelines and norms by national institutes does not automatically imply that such guidelines reach the persons involved in the planning and construction of facilities. Many water supply facilities in schools are not designed for children and are particularly difficult for very small children to operate.

With respect to the number of users per facility, there are apparently no clear enforced regulations. In Ecuador for instance, the National Directorate for School Constructions normally suggests 30 to 40 users per latrine. In one of their projects it indicated 50 users per latrine, and studies show that in reality the number of users varies between 13 and 180 per latrine.

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In many schools children are allowed to use facilities only during breaks between lessons. Existing norms do not take this limited time aspect into account.

#### **4. Functioning and use**

The way in which facilities are used is influenced by many factors. Cold weather, for example, in the Andean Region in Ecuador, stimulates the use of facilities, while irregular water supply reduces the use. Breakdowns, dirtiness, insects, overuse, long waiting time, large distance from the classroom, bad smell, the lack of privacy when facilities have no doors; all these factors have a negative impact on the use of facilities. In general the problems are worse in urban areas than in rural areas. In situations where there is an insufficient number of facilities, the older children use the facilities during the short breaks and prevent the younger pupils from having access to them.

A factor often overlooked when designing facilities is the "ease of use". While in Ecuador most people prefer to sit on a pan, half of the latrines lack this facility. But even more problematic is the repeatedly mentioned fact that facilities are not adapted to the height and abilities of the children. Children cannot easily climb on the squatting seat, or they cannot reach the tap for washing their hands afterwards.

#### **5. Operation and maintenance**

Operation and maintenance of facilities is poor in almost all schools. In most cases this is caused by organizational problems. Often it is not clear who is responsible and as a result facilities are not regularly inspected and properly repaired. Supervision over the correct use of the facilities is therefore lacking in many schools. Responsibility is often seen as being synonymous with involvement. When asked, directors and teachers referred to the pupils as being responsible for cleaning of the facilities or they didn't know. In schools without staff for cleaning, teachers and children clean and maintain facilities. When personnel are allocated by the municipality for cleaning the facilities, the work is often not well supervised.

Materials used for cleaning include fuel and brushes, detergents, kerosine, diesel and strong disinfectants.

However, the facilities are rarely thoroughly cleaned. In many schools, no or only limited amounts of cleaning materials are available, because there is no money or because the materials cannot be locally obtained in the market. There is often insufficient water for cleaning. Bins to deposit toilet paper or other cleansing materials may not be provided. Management of the stock of the cleaning materials is poor in most big schools and sometimes materials are stolen. Many schools lack space for storage of cleaning materials. In big schools with several shifts of pupils, (Lima schools have three shifts), there is hardly time to clean the facilities during the day.

When facilities break down, many schools depend on collaboration from parents or some members of the community to repair them. In other schools the breakdowns are repaired by the cleaning staff or by plumbers. Breakdowns occur due to lack of maintenance, old age, bad design and in some cases they are caused by vandalism. Money for repairs comes from the schools or from parents, but often not enough money is available to undertake repairs.

#### **6. Solid waste disposal and drainage**

Solid waste is often not regularly collected and accumulates in the school area where it attracts animals, insects and rodents. In some cases this unsanitary situation is aggravated by community members or neighbours disposing of their waste in the school area as well.

Several solid waste disposal systems are being used but many of them are inadequate and pose serious health or environmental risks. In Ecuador for instance, of the 19 schools reviewed, 16 indicated that they have a system for disposing of solid wastes, seven throw their waste in the river, five burn it, three dispose of it on an empty piece of land and one school buries it. Some schools have begun to recycle paper and cardboard, as well as reusing organic waste for a school garden.

Drainage of waste water and rainwater is not properly taken care of in most schools. This results in unhygienic situations, like pools of stagnant water, often causing serious health hazards.

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## **7. Education**

Many curricula cover aspects of hygiene and environmental health education or provide entry points for discussion of these topics. Unfortunately they are often too uniform and prescriptive and do not allow adaptation to the local school conditions. There are some initiatives, however, to develop and implement more creative teaching methods. An example is the "Escuela Nueva" in Colombia. In Peru, CEPIS has developed a hygiene education package for schools which gives information about the provision of facilities, training of teachers and provision of materials. Especially in the curricula for children of the lowest grades attention should be paid to hygiene and environmental health with special emphasis to girls.

Some programmes integrate school sanitation and hygiene education activities in health and nutrition programmes. Examples can be found in Cuba where the Ministry of Health and the Ministry of Education, together with active participation of communities, have developed a programme for integrated health care for school children and their teachers. Under the programme a team is formed for each large school combination (pre-school, primary and secondary school) which is directed by a doctor and a nurse. The general objective of this team is "to improve health conditions in communities through actions aiming at individual persons, family, schools, community and environment". Another example exists in Lima, where the Ministry of Health has initiated a programme in high density low-income areas. The programme aims to assist schools, working with the active participation of the community, to provide an integrated health, nutrition and infrastructure service to their pupils.

## **8. Practical hygiene education**

Although teachers often consider their approach to be practically oriented and participatory, observations by the review teams do not support this in most cases. Hygiene education classes often result in the transfer of theoretical knowledge only. Practical involvement in maintenance tasks is considered merely an extra task without educational value and sometimes is used as a punishment. In some schools children are even embarrassed by teachers if they do not use the facilities correctly. But there are also positive examples, as found in some schools in Ecuador where children who are not familiar with latrines are

specifically trained to use them appropriately.

## **9. Teachers and training**

Teachers are key actors in transmitting messages. With their little training in health and hygiene education and the limited resources available, this is a difficult task. Despite their enthusiasm teachers often lack the knowledge to transmit messages for improving health and hygiene. Teachers should be trained and given the tools and resources necessary to provide practical training, adapted to the local conditions and involving and motivating the students. However, it must be recognized that the shortage of teachers and the lack of resources of some of the ministries are severe constraints on any improvement.

## **10. Educational tools and materials**

A common complaint is the lack of educational material. Despite the efforts of numerous international, national and local organizations to develop educational materials, these materials often do not reach the people who need them. The teachers, in turn, do not know where they can get educational materials or how to develop them themselves. Provision of educational materials alone, will not ensure their proper use. In about 50% of the schools reviewed it was found that the materials provided were not used at all. Fortunately, however, promising examples exist where teachers stimulate their students to make their own educational material. This additionally provides an interesting form of training: while producing materials, the students learn about the subject.

## **11. Attitudes and involvement of school staff**

All school directors expressed interest in creating a clean sanitary environment in their schools. However, only one director indicated that a cleaner school environment was his first priority. At the schools reviewed in Honduras, directors less frequently indicated water supply as a principal problem than did the teachers (38% versus 48%).

The attitudes of teachers and their degree of involvement in improving the school environment vary widely. Many teachers expressed their worries about the sanitary conditions at their schools. They would like to have better facilities. In some cases they initiated the construction of facilities at their schools or they organized activities, sometimes with the help of parents, to keep the school environment

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Most teachers try to train their pupils properly, but many lack essential knowledge and skills. Training of children on how to use the latrine is not always appreciated by teachers as this is considered to be the parents' responsibility.

### **12. Attitudes and practices of students**

In some schools the students say they like to be involved in maintenance activities, while in others they consider these activities a burden. When asked for their defecation practices, at 74% of the schools the students answered that they use the facilities. These children said that open defecation "is a bad habit", "is not healthy" and "pollutes the environment". Those who practice open defecation (26%) said that "it is better to do it outside", "it is healthier", "there are no facilities" or "facilities are occupied".

### **13. Attitudes and involvement of community members**

The case studies indicate that parents and community members are not interested in and do not feel

responsible for the school environment. Usually schools have parents associations, and with the support of community members, sometimes organize and perform activities for the schools. These activities, however, are often restricted to the collection of money for school needs. Sometimes parents and/or community members are involved in construction or repair work, assignments of teachers, and decisions about furniture. When they are involved in activities concerning sanitary conditions and hygiene, their involvement usually remains restricted to construction of facilities, financial support and cleaning activities. Involvement in educational activities hardly exists, partly due to limited time, but also because parents and community members do not know what role they could play in hygiene education activities in school and at home. Some parents are not pleased to have their children involved in maintenance activities in schools, because they do not see this as an activity that has an educational value. They consider a school to be a place to acquire another kind of knowledge.

Healthy children have better school attendance and learn better. If children are aware of the need for proper sanitary facilities and hygienic behaviour, they will pass the message to others and in time to their children, which will have a positive impact on the quality of life of their families and the community as a whole. Transmission of diseases resulting from poor sanitation, such as helminths and diarrhoeal disease, can take place in schools and this reason alone provides ample justification for attention to school sanitation.

To achieve the objective of improved sanitary conditions in schools and improved hygiene behaviour of school children through improved sanitation will thus contribute significantly to the goals set by existing national health and education programmes. In the long run it will have a positive impact on the economy as well, since healthier better educated children will grow into healthier, more knowledgeable and more productive adults.

### 1. Awareness and motivation of all involved

Sustainable school sanitation and hygiene education programmes will depend on higher level support and the commitment of governments, international organizations, teachers and parents.

The improvement of the school environment should become a central point for discussion at policy level. To ensure this, serious efforts must be made to make the problems visible and to stimulate action. This can be done by involving policy makers and politicians in field reviews and improvement programmes, and by documenting and publishing the results of promising projects and providing an overview of the benefits that can be achieved.

### 2. Enhanced collaboration

School sanitation and hygiene education programmes are inter-disciplinary, multisectoral and inter-institutional. Improved coordination, cooperation and integration are needed if they are to be better managed more efficient and more sustainable.

In some countries steps have been taken to enhance collaboration by organizing coordination meetings

between the involved agencies. A national organization or task force could coordinate and stimulate programmes and initiatives as well as sharing the experiences gained. Enhanced collaboration at lower levels (regional/local/project level) can also have a considerably positive impact.

### 3. Capacity building and learning

Agency staff must learn how to support and assist schools to build and maintain their sanitary facilities and to develop hygiene education programmes. Experts involved in school sanitation may need to develop skills to communicate with school staff and community members in order to be able to design technologies adapted to prevailing local cultural and economic conditions. This may require changes at institutional level, but also the curricula of universities and high schools must be adapted or additional training be provided if such skills are to be developed.

Teachers and other school staff must be trained to critically review and, if necessary, adapt the curricula related to sanitation and environmental health in order to fit them to the local circumstances. They should also be trained to manage operation and maintenance of school facilities, to use participatory techniques with pupils, parents and community members and to prepare suitable educational materials when these are not available. Bringing teachers and other field staff together in workshops enhances the exchange of experiences through which all can learn and which motivate the participants to continue their efforts.

### 4. Investigation and research

Several aspects of school sanitation and hygiene education need further development and research. Issues identified by the participants include:

- school and community needs, preferences, knowledge and practices related to sanitation and hygiene;
- norms and guidelines adapted to local circumstances;

- methodologies to achieve active participation of community members in school sanitation programmes;
- development of indicators for monitoring school centred development programmes including sanitation and hygiene education as central components;
- inventory of existing experiences and review of literature on school sanitation and hygiene education.

Research should preferably be action oriented. It can, for example, be carried out through learning projects to yield very practical and hands-on results.

### **5. Information support**

Organizations and individuals need to have access to relevant information to ensure that best use is made of existing resources. This can be arranged by developing a network between organizations involved with school sanitation and hygiene education. One organization could become the focal point for information and create a central database and clearing house. Activities of such a focal point may include the active search for and selection of relevant information, translation of documents, dissemination of information and educational materials, advisory tasks; and the organization of workshops.

### **6. Communication**

Continuous communication support is needed to stimulate the development of sanitary school conditions and hygiene education programmes. In Latin America this could help to maintain the momentum of initiatives developed during the recent cholera epidemic. Activities identified include:

- development of a distribution network for the dissemination of education materials;
- development and dissemination of messages for education programmes in each country;

- local-level creative communication activities such as artist groups with children, exhibitions and competitions.

It should be recognized that enhanced collaboration, workshops and training of agency staff and teachers have a beneficial impact on communication.

### **7. Change agents**

Teachers and headmasters are not the only change agents for improving school sanitation and hygiene education. Other potential change agents include:

- children;
- cleaning personnel at schools;
- policy makers;
- managers at national/regional/local institutes;
- teachers at universities and high schools and experts of different disciplines such as anthropology, sociology and engineering;
- community health workers of different disciplines;
- community members in general, and parents of children and school neighbours in particular.

### **8. Pooling resources**

Much can be achieved by making better use of existing resources, such as knowledge, organizational infrastructure, existing funds, personal capacities, favourable policies or policy makers and existing educational materials. However, these resources are often spread over institutes and organizations that are not working together. Identification and effective integration of available resources is essential.





## **PART B. COUNTRY CASE STUDIES**



## 1.1 General Context

In rural areas 78% of the children enter the first grade of primary schools, while in urban areas this figure is 87%. Forty percent of these children leave school before completing the fifth grade.

School facilities and equipment are not well designed or are deteriorating due to lack of maintenance. According to data provided in 1984, of 83,000 classrooms, only 40% were in good condition and 35% of the sanitary units presented difficulties.

According to government sources, "The natural completion of the programme of economic development is the strengthening of the social infrastructure... and in this respect education plays a priority role .... The administrative organization of education has not changed over the last 20 years. At that time Colombia had half the population, a third of the human resources and a fifth of the financial resources that it has now. The institutional organization in terms of work and finances have turned into the main obstacles for sector development...."

In order to solve the problems, the government recommends the following key policies for the education sector during the period 1991-94: increase the coverage, train teachers, attend maintenance problems of schools, continue with and further develop the decentralization process, promote the participation of the private sector and NGOs and reorient the public expenditures in education.

## 1.2 Sanitary Conditions and Hygiene Education

### Toilet facilities

According to the Colombian Institute of School Construction (ICCE), 70% of the schools have toilet facilities. Since 1987 this institute provides and distributes a technical guide for the construction of school facilities, based on community participation. However, the pre-established norms in this guide do not take into account the different cultural habits in the region nor the possibilities to construct with local

materials. School directors and teachers are not aware of the existence of this guide, which is stored in the library of the Education Department Secretariat.

The results of the reviews showed that the number of facilities is much too low. This situation is aggravated by the number of units that are no longer working due to lack of maintenance. The construction is often paid by the community who collects money by organizing "rifas", bazaars, and by donations from political parties or religious groups.

The toilet facilities in the schools are often conventional or pour flush systems. It was found that generally there are problems of water supply for flushing and that the number of toilet facilities is insufficient for all the children and teachers of the schools. The toilets are usually of porcelain while the outhouse is often built in brickwork. In urban schools toilet units are generally connected to a sewer. In rural areas they are connected to leaching pits. Generally the pipe materials used for the construction of these units are PVC and galvanized iron pipes. In only a few cases polyethylene hoses are used.

### Water facilities

Many schools visited were connected to piped water supply. At most of the schools visited in rural areas the water was untreated. In some schools drinking water was boiled, but sometimes children indicated they do not like the taste of boiled water. The installations found in the schools include small tanks for the toilet units, drinking basins, showers and in some cases storage tanks. Drinking basins were usually built in brick and cement.

The majority of the schools, both in rural and in urban areas suffered from water supply problems, such as:

- no water supply at all;
- insufficient pressure;

- irregular water supply: as the staff does not know when the water will flow again, the taps are left open permanently;
- facilities not adapted to the needs of the children: they are too high to reach;
- taps located at the wrong places: children drink water from the tap next to the toilet;
- inferior quality: at one school teachers said: "we don't drink this water but we allow our pupils to drink it".

### **Solid waste disposal**

Solid waste is removed by: a) depositing it outside the schools to be collected by the municipality service, b) depositing it in open fields (rural sector); c) incineration or burying it in areas nearby the school (rural sector); d) recycling (at a few schools only).

### **Materials for cleaning and cleansing**

For anal cleansing the following materials are used: toilet paper, newspaper, notebook pages and leaves. Only in a few schools was soap available for handwashing. Cleaning materials are normally obtained through donations of parents associations. In some cases the community and school associations carried out activities to raise money for purchase of the materials.

### **Operation and maintenance**

All schools visited lack proper maintenance of water and sanitation facilities and do not regularly inspect the systems. When a facility breaks down collaboration is expected from parents or some member of the community with knowledge of plumbing. Often nothing happens. At all schools visited leaking pipelines were found. In general the toilet facilities are in a bad condition, also because bins to deposit toilet paper or other cleansing materials are often lacking. These materials are thrown on the floor or in the toilet which causes blockage of the units.

The lack of drainage of rainwater and sewage results in stagnant water. Another important factor to be mentioned is the theft of the hydraulic and sanitary installations, especially taps and pipelines.

### **Community organization**

Basic sanitation promotion is limited to occasional campaigns developed by health promoters.

### **Educational aspects**

#### *a) Curriculum*

There are two basic education systems in Colombia: the traditional education system, directed to urban areas, and the "new school system" (La Escuela Nueva), directed to rural areas. For both systems the general subjects are similar and lessons should be adapted to its own context.

Subjects on health, hygiene and environmental sanitation are included in three courses at schools: natural science, social sciences and physical education and sports. The issues are treated in a general way and do not very much contribute to practical behavioural improvements.

#### *b) Training of teachers*

Teacher training is very limited and no specific training is provided on environmental sanitation. Very few teaching materials are available and most of them are commercially produced. Some materials are prepared by the teachers.

## **1.4 Attitude Towards Hygiene Education and Environmental Sanitation**

The teachers do not give the impression of being fully committed to their work in general and to hygiene education and environmental sanitation in particular. This attitude may be due to a lack of training, understanding or resources.

Children seem to be quite indifferent towards the existing hygiene conditions at school and adjacent areas. They perceive their involvement in cleaning activities as tasks or punishments given by the teachers. At some schools the children are satisfied about the facilities as they are an improvement when compared with the conditions at home.

Parents do not show much interest towards hygiene and environmental sanitation at schools. Some even seem to consider the participation of their children in hygiene education activities inappropriate. At most schools there is a parents association, formed by a

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group of persons that volunteer to collaborate with the school. A parents association represents all parents. With the support of the community, parents associations sometimes organize and perform activities aimed at the collection of money to assist school needs.

The community in general does not express much preoccupation with hygiene and school sanitation. In some cases community members even dispose of garbage in school areas, or, even worse, destroy the sanitary facilities.

## **1.5 Conclusions and Recommendations**

In general teachers, employees, children and community members are not committed to the improvement of hygiene and environmental sanitation in schools. Teachers should stimulate children more to participate in the improvement and maintenance of the school environment. Unfortunately they often lack the knowledge and resources needed to do so.

Hygiene and environmental sanitation aspects are included in different parts of the curriculum, but are treated in a general way and do not contribute much to practical behavioural improvements.

Norms and guidelines are not appropriate and result in the construction of sanitary facilities that are

unsuitable for use by school children. The lack of adequate operation and maintenance of water supply and sanitation systems in schools often leads to the partial or complete breakdown and abandonment of facilities.

Construction problems occur frequently and result in improper functioning of installations, thus increasing the sanitary risks for the users.

The architectural models (including the sanitary facilities) used in rural areas are more relevant to the schools in big cities and do not take into consideration the environmental and socio-cultural specificities of rural communities

The supply of cleaning materials for toilet facilities is limited, this affects proper cleaning and so causes a risk of hygiene related diseases. The administrative decentralization policy of the government has caused operational problems in the educational sector. Responsibilities in this sector have gone from national level to municipal level, but the municipalities have neither the infrastructure nor the capabilities to assume economic or administration expenditures.

Every project proposal on school sanitation must include: curriculum changes, methodology aspects, training activities and participation of the community.

## Strategies to Improve School Sanitary Conditions and Environmental Sanitation

In 1984, the national health system in Cuba went through important changes in basic health care. The changes comprised the involvement of doctor and nurse teams at community level, nurseries, schools and working centres. In Cuba 78% of the families attend medical services. Altogether Cuba has 11,900 schools, varying from pre-schools to universities.

A family doctor programme has a positive impact in the whole national health system. Through this programme, the Ministry of Health in coordination with the Ministry of Education and the active participation of the community, develops a wide range of basic care aimed activities for children and people working in the education sector. Under this programme a doctor and nurse team is formed for each school (pre-school primary and secondary schools).

The general objective of the doctor and nurse teams is: "to improve health conditions in communities through actions aiming at individuals, families, schools, communities and the environment". The family doctor programme includes doctors' recommendations, promotion activities, actions for prevention of diseases, early diagnosis, medical care, and rehabilitation activities.

Doctors identify and prioritize problems with the community, and potential solutions are identified. Objectives and actions are jointly formulated and put into action plans. The Central Planning Committee determines how much money will be invested in the concrete plans. The family doctor programme is evaluated together with the community as well.

There are 1,406 family doctors located in schools and 613 in nurseries. In both cases they have their corresponding nurses. Not all schools are covered yet. To stimulate a change of focus from curative help towards prevention, the curricula for the training of doctors has been changed. The doctors prepare

the plans of action and these are evaluated every six months through health reviews.

The basic components of the health reviews are:

A. Population data; group data; group participation data; activities of health promotion and prevention of hygiene-related diseases; comparative analysis between the environmental health situation and the previous and current situation; plan for the next phase.

B. Living Conditions: basic aspects.

C. Priority Methods:

The health education programme includes:

- a) identification;
- b) educational review;
- c) review to measure the effectiveness of the programme;
- d) community involvement;
- e) organize the problems by priorities;
- f) community participation to analyze and identify the problems;
- g) register review;
- h) objectives formulation;
- i) resources;
- j) how to develop the strategy;
- k) action plan.

The general techniques of analysis include: group techniques: brainstorming; social analysis; games; pantomime; statues; drama stories; posters; exercises on paper.

The living conditions to be further studied can be divided in three components:

- level of living conditions;
- quality of life and sociological category expressing qualitative characteristics;
- lifestyle and socio-psychological category.

### 3.1 General Context

In Ecuador nearly 45% of the population lives in rural areas. Data about poverty in rural areas are not available. Observations however, indicate that the situation is worse than in urban areas where 54.8% of the population lives below the poverty line. The services provided have improved during the period 1982-1990. The rural to urban migration is enormous and causes 31% of the population growth in the cities. In rural Ecuador the infant mortality was 69.6 per 1000 in 1990. Although this number seems to be decreasing, the situation is still bad compared to the urban situation. Malnutrition and diarrhoea are the two major causes of infant mortality.

#### Education

The Department for Health Education of the Ministry of Education and Culture develops numerous projects, but none of these are related to hygiene education. The most related work refers to the cholera campaign which included some prevention messages. The Department works with student leaders with the objective that they will convert themselves into agents of change amongst their fellow students.

The sanitary education component of the IEOS-USAID programme carried out a KAP (Knowledge, Attitude and Practice) study related to water supply and sanitation. The objectives of the project were:

- to achieve daily cleaning, correct functioning and full use of latrines at schools;
- to stimulate that schools provide water and soap to students;
- to promote handwashing by all children after using the latrine.

The main components of the programme were an education package and a guide about water and sanitation, training of teachers, distribution and use of educational materials, meetings with parents and promotional activities.

The curriculum does not include hygiene education. However, in the higher grades some elements can be included in the social science, natural science and class association lessons. There are options but no coherent and complete development exists.

Finally, some initiatives allow the integration of school sanitation and hygiene education activities, as for example the programme for the quality improvement of basic education, PROMECEB. This programme intends to incorporate innovations, taking into account the needs and expectations of the teachers and the rural communities. The programme started in September 1992 and is in an experimental phase.

#### Water and Sanitation

Coverage figures for the country are not satisfactory, with 80% of the urban population having access to water while, despite the increase during the past years, access is limited to about 45% of the rural population.

The main types of toilet facilities include conventional toilets connected to sewerage systems, septic tanks and traditional latrines. In rural areas about 43% of the population has access to toilet facilities. About 16.4% of the total population has no form of wastewater disposal.

Hardly any figures exist on solid waste disposal, although it is common knowledge that the collection of solid waste is inadequate. According to INEC, about 53% of the households disposes its garbage on fields and only 7% is served by a collection system.

The water and sanitation sector in Ecuador is faced with many problems, such as:

- the high cost of construction works, also due to the selection of inappropriate technology;
- lack of coordination between the sector agencies;
- low level of community management capacities;

- the limited capacity of promotion by the agencies providing services;
- laws which, due to their structure, limit public works;
- a tariff policy which does not permit the recuperation of investment cost;
- inappropriate norms and guidelines.

At national level some semi-governmental institutes, like IEOS, which is linked to the Ministry of Public Health, are charged with the provision of services. Municipalities have Directorates of Hygiene that undertake actions related to water and sanitation in their region. Several NGOs and international agencies, including USAID, Plan International, UNICEF, CARE, KFW and GTZ have developed projects, some of which are linked with IEOS.

The National Directorate for School Constructions DINACE, linked to the Ministry of Education and Culture, is in charge of the construction of school infrastructure. It determines the technical specifications of sanitary facilities. DINACE will be involved in the construction of 2,010 latrines in rural schools with a loan from the Ecuadorian Bank of Development. This programme will not, however, focus on hygiene education aspects. DINACE also has developed norms for construction and the number of users per facility. These norms are based on sustainability and costs, but it is not clear how they are established. Problems are that the norms are not followed and that within DINACE different sets of norms are being applied. In one of DINACE's projects the suggested number of users per latrine is 50, while in practice there are 13-180 users per facility. Norms are also provided by IEOS and private enterprises. The main differences relate to the construction materials and the number of users per facility. In a publication, IEOS suggests 25 users per latrine while a study by this organization indicates that a number of around 33 is still acceptable.

### 3.2 Sanitary Conditions and Hygiene Education

Statistics related to water supply and sanitation services at schools in Ecuador are not existing. The Department of Statistics of the Ministry of Education has collected data but these have never been processed. Some data have been collected at the Provincial Institutes. The figures presented here refer to the schools that were visited for this case study.

#### Defecation facilities

Sixteen of the 19 schools visited had facilities for the elimination of excreta. The facilities were in regular to bad conditions. The traditional pit latrine was the most common system (found at 12 schools). However, the size of the pit latrines was not adapted to the height of the children. At eight schools the distance to the latrines was more than 50 meters. Only two schools received assistance for the construction of sanitary facilities from the Provincial Council. The other schools did not receive any assistance at all.

#### Water facilities

The water supply problem is serious. Both the quantity and quality of water are limited. Sixteen of the 19 schools visited had no water supply system. The other three schools get their water from rivers, channels and springs. Thirteen schools had insufficient amounts of water. Handwashing facilities were absent in all but one school. Water is usually stored outside the class rooms.

#### Solid waste disposal

Sixteen schools indicated to have access to a solid waste disposal system. However, it was found that of these 16 schools, seven dump their waste in the river, five burn it, three dispose of it on a field and one school buries it. Three schools recycle paper and cardboard.

#### Materials for cleaning and cleansing

Eleven of the 19 schools had some material for anal cleansing available, of which paper from notebooks



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represented 64% of available material, toilet paper 18% and grasses 18%. The materials are disposed on a field (50%), burnt (25%) or dumped in the river (19%). Aspects influencing the selection of anal cleansing material may, next to cost, include the availability of the materials.

About half of the teachers interviewed did not know where menstruation pads are deposited. A certain degree of taboo associated with this topic was identified.

At 15 schools there was no water for handwashing. It was found that if water was available, it was used by all.

The most regularly used materials for cleaning facilities were detergents and water. Kerosine, diesel and kerec were also being used. Frequency of cleaning was daily (10 schools), weekly (3 schools) or occasionally (6 schools).

#### **Operation and maintenance**

At 11 schools the students were involved in maintenance activities, at six schools nobody was involved and in one school a concierge was responsible. An IEOS-USAID study indicates that concierges are involved in operation and maintenance activities at 46% of schools and children at 54% of the schools. At 69% of the schools the activities comprise cleaning of the facilities, at 13% of the schools the activity consists of supervision of the correct use of the facilities. In the other schools concierges and children are involved in a wider spectrum of operation and maintenance activities.

#### **Organization**

14 schools indicated that they had an organization to supervise and control the maintenance, but in practice it was found that operation and maintenance was poor as was observed from the unsanitary conditions of the facilities.

Generally parents bear a great part for the construction, provision of materials and costs. The materials were donated by NGOs at ten schools. At five schools the teachers responded that repairs were paid by parents while at seven schools the teachers did not know who was paying for repairs.

All schools have Parents Associations or other links with the community.

#### **Educational aspects**

##### *a) Curriculum*

All teachers knew that environmental sanitation is part of the basic programme. They indicated that sanitation and environmental health topics are included in several subjects. The intensity of the lectures was 1-2 hours per week at all schools. However, at 13 schools the lessons were for all pupils while at six schools the lessons were only provided to higher grades. At least 15 schools confirmed that they give hygiene education, mainly consisting of talks and lectures.

##### *b) Training for teachers*

Over 80% of the teachers never received any kind of training in health education or sanitation. Their knowledge about diseases related to water supply and sanitation was not always correct. The teachers indicated that they are not trained to provide practical hygiene education. As a result they only use didactic teaching methods.

##### *c) Educational materials*

Didactic materials were hardly found in the rural schools, although 42% of the teachers indicated they do have materials. Most of them said they developed materials themselves. In the classrooms no materials produced by NGOs or IEOS were found.

Even if materials are available, they are not always used. Local language is often not integrated in the materials.

### **3.3 Attitude Towards Hygiene Education and Environmental Sanitation**

Activities indicated by the teachers to improve the sanitary conditions at their schools refer to the construction of more facilities, lectures to children, parents and community members on how to use these facilities and planning of activities with the health promoter and the Provincial Directorate of health. None of the teachers ever received instructions on

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sanitation or hygiene education. All initiatives had to come from the teachers. 20% of the teachers indicated that they knew about the existence of construction guidelines of the Ministry of Education, but the rest of the teachers said they were unaware of the existence of these guidelines.

### **3.4 Conclusions and Recommendations**

The review has shown that the sanitary facilities in schools are incomplete and in bad condition. The existing knowledge at community level is insufficient to guarantee appropriate design and construction of facilities. Clear norms about the number of users per latrine are lacking.

Water supply is lacking at most schools which affects cleaning of the facilities. A proper maintenance system is lacking.

The disposal of solid waste from schools is inadequate, with most solid waste being dumped in rivers or fields nearby the schools.

Within the formal education system there is no existing programme that focuses on school sanitation and hygiene education. The activities in this field depend on the initiative of teachers. Teachers have received no training on school health hygiene, but are motivated to implement activities together with the community. Educational materials developed by different agencies do not reach rural schools.

An inter-institutional plan of action must be elaborated to improve the sanitary conditions in schools. This plan can be developed as a pilot project and further replicated after evaluation of initial results.

The participation of the community in latrine construction is indispensable. It is recommended that participation of the community in sanitation programmes be promoted through workshops and meetings. Planning, implementation, monitoring and evaluation of school infrastructure and hygiene education should all be effectuated in this way.

## 4.1 General Context

Guatemala has 9.7 million inhabitants and an annual growth rate of 2.8%. About 62% of the population lives in rural areas, but the urban population is growing more rapidly than the rural population. Half of the population is indigenous, comprising more than 21 indigenous groups. Child mortality is high due to diarrhoeal diseases, respiratory infections and malnutrition. Health services are concentrated in the urban areas. According to a report prepared by ECOSAL (1992) for the Central American Conference on Ecology and Health, in rural areas contamination of soil is mainly due to free disposal of excreta. About 55% of the population has access to sanitary facilities, mainly pit latrines. In urban areas 25% of the facilities are latrines, in rural areas 46%. Information collected at the end of the Decade indicates that in rural areas 41% of the population had access to water supply services. In urban areas this figure was 86%. According to the National Institute of Statistics (NE), in 1989 about half a million of families had no water supply.

A number of organizations are involved in the water and sanitation sector, in both rural and urban areas, including EMPAGIA, INFOM, DGOP, UNEPAR, DSM, MINDES and NGOs.

## 4.2 Sanitary Conditions and Hygiene Education

### Defecation facilities

Only seven of the 16 schools visited disposed their wastewater into the city municipal system. Four schools had pits and three schools had septic tanks or absorption pits.

Dropping out of school in relation to defecation facilities happens when children have a parasitic infection, but also, according the teachers, when the sanitary facilities and the promoted hygiene behaviour at school don't correspond with those at home. Sanitation policies were unknown at 14 schools while the two other schools knew about it via the Health Centre in their area. On average the number of pupils per facility was 100.

### Water facilities

All schools visited had a water supply system: 14 schools were connected to the municipal service, one school had a well and another school collected water from a spring. The water supply in the schools was bad due to many interruptions and insufficient flow of water. Only two schools had good quality water.

### Solid waste disposal

Of the schools visited, seven disposed their waste on common land, two received a collection service from the municipality, three burned their waste and three had compost facilities. Only one school was involved in recycling activities.

### Materials for cleaning and cleansing

Materials commonly used for anal cleansing comprised mainly leaves, as paper for anal cleansing is hardly available.

### Operation and maintenance

Operation and maintenance was severely neglected in the schools visited. At 14 schools the facilities did not function properly. Cleaning was usually organized weekly.

### Community organization

The relationships between schools, parents and community members vary widely: those communities with a good community organization also tend to establish good links with the schools.

### Educational aspects

Preventive hygiene education was hardly provided, either by the teachers at the schools visited, or by the health centres in the areas of the schools who are dealing day by day with diseases related to bad sanitary conditions.

Sanitary education has been promoted as an urgent need by the Ministry of Public Health. It now forms part of the curriculum and the Ministry of Education is implementing training workshops at national level. However, not the full country is covered yet and it is not known how many teachers have received any kind of training on school sanitation and hygiene education. A major concern is the availability of educational materials. Several international

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organizations are supporting the development of educational materials, but their dissemination remains limited.

### **4.3 Attitude towards Hygiene Education and Environmental Sanitation**

Sanitary facilities were poorly functioning and in a bad condition, according to almost all teachers interviewed. They felt that it was the lack of concern of their school directors that caused these problems.

### **4.4 Conclusions and Recommendations**

The conditions of the water supply and defecation facilities at schools are poor, but there is limited concern, motivation and knowledge to change this situation.

Headmasters and teachers should be made aware of the need for practical hygiene education programmes. They should be assisted to frame and implement such programmes. Teachers should also be trained to give better hygiene education.

Multisectoral programmes at national level must be initiated, involving the Ministry of Public Health, the Ministry of Public Education, the Ministry of Urban and Rural Development, municipalities, etc., to create awareness at all levels about the importance of appropriate water supply and sanitary facilities, and to provide knowledge of operation and maintenance of sanitary facilities.

## 5.1 General Context

### Education

Hygiene education is covered in the school programmes by activities coordinated by the Ministry of Education and the Ministry of Health.

According to studies, Honduras has an infant mortality of 7.9%, which is the highest in Latin America. Infant mortality is highest in rural areas. Some studies show correlation with the low level of education of the parents. Although the situation is still serious the mortality rate is declining as a result of educational and promotional activities related to cholera.

Schools can play an important role in the improvement of their sanitary conditions and the provision of hygiene education:

- Schools can contribute to a better quality of the lives of children through the construction of facilities, working in collaboration with parents associations, community organizations and institutes, municipalities, youth clubs, etc.
- They can organize campaigns on hygiene and sanitation. Current activities include campaigns and prevention programmes focusing on cholera, aids and dental hygiene. Both schools and communities are involved in these programmes.
- The Ministries of Education and Public Health are involved in a project "Integrated Health-Education Plan" focusing on the training of teachers through modules of self instruction. This is a national programme for the whole country, based on the results of studies to the sanitary behaviour of children at pre-schools and primary and secondary schools.
- To develop a positive attitude among children, topics related to appropriate use of facilities and sanitary hygiene behaviour must be included in the curricula.
- In general teachers have an adequate understanding in order to address the problems of sanitation and hygiene. However, the logistic support is often limited. Also motivation must be stimulated in the form of technical assistance and follow up. With external financial support, including the support from UNICEF, several activities have been initiated, such the training of teachers.
- In 1990 the Ministry of Health started a programme on environmental sanitation, supervised by the Ministries of Health and Education, the Municipality and SANAA.

### Hygiene and environmental sanitation

The construction of sanitary facilities for schools is the responsibility of three national institutes: CE (a unit of the Ministry of Education), FHIS and the Office of Environmental Sanitation of the Ministry of Public Health. These three institutes function independently and each has its own policy. Communication is limited to informing each other about which schools they have included in their programme.

The study particularly addressed constructions built by CE and FHIS. A description of their respective procedures is presented below:

- Schools can request CE to support them with the construction of sanitary facilities. CE decides internally who to support. Construction is principally of defecation and handwashing facilities for large schools. Also, a few latrines are built at rural schools or schools in peri-urban areas. Most schools approaching CE are public schools. A criteria for the approval of a request is whether the school receives a subsidy. Another criteria is the appropriateness of the existing facilities at the school. CE has a special section for reparation and maintenance of school buildings. Manuals are available but are hardly used. CE has no money to organize meetings or presentations.
- FHIS has a set of standards which are mainly directed by the norms of IDB, World Bank and KfW. The norms include the number of pupils and teachers, the size of the playground, the kind and number of facilities, etc. Contact is usually

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initiated by the Mayor, the Parents Association or by a church. FHIS offers the materials and labour for construction. FHIS does not accept requests for repairing school facilities. FHIS has received criticism for the lack of promotion and training. Since last year FHIS is collaborating with the Ministry of Health in educational activities.

## **5.2 Sanitary Conditions and Hygiene Education**

### **Defecation facilities**

A wide variety of facilities exist, including traditional latrines, flush latrines, compost latrines, ventilated improved pit latrines, flushing toilets and urinals. The number of users per facility varies widely. For example, in one urban school there were 21 users per facility while in another school this figure was 240. No official norm is defined. There is a clear relationship between the number of users and the condition of the facilities: the less users, the less worn out and vandalized each of them will become.

Some schools have no facilities at all while other schools have perfect facilities. The worst situation was found in Picachito, a public urban school with 102 pupils and no defecation facilities at all. The children who want to relieve themselves totally depend on the friendliness of the neighbours. The teachers see this as a temporary solution, however, the current situation has already existed for ten years. Nevertheless, members of this school community are very much aware of the school environment and every Saturday they meet to clean the school as well as possible.

Seven schools were connected to the sewerage system, but suffered from bad design and break downs. In one school the system ended at the school courtyard, creating a serious health risk.

The compost latrines, found in two schools did not function well, partly due to lack of understanding the process: both pits were used simultaneously as though they were two latrines instead of one.

A number of latrines at the schools were not functioning, which, in many cases, had resulted in the construction of new facilities.

### **Water facilities**

Water supply facilities found at the schools varied from taps connected to a distribution system to storage tanks, springs etc. Rainwater was also being used. Lack of regular water supply was often indicated to be one of the principal problems. Another major problem was the quality of water, which was bad at many schools. Some schools disinfected the water with hypochlorite and some boiled or filtered it. In some schools children and teachers were drinking directly from the tap, but it was found that often water was taken from home, especially by teachers, for consumption at school. Some children indicated that they prefer lemonades or go home during the recreation break to drink water.

Handwashing facilities were available at seven schools only. Some directors indicated they had space but no money for construction of such facilities. In a few schools soap was provided. In one private school all the children had their own soap and towel to wash their hands.

### **Solid waste disposal**

Of the 16 schools which provided information, eight burned their solid waste, seven had recollection services and one buried waste.

### **Materials for cleaning and cleansing**

Toilet paper for cleansing was only available in the two private schools visited. The other schools did not have money to buy toilet paper. According to some of the teachers the Ministry of Education should provide these materials. Where no toilet paper was available newspaper and maize cobs were being used for anal cleansing. At ten schools bins were available to deposit materials for anal cleansing. However, at only one school the bins were covered. It was noted that the number of bins was insufficient in most schools and that material used was often thrown on the ground. For daily or weekly maintenance of the facilities the regular materials used were brushes, floor mops, machetes, rakes and sticks, cloths, soap, water, acid, acid of pine trees, chlorine, potash and detergents.

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### **Operation and maintenance**

When directors were asked to identify those responsible for cleaning, most indicated that everybody was responsible, including themselves. Teachers, however, when asked the same question, never included their director. In general they considered that responsibility was taken by teachers together with students. The division of cleaning tasks between teachers and pupils was not clear however, and the attitudes of children to be fostered by the activity were not defined.

Only the six bigger institutes had designated personnel for cleaning. The number of personnel varied from two individuals for a school with 838 students to 23 for a school with 8,279 students.

In the schools visited, breakdowns were repaired by a plumber paid by the school, by maintenance personnel or by a private individual. Seven of the seventeen directors indicated that nobody repaired the systems in their schools. This figure however, includes those schools with no facilities at all. The costs for repairs are usually paid by school funds. Only one school with perfect facilities indicated that they never needed to repair the facilities. Few directors were able to state what materials were required for repairing the systems.

### **Community organization**

All schools except two, indicated to have links with the community. The two schools having no contact with the community were a private school and a school that had a great number of pupils from villages that were far from the school. Many teachers were not satisfied about relations with the community. They indicated that the Parents Association did not function properly and that parents were not interested/motivated to participate in school activities.

### **Educational aspects**

#### ***a) Curriculum***

According to the directors and teachers interviewed at the schools, hygiene education is included in the study programme. They indicated that subjects like natural science, health education, social education and physical education dealt with the issue. The variation in responses may not only represent a

variation in interpretation of what hygiene education is or should be, but could also indicate unfamiliarity with the details of the official study programme. Whatever the reason for the variation in responses, it became clear that the value and practical orientation of the hygiene education provided is limited, because the review showed that the sanitary conditions in the schools were far from optimal.

#### ***b) Training for teachers***

The opportunities for training vary, although one third of the teachers who were interviewed said they had never received any training on hygiene and sanitation. Other teachers received training from the Ministry of Public Health, the Institute of Social Security, UNICEF, projects, etc.

#### ***c) Educational materials***

Two-third of the teachers and headmasters indicated they had no educational materials available.

## **5.3 Attitude Towards Hygiene Education and Environmental Sanitation**

As discussed earlier the teachers were not satisfied about the sanitary conditions at their schools. In some of the schools problems existed with community members destroying the class-rooms and/or throwing solid waste on the school compound. In other schools however, the parents wanted their pupils to be trained in the use of facilities, even before registering at school. Often teachers indicated the need or the wish to start activities with and for the community in collaboration with the Parents Association and to combine efforts of community, school and other institutes to solve water supply or other problems. Members of Parents Associations or other groups should be motivated to solve the problems, according to many teachers.

## **5.4 Conclusions and Recommendations**

The private schools have much better sanitary conditions than the public schools, because they have better financial resources.

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In public schools children are regularly informed about hygiene topics, but issues related to the direct environment are rarely addressed. Practical hygiene education is lacking. Another important factor for the success of hygiene education is the motivation of the teacher. The lack of educational materials and appropriate facilities had reduced the motivation of many of the teachers interviewed during the review.

Social control has tremendous influence on the conditions of sanitary facilities. When facilities belong to only one class or a small group, they are kept in a better condition.

It seems that resources are wasted by the three institutes involved in the provision of sanitation infrastructure due to lack of inter-institutional cooperation. A coordinating unit or institute is required to increase efficiency and to improve the effects of their inputs. The purchase of maintenance materials could be improved and coordinated by a new coordinating institute. The participation of the community can have a large impact on the effectiveness and efficiency of school sanitation and hygiene education programmes.



## 6.1 General Context

Due to the focus on the local initiatives and the limited resources and time available no further review of documents and policies was undertaken. This review has been based on the knowledge and concern of the teachers interviewed, who are actively involved in community development activities.

## 6.2 Sanitary Conditions and Hygiene Education

### Urban areas

The main characteristics of defecation facilities were:

- lack of toilet facilities and latrines, where there is no sewage system;
- too many students for the number of sanitation facilities available.

The schools with conventional toilet facilities in poor condition wanted to change these facilities into latrines, as they didn't have water for flushing. Sometimes school toilets were closed due to the lack of water. When water was available it was kept in drums for cleaning services and handwashing for the children. As a result of the limited water availability the toilet compounds smelled and were dirty. There was stagnant water adjacent to the school compound. Solid waste was incinerated.

Some urban schools needed fences to prevent people or animals from entering the school compound to defecate. The urban schools had a cleaning person, so the participation of teachers and students was limited. Teachers from urban schools had less motivation and creativity to perform hygienic behaviour.

The development of hygiene habits at the schools was more theoretical than practical, although some schools made a very clean impression and the children were directly involved in practical activities resulting in positive hygiene behaviour.

### Rural areas

Latrines in rural areas were normally in a much better condition since these schools have less pupils. At some schools the latrines were nevertheless in a poor condition.

Those schools in which water was not available were dirtier. In one school for instance where water was available, better hygienic conditions were found. However, in another community, poor sanitation facilities were found because there was no water. In rural schools of one department, most of the schools visited had no water.

It was found that teachers organized cleaning and cleansing committees in the classrooms and in the schools in general. Work was reviewed and the classroom or group that made the greatest contribution to school cleanliness was rewarded. The teachers were creative and dynamic. They used available local materials. A school-community relationship existed. Despite the fact that teachers were motivated, hygiene education was limited because the curriculum didn't have a defined hygiene content. For this reason hygienic behaviour was poor among children. They didn't wash their hands after going to the toilet, for example.

In rural areas solid waste was kept in bins and after collection was incinerated.

In one department all schools had latrines. The number of children however, did not have any relation with the toilet facilities available. There were schools with a large number of children, which were not connected to a sewerage system. Though latrines were cleaned daily, they were very smelly as no vent pipes had been constructed (vent pipes were as yet unknown in the area). In schools where there were latrines, teachers were not happy with them. They indicated they would prefer to have flushing toilets.

In one school surveyed, there was no fence so animals could come into the school compound. In this same community, there was no water, not even drinking water, and people had to carry water from

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a source almost 3 kms away. In another school water supply was a problem and additionally the latrines were poorly constructed, and so were very smelly.

In general, teachers expressed the need to have additional information on environmental sanitation. In rural areas there was no available educational material related to hygiene.

### **6.3 Initiative at Local Level**

A project ERET - Rural School for Education and Work, has been established in three schools, adopting a more flexible curriculum. Teachers in these schools were motivated to analyze the problems of the children related to health, education and hygiene. Teachers showed interest and therefore activities were initiated that could be implemented by the communities. First contacts were established with community organizations and with the Town Hall. Communities that did not have latrines were reviewed. Those schools with poor sanitary conditions were also involved. The most difficult task was to involve the whole community with these sanitation problems. This was done through tasks and systematic visits.

In those communities facing particular difficulties, problems were prioritized. The initiative is based on the belief that the interest to solve these problems has

to come from the community, if they are to work with commitment, and learn how to use and take care of the sanitation facilities.

Problems encountered include:

- lack of educational material on hygiene and sanitation in schools;
- lack of appropriate curricula;
- lack of support from government organizations and NGOs;
- lack of techniques to build latrines;
- critical economic situation in the country.

### **6.4 Conclusions**

In the two departments of Nicaragua where schools have been reviewed for this study, the major problem was the lack of water.

Lack of interest from the Ministry of Education, as well as lack of motivation from the teachers and lack of educational material, are fundamental problems. Although the situation in the urban areas is far from positive, the problems are even more serious in rural areas.

## 7.1 General Context

Metropole Lima is a city with about seven million inhabitants. During the past years the water supply and sanitation services have been confronted with new problems because of the shortage of water which is partly due to the urban growth and partly due to the reduction in water resources. Since 1991 water supply has been rationed.

### Education

In 1991 Lima had 1,265 public primary and secondary schools, teaching 3.2 million pupils. Most were mixed schools. The number of children ranged from approximately 50 pupils in pre-schools to schools with several shifts and 2,000 students per shift.

The educational problem is tremendous. The role of the state has been essential in sustaining social services like health and education in a country in crisis. In Peru the school is considered to be one of the most important mechanisms to enhance national integration. One big problem is the limited public investment. Although 20% of national budget is officially allocated to education, in recent years only 13% has been allocated to the sector. This makes the participation of the community and the parents essential for any improvement of the school environment.

There is an acute shortage of school infrastructure. Only 9,600 class rooms are available in Lima. INIED was integrated a few months ago into the Ministry of the President and is responsible for school construction. It depends on resources provided by international organizations via a governmental fund, FONCODES.

The shortage in human resources has long been a problem in Lima, because the proportion of the population of school age is high. Schools often have several shifts. However, since 1991 in Peru, and in Lima in particular, the number of school drop-outs has increased tremendously and is estimated to be 25% of children enrolled. This is primarily the result of the economic crisis, forcing children to earn money.

### Hygiene and environmental sanitation

A review of the water quality at 123 schools showed that about 15.5% of the schools had no water supply, 63.5% had water of bad quality and only 21% had an adequate level of chlorination. In 1986 only 15.6% of the schools in the country had conventional water supply services, waste water disposal and electricity. In Lima 58% of the schools had access to these services. Services to schools have not significantly improved over the past years.

Another problem is related to the content and methodology of the curricula which does not take into account the real problems of the student. The curriculum has only offered a prescriptive solution for the country's problem. The content is not adapted to the different needs of the children from different areas or socio-economic backgrounds. Limited educational materials are available, and although the cholera epidemic has generated new materials developed by specialists, their diffusion has been limited.

Of 260,000 teachers, only 50% have officially completed training. Low salary levels affect the number and motivation of teachers.

Efforts of schools to improve their water supply and sanitary conditions, initiated during the cholera epidemic, were obstructed by the prolonged teachers' strike in 1991. The latrine programmes and hygiene education initiated were interrupted and were limited in their impact.

## 7.2 Sanitary Conditions and Hygiene Education

### Defecation facilities

The sanitary services of the schools selected were between six months and 20 years old. Many old systems were renovated during the cholera epidemic. However, in most cases old services are not the worst. The oldest schools often have better constructed infrastructure and are in general connected to the distribution service of the municipality. In new settlement areas, normally there are water supply systems, but no wastewater disposal

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systems. Flushing water is combined with latrines or septic tanks as a provisional solution. In most new areas there is a lack of both services and water is stored in drums.

Various types of sanitation facility were found in the schools visited. Ten schools had conventional water closets connected to the sewerage system and seven schools had pits, of which four were ventilated. Some schools had a combination of technologies. Schools want and continue to use conventional water closets, despite the fact that these systems use about 15 litres of water per flush.

The type of the facility is selected by the Ministry of Education, NGOs or parents. Guidelines for construction are only available in 30% of the schools. The construction works are supervised by control agencies and sometimes by parents.

Materials are usually purchased at the market, although it is sometimes difficult to find materials for water closets.

### **Water facilities**

Fourteen of the 17 schools visited had access to public water supply, but most of the schools with public water supply suffered continuously from water shortage and from lack of pressure. For this reason drums of water were often stored. Common problems encountered were broken pipes and incomplete facilities. The quality of the water is not guaranteed and therefore boiling of water is recommended. In one school children brought boiled water for consumption at school.

### **Solid waste disposal**

At the schools visited solid waste was not regularly collected. Another problem was the lack of respect for the school facilities by neighbours, who dumped their rubbish on the school compound. Eight schools had problems with accumulation of waste, which attracts mosquitoes, flies and other animals.

### **Materials for cleaning and cleansing**

None of the schools provided toilet paper. For the lower grades of the primary schools visited, parents provided their children with paper at the start of the school year. Bins for depositing materials, if available, had no cover. Toilet paper and

menstruation pads were thrown on the ground. Water for handwashing after defecation was rarely available and it was even more exceptional to find soap. Materials for cleaning facilities included detergents, kerosol and acids, but these were not always available.

### **Operation and maintenance**

Operation and maintenance was inadequate in all schools: for example urinals were hardly ever cleaned. It was observed that responsibility for the provision, distribution and supervision of the materials for the maintenance of the facilities is rarely defined. Stocks of materials were not kept. Daily maintenance theoretically included cleaning and disinfection. Neither children nor parents were usually involved.

### **Organization**

Parents associations are obligatory for each school and are expected to provide their opinion about the content of the hygiene programme. In practice these associations are actively involved in raising money for activities to improve the schools, especially the class-rooms, but they are hardly ever involved in the development of educational programmes. There are also class committees that help the teacher. These committees are most active in the lower grades.

Construction of facilities is usually initiated by the parents associations, with support of NGOs or the different churches. Ex-pupils of private schools also assist with financial support for construction. While local preferences may be taken into some account in the design of facilities, other socio-cultural characteristics of the community, such as traditional systems of responsibilities, are usually ignored.

The cost for repairs has to be met by parents. In general, the teachers are marginally involved in the organization of sanitary facilities, in some cases writing a plan for the school environment.

The lack of involvement of parents and community members in school sanitation and hygiene education may result from lack of knowledge about the importance of hygienic conditions. Parents often want their children to study formal lessons instead of being involved in maintaining and improving the school environment.

### **Educational aspects**

Some aspects of sanitation and environmental health are included in the curricula. In the first grades there are opportunities to provide practical teaching about hygiene and sanitation. Unfortunately, most educational materials are not wholly suitable. The text books provide pictures of toilets with running water and other facilities which are almost unknown in Peruvian schools and households. Some suitable games, posters, calendars and guides were found, but these were not widely disseminated. Some messages, like boiling of water, which were promoted to prevent cholera, are effectively disseminated, but demonstrations are not provided. Practical lessons about the proper use and simple repair of facilities do not form part of hygiene education classes.

Seventy percent of the teachers have received some kind of health education training, but this training does not continue during their career.

### **7.3 Attitudes Towards Hygiene Education and Environmental Sanitation**

Teachers often come from areas where they had access to sophisticated facilities, but work in areas where there are only very simple facilities.

The children at the schools visited were satisfied with the sanitary facilities at school. They indicated that the school facilities are better or more or less the same as what they find at home. In one school children organized a demonstration to get better services. They argued that the facilities at home were cleaner. Vandalism sometimes occurs, resulting in damaged sanitary facilities.

The cleaning personal was afraid to express its opinion, because they are already overworked they do not want to acquire further responsibilities.

### **7.4 Involvement of NGOs and Other Agencies**

Several NGOs are involved in educational activities and support the sanitary infrastructures. In 1991 a number of NGOs joined efforts and developed

educational materials and mass campaigns at national level, such as the programme "Acción Cívica por los Niños" which assisted the "La Escuela Se Defiende del Coléra" campaign.

EDUCA is an NGO of education professionals and is involved in the implementation of modules for sanitation such as those developed by CEPIS. Their work is implemented by three groups at district level: EDUCA offers the material for construction and gives technical advice; the district municipality distributes the materials and assists with the selection of schools and USE selects the schools and supervises the work; and finally the community provides the cost of labour or additional materials. Since 1992 180 modules have been implemented, and 700 more will follow. The programme also includes training. So far no evaluation of the success of the programme has been undertaken. EDUCA has also distributed 42,600 teaching packages to schools.

For seven years EDAPROSPRO has been involved in the training of health monitors selected from schools. They also train teachers and distribute educational materials. The work is done in collaboration with the "Dirección Departamental de Educación de Lima", USE and the schools.

CEDAPP provides teachers with teaching materials on several themes, including sanitation and hygiene.

CEPIS carries out research and gives technical assistance related to sanitation and environmental health in Peru. They provide educational materials and training and are one of the key centres for documentation on water supply and sanitation in Peru. They have developed school modules, which are implemented through other organizations, such as EDUCA. Other NGOs, such as CIPUR, Centro IDEAS, ALTERNATIVA and IPES, are involved in developing plans, in construction work and in educational activities.

### **Pilot Programme "Nutrition and School Health"**

In 1990 the Ministry of Health initiated an experimental multisectoral programme with the objective of helping schools to provide an integrated

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nutrition, health and infrastructure service, with active community participation. The activities of this programme were all undertaken in collaboration with the municipalities and with NGOs such as KALLPA. The programme includes the training of some teachers as Health Coordinators, the training of all teachers about better nutrition and the prevention of water and sanitation related diseases, and the training of cleaning personnel. The sub-programme on nutrition includes the provision of a breakfast to the children and of equipment for kitchens in a number of schools. The sub-programme on health includes campaigns for the prevention of cholera, prevention of water and sanitation related diseases, and preparing the school to work with the community. The programme has been implemented in 73 pre-schools, 109 primary schools and 111 secondary schools. It is complemented with 41 non-school programmes at pre-school level.

## **7.5 Conclusions and Recommendations**

There are many problems with school sanitation and hygiene education provision in Peru. The problems are closely related to broader educational problems in the country, which include: the poverty of the schools; the low salaries of the teachers; the lack of basic services; the economic crisis of the country; the lack of educational materials; and the inappropriateness of the content of curricula. However, there is an awareness about the need for hygienic services and conditions, especially due to the cholera epidemic.

To achieve better sanitary services and hygiene education at schools, multisectoral and inter-institutional cooperation at different levels is required, as was seen in the "Nutrition and School Health Pilot Programme".

Technology designs need to be adapted and alternatives for the conventional flushing systems

identified. Facilities must be appropriate to the needs of children, the local conditions, the management capacities of schools and the means of the communities or private institutions who have to sustain the facilities.

Clear and coherent norms must to be developed and their application monitored and supervised. Any set of norms should take into account the different socio-economic and geographical conditions.

Teachers and other school staff must receive regular training and be provided with educational materials to enable them to turn theoretical knowledge on diseases and their prevention into practical and motivating education. Especially young children should receive practical training in the appropriate use of facilities and be encouraged to adopt positive behaviours. Cleaning personnel must be involved and be provided with sufficient suitable materials to maintain school facilities. A special budget is needed for these activities.

Communities, especially parents associations, must be more involved in the selection and management of school facilities. For this reason, attention should be paid to existing organizational structures such as local community management systems and the links between such structures and schools.

Educational materials should be adapted to local conditions and disseminated to teachers, who must be trained in their appropriate use.

Currently there is discussion about educational reforms at governmental level and the Ministry of the President continues to build a considerable number of classrooms in Lima and other cities. For these reasons, it is important to share these conclusions and recommendations with Peruvian governmental and non-governmental institutions.

## **PART C. COUNTRY WORK PLANS**





# Country Workplans

## PROPOSED PLAN OF PARTICIPANTS FROM BOLIVIA

<i>Expected Results</i>	<i>Main Activities</i>	<i>Partners</i>	<i>Resources Available</i>	<i>Missing Aspects</i>
Development of a strategic plan	<ul style="list-style-type: none"> <li>- Workshops and seminars</li> <li>- Review of activities at national level</li> </ul>	<ul style="list-style-type: none"> <li>- Research team</li> <li>- National and International organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Research Infra-structure</li> <li>- Interest</li> </ul>	<ul style="list-style-type: none"> <li>- Information support</li> <li>- Financial resources</li> </ul>
Agency staff capable of implementing SSG programmes	<ul style="list-style-type: none"> <li>- Training Engineers, technicians teachers in SSG</li> </ul>	<ul style="list-style-type: none"> <li>- Association of professionals</li> <li>- Teachers Federation</li> <li>- Federation of farmers</li> <li>- NGO's</li> </ul>	<ul style="list-style-type: none"> <li>- Experienced trainers</li> <li>- Infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>- Mobilization of available resources</li> </ul>
Integration of family members in SSG	<ul style="list-style-type: none"> <li>- Workshops and seminars</li> </ul>	<ul style="list-style-type: none"> <li>- Association of heads of households</li> <li>- Teachers Federation</li> <li>- Community</li> </ul>	<ul style="list-style-type: none"> <li>- Not very clear what resources and staff can be mobilized</li> </ul>	<ul style="list-style-type: none"> <li>- Training material</li> <li>- Financial support</li> </ul>
National/Regional Model approach for SSG	<ul style="list-style-type: none"> <li>- Implementation and review of the activities above</li> <li>- Establishment of overall approach</li> </ul>	<ul style="list-style-type: none"> <li>- National Organizations</li> <li>- Ministries of Health, Education, Urban Housing</li> <li>- NGOs</li> <li>- International organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Small team</li> <li>- Preliminary research</li> <li>- Agency staff</li> </ul>	<ul style="list-style-type: none"> <li>- Financial support</li> <li>- Advisory support</li> </ul>

## PROPOSED PLAN OF PARTICIPANTS FROM COLOMBIA

<i>Expected results</i>	<i>Main activities</i>	<i>Partners</i>	<i>Resources available</i>	<i>Missing Aspects</i>
Rural school sanitation programme	<ul style="list-style-type: none"> <li>- Review existing information</li> <li>- Development action plan</li> <li>- Implementation</li> <li>- Monitoring and evaluation</li> </ul>	<ul style="list-style-type: none"> <li>- Education and health secretaries</li> <li>- CINARA support team</li> </ul>	<ul style="list-style-type: none"> <li>- Human resources</li> <li>- Flexible curriculum</li> </ul>	<ul style="list-style-type: none"> <li>- Financial resources</li> <li>- Training support</li> <li>- Educational material</li> </ul>
Improved conditions in schools in communities of the projects TRANSCOL and CALIRURAL and possibly others	<ul style="list-style-type: none"> <li>- Inventory and assessment</li> <li>- Development intervention method</li> <li>- Implementation of improvements</li> </ul>	<ul style="list-style-type: none"> <li>- Regional groups of TRANSCOL</li> <li>- Staff of other organizations involved in project</li> <li>- CINARA staff</li> <li>- Communities</li> <li>- IRC</li> </ul>	<ul style="list-style-type: none"> <li>- Human resources</li> <li>- Project communities</li> <li>- Experienced staff in institutes</li> </ul>	<ul style="list-style-type: none"> <li>- Information and advice</li> <li>- Financial resources</li> <li>- Training support</li> </ul>
Up to date information on school sanitation	<ul style="list-style-type: none"> <li>- Strengthening existing information linkages</li> <li>- Establishment local information networks</li> <li>- Development local information</li> </ul>	<ul style="list-style-type: none"> <li>- CEPIS/OPS</li> <li>- IRC</li> <li>- CINARA</li> <li>- Municipalties</li> <li>- Organizations in other LA countries</li> </ul>	<ul style="list-style-type: none"> <li>- Repidisca/CEPIS</li> <li>- IRC</li> <li>- Documentation Unit CINARA</li> </ul>	<ul style="list-style-type: none"> <li>- Documentation</li> <li>- Trained staff</li> <li>- Financial support</li> </ul>
Follow-up workshop on monitoring School Sanitation programmes	<ul style="list-style-type: none"> <li>- Development proposal</li> <li>- Obtaining information from other countries</li> </ul>	<ul style="list-style-type: none"> <li>- Cali Workshop participants</li> <li>- International organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Human resources</li> <li>- Results first workshop</li> </ul>	<ul style="list-style-type: none"> <li>- Financial support</li> </ul>

## PROPOSED PLAN OF PARTICIPANTS FROM GUATEMALA, HONDURAS AND NICARAGUA

<i>Expected Results</i>	<i>Main Activities</i>	<i>Partners</i>	<i>Resources Available</i>	<i>Missing Aspects</i>
Improved sanitary conditions in schools	<ul style="list-style-type: none"> <li>- Review of situation</li> <li>- Establishment of improvement plans</li> <li>- Implementation of improvement plans</li> </ul>	<ul style="list-style-type: none"> <li>- Government organizations</li> <li>- NGOs</li> <li>- Communal organizations</li> <li>- International agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Human Resources (promoters, teachers, water and sanitation and other professionals)</li> <li>- Community</li> <li>- Some national/int funding</li> </ul>	<ul style="list-style-type: none"> <li>- Optimisation of utilization of existing human resources and funds</li> <li>- International funds</li> </ul>
Improved school and personal hygiene practices	<ul style="list-style-type: none"> <li>- Review available policies</li> <li>- Revise strategies applied in existing programmes</li> <li>- Reorientation of policies and strategies</li> <li>- Reformulation and implementation of school sanitation programmes including components of training, curriculum development and educational materials</li> </ul>	<ul style="list-style-type: none"> <li>- Ministry of Education</li> <li>- Ministry of Health</li> <li>- NGOs</li> <li>- Community</li> <li>- Teachers</li> <li>- Trainees</li> <li>- Int Organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Technical Staff</li> <li>- Community members</li> <li>- teachers</li> <li>- Trainees</li> <li>- Educational material</li> <li>- Logistic support</li> <li>- Some financial resources</li> </ul>	<ul style="list-style-type: none"> <li>- Definition and implementation of coordination policies</li> <li>- Reformulation of sanitation and hygiene education strategies</li> <li>- Enhanced institutional support</li> <li>- Financial support</li> </ul>

**PROPOSED PLAN OF PARTICIPANTS FROM CUBA AND THE DOMINICAN REPUBLIC**

<i>Expected Results</i>	<i>Main Activities</i>	<i>Partners</i>	<i>Resources Available</i>	<i>Missing Aspects</i>
Adjusted National Plan	<ul style="list-style-type: none"> <li>- Review of national plans</li> <li>- Meeting with interested organizations</li> <li>- Adjustment of national plans</li> </ul>	<ul style="list-style-type: none"> <li>- All important national organizations</li> <li>- Interested International organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Small National Group</li> </ul>	<ul style="list-style-type: none"> <li>- Establishment of the National Team</li> <li>- Specification of plan</li> <li>- Information support</li> <li>- Financial resources</li> </ul>
Interest mobilized for improved sanitation and hygiene education in schools	<ul style="list-style-type: none"> <li>- Develop regional workshops</li> </ul>	<ul style="list-style-type: none"> <li>- Ministry of Education</li> <li>- Ministry of Health</li> <li>- International organizations</li> <li>- Community Representatives</li> </ul>	<ul style="list-style-type: none"> <li>- Small National Group</li> <li>- International support capacity</li> </ul>	<ul style="list-style-type: none"> <li>- Establishment organizing team</li> <li>- Fund raising</li> <li>- Develop Interest other countries</li> <li>- Specification support Int. Org and NGOs</li> </ul>
Improved sanitation and hygiene education in schools	<ul style="list-style-type: none"> <li>- Formulation of a joint project for Cuba and the Dominican Republic on School sanitation</li> </ul>	<ul style="list-style-type: none"> <li>- Ministries of Education and Health in Cuba and the Dominican Republic</li> <li>- WHO</li> </ul>	<ul style="list-style-type: none"> <li>- Staff in both countries</li> <li>- Participants Cali workshop</li> <li>- possible research/support funds WHO</li> </ul>	<ul style="list-style-type: none"> <li>- Establishment of coordination teams</li> <li>- Preparation of project</li> <li>- Financial support</li> </ul>
Technologies established for application in rural schools in Cuba and the Dominican Republic	<ul style="list-style-type: none"> <li>- Formulation of a regional research project</li> </ul>	<ul style="list-style-type: none"> <li>- National Teams from Cuba and the Dominican Republic</li> <li>- International org. inc. IRC</li> </ul>	<ul style="list-style-type: none"> <li>- Small National Teams</li> <li>- Staff from national organizations</li> <li>- NGOs</li> <li>- Collectives of trainers and students</li> </ul>	<ul style="list-style-type: none"> <li>- Promotion of project idea</li> <li>- Fund raising</li> <li>- Identification of Advisory support</li> </ul>

**PROPOSED PLAN OF PARTICIPANTS FROM ECUADOR AND PERU**

<i>Expected Results</i>	<i>Main Activities</i>	<i>Partners</i>	<i>Resources Available</i>	<i>Missing Aspects</i>
Enhanced level of school hygiene education	<ul style="list-style-type: none"> <li>- Exploration cultural patterns</li> <li>- development/validation of material and curriculum</li> <li>- Teachers training</li> </ul>	<ul style="list-style-type: none"> <li>- Ministry of Education</li> <li>- Ministry of Health</li> <li>- Int. Organizations (UNICEF, WHO, PLAN INT. NGO)</li> <li>- Independent professionals</li> <li>- Communities</li> </ul>	<ul style="list-style-type: none"> <li>- Proposals for Curricula</li> <li>- Information material</li> <li>- Basic Institutions</li> <li>- Human Resources</li> </ul>	<ul style="list-style-type: none"> <li>- Production, validation and distribution of materials</li> <li>- Financial resources</li> <li>- Exchange of experience</li> </ul>
Established mechanisms for coordination and integration in environmental health	<ul style="list-style-type: none"> <li>- Coordination Workshop</li> <li>- Establishment technical committee for school sanitation</li> <li>- Information dissemination</li> <li>- Review of environmental school sanitation</li> <li>- Establish national proposal</li> <li>- Monitoring of activities</li> </ul>	<ul style="list-style-type: none"> <li>- Government agencies</li> <li>- International organizations</li> <li>- NGOs</li> </ul>	<ul style="list-style-type: none"> <li>- Adequate political structure</li> <li>- Commitment Cali workshop participants</li> <li>- Commitment IRC, WHO and several other agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Political decision</li> <li>- Coordination and consultation</li> <li>- Collaboration with universities and training institutes</li> <li>- Training of professionals</li> <li>- Project formulation</li> </ul>
Improved sanitation systems in schools	<ul style="list-style-type: none"> <li>- Improvement of water supply including treatment and adequate use</li> <li>- Improvement of sanitation facilities</li> <li>- Improvement of solid waste removal (Collection, disposal and re-use)</li> </ul>	<ul style="list-style-type: none"> <li>- Community</li> <li>- Water committees</li> <li>- Education community institutions (SEDAPAL, IEOS. Municipalities)</li> <li>- External organizations (UNICEF, PLAN INT, CARE, AID, PAHO, CEPIS)</li> </ul>	<ul style="list-style-type: none"> <li>- Community organizations</li> <li>- International organizations</li> <li>- Networks of different organizations</li> <li>- Outline solutions</li> <li>- Basic approaches</li> <li>- Local experiments in different locations</li> </ul>	<ul style="list-style-type: none"> <li>- Optimization of human and financial resources</li> <li>- Additional financial resources</li> <li>- Institutional coordination</li> <li>- Optimization information support</li> <li>- Evaluation of experiences</li> <li>- Developing specific technical solutions for flooding areas</li> </ul>

**ANNEXES 1 - 4**



## List of Abbreviations

AGISA	Asociación Guatemalteca de Ingeniería Sanitaria y Ambiental (Guatemala)
APAF	parents associations
CARE	Care International (Belgium)
CE	Construcciones Escolares (Honduras)
CEDAPP	Centro de Desarrollo y Asesoría Psicosocial (Perú)
CEPIS	Centro Panamericano de Ingeniería Sanitaria y Ciencias del Ambiente (Perú)
CINARA	Centro Inter-Regional de Abastecimiento y Remoción de Agua (Colombia)
DGOP	General Office of Public Works (Guatemala)
DINACE	Dirección Nacional de Construcciones Escolares (Ecuador)
DSM	División de Saneamiento Ambiental (Guatemala)
EB-PRODEC	Basic Education, Development, Efficiency and Quality, Ministry of Education (Ecuador)
ECOSAL	Central American Conference on Ecology and Health (Guatemala)
EDAPROSP	Centro de Educación y Autogestión Social (Perú)
EDUCA	(Perú)
EMPAGIA	Municipal Water Company (Guatemala)
ERET	Rural School for Education and Work (Nicaragua)
FHIS	Honduras Fund for Social Investment (Honduras)
FONASA	National Directorate of External Loans, the
FUNEDESIN	Foundation for Indigenous Development (Ecuador)
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (Germany)
ICCE	Instituto Colombiano de Construcciones Escolares (Colombia)
IDB	Inter-American Development Bank (USA)
IDEAS	Centro de Investigación Documentación Educación Asesoramiento y Servicios (Perú)
IEOS	Instituto Ecuatoriano de Obras Sanitarias (Ecuador)
INEC	(Ecuador)
INFOM	Institute of Municipal Public Works (Guatemala)
INIED	National Institute of School Infrastructure (Ministry of Education, Peru)
IRC	International Water and Sanitation Centre (The Netherlands)
KAP	knowledge, attitude and practice
KfW	Kreditanstalt für Wiederaufbau (Germany)
MINDES	Ministry of Urban and Rural Development (Guatemala)
NE	National Institute of Statistics (Guatemala)
NGO	nongovernmental organization
OPS/OMS	Organización Panamericana de la Salud (USA)
PAHO	Panamerican Health Organization (USA)

<b>PLAN</b>	<b>Plan International (USA)</b>
<b>PROANDES</b>	<b>Andean Subregional Programme of Basic Services (Ecuador)</b>
<b>PROMECEB</b>	<b>Programme for the Quality Improvement of Basic Education (Ecuador)</b>
<b>RSM</b>	<b>La Región Sanitaria Metropolitana (Honduras)</b>
<b>SANAA</b>	<b>Servicio Autónomo Nacional de Acueductos y Alcantarillados (Honduras)</b>
<b>SDC</b>	<b>Swiss Development Cooperation (Switzerland)</b>
<b>SIDA</b>	<b>Swedish International Development Authority (Sweden)</b>
<b>SNV</b>	<b>Servicio Holandes de Cooperación Técnica y Social (Nicaragua)</b>
<b>UCEE</b>	<b>Unidad Constructora de Edificios Escolares (Guatemala)</b>
<b>UNEPAR</b>	<b>Unidad Ejecutora del Proyecto de Acueductos Rurales (Guatemala)</b>
<b>UNICEF</b>	<b>United Nations Children's Fund (USA)</b>
<b>USAID</b>	<b>United States Agency for International Development (USA)</b>
<b>WHO</b>	<b>World Health Organization (Switzerland)</b>

## List of resource documents

### **Colombia**

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Alzate, Rodrigo et al (1993). Diagnostico preliminar en educacion en higiene y saneamiento ambiental : Fase II Costa Pacifica Valle Caucana (Buenaventura) y Zona Andina Caucana (Popayan-El Tambo). Cali, Colombia, Centro Inter Regional de Abastecimiento y Remocion de Agua/CINARA.

### **Ecuador**

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### **Nicaragua**

Jarquín, Mirjam Olivas (1993). Investigacion sobre condiciones sanitarias y actividades de educacion higienica in Nicaragua. Draft paper presented at the "Workshop on School Sanitation in Latin America, 22-26 March 1993.

### **Peru**

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Medrano Lopez, Irene (1993). Alimentacion y salud escolar en el Cono Sur, USE 11, Ministry of Education, Lima, Peru. Paper prepared for the Workshop School Sanitation and Hygiene Education in Latin America. Peru, Lima, Ministry of Education.

### **Bolivia**

Espana, Carlos (1993). Seguridad y servicios higienicos en las escuelas de la ciudad de la Paz. Draft paper presented at the "Workshop on School Sanitation and Hygien Education in Latin America, 22-26 March 1993. (This was only a draft paper prepared by the OMS engineer using available data as Bolivia has not been involved in the preparation of a preliminary review).





## Case Study Guidelines

### General information school

- type of school
- geographical site of school: rural-(peri) urban
- size of school
- number and size of classrooms; number of children per classroom
- number and gender of children
- number and gender of teachers
- number of shifts
- use of school building for other community activities
- general sanitary impression: garbage, stagnant water, drainage, animals, faecal pollution, disposal of wastewater
- size and environmental conditions of playground

### Sanitary facilities: technical aspects

- type of facilities: pits, VIP's, pour-flush etc.
- number of facilities
- Are the facilities at school the same as the facilities at home
- Why was this type of facility selected
- Were/are technical guidelines available, by whom provided
- If guidelines for design were/are available, did/does supervision during construction take place; by whom?
- Material of construction: superstructure, substructure, slab, squatting pan, walls, roof
- Are latrine parts produced locally by the private sector or by project staff, community, etc.
- If no facilities are available: where do children go (please describe site and site conditions)

### Cleanliness and physical conditions

- Are the facilities clean: squatting plate, pan, ground, walls, environment,
- Are there smell problems
- Are parts cracked
- Are parts missing
- Are parts broken down
- For latrines: \* what does the content of the pit look like: do insects breed in the pit (check with pocket-torch); \* does the content of the pit spreads a dirty smell; \* Is there a vent pipe?
- Is there a separate disposal of sewage and sullage?
- Is waste water of pit(s) disposed in soakaway, river, free at some place around the school, school gardens: does this create sanitary problems
- ventilation and light within latrine
- adaptation to childrens' need: height, seize of squatting slab/pan, light

- Are handwashing facilities available; inside or outside the latrine
- For flushing latrines: how many litres are needed for one flush. How many litres are used? Is enough water for flushing available during the day and on peak-moments. Is container or other utensil available.
- Where are pipes/drains of flush toilets situated: under the facilities, outside the facilities
- For latrines: what is being done when pits are full

### **Use of facilities**

- use of facilities: by whom, separate facilities for children, teachers
- Do all children use the facilities( girls, boys) for urination and defecation. How many latrines for girls and how many for boys?
- are there seasonal variations in use
- Are there daily patterns of use, e.g. peak-moments

### **Cleansing materials and hygiene**

- Is water or other material available for anal cleansing; what is being used?
- Where can these materials be found, e.g. water in storage tank, paper with teacher or in the toilet, etc.
- Where are cleansing materials other than water (hygienic paper, periodic paper, corn cabs, stones, etc) disposed?
- Where do female teachers and older girls dispose their sanitary dressings/cloths/tampons?
- Is water available for handwashing; is it being used; in what way ? Where is the water coming from; what is done with the waste water?

### **Operation and maintenance**

- how are facilities maintained and operated
- What kind of materials are being used for operation and maintenance (soap, brushes, disinfectants, etc.)
- who is in charge of daily/weekly maintenance (what activities)
- Are children involved in maintenance activities; in what way; and what is their attitude?
- what kind of problems do the school experience with their latrines (cleaning, collapse, repair,emptying)

### **Organization**

- who built the latrines, who initiated, who paid; who provided the materials?
- who is officially responsible for maintenance (health staff, teachers, school guardian, children)
- Does a monitoring and where necessary support system exist (supervision by health inspectors).
- where/ how did the school obtain the required technical know-how (designs), skills and supplies (commercially, local craftsmen, trained selected community members, project staff)
- Are the prevailing conditions of the community taken into account: materials, local habits and customs

- In case of external initiated projects: were the facilities based on the needs and the resources of the school itself; how have these been incorporated? Who took the decisions?
- Have teachers been involved in deciding what and how facilities will be build, used, managed, maintained, and financed.
- How is the community involved in the school sanitation programme; does/will it affect community sanitation?
- Do community members use the facilities ; in what way;? What is the reaction of the school?
- Do parent-teacher (or other community-school linkages) associations exist?
- Who is approached for repairs; who is paying for repairs
- Are there any programmes with subsidies or loans for latrine purchase

### **Education**

- Is environmental sanitation part of a formal/informal school curricula: what in which classes?
- Do the teachers themselves develop and implement hygiene education activities; what and how, give examples.
- If not the teachers develop materials who does it; what and how, give examples.
- Is classroom learning linked with practical activities, like the construction, maintenance of latrines, cleaning of the direct school environment, washing of hands after defecation
- Is the knowledge/message transmitted realistic: e.g. if handwashing is promoted, are water and soap available?
- Does the knowledge/message include local socio-cultural preferences?
- Are teachers trained in giving health, hygiene or environmental sanitation education? How, how long, and by whom? Are they trained in making educational materials themselves?
- Are materials for education available: what kind, prepared by whom, used by whom?

### **Attitude of children and teachers and other school staff**

- Do teachers like their school environment
- Do they like the school sanitation/hygiene education activities?
- Do they have ideas for improvements, do they feel responsible for school sanitation and hygiene education
- How do children feel about their school environment
- Do they like the school sanitation/hygiene education activities?
- What would they like to improve and in what way
- How do other staff, e.g. director, school guardian, feel about the school environment. How do they perceive their responsibilities.
- If parents have an organizational link with the school, e.g. teacher-parent association, how do the parents see the sanitary situation of the school, what are their ideas and responsibilities for change?
- Is there a spin-off of the sanitation and hygiene education activities to the community; in what way?

- What kind of facility do the teachers and other staff use at home? Are they satisfied about it?
- What kind of facility do the children use at home? Are they satisfied about it? Why/why not?

**Water supply facilities and solid waste disposal**

- Is there a water supply system: type
- Are the facilities adapted to childrens' needs
- What kind of problems do schools experience with their water supply: use, breakdown, reliability, costs, quality, quantity of water
- Does the school has a solid waste disposal system (garbage): type, problems
- Is the school involved in recycle programmes for solid waste (garbage)?

**Related activities in the country**

- Does a national level policy concerning school sanitation and school hygiene activities exists?
- Do guidelines for construction of facilities exists; are these available; provided? To whom?
- Which other activities related to school sanitation, school environment, school hygiene education exists?
- Which international/national organizations are involved, eg UNICEF; SAVE THE CHILDREN; NGO's?

## Participants

### Representatives of Member Countries

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