IRC
International Water and
Sanitation Centre

WHO Collaborating Centre

The Hague, The Netherlands

Water Supply and Sanitation in Primary School Education in Developing Countries

A Preliminary Study

13

Occasional Paper Series

IRC INTERNATIONAL WATER AND SANITATION CENTRE

IRC is an independent, non-profit organization. It is supported by and linked with the Netherlands Government, UNDP, UNICEF, the World Bank and WHO. For the latter it acts as a Collaborating Centre for Community Water Supply and Sanitation.

The centre aims to ensure the availability and use of appropriate knowledge and information in the water, sanitation and environment sector in developing countries.

Activities include capacity development for information management, exchange of available knowledge and information, and development and transfer of new knowledge on priority issues. All activities take place in partnership with organizations in developing countries, United Nations organizations, bilateral donors, development banks, and non-governmental organizations.

Emphasis in programme activities is on community-based approaches including rural and low-income urban water supply and sanitation systems, community participation and hygiene education, the roles of women, maintenance systems, rehabilitation and environmental management.

The multi-disciplinary staff provides support through development and demonstration projects, training and education, publications, documentation services, general information dissemination as well as through advisory services and evaluation.

For further information:

IRC
P.O. Box 93190
2509 AD The Hague
The Netherlands

Telephone:	+31 - (0)70-33 141 33
Telefax:	+31 - (0)70-38 140 34
Telex:	33296 irc nl
Cable:	Worldwater, The Hague

WATER SUPPLY AND SANITATION IN PRIMARY SCHOOL EDUCATION IN DEVELOPING COUNTRIES

A Preliminary Study

Prepared by IRC with support from
Division of Environmental Health,
WHO, Geneva

OCCASIONAL PAPERS SERIES No.13

IRC, International Water and Sanitation Centre
The Hague, The Netherlands

1988

Table of Contents

Acknowledgements

Many organizations and individuals willingly gave their support to this study. The IRC is particularly grateful for the contributions of water and sanitation workers and educators who submitted their reports, materials and comments. This report was prepared by Dr Barry Karlin, Consultant to IRC, and Mr Jan Teun Visscher, Senior Programme Officer. Important preliminary work was done by Ms Marian Paape, Consultant to IRC. Special mention is due to the following for their advice and assistance with this study: Mr M.A. Acheson, WHO, Geneva, Switzerland; Mr Martin Beyer, UNICEF, New York, USA; Ms Marieke Boot, Research Officer, IRC; Dr David Burleson, UNESCO Advisor to UNICEF, New York, USA; Mr Dan Campbell, WASH Project, Arlington, Virginia, USA; Mr Gerson da Cunha, UNICEF, New York, USA; Mr Jamie Henriquez, Peace Corps, Washington DC, USA; Dr John Hubley, Leeds Polytechnical, UK; Ms Marilyn Rice, PAHO, Washington DC, US; Dr Susan van der Vynckt, UNESCO, Paris, France; Dr May Yacoob, WASH Project, Arlington, Virginia, USA; and Ms Christine van Wijk, Research Officer, IRC.

1. *Introduction*

School hygiene education can contribute greatly to improving water supply and sanitation related behaviour. By establishing basic hygiene practices, school programmes can reinforce or help to modify attitudes and habits developed at home. New facilities, such as protected water supplies and sanitary latrines, can be introduced to children at school. They can learn how to use and maintain them, and why hand washing is essential after latrine use. The organizational structure for community environmental improvements and the leadership necessary to introduce changes is very often available in the local school and its teachers.

Against this background, IRC with support from the WHO Division of Environmental Health carried out a desk study of school hygiene education. Information was obtained from many institutions including Ministries of Health and Education in developing countries, external support agencies and non-governmental organizations. Also, the WHO/UNICEF International Consultation on Health Education for School-Aged Children held in Geneva, Switzerland, in 1985, was a very fruitful source of information.

More than 200 teaching and reference materials were collected and reviewed. These together with selected references are the basis for the summary of school hygiene activities in developing countries presented in Appendix I. Several examples are presented in order to demonstrate the variety of materials and the varied treatment given to hygiene topics (see Appendix II).

These materials and the approaches to school hygiene education are presented in this report. From the preliminary analysis several conclusions have been drawn which are presented in Chapter 4. One overriding conclusion is that although strengthening of school hygiene education is urgently required, this cannot be done in isolation. In many countries school hygiene facilities are either in poor condition or are lacking altogether, representing a serious health hazard for the children in school. Results may therefore only be expected when these facilities are being improved simultaneously with the educational efforts.

Another important drawback which was identified is that over 420 million school-aged children (40%) do not attend school (WHO/UNICEF 1985). These children work at home, on farms or in the private sector. This concerns especially girls for whom formal schooling is not valued, and homeless children. Imaginative ways will be required to reach these children also.

2. *Review of School Hygiene Materials*

A number and a variety of educational materials on water supply and sanitation for use in developing countries was received, as follows:

posters	91
booklets	37
materials for teachers	36
flip charts and flash cards	14
leaflets and fliers	12
books for students	8
comic books	6
special items (calendars, labels)	4
games	3
magazines for students	2
Total number	213

Although limited information was obtained on the development, testing and use of these materials, some generalizations can be made. Most have been developed as part of a comprehensive set of health education materials. However, in terms of quantity and quality, they appear to be less numerous and less rigorous than those developed for use in nutrition and family planning education, for example. Some new materials are being developed but many were received which are quite old, particularly in comparison to those which address issues such as rehydration and immunization.

Many other materials were prepared in close co-operation with or directly by UNICEF and UNESCO in Bhutan, Nepal, Uganda, Mozambique, Bangladesh, India, Bolivia, Brazil and Honduras. A number of these reference materials, curricula, booklets for pupils and posters, appear to have been carefully developed, and are imaginative, and multi-faceted. Others are more superficial, not covering thoroughly key topics, and not including teachers' guides, curricula plans and reference materials.

Some materials were prepared with the help of local artists and are geared specially to the local situation. This is essential to ensure their effectiveness in the teaching

situation. Other materials are clearly copied and do appear to be either relevant to the local situation or based on particular health needs and conditions.

Researchers stress, however, the need for locally specific teaching materials and for careful pretesting or evaluation before introduction on a wide scale. A standard set of teaching materials to fit all situations and conditions may therefore have limited impact. Many of the materials received seemed to have been developed on the basis of the learning objectives set by educators. With few exceptions little account seems to have been taken of the beliefs and attitudes of learners and little done to evaluate materials before distribution.

Development of teaching materials is an integral part of a hygiene education programme. Yet, in fact, efforts are very often focused on their development in isolation of the hygiene education programme they are to support. This can result in attractive materials being prepared which are not necessarily relevant. Thus to foster production of appropriate materials, awareness of the development process needs to be stimulated and promoted. The steps in this process are as follows:

2.1 Defining programme objectives and target group

The purpose of developing audio-visual teaching materials for a school hygiene education programme is to assist teachers in their task of impacting hygiene information and bringing about changes in hygiene behaviour. Thus, these materials must be developed to support and promote the objectives of the hygiene education programme and to assist education to reach the target audience. Therefore if not already clearly defined, it is essential that the programme objectives methodology and target group be determined as the first step in the process. Review of existing experience in other neighbouring programmes may be very useful in this stage.

2.2 Developing and pretesting of prototype material

Prototype materials need to be developed and tested on a representative sample of the target group(s) before wide scale production. In developing audio-visual materials for hygiene education programmes several factors need to be taken into consideration:

Message. Within the defined programme objectives, there is inevitably a wealth of information to be conveyed to the target audiences. It is therefore necessary to determine the particular messages to be conveyed.

- **Media.** The most appropriate media to bring a message to the target audience needs to be worked out in terms of their socio-economic and cultural backgrounds and the physical environment. Media which have been used include: radio broadcasts, films, posters, booklets, songs and games.

- **Form.** Finally the most effective type and combination of words, either spoken or written, and illustrations will need to be developed in terms of the messages to be conveyed and media to be used.

Through pretesting the material, errors in conception and design can be uncovered and as a result these materials may need to be modified and tested a number of times before they are deemed effective in supporting hygiene educators in their task. Five components have been identified for evaluation of audio-visual materials: attraction, comprehension, acceptability, self-involvement, and persuasion. Some practical aspects of pretesting are set out in Appendix III.

2.3 Production and implementation

Once teaching materials have been developed and tested, they have to be produced, duplicated or published for wide-scale use. To ensure maximum impact, teachers' guidelines need to be prepared and teachers' workshops organized to demonstrate their effective and appropriate use. During the programme, teachers will need guidance and supervision in the application of audio-visuals in their work, and those working in other related sectors need to be stimulated to take advantage of available materials.

A recent WASH study of 54 visual teaching materials on water supply and sanitation found that only 19 had been pretested (Karlin and Isely, 1984). Where materials had been pretested, misunderstanding in the interpretation of the message had been rectified (Haaland, 1984). One of the few programmes involving systematic research into the development and testing of hygiene education materials is underway in Honduras (Vigano, 1985). Application of marketing techniques to social needs, such as environmental health, and rehydration therapy and immunization are also being pioneered. However, limitations arising from lack of pretesting would apply to much of the school hygiene materials prepared.

Some of the collected materials were clearly developed for class room teaching, whereas other materials also address a wider audience. It would be particularly valuable to assess whether both types of materials serve the same purpose. If so, then efforts should be concentrated on developing materials to meet the needs of all children, both those in school and those not attending school. It would be well

worthwhile assessing the usefulness of the various types of materials and the circumstances under which they are being used.

3. *Review of School Hygiene Activities*

Very little information is available on school hygiene activities. For this study, descriptions of programmes and materials, including training and reference materials for teachers, were very difficult to obtain. It was also hard to ascertain whether school hygiene classroom activities are supplemented with activities in the school and in the community. The availability of hygiene facilities in schools was not easy to assess and whether policy regarding their use is enforced. Nevertheless from the information collected a number of generalizations and conclusions could be drawn.

Hygiene as part of broader school health education programmes is very often considered to have great potential to bring about behavioural changes. However, there is little evidence to substantiate these views mainly because few studies have been carried out. Different approaches to hygiene education are being followed which may be categorized as follows:

- **Classroom teaching** based on a predetermined curriculum, using audio-visual teaching materials, drawings or books, and other publications for pupils and teachers' reference, and reinforcing learning with various activities and exercises;

- **Comprehensive school hygiene programmes** combining classroom teaching and the provision of sanitary facilities such as safe water source, sanitary latrines and hand washing facilities, so that hygiene lessons can be put into practice.

- **Community out-reach programmes** incorporating comprehensive hygiene education programmes and pupil participation in community environmental sanitation activities. In this way pupils can exert a positive influence on the hygiene practices of their parents and siblings.

  In rural Indonesia, for example, action-oriented health lessons associated with a drive to reduce the incidence of diarrhoea have resulted in extensive community clean up campaigns, including composing of waste in several villages (Rohde and Sadjimin, 1980). A number of examples of out-reach programmes are given in the summary of country activities in Appendix I.

From the information obtained, it was not possible to determine which programmes are more effective and appropriate and under which circumstances. It is even difficult to judge how well lessons are being taught and how successfully sanitary habits are being encouraged because health education is treated as a "co-curriculum" subject and is therefore not examinable.

Developments in related areas, such as health education and community participation, suggest that the impact of hygiene education is likely to be greater when pupils are actively involved rather than simply passive recipients of information. Further study is required for confirmation of these ideas. However, it is promising to note that several organizations, and particularly non-government agencies, are placing more emphasis on active pupil participation. For example, curricula and reference materials developed for use in Kenya, Bhutan and Boliva as well as those developed by the Teaching Aids at Low Cost (TALC) project in London include suggestions for classroom exercises, for use and maintenance of facilities, and teaching materials.

In some countries, school hygiene facilities are either inadequate or lacking altogether. Under these circumstances, even a school hygiene education programme using participatory techniques will have little effect, if facilities are not improved. In other countries, school hygiene facilities are being improved as part of ongoing water and sanitation programmes. Even one case was found where use of school latrines was discouraged because, for cultural reasons, some children were not permitted to clean them.

Out-reach programmes are particularly important in areas in need of environmental improvement and where such improvements are feasible with the use of local materials. For example, school out-reach activities have helped in obtaining facilities in communities in Kerala State, India (see Appendix I). The needs of school-aged children not attending school are often addressed by out-reach programmes. Social marketing approaches as applied in promotion of oral rehydration therapy may also play an important role in such programmes.

Active involvement of primary school children in community hygiene activities can have unexpected benefits. In Ethiopia, for example, adult men were unwilling to discuss hygiene beliefs and practices with interviewers, but were prepared to share this information with their grandchildren, who were then able to report to the health researchers (Nimpuno, 1985).

Teachers' training

Teachers' training is stressed as an important tool to strengthen hygiene education. In some countries lack of experienced teachers is a major drawback. For example, in Guinea Bissau most teachers have had no formal training and in 30% of schools all activities are conducted outdoors. In Botswana, 36% of the teachers do not have formal qualifications (Paape, 1984). Although little is presently known about the adequacy of teachers' training programmes, it seems that programmes need to be strengthened particularly if teachers are to develop more innovative approaches to involve children actively in school hygiene activities as well as in community out-reach programmes.

A practical way of strengthening teachers' training may be to link training institutions with water, sanitation and primary health care agencies responsible for designing and installing facilities, and implementing environmental sanitation programmes. Examples which go in this direction include the UNICEF supported programme in India.

Trainers may also be assisted with curriculum and material development as is done by UNICEF in India and with the provision of example programmes. Schools often do not have the financial resources to prepare materials, yet very little information is available on cost and cost-effectiveness of different programmes.

Interagency collaboration

School hygiene education cannot be tackled in isolation. It has to be based on local habits and the local environment. Wherever possible it should make use of other intervention programmes, such as water supply programmes, latrine construction actions and immunization campaigns. In several countries interministerial working groups are being formed to develop programmes and materials. There is also close co-ordination and co-operation between governmental agencies, non-governmental organizations, donor agencies such as UNICEF and UNESCO.

These developments are important as school curricula planners, teacher trainers and local teachers must work closely with community health, water and sanitation workers to make certain that curricula and teaching aids are relevant to the prevention of local hygiene related diseases. Even more obvious is the need for collaboration and co-ordination between educational health and water agencies for effective school out-reach activities. Unfortunately, insufficient information was obtained to identify how joint programme development and planning by school teachers and health and other officials are organized and how out-reach programmes are planned.

4. *Strengthening of School Hygiene Education*

Higher priority for hygiene education

Developing countries need encouragement in establishing specific hygiene education policies and goals for the remainder of the Decade and beyond. They need assistance in securing basic water and sanitation facilities, supporting teachers and co-ordinating out-reach activities. Increased priority would also stimulate teacher training institutions to increase these efforts. Donor agencies are in a favourable position to strengthen these priorities, as they are doing in other areas of child survival. In those countries in which school education has been a low priority, it may be preferable to support non-governmental organizations who have effectively introduced innovative hygiene education activities and materials in primary schools.

Case studies and descriptions of hygiene education

Priorities will be more easily set if sufficient evidence is provided in detailed case studies of the potential of school hygiene education to induce behavioural change at a relatively low cost. In particular, such studies could address the effectiveness of more comprehensive programmes and out-reach activities as opposed to classroom teaching programmes. Descriptions of ongoing and innovative programmes could provide programme planners and field staff with inspiring examples. This is particularly important for out-reach programmes which are directed at the 40% of all school-aged children not attending school throughout the world. Often more innovative programmes are developed by non-governmental organizations but need support from international organizations in order to influence national government policies.

Case studies would also serve as a vehicle for publication and dissemination of programme descriptions, sharing of information from workshops and meetings, and identifying new opportunities as well as constraints. Ideally, a case study team should include representatives from developing countries who are in a position to influence hygiene education in their ministries.

Strengthening curricula development

Guidelines for hygiene education need to be prepared to assist trainers and training institutions develop curricula and programmes. The process of curricula development and the content should be included. The guidelines need to address lesson planning, school health services, school hygiene facilities and services, as well as extension services at home and in the community. Such a set of guidelines is not intended for use in any particular country but is designed to assist educators to develop their own curricula.

Collection and distribution of resource material

The limited amount of teachers resource materials currently available suggests that a source book is needed on health and hygiene for use in teacher training institutions and by teachers themselves. Such a source book would need to contain background information on the cause and prevention of disease, specific water and water related diseases, sound hygiene practices and ways of securing safe water. Sufficient materials seem to be available and with the support of, for example, WHO, UNESCO, and UNICEF, could be collected, translated, and where necessary adapted, and disseminated to interested institutions and organizations.

Support to development of teaching aids and materials

To stimulate the development and production of better and more appropriate teaching and hygiene education material, information on the development process (as given in Chapter 2) needs to be distributed. A set of selected teaching and hygiene education materials has therefore been added to this publication. Although these materials are not directly applicable because they are too closely related to the specific socio-cultural background of the target audience, for whom they have been developed, hygiene educators may benefit from these examples of posters, leaflets, games, calendars, and story books. Unfortunately, information on how these materials were developed and tested has not been obtained as this would also have been valuable.

Improvement of sanitary facilities in schools

Many schools lack or are badly in need of improved sanitary facilities. Thus if school hygiene programmes are to be successful, efforts are required to build or improve facilities. A booklet on the planning and construction of school hygiene facilities would be a positive step towards achieving this goal. At the same time, national ministries responsible for water and education need to be encouraged to collaborate in the planning and implementation of comprehensive school hygiene programmes covering both education for improved hygiene behaviour and construction of facilities.

Stimulation of interagency collaboration

In most countries school hygiene education programmes will need to address both education and construction of facilities. Therefore close co-ordination and co-operation between education, health and water agencies and their supporting international organizations is required. Collaboration may well be stimulated through national workshops organized with international support. Among the issues to be addressed are development of policy for school hygiene education and development of national or regional training curricula and materials.

References

Ariyadasa, K.D. (1978). Development of health education in family health programmes. New Delhi, India, World Health Organization, South Asian Region.

Bhalerao, V.R. (1986). School children as health leaders in the family. World Health Forum, 2, 2, 209-210.

Bhutan Royal Government (undated). Guidelines for training of school teachers, sponsored by UNDP/WHO, Proj. No. BHU/82/001, Thimphu.

Bhutan Dept. of Education (1983). School health education: a Manual for teachers. Delhi, India, Oxford University Press.

Cardenas, Margarita (1980). A program for health education related to water. Washington DC, USA, Peace Corps Information Collection and Exchange.

Chinemana, F.A. (1986). The need for health education in Zimbabwe: findings from a household survey. Hygie, Vol. V, 50-55.

Cross, Piers (1983). Community-based workshop for evaluating and planning sanitation programs: a case study of primary school sanitation in Lesotho. Washington DC, USA, World Bank Technology Advisory Group.

Demehin, Ade O. (1985). Health promotion through the primary school health programme. Hygie, IV, 1, 40-45.

Dlangamandla, V. (1985). School sanitation in Lesotho. Waterlines, 3, 3, 2-4, and personal correspondence.

Ejezie, G.C. (1981). The parasitic diseases of school children in Lagos State, Nigeria. Acta Tropica, Vol. 38, 79-84.

Evans, Donald M. (1984). Yap school health education handbook. Western Caroline Islands, Yap State Dept. of Education.

Haaland, A. (1984). Pretesting communication materials. Rangoon, Burma, UNICEF.

Hampton, Janie (1985). Happy healthy children: a child care book, Hong Kong, Macmillan Publishers Ltd. Also available from TALC, P.O. Box 49, St. Albans, Hertfordhire AL1 4AX, UK.

Higham, Steve (1986). Tanzania's fight to reduce disease. World Water, May, p. 19.

Institute of Child Health (1982). Newsletter 4: special evaluation issue. London, UK.

IRC. Hygiene Education in water supply and Sanitation , a literature review and selected bibliography (in preparation), March 1988, The Hague, The Netherlands, International Water and Sanitation Centre.

Israel, R.C. and v.d. Vynckt, S. (1985). School-based health education: an overlooked need: UNESCO issue paper for joint WHO/UNICEF International Consultation on Health Education for School-aged Children, 30 September - 4 October 1985. Geneva, Switzerland.

Joseph, M.V. (1980). Teachers and pupils as health workers. The Lancet, 8 November, pp 1016-1017.

Karlin, B. and Isely, R.B. (1984). Developing and using audio-visual materials in water supply and sanitation programs. (WASH Technical Report No.30). Arlington, USA.

Khogali, Ali (1986). EMRO and school health education: full focus on action: an interview. Education for Health, Issue 1, pp 9-11.

Knight, J. (1983). Teaching child health and development concepts to primary school children. Cajanus, 16, 4, 205-219.

Koopman, J.S. (1978). Diarrhoea and school toilet hygiene in Cali, Colombia. American Journal of Epidemiology,**105**, 5, 412-420.

Krishna, K.C., Community Development & Health Project, United Mission to Nepal, P.O. Box 126, Kathmandu (personal correspondence).

Laver, S. (1981). Communication for low-cost sanitation in Zimbabwe. Waterlines **4**, 4, 26-27.

Merkle, Alfred (1985). Health development in communities: the role of education and participation. GATE, No.2, pp 3-6.

Manoff, R. (1985). Social marketing: new imperative for public health, New York, USA, Praeger Co.

Morley, David, **et al** (1984). Involving children in community health: suggestions for curricula and co-curricula activities. In: Mobilizing education to reinforce primary health care, Digest X, UNESCO, Paris, 1984.

Nimpuno, K. (1985). Children as agents of change. Paper presented at UNICEF Regional Seminar on Basic Education for Child Survival and Development, 28 October - 2 November 1985, Nazareth, Ethiopia.

Noak, Joan L. How to keep health. Lusaka, Zambia, Dept. of Health.

Rody, N., Raymond, J., **et al** (1985). The Yap school health programme: towards community competence in PHL. Education for Health, No.2, pp 19-25.

Rohde, J.E. and Sadjimin, T. (1981). Elementary school pupils as health educators: role of school health programmes in primary health care. Lancet, 21 June 1982, pp 1350-1352.

Saminathem, P., Ravindranath, M.J. and Rajanataam, A. (1986). Health messages for adults from their children. World Health Forum, 7, 2, 191-192.

Saunders, R. and Warfold, J. (1976). Village water supply: economics and policy in the developing world. Maryland, USA, Johns Hopkins University of Baltimore.

Siribodhi, Pateep, Director, Regional Sanitation Center, Region 3, Korat, Thailand; personal communications.

Surasiti, Varunee (1983). Development of health education in schools, Burma. Assignment report, 1 February - 9 March, New Delhi, India, World Health Organization, South-East Asia Region.

Sutisnaputra, O.M. (1984). Development of school health education in Bhutan. New Delhi, India, World Health Organization, South East Asia Region.

TALC. Books, slides and accessories list. St. Albans, Herts., UK, Teaching Aids at low-costs.

UNICEF (1983). Health education and training materials on water supply and environmental sanitation (1985-83). Rangoon, Burma.

Vigano, O (1985). Communication, community and health. Tegucicalpa, Honduras, Academy for Educational Development.

WHO/EMRO (1988) prototype Action-oriented school health curriculum for Primary Schools. Alexandra, Egypt, WHO EMRO.

WHO/EMRO (1987). Action-oriented primary school health curriculum. (draft). Alexandria, Egypt, WHO EMRO.

WHO/UNICEF (1986). Helping a billion children learn about health. Report of the WHO/UNICEF International Consultation on Health Education for School-aged Children. Geneva, 30 September - 4 October, Geneva, Switzerland, World Health Organization.

Wijk-Sijbesma, C. van, (1985). Participation of women in water supply and sanitation: roles and realities. (Technical Paper Series No.22). The Hague, The Netherlands, IRC, International Reference Centre for Community Water Supply and Sanitation.

Yamagishi, N., UNICEF Assistant Programme Officer, P.O. Box 460, Monrovia, Liberia (personal correspondence).

Appendix I: Country Review of Training and Reference Materials in School Hygiene Education

The widest variety and the largest number of teaching and reference materials for school hygiene education were received from programmes in Asia, particularly Bhutan, India, Indonesia, Nepal and Sri Lanka. A range of materials were also received from several African countries, including Kenya, Malawi, Mozambique, Tanzania, Togo, Uganda and Zimbabwe. Although the response was not great from Latin America and the Caribbean, materials were received from Bolivia, Colombia, Honduras and Mexico. To some extent, the large number of materials from Asia and East Africa can be attributed to their greater ease in responding to requests written in English, and does not necessarily mean that fewer materials are produced in other regions.

An insight into school hygiene activities in several of these countries is presented. Information received was usually incomplete and only tells a small part of the story.

I.1 Africa

Kenya

The Ministries of Education, Science and Technology, and of Health, and non-governmental organizations co-operate to develop materials for school health education. The home science syllabus prepared by the Institute of Education states that enabling students to grow into strong and healthy persons is a basic educational objective. Considerable emphasis is given in the syllabus control of water-related diseases.

Non-governmental organizations publish a commendable range of student materials and teachers' reference materials including ideas for classroom and community activities. A similar programme for school hygiene publications is being prepared by the Mazingira Institute sponsored by the Canadian International Development Research Centre (IDRC). These publications are closely linked to the interests of school children and include imaginatively designed contests, prizes, puzzles and other features to attract attention and at the same time impart essential information about water, sanitation, health and other related topics. Each comic book includes a teacher's guide for its use. Copies are distributed to all primary schools in Kenya and are also sent to Uganda. In total 18000 copies have been distributed in both countries. Material from two comic books is included in Appendix II.

Lesotho

Assessment of the United Nations assisted Primary School Sanitation Project (1976 - 1979) by the World Bank Technical Advisory Group (Cross, 1983) revealed a number of technical and administrative weaknesses. Communal latrines were culturally unacceptable. Latrines with seats were preferred to squat slabs. Latrines were too far away from classrooms and there were too few to accommodate students during school breaks. Teachers and community craftsmen did not have the skills to construct and maintain them; water and hand-washing facilities were not available at school, and there was no concomitant to a home latrine and sanitation programme.

Subsequently the Urban Sanitation Improvement Team (USIT) was set up under the Ministry of Interior (Dlangamandia, 1985). Their 10-point educational programme emphasized use of toilets by school-aged and younger children, keeping the latrine door closed, hand-washing, and informing parents about the importance of improved latrines. Early set-backs were overcome by installing locks to prevent vandalism during weekends, installing self-closing door springs, and increasing community participation in school latrine activities. Both the Health Education Unit and Rural Sanitation Programme work closely with USIT to train and involve teachers in school and community hygiene, in developing displays, and in training other health workers. The national Curriculum Development Committee of the Ministry of Education actively supports school hygiene and works closely with UNIT and the Ministry of Health. Close co-ordination of governmental agencies has helped to establish standards for sanitation facilities and construction policies.

A number of posters, slide shows, models, pamphlets and other materials have been developed and are used in hygiene education in primary schools throughout the country. Radio talks and interviews addressed to pupils and the public at large reinforce classroom teaching, as does the publication of articles in newspapers.

Liberia

Hygiene education is included in the broader spectrum of health education and is directed to helping students achieve health through their own actions and efforts. Personal hygiene, environmental health and sanitation, disease prevention and family life education, are all aspects of their curriculum (Yamagishi, 1987). There are a number of constraints including lack of audio-visual materials, limited co-ordination between agencies, and inadequately trained instructors. Transport difficulties prevent regular visits to schools to check on hygiene education activities. UNICEF assists Ministry of Education Curriculum Material Centres throughout the country, although hygiene education materials are not produced at these centres.

Uganda

An active inter-ministerial panel of representatives of health, education and agriculture ministries recently approved a new health syllabus including specific hygiene education units. It is to be used in all 6000 schools, together with the teachers' guides at present being developed. With support from UNICEF and participation from other governmental and private agencies, a variety of booklets, fliers, calendars, and magazines for students have been prepared. The school hygiene education programme includes involvement of religious leaders. Kits containing a variety of teaching materials and teachers' guides are distributed at workshops to teachers and their trainers. Extracts from the health education calendar and from a Ministry of Health leaflet are presented in Appendix II.

Zimbabwe

Zimbabwe has an extensive hygiene education programme for the International Drinking Water Supply and Sanitation Decade (IDWSSD). Representatives of the Ministries of Education and of Health participate in the committee for the development of school hygiene education booklets and teachers' reference materials being produced by the Curriculum Development Unit of the Ministry of Education, in conjunction with the National Action Committee of the IDWSSD.

Government support is given to innovative approaches to hygiene education, such as provincial competitions involving preparation of posters, poems, songs, essays and dramas on health and hygiene topics. The Ministry of Education cites these activities as being "great successes". Through them, pupils not only learn about the importance of hygiene but they themselves are influential in educating their communities. These efforts have benefitted by having information about local hygiene beliefs and practices obtained through household surveys supported by the University of Zimbabwe (Chinemana, 1986; Laver, 1986).

Other african experiences

The Department of Health in Zambia has produced a variety of hygiene education materials for primary schoolchildren and their teachers. The teachers' reference document "How to Keep Healthy" provides background information on many aspects of personal hygiene and disease control. A description of health education needs and conditions in Nigeria has been published (Demehin, 1985), but no materials and details about implementation were received. Mozambique submitted a set of posters, which even though produced in black and white, are of high artistic standard. Saudi Arabia produces school dental health posters on adhesive paper with peel-off backs.

Booklets combining text and illustrations have been produced for schools in Togo with support from AIDE Techniques a l'Education et aux Organismes Sociaux (EDICEF) in Paris.

I.2 Asia

Bangladesh

CONCERN, an Irish non-governmental organization with offices in Dhaka, has an active hygiene education project which includes operation of 12 primary schools with a total enrolment of over 8100 pupils. Hygiene education includes personal cleanliness, environmental sanitation, use of latrines, control of communicable diseases, and understanding the causes of diarrhoea. CONCERN generally follows Ministry of Education curricula and uses their books. As health education materials are not readily available from government sources, these are generally designed and produced by CONCERN from their own limited resources.

The 12 schools which provide latrines, tubewells and rubbish bins are visited regularly by a Primary School Health Inspector, who is a project staff member. Hand-washing facilities and soap are provided, as well as fingernail clippers. Out-reach activities have been organized for pupils at six schools including Chittagong, but no details of these activities were available.

UNICEF is an active supporter of hygiene education material development in Bangladesh. Although materials submitted are intended for adults, they are of potential interest to school educators.

Bhutan

Documents received included a school health education manual for teachers (Bhutan, 1982), a set of guidelines for training schoolteachers in low-cost sanitation and health education (Bhutan Royal Government, undated), and an informative report of a WHO Consultant (Sutisnaputra, 1983). This collection of materials indicates the considerable concern about hygiene education in Bhutan. Specific knowledge and desired behaviour are described, as well as detailed technical information given on latrine construction, personal hygiene programmes, food and water protection. The Consultant's report illustrates the potential value of short-term assistance of this type. Material from student's booklets is presented in Appendix II.

India

Many hygiene education activities are underway in India and numerous materials were received from governmental and private organizations. The Andhra Pradesh Voluntary Health Association submitted detailed curricula for training primary school teachers in hygiene education and other health topics together with a set of 17 unusual posters. No information was available on the understandability or impact of these posters.

Similar efforts are being supported by the Indian Voluntary Health Association in New Delhi which aims to involve children in improving environmental conditions, personal hygiene, and the health status of their communities. Efforts are underway to provide sanitary latrines and hand-washing facilities in schools where hygiene education programmes have been initiated.

Since 1975, UNICEF and UNESCO have assisted Kerala State to strengthen teacher training, to improve hygiene education and environmental sanitation. In the first year, 30 teachers from 10 schools were given four days training in the identification and treatment of common diseases in their area. In the second year, 75 pupils were trained to assist these teachers in improving school hygiene and increasing awareness of health and hygiene in their fellow pupils. A comprehensive village health and development plan was carried out during the third year. Teachers and pupils from other schools were trained by the earlier groups. Responsibilities of the pupils were extended to organization of home composing and soakage pits, and routine chlorination of wells. An evaluation after five years indicated considerable reduction in trachoma, scabies and other health problems. The programme was found to be inexpensive, costing less than one Indian Rupee per pupil per year and was deemed to be simple and readily replicable (Morley, 1984).

UNICEF in India has produced one of the few sets of technical publications specifically designed for improving school sanitation. An illustration from one is given in Appendix II.

Indonesia

While detailed description of school hygiene education activities were not available, the imaginative materials produced suggest considerable activity. Card games, board games silk-screened on cloth, hand puppets, are in use to convey hygiene messages. These are being produced with support from voluntary organizations, such as CARE, YIS and Save the Children. Posters printed on clothlike paper, games, and attractive leaflets for children are of potential interest to other hygiene educators. UNICEF has assisted in designing and evaluating many of these materials and CARE in Indonesia has made effective use of sets of leaflets featuring brother and sister, "Adi and Ida".

Examples of educational card games, dominoes, and leaflets have been included in Appendix II.

Other countries

Reports of hygiene education activities, as well as attractive materials were received from Thailand, the Philippines and Nepal, including the flipchart shown in Appendix II. The Thai Ministries of Public Health and Education work closely together to co-ordinate school and community hygiene programmes, often in very innovative ways. For example, in Korat Province, north-east Thailand, teachers and primary school pupils have been trained to cast concrete jars ($1m^3$) for storing rain water. These are sold to villagers, and the proceeds used to support school health programmes (Siribodhi, 1985).

A school health programme initiated by the Government of Yap in the South Pacific in 1974 was not very successful because practice did not reflect lessons taught in schools. Toilets, safe water and hand-washing facilities were not available in schools and were scarce in the community. There were virtually no school health services. The Yap State Department of Education therefore decided to set its health education programme in a "...realistic context in which to thrive", that is to provide essential facilities and services (Rody, 1985; and Evans, 1984).

In close co-operation with the Yap Public Health Service, parental involvement was developed through hygiene education programmes directed at both parents and students. Village school health competitions proved to be very popular, with awards being made to schools with the most healthy environments. Communities, rather than government officials, are now accepting responsibility for operation and maintenance of hygienic facilities. As a result, levels of repairs have improved, vandalism has declined, and local pride has increased. With these improvements in services and the school environment, curricula were revised and expanded to include communal sanitation and garden projects. Students learn by doing and are taught to apply these lessons through case study techniques.

I.3 Latin america and the caribbean

Bolivia

UNICEF and the Ministry of Education and Culture have jointly initiated an energetic hygiene education programme. This includes publication of very attractive materials including booklets for students, flash cards and posters (see Appendix II). The 138-page training manual for teachers is thorough and also illustrated. No information was received on the availability of hygienic facilities, out-reach activities, or health

education for pupils and their parents in association with treatment of water-related diseases.

Honduras

One of the few programmes involving careful and systematic research into the development and testing of hygiene education materials for children is underway in Honduras (Vigano. 1985). Emphasis has been given to developing and using educational comic books dealing with water and sanitation issues. These have been described previously by Karlin and Isely (1984), and in publications of the Academy for Educational Development which supports the "Proyecto Agua y Saneamiento Rural" (PRASAR) with funds from USAID. Application of marketing techniques to social needs, such as environmental health, oral rehydration therapy and immunization, is being pioneered in Honduras.

Appendix II: Examples of School Hygiene Education Teaching Materials

Comic book, Mazingira Institute, Kenya

Comic book with text, Pied Crow, CARE, Kenya

Calendar, multi-agency production, Uganda

Leaflet, Ministry of Health, Uganda

Illustrated Student's booklet, Bhutan

School sanitation booklet, UNICEF, India

Domino & card games, YIS, Indonesia

Leaflets for children, CARE, Indonesia

Flip chart, Government of Nepal with UNICEF

Flashcard, Ministry of Education, Bolivia

Student readers, Ministry of Education, Bolivia and UNICEF

Student map-making exercise, Save the Children Foundation, Dominican Republic

Comic book, Mazingira Institute, Kenya

THERE IS NOTHING WRONG WITH TALKING ABOUT...

STOOL AND URINE

Most people pass it every day—at home, at school, at work, and at home again. What are they passing?? —the natural waste products of the human body—stool and urine.

There are many names for this waste from the body—almost every language has several names for IT. Short call, long call, choo, and faeces, are just some of the names you may have heard. But many people do not want to talk about human waste because they think it is a secret. IT smells. IT is private. IT is passed through private parts of the body.

Eating and sleeping, running and walking are called body functions. When the body produces waste in the form of stool and urine, this is also a body function—stool and urine are natural products of the body's digestive system. This is the body's way of passing unwanted materials, the remains of food and drink which the body can not use. We must pass out these unwanted products in the form of stool and urine, because they are the harmful, even poisonous, if left in the body.

Let's look at it this way:

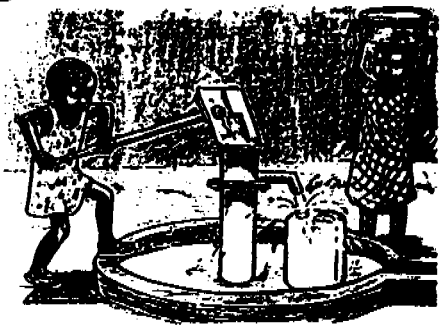
We all know that the body needs energy in the form of food—to run, to jump, to play, to walk, to think and write. Each one of these activities needs energy, fuel for the body's motor. Food is that energy. The body then burns this food to make energy for all the activities you do every day.

Just like a stove or jiko, the body remains with waste after the fuel (food) is turned into energy for activities. In a stove, ashes remain in the bottom. In a body, the waste which remains is stool and urine. The body can not carry this waste around and so it passes IT out.

There is nothing unusual about this process—almost every living animal does it every day. Food is put in and the waste is produced and pushed out. A stove or jiko which is never emptied is soon not able to work well. A body which is not emptied of its waste will stop working. So don't be afraid or embarrassed to talk about waste..... Passing waste is a part of every body...everyday.

Comic book with text, Pied crow, CARE, Kenya

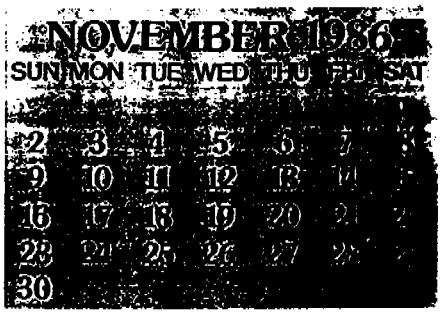
Clean WATER: Healthy LIFE



CLEAN WATER is one of the most important requirements for a Healthy Life. We all need clean water to drink, cook, keep clean and prevent disease.

USE CLEAN WATER from a Protected Source. If you do not have U-TWO Pumps or Protected Springs, work with your Water and Sanitation Committee to plan and construct them in your area.

KEEP THE WATER CLEAN by storing in clean containers at home, keeping the pump and spring areas clean and planning proper sanitation near water sources.



UNICEF: Child Survival & Development in Uganda

Calendar, multi-agency production, Uganda

Water Contamination
(How Can Water Become Dirty?)

Defecating in or near water itself or pumps, wells, or springs (where it can soak into the ground) can make water dirty.

Urinating in or near water itself or pumps, wells, or springs (where it can soak into the ground) can make water dirty.

Washing in or near water itself or pumps, wells, or springs (where it can soak into the ground) dirties water.

Dirty Containers make any water put into it dirty.

Playing with water pipes, taps, walls, floors or pumps can crack, break or plug them and allow the water to become dirty.

Latrines placed too close to water (less than 50 metres) allows faeces to soak through the ground and make water dirty

Animals urinate and defecate in or near water and can break or crack water pipes, taps, walls or floors and allow water to become dirty.

Industry can make water dirty when factories use water to wash or make things.

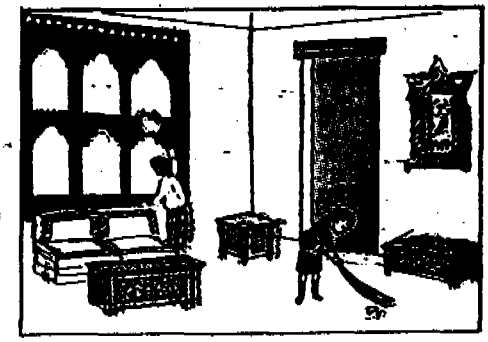
Leaflet: **Can You Think of Other Ways In Which Water Can Get Dirty?**

Republic of Uganda Primary School Health Kit on Water & Sanitation (Ram6D) Ministry of Education, Ministry of Health, UNICEF Kampala
Printed by Health Education Printing Press, Ministry of Health, Entebbe

Cleanliness at Home and School

Now that you have learnt about personal hygiene and cleanliness you should also practise them in your daily life. You should use clean personal towels, handkerchiefs and clothes. You should also use clean blankets, quilts, mattresses, pillows and bedsheets and you should wash and dry them in the sun to make them clean.

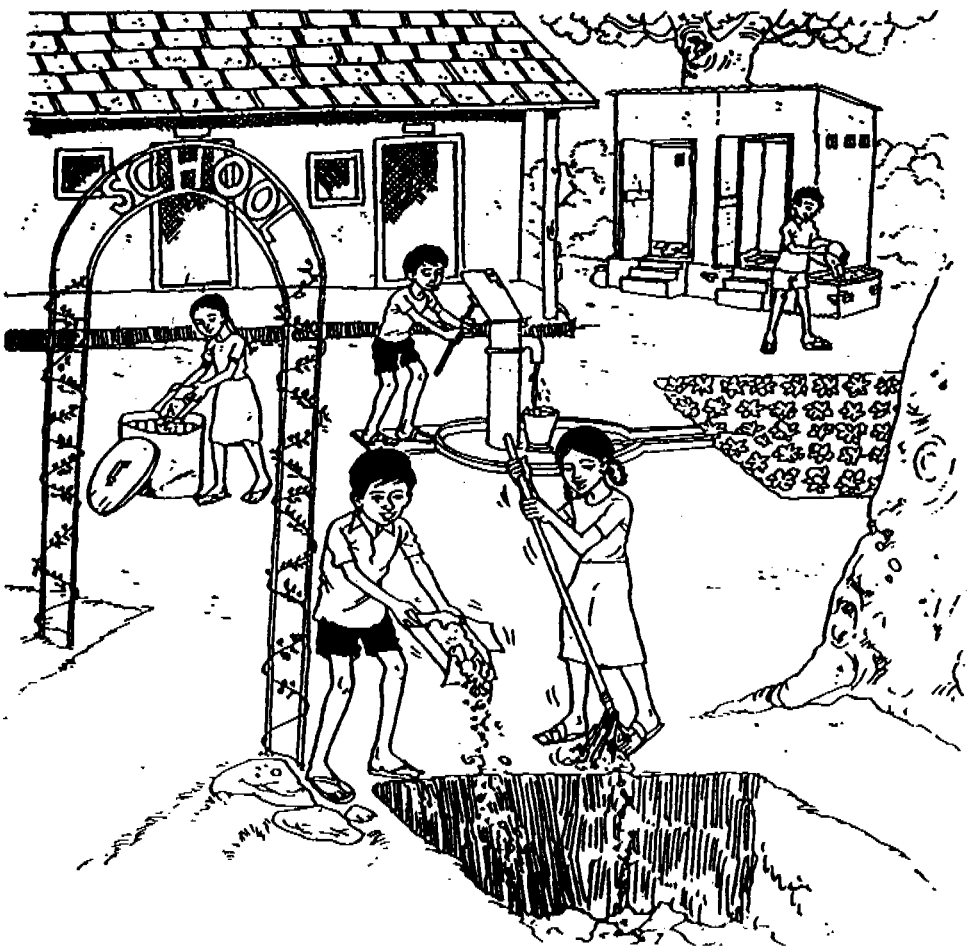
But simply practising personal cleanliness is not enough. You must also keep your home and school surroundings neat and clean. The place where you live and sleep should be cleaned regularly. At home, you should keep the kitchen, bedrooms, prayer room, store room and dining room clean. You should also keep sties, cowsheds, kennels and chicken coops clean. You should cut down the bushes, pull up the weeds and sweep away the rubbish around your house. Dig a pit for garbage disposal and keep it covered and clean.



The school is the second place where you spend a lot of your time. In the school, you should clean the tables, chairs, benches, desks and blackboards. You should keep the classrooms, libraries, study rooms and latrines clean. They must be cleaned regularly. You must also keep the schoolyard, gardens, playgrounds and footpaths clean. Dig a pit for garbage disposal.

Illustrated student's booklet, Bhutan

SCHOOL SANITATION



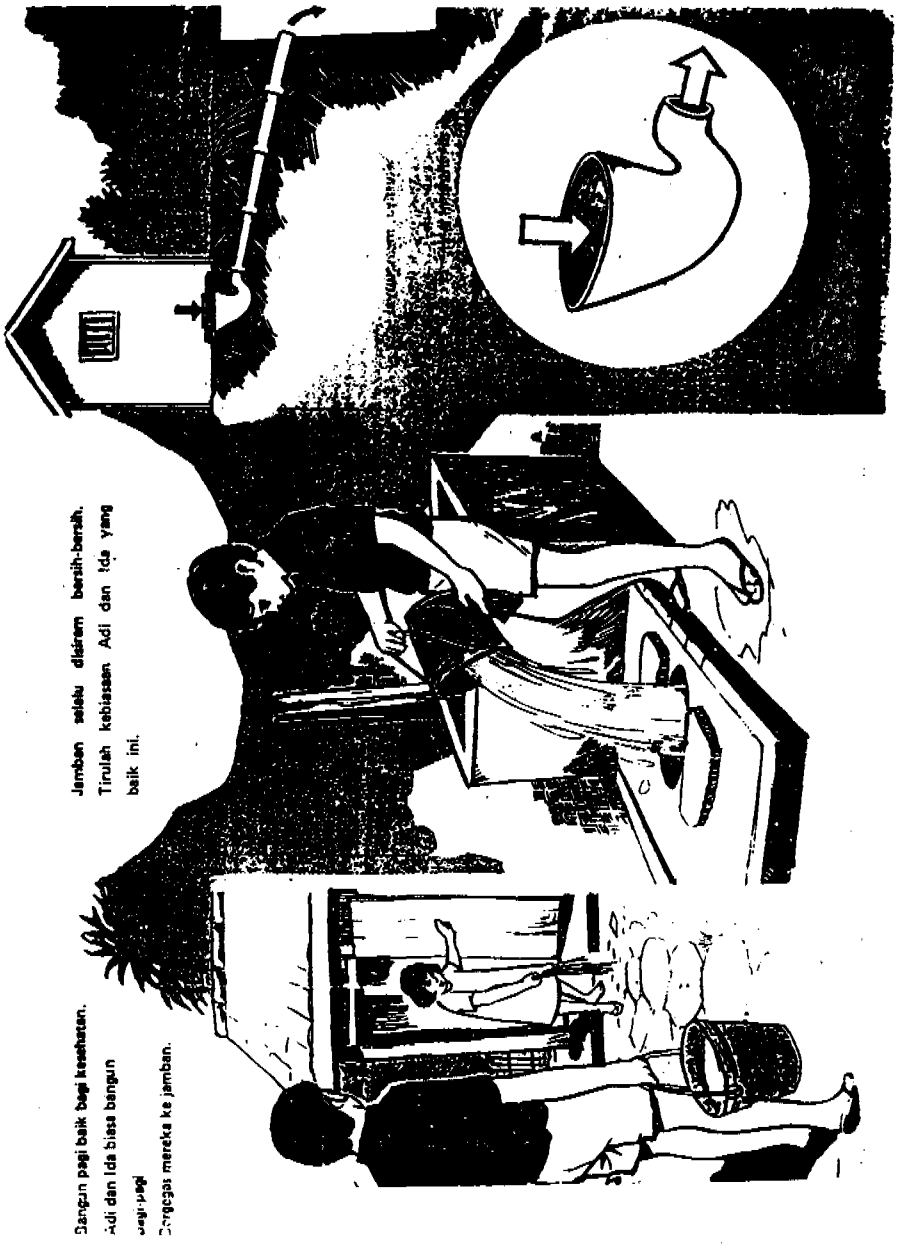
School sanitation booklet, UNICEF, India

Children's card game about health

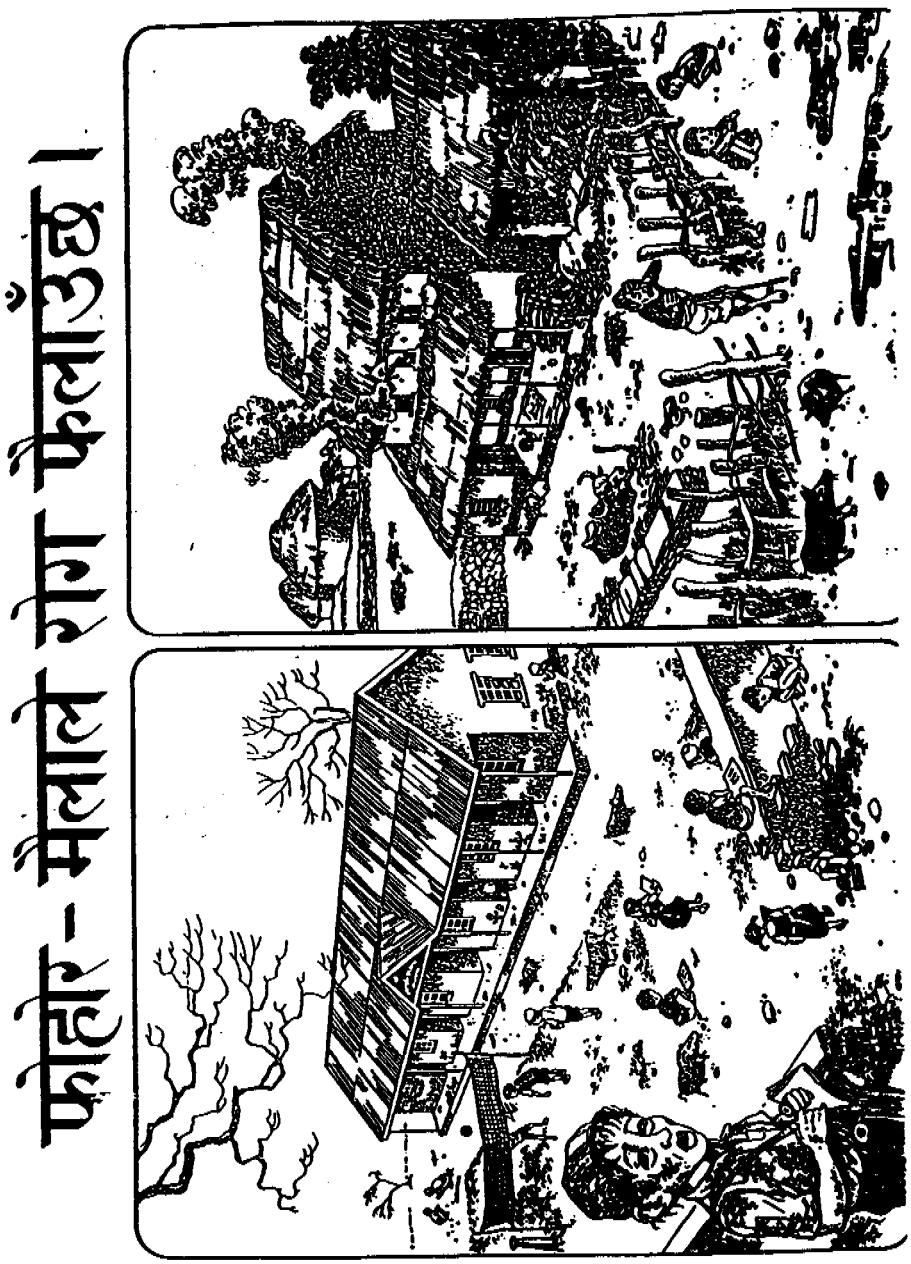
Buatlah Larutan Gula Garam (LGG). Terdiri dari : gula (1 sendok), garam (½ sendok) dan air masak (1 gelas). Aduk sampai larut.

Anak ini sesak napas (kiri atas). Anak ini batuk rejan (kanan atas). Anak ini kena tetanus (kejang-kejang) akibat luka (bawah). Imunisasi DPT mencegah semua :difteri, pertusis (batuk rejan) dan tetanus.

Domino and card games, YIS, Indonesia

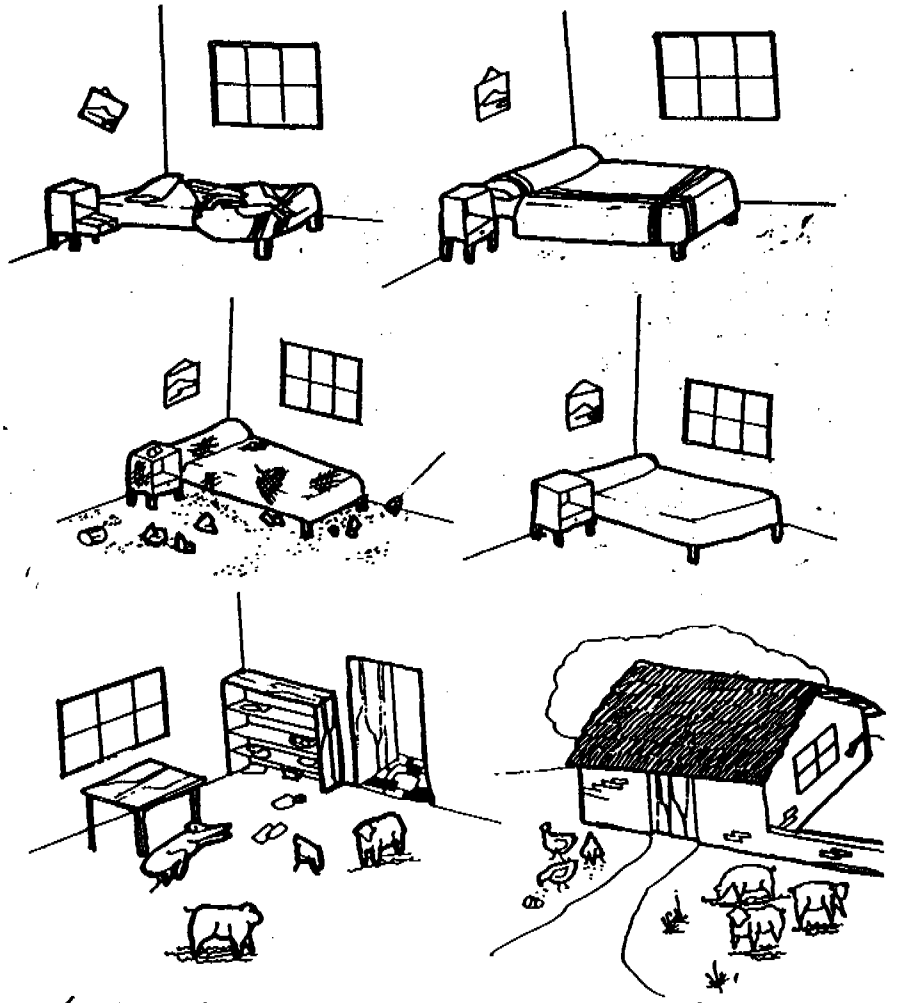


Leaflets for children, CARE, Indonesia



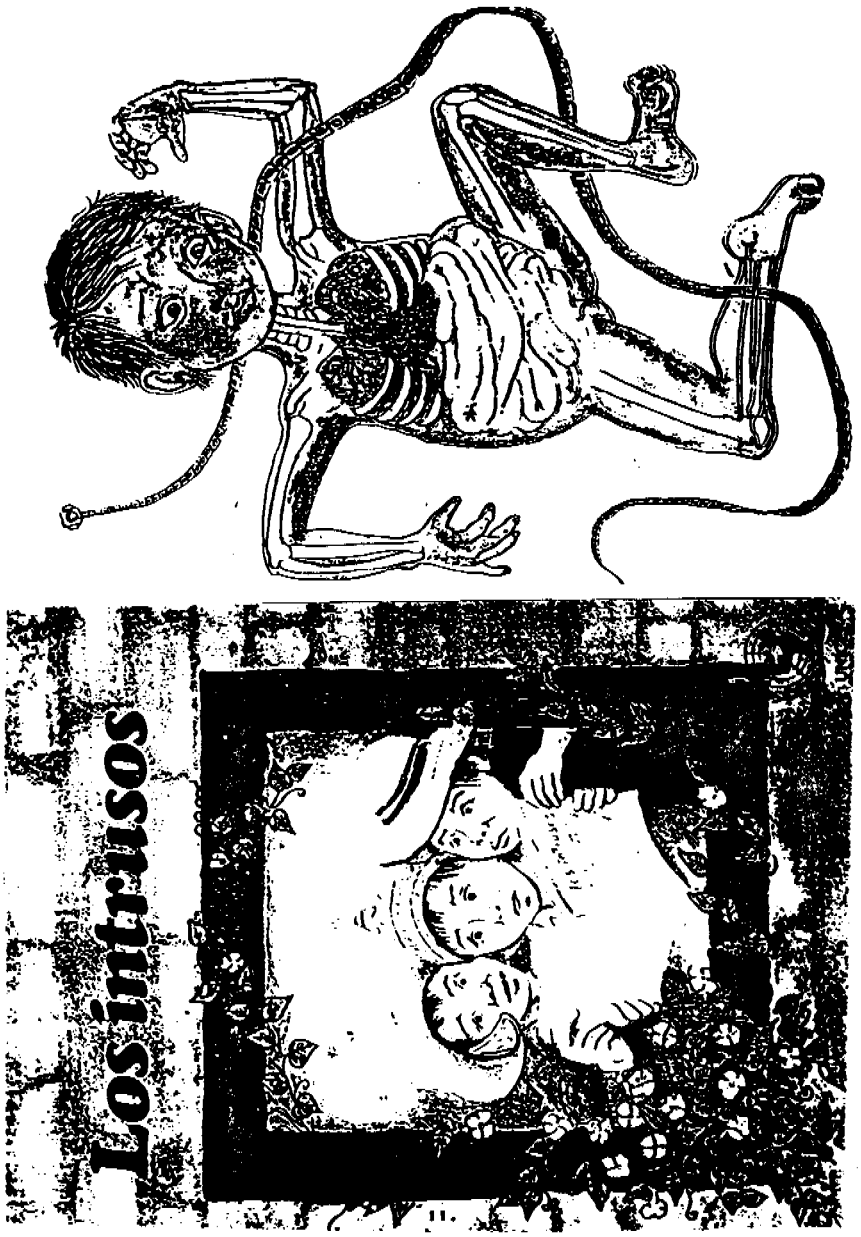
Flip chart, Government of Nepal with UNICEF

¿En qué casa vives TÚ?

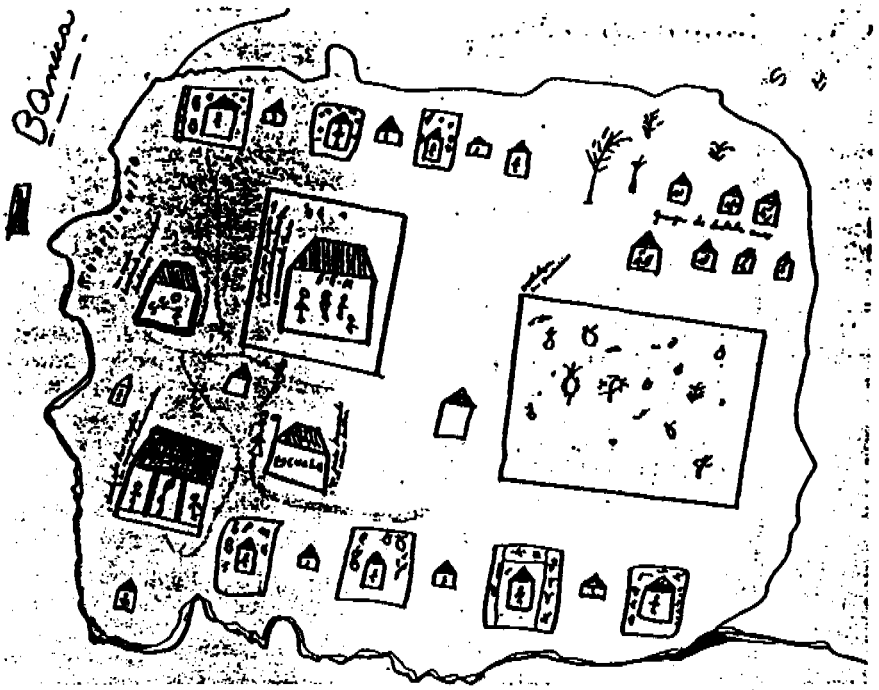


¿Qué diferencia hay entre cada pareja de casas?
¿En qué casa quisieras vivir tú? ¿Por qué?

Flashcard, Ministry of Education, Bolivia



Student readers, Ministry of education, Bolivia and UNICEF



Community map, Dominican Republic.

OTHER USES: This activity can be adapted and used with health workers to portray the conditions in the community where they work and the type of work they do. Or it could be used to depict a more detailed exploration of specific problems, such as children's health and nutrition problems.

1. Ask the health workers to prepare a map of the community in which they work including services, houses, resources, and health and nutrition conditions. Ask them also to depict community problems that they perceive are important.

2. When the maps are completed, have the participants compare and discuss their maps, working in groups according to regions. In the large group, a representative of each small group can present the conclusions of the discussion.

Drawing a map involves people in the creation of a visual picture of their community. This map could be put up in a community center for people to look at and learn about the community.

Student map-making exercise, Save the Children Foundation.
Dominican Republic

Appendix III: Pretesting of Audio-Visual Materials

The rationale for pretesting

In simple terms, pretesting audio-visual materials is a way to uncover possible errors in conception or design of the materials before a costly investment is made in production or distribution of multiple copies.

J. Bertrand (1978) defines "pretesting" as the systematic measurement of the reaction of a group of individuals to a communication prior to its widespread use in order to identify elements which could be strengthened or to compare the effectiveness of various versions of the same communication. Pretesting is used to measure a number of characteristics of audio-visual aids. D. Dubey and A. Bardhan suggest pretesting of effectiveness of appeal; readability; clarity; effectiveness of presentation; comprehensibility; acceptability; length; appropriateness of layout, artwork, color, etc.; agreement of audience with the measure; and credibility. Bertrand has condensed these characteristics into five components: attraction, comprehension, acceptability, self-involvement, and persuasion. By "self-involvement", she refers to whether the audience feels that the message is directed towards themselves or whether they perceive it to be for "others".

Another approach to pretesting is to measure how effectively a given medium and message promotes the desired change: A person's perception of how severe a health problem might be or how susceptible he might be to it, can be altered, as in the "health belief" model. Success in inducing individuals to try a new behaviour, as a stage in the adoption process, can be measured, as can the extent to which messages are diffused from person to person.

Pretesting has been widely practiced for decades by those marketing products. However, in public health education or community development it is more recent. One stimulus to this development was the work of A. Knutson in 1953 which stressed the importance of understanding differences in individual perceptions and patterns of understanding and of learning how changes might be tied to existing beliefs and behavioural patterns. He cautioned, however, that pretests cannot take the place of sound exploratory studies and competent educational evaluation. A bibliography on pretesting and related communication issues taken from a recent U.S. National Institutes of Health publication is included in Karlin's and Isely's publication. It indicates how extensively pretesting has become a part of communications for health since Knutsons's publications.

This appendix is a full quatation from Karlin and Isely, 1984, pp 43 -45

The impetus for pretesting comes also from research on visual perception. J. Deregowski et al, for example, found that Ethiopians with minimal or no contact with pictorial materials were able to recognize correctly clearly-depicted animals although some anomalous responses occurred and the task was generally stressful. J. Kennedy (in 1971 and 1974) in commenting on Deregowski's study, interprets the remarks of his subjects as demonstrating a process of gradual generalization from recognizable details (head, tail, hoof) to the entire object (ox, buffalo). Kennedy stresses the importance of retaining relevant features of objects depicted in pictures. Designers of audio-visual aids should probably use familiar objects, but pretesting would help to eliminate misuses.

Others have pointed out that rural non-literate people may not understand three dimensional drawings, drawings of objects in proportions larger than life, or stick drawings. All these possible obstacles to perception can be picked up through pretesting.

A. Wainaima (in 1974) found that rural Kenyans understood pictorial illustrations provided they depicted things related to their lives and experienced understanding also depended on the quality of the picture. She detailed factors of importance in determining the success of an illustration in health report, concluding that it should never be assumed that a group of people can understand a visual aid before the material has been tested. For better comprehension, she adds, materials should not be used in isolation but as part of an entire programme.

The difficulties of pretesting

Although pretesting audio-visual materials is a highly desirable activity many organizations will not find it possible to carry on the relative sophisticated pretesting detailed below. Nearly everyone knows above pretesting, but few are really doing it. The main reasons for not pretesting are based on the harsh realities of running a health education service or struggling community health programme in a developing country.

Travel costs are prohibitive

Government approval for travel is probably the most difficult to obtain. Private organizations are frequently operating on shoestring budgets. The cost of gasoline has in itself caused major reductions in all kinds of rural health extension services. Thus, it is not difficult to imagine whether governments or private organizations would be reluctant to allow an artist to travel to the field to pretest a set of visual materials.

Perceived lack of time

In the rush to finish and distribute materials, pretesting may be seen as non-essential impediment to the progress of a programme. The objective is to have the materials in use, irrespective of minor faults that will probably turn up in any case. Pretesting is seen as research rather than as a part of the action.

Lack of interest

Those who prepare visual materials frequently are not trained either as artists or in the social sciences or education. Their artistic ability and experience has led to the job of preparing materials. With health education units underbudgeted as they are, there are also severe shortages of qualified professionals to guide materials development. Frequently they have neither the time nor the interest to engage in pretesting.

Psychological barriers

There is a prevalent opinion that little valuable information can be gathered from pretesting. It probably stems from lack of experience with how pretesting helps or the fear of having one's materials shown to be deficient. There is a resistance to change materials once they have been prepared. Jobs are on the line. There is no reward for errors found. Even if the barriers of cost and lack of expertise could be overcome, the psychological barriers would remain.

The advantages of pretesting need to be demonstrated with groups and individuals, with the focus not only on what people see and understand but on what they like. How could such questions be answered even in a minimal way by underbudgeted, understaffed organizations?

Minimal pretesting

A programme of pretesting visual materials may be undertaken even with a small budget for travel and a low level of expertise in social science and educational research. Essential elements in a minimal pretesting programme include:

- Pretesting a limited number of priority visual materials. They should include those for which there is a well-demonstrated programmatic need. For example, those concerning pump maintenance, latrine use, hand-washing, or the role of a village health committee.

- Selecting pretest sites that require a minimum of travel. In most cities of developing countries there are neighbourhoods inhabited by ethnic groups from every part of the

country. Many residents are recent immigrants to the city. They still think as their rural relatives do and could be subjects for pretesting materials.

- Using a simple guide on methods of pretesting. Of particular value for health and development workers is J. Bertrand's volume on pretesting referred to earlier in this chapter.

- Asking simple questions of groups and of individuals, including males and females, young and old, literate and illiterate. These questions should include:
  - What do you see?
  - What do you understand?
  - Do you like the materials? Why? Why not?

Appendix IV: Provisional List of Organizations Concerned with Development and Production of School Hygiene Education Programmes and Materials

A. Africa and the middle east

Kenya

AMREF, P.O. Box 30125, Wilson Airport, Nairobi.

CARE-Kenya, P.O. Box 43864, Nairobi.

Ministry of Health, Div. of Health Education, P.O. Box 30562, Nairobi.

Mazingira Institute, P.O. Box 14550, Nairobi.

Maendeleo Ya Wanawaka Organization, MCH & Family Planning Project, P.O. Box 44412, Nairobi.

Ministry of Education, Science and Technology, Kenya Institute of Education, Health Education Division, P.O. Box 30231, Nairobi.

UNEP, P.O. Box 30552/47074, Nairobi.

Lesotho

Urban Sanitation Improvement Team, Private Bag A41, Maseru.

Liberia

Rural Communications Network, P.O. Box 3760, Monrovia.

UNICEF, P.O. Box 460, Monrovia.

Malawi

Ministry of Health, Malawi Health Extension Service, P.O. Box 30377, Capital Hill, Lilongwe 3.

Mozambique

Ministeria da Sauda, Direccio Nacional de Medicina DNMP, Preventiva, Caixa Postal 264, Maputo.

Sierra Leone
CARE, Primary Health Care Office, P.O. Box 85, Makeni.

Somalia
Ministry of Education, P.O. Box 184, Mogadishu.

Tunesia
Union Nationale des Femmes de Tunisie, 56 Boulevard Bab Benat, Tunis 1001.

Uganda
UNICEF, P.O. Box 7047, Kampala.

Zambia
Health Education Unit, P.O. Box 30205, Springbox House, Cha cha cha Road, Lusaka.

Ministry of Health, P.O. Box 30205, Woodgate House, Cairo Road, Lusaka.

Zimbabwe
Ministry of Education, Curriculum Development Unit, P.O. Box MP 133,
Mount Pleasant, Harare.

B. Asia

Bangladesh
Project Concern, P.O. Box 650, House 64, Rd. 15/A, Dhanmondi, Dhaka-5.

UNICEF, GPO Box 58, Dhaka.

Bhutan
School Health Unit, Department of Education, Royal Government of Bhutan,
P.O. Box 203, Doiburn Lam, Thimphu.

India
Andhra Pradesh Voluntary Health Association, 10-3-311/7/2 Vijayanagar Colony,
Hyderabad-500457, Andhra Pyradesh.

Ministry of Health & Family Welfare, Central Health Education Bureau,
Kotla Road, Temple Lane, New Delhi 110 002.

National Institute of Health & Family Welfare, Ashoka Estate 24, Barakhamba, New Delhi.

UNICEF Office for South-Central Asia, 73 Lodi Estate, New Delhi 110 003.

Indonesia

CARE, P.O. Box 307, 307 KBY Jakarta, Selatan.

Ministry of Health, Centre for Health Education, Jalan Pasar Minggu 17, Jakarta.

UNICEF, Wisma Metropolitan II, 10th floor, 86, Jalan Jendhal Sudiman, P.O. Box 202/JKT, Jakarta 10002.

Yayasan Indonesia Sejahtera (YIS), Jalan Kimat VI/II, Kotak Pos 3028, Jakarta, Pusar.

Japan

Asian Cultural Centre for UNESCO, No. 6, Fukuromachi, Shinjuku-ku, Tokyo 162.

NEPAL, Community Development & Health Project, United Mission to Nepal, P.O. Box 126, Kathmandu.

UNICEF, P.O. Box 1187, Kathmandu.

Philippines

College of Public Health, University of The Philippines, P.O. Box EA - 460, Manila.

Ministry of Health, Regional Health Research and Development Committee (RHRDC), Region Health Office No. VIII, Tacloban City.

Sri Lanka

Adventist Development and Relief Agency, P.O. Box 1253, Colombo.

NGO Decade Service, 26 Melbourne Avenue, Colombo 4.

Thailand

Ministry of Public Health, Sanitation Division, Department of Health Devavesm Palace, Sam Sean Road, Bangkok 10200.

Asian Centre of Educational Innovation for Development, UNESCO Regional Office for Education, Asia and the Pacific, Bangkok, GPO 1425.

UN Educational, Scientific and Cultural Organization, Regional Office for Education in Asia (UNESCO), P.O. Box 1425, Bangkok 11.

C. Latin America

Bolivia
Ministry of Education and Culture, Av. 20 de Octubre 2659, La Paz.
UNICEF, Fondo de las Naciones Unidas para la infancia,
Casilla de Correo No. 20527, La Paz.

Brazil
University of Sao Paulo, Department of Communication and Behavioural Science
Transdisciplinary Centre of Communication Studies, Caixa Postal 20 628,
Sao Paulo.

Colombia
Ministry of Health, Division of Basic Rural Sanitation, Avenida Eldorado,
Can Bloque 2, Bogota.

Programa de Atencion Primaria en Salud del Convenio, Convenio Colombia
Hollandes, Carrera 9-74-08, Pisa 6, Bogota.

Dominican Republic
UNICEF, Ave. Presidente Masaryk, No.29, 8 Piso, Mexico 5, DF.

Honduras
PRASAR, A.P. 140, Tegucigalpa.

D. Europe

France
AIDE Technique à l'Education et aux Organismes Sociaux, 93 Rue Jeanne d'Arc,
75013, Paris.

UNESCO, 7, Place de Fontenoy, 75700 Paris.

Italy
FAO, Water Resources Development and Management Service,
Via dell Terme di Carcalla, Roma 00100.

Spain
Dra. Maria Sainz Martin, Preventive Medical Services Hospital
Clinic of San Carlos, Madrid 3.

United Kingdom
Child-to-Child Programme, c/o Institute of Child Health,
30 Guilford Street, London WC1N 1EH.

Tropical Child Health Unit, Institute of Child Health,
30, Guildford Street, London WC1N 1EH.

Switzerland
WHO, 20 Avenue Appice, 1211 Geneva 27.

E. North America

The Academy for Educational Development, 1255 23rd Street,
N.W. Washington DC 20037,

Programme for Appropriate Technology in Health ((PATH), 4 Nickersen street,
Seattle Washington 98109 - 1699.

Save the Children, 48 Wilton Road, Westport, Connecticut 06880.

UNICEF, 866 United Nations Plaza, New York N.Y. 10017.

University of Colorado, Health Sciences Center, School Health Programme,
4200 East 9th Avenue, C-287, Denver, Colorado 80262.