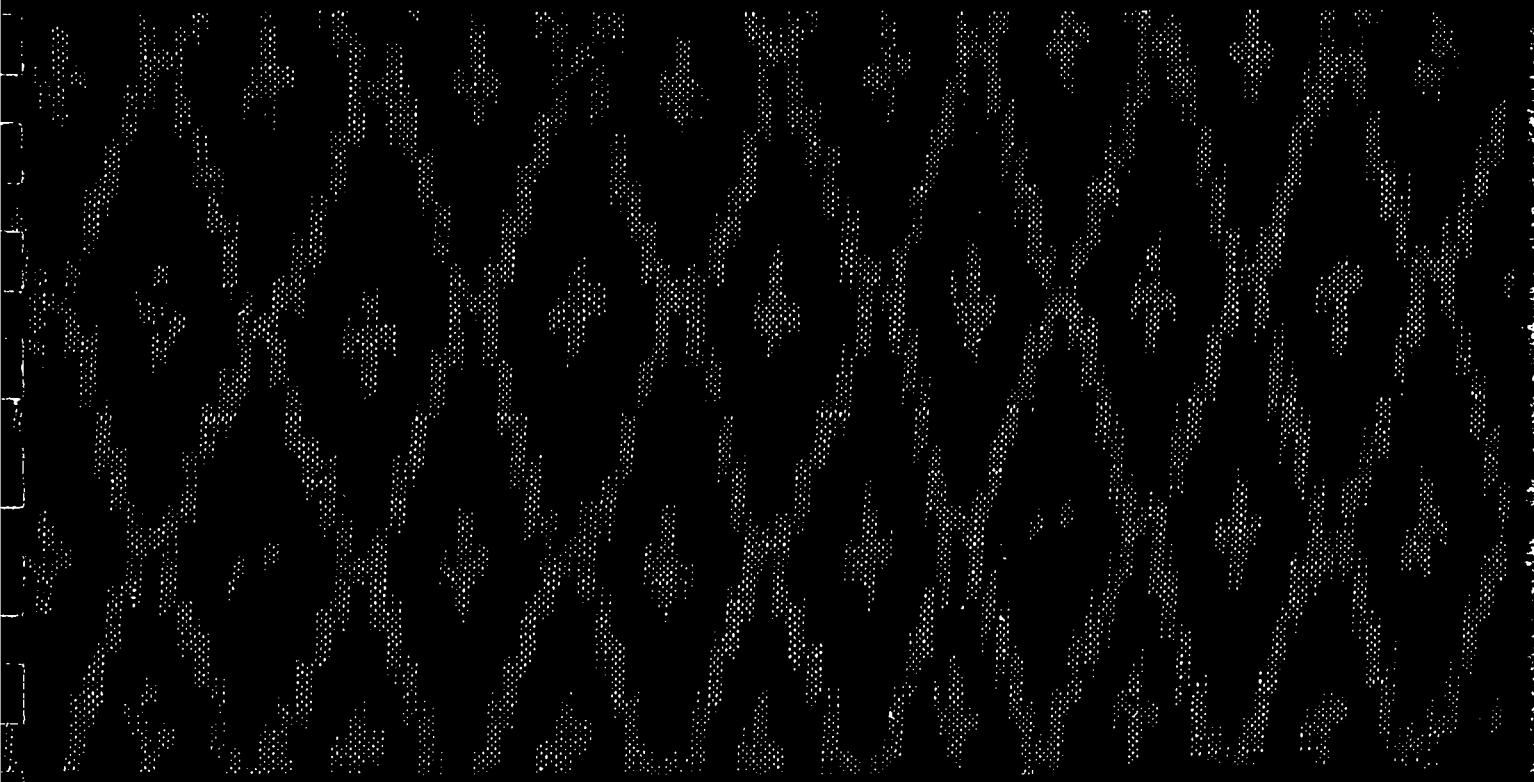
TOWARDS A PROGRAMMER'S GUIDE

UNICEF-EAPRO
Bangkok, Thailand



1981-1990

The Report of the

Regional Water & Sanitation Workshop

Ubol Ratchathanee, Thailand

12th - **20**th January **1981**

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via Dick de Jong.

THE REPORT OF THE
REGIONAL WATER AND SANITATION WORKSHOP

Ubol Ratchathanee

Thailand

12th - 20th January 1981

UNICEF

EAST ASIA & PAKISTAN REGIONAL OFFICE

Bangkok, Thailand

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FOREWORD

This report embraces the presentations, discussions, and good talk that took place during the East Asia and Pakistan Regional Workshop held in Thailand. It was the last of a series of six such workshops UNICEF has sponsored as the curtain-raiser to the WATER AND SANITATION DECADE, part of the even longer and wider efforts to achieve HEALTH FOR ALL BY THE YEAR 2000 through Primary Health Care.

The Workshop brought together the personnel responsible for achieving the objectives of the Decade from nine governments in our region, representatives from WHO, our country, Regional and HQs UNICEF staff, and (emphasizing the importance of our deliberations) Dr. Peter Bourne, Assistant Secretary-General and Co-ordinator, International Drinking Water Supply and Sanitation Decade, UNDP, New York. We were joined by the Japanese Organization for International Co-operation in Family Planning (JOICFP), an organization which has shown particular interest in community organization and the control of parasites. Particularly welcome was the participation of delegations from Vietnam and Laos, which stimulated interesting examination of the management, social approaches and simple technologies in those countries.

Initially proposed to examine technology, the Workshop compellingly examined the social implications of a Water and Sanitation Decade. As Paul Biron noted, it has become clear that "While everyone is conscious of the importance of community participation...field offices are not usually staffed adequately to trigger and support initiatives in this field". The Workshop seems to have discovered that truly involving the community has far-reaching repercussions and requires

persistence, patience, determination, resources and skilled manpower if the necessary institutional changes are to be realized. The Workshop, I am pleased to see, seems to have taken to heart my opening remarks:

> "This Workshop must place us firmly on an on-going path of learning from each other and of systematically improving upon our performance. You may wish to question and examine whether the familiar mode, style, and time framing of international assistance and governmental leadership for communities is appropriate, or clashes with the mode, style, and time required for planning with communities that is now being advocated, and which incidentally our Executive Director (in his address to the General Assembly) says UNICEF "insists" upon. How then, if this is truly our intention, will we have to modify our planning, our programmes, our projects and our behaviour? It is no answer for us to keep making recommendations directed only at how everyone else must change."*

Each of the eight recommendations in the report is very much addressed to UNICEF. In addition the Workshop has suggested that a "basic change process" must enrich and change our planning as well as that of the Governments we assist and the people we seek to serve. The Workshop outlines and advocates a "Preparatory Phase" which highlights a great range of activity to which we will have to give much careful attention, and find ways to support and implement.

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* PEOPLE, WATER, SANITATION, PEOPLE: Key note address to the Water/Sanitation Workshop, Titi Memet Tanumidjaja. 20 February 1981.

One of the participants has written expressing his and the country delegates' satisfaction with the Workshop and the deep impression made by it. He re-phrases the I.Y.C. slogan. "The Workshop is over but the International Water and Sanitation Decade is still with us."

Titi Memet Tanumidjaja
Regional Director
UNICEF/EAPRO

RECOMMENDATIONS

RECOMMENDATIONS

"The necessity for integrated multi-sectoral planning to create a community-government partnership for realizing the objectives of the Water and Sanitation Decade is fully accepted by the Workshop."

1. This will require an enrichment of our present UNICEF programming method and practice.

It is recommended that UNICEF devise a Programmer's Guide.

2. The long-awaited field manual should include Community Participation as an integral aspect of the manual. Community Participation should be spelled out in relation to each section of the manual and not be presented as a separate item.

It is recommended that the UNICEF field manual be formulated soon and that to ensure its practical field orientation, a group of field personnel be assembled within a set time period to assist in the production.

3. It is noted that of the hundred or so UNICEF staff posts related to Water and Sanitation, only six are "core" personnel. This highlights the need for an effective manpower plan to operate during the Decade.

It is recommended that in the light of the commitment to a Decade-long operation, UNICEF devise a long-term manning projection and move quickly to meet the need to attract and keep both skilled technicians and those who can effectively promote the essential community aspects of water and sanitation programmes.

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4. Many technical personnel are outposted and have little background and contact with UNICEF as an organization.

While appreciating such materials as "From the Waterfront it is recommended that efforts be made by UNICEF to strengthen the "Knowledge Network" and other back-up support to field personnel.

5. Sanitation seems to be less exciting and is the poor relative of Water.

It is recommended that UNICEF should make every effort (including budgetary stimulation) to emphasize Sanitation during the Decade.

6. Government personnel felt that the content and discussions generated at the Workshop are important and should be implemented at the country level within the same framework, using the Workshop method. These initiatives should receive UNICEF support.

7. As the UN family is involved through a number of its special agencies (UNDP, WHO, ILO, FAO, UNESCO, ESCAP, etc.), it is recommended that all efforts be made to effectively integrate and "orchestrate" UN inputs in assisting Governments during the Decade, and that UNICEF clarify its special role and maximize its experience and strengths in working across sectors; with NGO's; and with governments at the grass roots level.

8. The supply situation will be altered somewhat by a community "bottom-up" type programme, and the content and timing of supply will need to be responsive to community

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priorities. Increasingly, procurement is being made in Asia rather than in Western countries, and the practice seems to be to transport the goods to UNIPAC and re-ship them to Asia. It is suggested that a more efficient procedure would be to expand the supply section at EAPRO and deal directly with EAPRO on a country basis.

It is recommended that UNICEF make provision for more local procurement and that the Regional Office be strengthened to handle the increase of Asian-based supply activity.

INTRODUCTION TO THE REPORT

AND

ITS PRESENTATION

Clearly this is the first step, or "work in progress" sta with all the obvious shortcomings which belong to a situation where more than 50 persons from diverse backgrounds, cultures and professions congregate together for a very short period of time and attempt to cover much complex ground. For some it was the first time they had attended an international gathering outside their country, and for some, who had problems enough with technology, the social aspects were somewhat novel and required much explanation. In addition, the Workshop had not been specifically designed to produce a draft "Programmer's Guide". Nevertheless we believe that what may be missing in content, precision, elegance, and immediate utility by this work-in-progress, is more than offset by the need. This need emerged strongly from the sessions on Community Participation.

The report begins with a summary of eight Recommendations and then proceeds to the "Towards a Programmer's Guide". Thereafter the report follows the more familiar workshop report format, giving a brief account of the separate "topic" sessions. However, as much has been extracted and placed in the Programmer's Guide, the sessions are reported in a somewhat truncated manner; indeed, "Maintenance", which was a very important session, has disappeared completely into the guide. We hope the reader will recognize the ambitiousness of the attempt to produce such a guide in the time available to us, pounce upon its shortcomings, and show us what a poor job we have done by showering us with improvements which will increase its practical value.

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The reporting of this Water and Sanitation Workshop goes further than a session-by-session account of the agenda with a final summary of conclusions and recommendations. This presentation is drawn from the reports of discussion groups to the plenary sessions, and has been woven into an interpretative reconstruction of discussions in a section called "Towards a Programmer's Guide"*. It is, we believe, true to the "spirit" of the Ubol Workshop, and is an initial attempt to meet a vital need: a Manual or Programmer's Guide for Water and Sanitation. Participants markedly endorsed the view that to achieve the objectives of the Decade, the community must be brought fundamentally into the development and planning implementation of programmes There was little dissent from this view, but much genuine concern and puzzlement regarding the exact manner of doing this, and in particular how - as UNICEF and Government officials - we would set about incorporating "community participation" into our programming and project responsibiliti

We came to see that much of our present planning and programming suffered from the absence of crucial "pre conditions", many of which were related to the communities involvement. We have responded to this by proposing and concentrating on a "Preparatory Phase". Having done so, we recognize that this will inevitably bring about important changes (and positive ones, we believe) in the whole process of planning and programming. Hence the idea of "Towards a Programmer's Guide."

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* The participants supported the organizing group's intention to attempt this.

TOWARDS A PROGRAMMERS' GUIDE

- RATIONALE/POLICY
- BASIC PROCESS AT COMMUNITY LEVEL
- PREPARATORY PHASE
- PLANNING-WITH-THE-COMMUNITY PHASE
- IMPLEMENTATION PHASE
- MONITORING, AND ASSESSMENT PHASE

- their acceptance of the fact that only through close co-operation and co-ordination and a unified approach to organizing communities can sectoral goals be fully achieved;

- an administrative arrangement which clearly defines responsibilities and accountability specifically for each task assumed within the integrative process;

- vigorous promotion of the community-based strategy among policy-makers, programme planners, technicians, non-governmental organizations, the generation of support from political and non-formal leaders as well as those from civic and religious groups;

- establishment of specialized units for community organization work linked to technical departments involved in the programme;

- a mobile staff at district, provincial, or municipal level which can provide supervision or direct conduct of training to particular target groups as well as train local counterparts at community level;

- a mechanism for assessing project progress at both government and community levels.

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All Water and Sanitation programming, therefore, should be founded upon:

- ☐ a clear policy declaration

  This should unambiguously indicate the commitment to achieve the objectives of the decade (political will)

Water and Sanitation Programmes cannot be planned in isolation and must therefore be:

- ☐ firmly stated in an overall development plan

Such plans should discriminate in favour of:

- ☐ rural areas
- ☐ the underprivileged
- ☐ women and children

Water and Sanitation Programmes can draw upon a whole range and diversity of technologies.

An appreciation of the technical implications is necessary as the first step in thinking through the social considerations.

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Technologists should be called up on to:

- identify the range of technical options available and appropriate to the conditions in the project area;
- identify the life-span of the proposed technology, consider the direction, options and timing of improvements to the systems, subsequent replacement, and set these out in long-run perspectives;
- review the knowledge available (and appraise the situation) of the experience of transferring the particular technology;
- field-test technical materials, train field workers in their use, make results available during planning stages;
- ensure that policy which will define the allocating interlocking roles and responsibility for maintenance is cleared.
- provide sound design, specifications, and supervision of all technical inputs at the grass-roots level to ensure quality of installation and outputs.

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It is now increasingly recognized that these development programmes cannot be achieved without the full participation of the target communities. Policy and programmes must therefore expect and provide for:

- ☐ communities to adopt the programme as their own.

  Community Participation must mean a true partnership between community and government, with the community taking part in vital decisions which affect the common welfare.

Water and Sanitation Programmes should be designed so that:

- ☐ communities will be able gradually to take a major responsibility in ensuring a safe water supply and adequate sanitation;

- ☐ "sanitation" measures are given proper emphasis vis-a-vis "water". (This emphasis should be effectively expressed in a commensurate budget allocation).

Since communities identify needs across sectors, and water is utilized for important purposes beyond "Health", programming must be:

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- multi-sectoral in approach and not solely "Health" oriented; nevertheless, it must be
- fundamental to Primary Health Care activities.

At the programme level, therefore, rural water supply and sanitation is considered a component of Primary Health Care as well as of agricultural and other programmes in the rural areas. This strategy is designed to facilitate the broad-based participation of the communities and ensure wide latitude of government services, which must be made available to match community-identified needs.

The emphasis and insistance given to the crucial role of the community (and its local institutions and organizations) as a full partner in development will require:

- policy and a planning method which work towards clearly differentiating, defining and designating the mutual responsibilities and powers which will effectively interlock community with government organizations and agencies;
- a process which will successfully build upon and strengthen community institutions and organizations for development purposes;
- a readiness on the part of decision-makers and government officials to fully accept and share the consequences of leaving choice to the community in terms of defining priorities and the allocation of resources.

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At the project level, at the precise point of contact between the Government and the target communities, there will be a great need for establishing mutual trust; imparting skills to manage the newly formed partnership; locating external resources and technology; and encourage the contribution of scarce local resources.

This might necessitate:

- the conducting of specialized studies on cultura and social factors which influence the effectiveness of motivational strategies:
- identification of high priority areas for programme concentration;
- translation of specific programmes in various sectors into area-based projects, of programming strategy required.
- enrichment of the existing "top-down" planning methods by a community conceived "bottom-up" perspective;
- the establishment of a practical sequential process.

The attempt here to outline a "Programmer's Guide" to meet these requirements derives from the experiences and

discussions shared at the Workshop, and aims to:

- describe the basic process at the community level which catalyzes the community-government partnership in rural water supply and sanitation;

- indicate activities which can be undertaken at various levels in support of community-government collaboration;

- identify implications to programming methods by application of the community-based strategy.

BASIC PROCESS AT COMMUNITY LEVEL

Involving communities in rural water supply and sanitation requires a deliberate process which can be divided into four phases:

1. Preparatory Phase
2. Planning-with-the-Community Phase
3. Implementation Phase
4. Monitoring, and Assessment Phase

1. Preparatory Phase

During this phase, the Government shall assist the community in:

- Identifying problems in water supply and sanitation;
- Obtaining some understanding of, and receiving some formal commitment by, the community to the objectives of the proposed programme;
- Arriving at a decision on how to solve the identified problems.

The relationship of the Government to the community is all-important. At this initial stage a constructive working partnership must be clearly established.

The sharing and time-consuming process of involving the community and meeting the "pace" of rural deliberations requires patience and willigness on the part of professionals and officials to take the necessary time and effort. This will usually involve the promotion of new attitudes and genuine respect to be shown by officials for rural people and will require a sufficient allocation of resources, and the development and deployment of suitable manpower to stimulate and ensure the active partnership of the community with government.

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A fundamental question is involved here: Is the Government willing and capable of adjusting resources to priorities based on the collective decision of the community? The Government will seek understanding by the community of the constraints and limitations on the Government side, and will explain to the community the realistic mutual expectations in any joint undertaking.

The key activities during this Preparatory Phase are as follows:

An initial government-community contact and the setting up of a productive dialogue related to the programme objectives and the necessary preliminary activities.

This contact should be established by special manpower or through agencies which can be trusted by the community, are sensitive to its needs, and are able to explain simply and realistically the possibilities and resources which might be made available to the community.

Identification/formation of village-level development groups or cadres to undertake these activities and to represent the community on matters pertaining to the programm

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Because of the diversity of rural communities (existing power structures, capacity for communal action, history of collaboration with external agencies, local conflicts, etc),

a "diagnostic" approach to communities will be required, an external agent will have to select strategies and techniques to stimulate the cadres according to the degree of social cohesion in any particular community. In many cases government will have to assist communities by reducing obstacles which prevent full participation in development programmes.

Data gathering and analysis on the health status and related water/sanitation conditions and associated problem This activity to be undertaken jointly by the representative community group and the government.

These development "committees" will consider the situation of the community in relation to the proposed programmes, and should do so by collecting their own data and information "to-get-to-know-what-they-know". Simple guidance for self-surveys would stimulate their interest and focus their attention.

There is, however, a lack of non-academic do-it-yourself survey methodologies. Such a strategy for involving the community around specific problem requires:

- the building up of... "how to...guides"

  The production of these "how to... guides" should be set up as part of the on-the-job training of community workers (in water and sanitation), i.e., training in putting together content and in utilizing this method of working with communities. The workers should, as part of their supervision, be required to continue to improve upon these guides as their experience grows.

- Sharing information with the entire community for decision-making, i.e., either to accept or reject the proposed undertaking for rural water supply and sanitation.

  The community must be encouraged to accept the programme activity, to modify the programme in accordance with the need as they see it, or if they so wish, reject the activity without recrimination. If the community accepts, this will lead to the

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formulation of a local water supply and sanitation programme in the Planning-with-the-Community Phase.

- The training inputs required to carry out this Preparatory Phase are:

- training of government development work functionaries who will link up with the community;

- motivational training of community leaders on importance of water and sanitation;

- specialized training on community self-survey and analysis ("How to....guides");

- training of Government Planning Boards/Councils; Budget Bureau, Civil Service Submission on implications of Water and Sanitation Programmes, emphasizing community aspects and technological considerations;

- manpower development/recruitment/training/ supervision:

  - for mobile maintenance units
  - for village level maintenance work
  - for involving women (who are less transient than male labour and closer to water utilization for domestic purposes)

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2. Planning-with-the-Community Phase

Planning tends to be very centralized. The involvement of the community in planning will necessitate more government contacts with communities, and the exercise of improved community work skills. A greater degree of delegation of responsibility may have to be considered in order to make decision-making levels more sensitive and accessible to the community. This requires:

- a review and adjustment of organizational structure;
- a plan for exposure of planners to the problems as experienced at the grass-root level, and to similar projects which will provide an active exchange of experiences;
- a strong Project Support Communication input;
- formulation of a local water supply and sanitatio programme pertinent to particular needs identified earlier, and use of the technology the community is prepared to accept or support.

It is here that the "fit" of social conditions and technology must be "tailored" for each community, technical people should join the community workers, and make sure that:

- maintenance plans and organization systems will be an integral and important part of project formulation.

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The range of technical options, the related costs, and the necessary commitment required by the community for procuring, installation construction and maintenance, must be carefully explained to the community from the outset. It will be necessary to:

- ☐ have access to knowledge about, and evaluation of technologies, and the experience of transferring technologies;
- ☐ provide technical information and make an appraisal of community conditions, which may require the commissioning of groups with specialist availabilities;
- ☐ arrange for discussions to decide the best social/technical trade off in siting equipment, distribution points, etc.
- ☐ produce explanatory materials in a format which can be used with community groups; field test materials and train workers in their use;
- ☐ see that the advantages and disadvantages of each technical option are fully detailed
- ☐ Spell out the full community implications for each technical input, identifying the whole range of community involvement necessary (initial, installation, and on-going stages);

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- heighten and sustain awareness of the consumers regarding the importance of protection and maintenance of facilities:
  - by promotion, in planned health education input;
  - by involving schools, health centres and community workers;

- select the technology and supplies appropriate to the physical, social and economic conditions of the end-user;

- build in a system of maintenance from the beginning so that it is integral to the programme, and appropriate to the technology adopted, and the skills and organization required.

This must include ensuring

- The availability of tools and spare parts:
  - by including the logistics as an important part of the project formulation;
  - by careful assessment and subsequent monitoring of logistics with resources to improve the system ;
  - by encouragement and support to the local manuracture of spares;
  - by provision and necessary replenishment of tools and spares to village level workers;
  - where appropriate by the standardization of product and procurement.

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This planning with the Community Phase involves intensive and detailed community-government information exchange on various aspects of the locally formulated rural water supply and sanitation programme. It is assumed that an adequately trained village-level group exists (following upon the preparatory phase), able to participate with government in planning for construction, operation and maintenance.

The government will assist the community to:

- develop their grass-root planning and local administration capacity;
- relate the water and sanitation activities to the local primary health care and other development activities;
- establish the precise linkage of relevant community-based groups to the particular agencies involved in the programme;
- determine the local manpower requirements for each activity of the programme, and the kind and extent of technical supervision which will be needed;
- identify the specific training needs of each kind of manpower;

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- ☐ decide allocation of budget responsibilities related to:
  - . benefit/cost relationship
  - . ability of the poorest to pay
  - . ability of community to mobilize resources
  - .. realistic promotion of income-generating activities
  - . ability to control price of spare parts and/or to subsidize these

- ☐ clearly define the mutual and interlocking community/government responsibilities.

The key activities during this planning with the community phase consist of community-government negotiations to address the issues, and to decide specifically upon such matters as:

- ☐ arranging for information and campaigns around the coming of the water supply;
- ☐ involving the children at school (Water Curriculum Packages);
- ☐ selection of the optimal site for the well from both the social and technical points of view;
- ☐ clearing the site for the drilling operation;
- ☐ arranging for unimpeded access of drilling equipment;

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- arranging for assistance to the drilling crews:
  - shelter, food, hospitality;
  - labour, digging of pits;
  - water supply, local materials, etc.

- information and educative "entertainment" while the crews and their generators are in the village ("circus" approach to communications);

- considering and selecting the possible designs of appropriate:
  - well platforms
  - pump houses
  - storage tanks
  - distribution points
  - drainage of water, etc.

- selection, training arrangements and payment of pump operators;

- securing, payment for, and storage of supplies:
  - fuel
  - spare parts
  - construction and maintenance materials

- routine maintenance;

- procedures for arranging repairs beyond local expertise;

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- inspection and maintenance of both water and sanitation facilities;

- sampling for quality of water and arranging for conveying samples for analysis;

- all matters related to use of water:
  - drinking - use of safe source year round, bathing
  - household - washing clothes, preparation and protection of food;

- sanitation campaigns:
  - improvements in domestic water usage
  - latrines
  - garbage disposal, etc.

- Associated Health Education and Public Health measures, the involvement of the Community Health Worker in planning Primary Health Care campaigns and surveillance;

- Associated Agricultural and Animal Husbandry matters:
  - irrigation
  - animals

- lighting and power possibilities (utilization of pump engines)

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- ☐ costing:
  - capital, maintenance, operational costs, drilling crew costs, materials, manpower (caretakers), fuel;

- ☐ revenue management:
  - water sales, taxes, subvention of the poorest

- ☐ building in on-going monitoring, evaluation of project and reporting arrangements, etc.

Specialized training inputs required for this phase a

- For community leaders (traditional, appointed, elected, religious, informal)
  - ☐ communication skills (interpersonal skills, group leadership skills; small scale media skills);
  - ☐ organizational skills;
  - ☐ management skills;
  - ☐ "how to" find what problems exist;
  - ☐ knowledge of local and external resources.
- Technical personnel (craftsmen, maintenance workers, local technicians)
  - ☐ "how to" skills in community-level appropriate maintenance.

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- Supporting groups (teachers; religious personnel; indigenous and non-indigenous health workers; women's groups; farmers' association; student, young people's groups)

  - ☐ simple, local level recognition of indication, "symptoms" of problems;
  - ☐ ways communities can contribute to water and sanitation programmes;
  - ☐ techniques for mobilizing their peers;
  - ☐ ways of monitoring local projects.

3. Implementation Phase

The implementation phase is reached when the activities whic have been agreed upon, listed, and time-tabled during the planning phase swing into operation.

It is during this phase that the organizational and technical capabilities of the community (and government)are put to the test, and when the unexpected will need to be met with a quick and effective response.

The experience gained from this implementation phase should be channelled into improving and strengthening the communities' on-going capacity for partnership in development.

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In the implementation phase the government will assist the community by:

- installing the facilities through provision of technical inputs as well as logistical and other support;

- making sure that the "software" resources are given their proper place in importance and are "delivered" on time;

- continuing to stimulate, support and reinforce the growing and latent organizational and technical capability of the community for implementation of the programme.

The key activities during the implementation phase are:

- actual construction;

- initiating and practising operation and maintenance of the programme;

- formal turning-over of facilities to the community (when they satisfy specification in quality, function and output, and when the maintenance skills are of a sufficiently high standard);

- bringing the monitoring system into full operation, and modifying this as necessary

Training during the implementation stage requires:

intensification of training to bring standards of performance up to the point where the skills can be practised satisfactorily on a routine basis, relevant to the requirements of the programme and the particular needs of the target groups and end-users;

reinforcement of training activities with local media and aids, and utilization of methods that tie in directly with the operations taking place in the community, so ensuring maximum impact.

4. Monitoring, and Assessment Phase*

This monitoring, and the assessment phase, are founded upon a built-in monitoring system which is put together during the planning phase and becomes firmly established during the implementation phase. The monitoring, important primarily for checking that vital things are happening (and allowing for quick identification and response if they are not), also can provide important material for the assessment phase. (Here we see that the four phases are not distinct or strictly sequential, the later phases being dependent upon what has preceded them.)

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* The participants showed a real dislike for the word "evaluation" To give it a less negative association we use "assessment".

Most importantly in designing the M and E systems:

- identify specifically what information is crucial for whom*;
- determine how each piece of crucial information will travel to reach the persons or groups who are responsible to act and respond to it. (It is essential that there be a one-to-one correspondence of information items to those responsible for action, all the way along the line, i.e., not only to central organizations and planners, but field units, implementors, communities etc.)
- plan for joint assessment after implementation (officials, technicians and community)

Water and Sanitation activities ordinarily involve many sectors, directorates, groups, agencies and persons at many different levels of organization. This tends to make M and E systems cumbersome. The Workshop, however, was unanimous in including the community as a vital information link. The Communities were not merely to be made responsible for collecting and conveying local level information but must become essential receivers of information (in a simple format) vital for their role in project activities. They needed to be full partners in a monitoring and evaluation system, jointly involved in devising the system and in assessing implementation,

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* This is most important. Throughout the Workshop it was observed that there seems to be a respectability (academic, scientific) bestowed on collecting and compounding information and facts, and much less concern with the meaning and implicati for action which can be discerned from information. What is crucial for whom, to take necessary and timely action, must determine monitoring - not hoarding of facts.

input and realization of objectives. This "recommendation" was made despite the recognition that there were serious constraints, such as:

- poor communication between government and community;
- weak community organization;
- commonly a lack of "political will" in administration.

The implications are that the preparatory and planning stages must address and largely eliminate these constraints:

- ☐ produce "How to...Guides";
- ☐ identify all training required for making the monitoring and evaluation system effective;
- ☐ clarify the responsibilities involved in administering the monitoring system.

In the Monitoring, and Assessment Phase, the government will assist the community to:

- ☐ design, establish and operate a built-in monitoring system;
- ☐ identify problems (which may hamper smooth operation and maintenance of facilities and activity) as they are revealed;
- ☐ promptly respond to these problems, with action and resources.

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The key activities during this part of the monitoring and assessment phase will be:

- operating the regular reporting system;
- responding to problems as they are revealed;
- beginning to make judgements periodically on the effectiveness of the programme;
- turning attention increasingly to impact considerations (for example, health status, etc.);*
- being alert to, and exploring the possibilities of spin-off projects as benefits of the programme become manifest (income generation, kitchen gardens,)
- assessing the improvement in the capability of the community and local organization and matching this to possible future commitment;
- considering the experience of this programme in terms of the direction and content of the next cycle of planning for community-based development.

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* Although quantity and quality of water is assumed to have a direct impact on health problems, there is no conclusive proof that water alone, or water and sanitation alone, will improve the health status of a community. Health is related to a much wider development process. Therefore a water and sanitation programme can be successful while not necessarily showing up as such in health statistics. Programmers in Water and Sanitation, however, have an important part to play in seeing that their activity is properly located in the wider context, and in other sectors' efforts.

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Training activities during the monitoring and assessment phase will be to:

- provide refresher training;
- replace manpower as it turns over or drops out;
- meet the training requirements revealed by the problems;
- develop skills in assessing programmes;
- further strengthen the local capability in implementing projects in collaboration with government and external agencies.

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WORKSHOP SESSIONS

- COMMUNITY PARTICIPATION
- TECHNOLOGY : WATER AND SANITATION
- MONITORING AND EVALUATION
- MANPOWER DEVELOPMENT AND TRAINING
- FIELD VISITS
- INTERLINKAGES

WORKSHOP SESSIONS

- COMMUNITY PARTICIPATION
- TECHNOLOGY : WATER AND SANITATION
- MONITORING AND EVALUATION
- MANPOWER DEVELOPMENT AND TRAINING
- FIELD VISITS
- INTERLINKAGES

COMMUNITY PARTICIPATION

Despite the vigour and diversity of the exchanges, and a somewhat confusing start to the discussion, the participants were unanimous in their appreciation of the way in which the final presentation to the plenary dealt with what had taken place.

It is of significance to note that "the four groups identified more than 40 constraints which hinder community involvement in each of the activities."

The report summarized: most of the perceived constraints are institutional in nature. Examples:

(a) Lack of manpower which is trusted by the community, is sensitive to its needs and is able to explain what resources might realistically be made available;

(b) Overcentralized planning;

(c) Lack of authority to carry out responsibilities;

(d) Lack of organization/logistics/infrastructure.

Some of the constraints indicate the need for specialized training, either to impart skills or remold attitudes:

(a) Lack of willingness and patience of professionals to take the time and effort required;

(b) Inability to communicate (to the community);

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(c) Inadequate technical capability within the community to understand and assess the technical options;

(d) Lack of familiarity with local survey methodologies.

Other constraints identified are political:

(a) Diversity of power structure, for which a "diagnostic approach and a range of strategies" was proposed as solution;

(b) Possible conflict between community needs and vested interests, for which no solution was proposed;

(c) Inaccurate representation of community needs;

(d) Traditionally passive role of the community towards government-sponsored projects.

Although all these constraints had been identified on an individual activity basis, the required solutions were of such scope and cumulative magnitude that they raised the question of whether it was at all possible at present to include community participation in our programmes. Noticeably the solutions offered by the Workshop seemed to be of a kind which were "pre-conditions" to our present practice. These we have placed in a "Preparatory Phase" in the "Programmer's Guide". The expectation of the Workshop was that a well-planned and well-carried out preparatory phase would diminish (or eliminate altogether, perhaps) many of the problems which now seem to arise during the planning phase.

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This happy state of affairs is based upon the idea that the skills of community workers will create the climate and mutual confidence between community and government in achieving the foundation work for a new or greatly enriched planning process. It might be added here that the strategy of finding solutions to problems by shifting activity into "pre-conditions" was noticeable when consideration of implementation and monitoring and evaluation took place. The constraints noted in these phases could be dealt with, it was argued, in the preceding planning phase.

This can be well illustrated. The groups divided up to separately consider planning, implementation, monitoring and evaluation. It was found that the implementation group had added activities to their sequence which it was subsequently considered should really belong in planning. The monitoring and evaluation group found themselves proposing solutions to their problems also in terms of what should be properly included in an effective planning stage. It was argued that monitoring and evaluation should involve the community in setting up the system in the first place, so the community would be able to watch progress and shortfall as it is happening, and make a judgement of value in due course. Indeed, monitoring and evaluation should not be viewed, as is common, as "end" activities in planning but should also be a means of contributing to the clarification of the "beginning" objectives, and of facilitating the planning process - as for example, in directing attention to "benchmarks" and making conscious the assumptions that lie hidden

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much repetition and reinforcement takes place. Important factors such as "confidence", "trust", "information exchange", "community spirit", "mobilization", etc., are not one-shot affairs but are incremental and cumulative in nature, and must permeate all activity even though they can be consciously generated and specifically planned for, step-by-step.

What we seem to have arrived at on a pragmatic basis is that:

- it has been found that the community must be involved in implementing projects, if development objectives are to be effectively realized;
- in turn, for effective implementation it has been found necessary to plan with the community;
- to get results in planning with the community, a proper process of "social preparation" is required.

We came to the growing realization that research, planning, and implementation go hand in hand as a learning process in which community and planner learn together, and create organization and specific objectives as they go.

This is a dynamic rather than a strictly sequential way of looking at programmes; there is a need for an enrichment of our present planning processes by the permeation of community involvement throughout the process, and the emergence of the kind of programming which will accommodate and encourate it. "Towards a Programmer's Guide" it was agreed should be put together by the Workshop rapporteur and will be the first short UNICEF step in this direction.

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Therefore, although it is necessary to identify the steps one at a time and in sequence in order to understand the process at work related to community involvement in planning and programmes, it must be realized that in practice each activity is not a distinct and separate item. In practice, there is much overlapping of activities, and in any plan of work. What seemed to be happening was that the Workshop participants kept identifying processes which should have taken place earlier - earlier, that is,when the time frame and sequence are those in which we are accumstomed to sequentially place and consider planning→ implementation→ monitoring and evaluation.

However, it is significant to see that an opposite but complimentary way of thinking about, and experiencing, time elements can be observed emerging from the discussions. When considering implementation, the group reported:

> "It is during this implementation phase that the organizational and technical capability of the community is gradually developed".

Here is an acknowledgement and an understanding of the human process: the work of preparation and planning with the community is only gradually consummated in improving the long-term basic capacity and organizational skills of the community, and this continues throughout the implementation, monitoring and evaluation activities. This is an

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important concept and exactly as it should be, for Water and Sanitation must be only one component of development, and the skills, experience and confidence gained in one project add to the community's capital of resources available for the next.

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TECHNOLOGY: WATER AND SANITATION

One of the intentions of the Workshop was to bring together the engineers and the non-engineers for an interchange of experience and thinking. In practice, despite the ample good-will and good friendship, there appears to be a natural tension between the "practical" technology man who makes things work and the "appropriate" social man who is concerned about whether people actually want, use, benefit from, and keep the things working. The technical aspects fit fairly neatly into familiar methods of programming. The pace and progression of selecting technology (given the physical environment and budget range), specifications, procurement, supply, logistics, and financial arrangements generate a planning style which has a (hard) reality, rhythm and life of its own. These are a different kind of reality and rhythm from the (soft) pace of social preparation, community activity and interventions for realizing social objectives. (The social planner is aware of the bright technology which lies around abused and unused). How to bring together satisfactorily these very different perspectives in programming for integrated action is the UNICEF programming task.

The Workshop aimed at:

1. identifying the relationship of the technology to a community-oriented programme.
   This produced a contribution which has been incorporated in the Programmer's Guide;

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2. providing an opportunity for an exchange of technical experience and technical innovations.

This produced technical presentations and a series of questions and answers.

To meet the technical needs of the participants, they were invited, ahead of time, to indicate what specifically they would want to hear about, and discuss. In addition, time was set aside for "clinics" in which ad hoc groups could form around particular problems. It was interesting to note that after sessions in which technical detail was explored by the participants, attention turned once more to social issues - the community's involvement, the way in which technology was to be presented, understood, accepted, installed, maintained, and paid for.

The Technology Presentations at the Workshop

1. Groundwater Investigation and Development, by Dr. Vachi Ramnarong of Groundwater Division, Department of Mineral Resources, Thailand.

This dealt with Thailand's experience in geological survey, test drilling,well-logging and pumping. Hydro-geological maps were used for stimulating discussions on groundwater investigation and development. Annex A1 is a summary of the presentation (Ground Water Resources Investigation and Development in Thailand, by Charoen Piancharoen, Annex B2)

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2. Drilling Technology, presented by Per Engebak/ Tadeusz Ciurzynski/Abdul Awal.

The speakers on drilling technology described various methods used in this region, including horizontal drilling. Relevant methods of drilling in consolidated and unconsolidated rocks are shown in Annex A2.

3. Role of Ferrocement in the Water Decade, by Dr. Pichai Nimityongskil of the Asian Institute of Technology (AIT), and Mr. Wahyo Widodo, of the Directorate of Hygiene and Sanitation, Indonesia.

Ferrocement being a versatile material, its use is considered as one of the attractive construction techniques in the provision of water to the people living in both urban and rural areas. The presentation was based on research of AIT, supported by field experience from Indonesia. Annex A3 is a brief report on this subject.

4. Mr. Awal, Rural Water Adviser, UNICEF, Manila, presented information on A Case of the Transfer of Technology. (Annex A4).

5. Sanitation was reported by Margarita Cardenas, Sanitarian, UNICEF, Pakistan. (Annex B3).

Following Leo Goulet's short introduction (Close Encounters) defining the aspects of the subject (Annex A4), presentation were made of experiences in three countries.

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6. The Thailand Experience, by Chit Chaiwong, Director, Sanitation Division, Ministry of Public Health, Bangkok. (Annex A5).

7. The Patna (India) Experience, introduced by Leo Goulet, Water Supply Officer, UNICEF, Hanoi. (Annex A6).

8. The Vietnam Experience -- Double Septic Bin Latrines (DSB or Double Vault), by Dr. Pham The, Director, Department of Hygiene & Epidemiology, Ministry of Health, Hanoi. (Annex A7).

SANITATION -- QUESTIONS AND ANSWERS

A. General Questions addressed to the Panel of Resource Persons

Questions	Answers
1. If human excreta disposal is top priority, what other activities should be included in Environmental Sanitation?	Solid waste disposal, waste water disposal, food hygiene, sanitation in public places, industrial hygiene, vector control.
2. How can Sanitation be used as entry point for other aspects of development?	Entry points exist in most cases but must be identified or recognized. An example cited an Indian village where the abundance of sick children led the doctor to conduct a tour pointing out to the villagers all the

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Questions	Answers
	unsanitary conditions. Arising from the tour, the village invited a Community Development Worker to join them in examining what could be done over and beyond the health conditions.
3. How can the subject of Sanitation appear less grim and more "jolly"?	Certain themes can be made amusing through appropriate wording, especially in the form of songs, aphorisms, puns and contests, etc. In these ways excreta disposal becomes an acceptable subject of public discussion.
4. What sanitation facilities can be envisaged for boat people?	Two types of "boat people" must be considered: . Those living in moored barges or boats (as in Hong Kong, etc.) as an alternative to land settlements, for which community "comfort stations" can be envisaged, complete with water seal latrines and washing facilities. . Those living at and from the rivers and sea, for which there is yet no appropriate solution, except the costly chemical toilets used in planes and pleasure boats.
5. Latrines are currently designed for adults; what about children?	It is essentially the responsibility of parents/guardians to educate the children and take care of their needs. As accidents are known to have occurred, great care must be exercised in design and workmanship.

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Questions	Answers
6. Would not a "knowledge network" be opportune?	Publication of the Newsletter "From the Water Front", the holding of workshops and seminars, are opportunities to exchange information. It is important that recipients also contribute and share their experience. Country offices should be committed to forward information on reports/ documents on Water and Environmental Sanitation. These may include subjects such as: . appropriate technologies . new innovations . research programmes . cost of systems adopted . any other relevant topics considered useful to others Information to include: . short explanation of content with conclusion . author and country
7. What percentage of UNICEF's WATSAN budget is devoted purely to sanitation projects?	Currently some US$ 53 million is annually commited to WATSAN projects; of this about 6% is purely for sanitation. It is hoped that this will more than double during the Decade, as a realistic aspiration.

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Questions | Answers

B. Questions related to the Thailand Experience

8. Is there any development in PVC handpumps? Who is behind the study?

The result of the monitoring and evaluation of the 3,000 handpumps so far installed is expected within one year Most pumps are used with shallow (5m) wells. Trials are being made with deeper (15m) wells. The scheme is backed up by UNDP and the IDRC.

9. What is the follow-up on monitoring and evaluation of the water seal latrine programme? The public response? The cost? The suitability for water-scarce areas?

Follow-up is currently under-way. Water seal latrines are preferred (as odours are objected to;) and the response is good. Pits are emptied after a few years. Present cost is accessible to many, and should be further reduced with increased production. The water quantity required is limited.

10. Major constraints met during the implementation of the Sanitation Programme?

- Technical staff does not think in terms of low-cost technology;
- Business/industry are not interested, because of the limited prospect of profit;
- Available resources must be measured against the magnitude of the problem (some 50,000 villages, requiring 50,000 village level workers to be trained).

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Questions | Answers

A participant, in response to a request to define appropriate technology, referred to the windmills used for pumping brine in the coastal areas of Thailand as a good example of an appropriate technology. The windmills are relatively low-cost and functional, simple in design, easily constructed (by the salt producers themselves), mainly use locally available materials, and are easy to maintain by the owners. This renewable form of energy activity is compatible with the environment and socially and culturally acceptable. On occasions when extremely high winds are experienced the windmills blow down, but they can be re-erected by their owners without too much inconvenience or cost.

11. Has the Government of Thailand developed criteria for the Decade? Are there any standards?

The Government works through Five-Year Development Plans, two of which at least will span over the Decade. WHO standards for water are currently used where appropriate; for sanitation reference is made to standard textbooks.

12. Based on a similar pilot project in the Philippines, is not the investment cost in biogas production too high?

The cell developed in Thailand appears to produce enough gas for 2 meals daily for a family of 6 persons. (Other data appears to contradict this information, and the matter ought to be pursued further, perhaps through the knowledge network). The Government has provided supervision, steel and cement, and demonstration funds.

C. Questions related to the Patna Experience

13. Can the compost from the Patna type latrine provide an income?

It probably could, if collection were organized and a demand existed. At present it would appear that only private households have use for it.

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Questions | Answers

14. Under what soil and groundwater conditions are leach pits suitable?

The ground should be homogeneous. The top of the water table should be at least 1.5 metres below the bottom of the pit. With rocky/sandy soil, about 90 cm. of overburden should be excavated under the tank, and filled with homogeneous soil.

D. Questions related to the Vietnamese Experience

15. The Double Septic Bin latrine scheme has strong links with agricultural production; can it be replicated elsewhere in Asia? Who removes the compost, and for what purpose?

Under similar conditions, the scheme could presumably be replicated. Compost removal is the responsibility of the family, or a co-operative team when used collectively; the situation varies according to each village.

The compost has good fertility (10 times the fertility of the natural soil) and is better than chemical fertilizers; advocacy is therefore easy. However, this is an asset, not a condition to the adoption of the Double Septic Bin.

16. How does the programme relate to other priorities as perceived by villagers?

Where there is need for compost in agricultural production (North and Centre), use of Double Septic Bins is one of the villagers' priorities.

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Questions | Answers

17. What is the family contribution, and the Government support? What organizations implement the programme at various levels?

As the construction is simple and relies on local materials, the work is done by the households concerned (with the exception of families of old people, or martyrs, for whom the co-operatives undertake the comstruction).

No financial assistance is provided. Cement at subsidised price is made available where Sterile Septic Tank latrines are needed.

The Government assumes technical leadership through provincial and district levels. The village level is mainly responsible for the implementatior

18. What is the range of temperature/moisture within which the process takes place? What is the influence of the winter/summer temperature on the elimination of pathogens?

The temperature increases gradually during composting to a maximum of 50°C in summer, by the end of the 3rd week. After one week it decreases gradually till the 7th or 8th week. The moisture level is slightly higher than the ambient relative humidity. In winter the peak temperature is 44-45°C, and the process extended by one week. Above 40°C all pathogenic organisms are eliminated.

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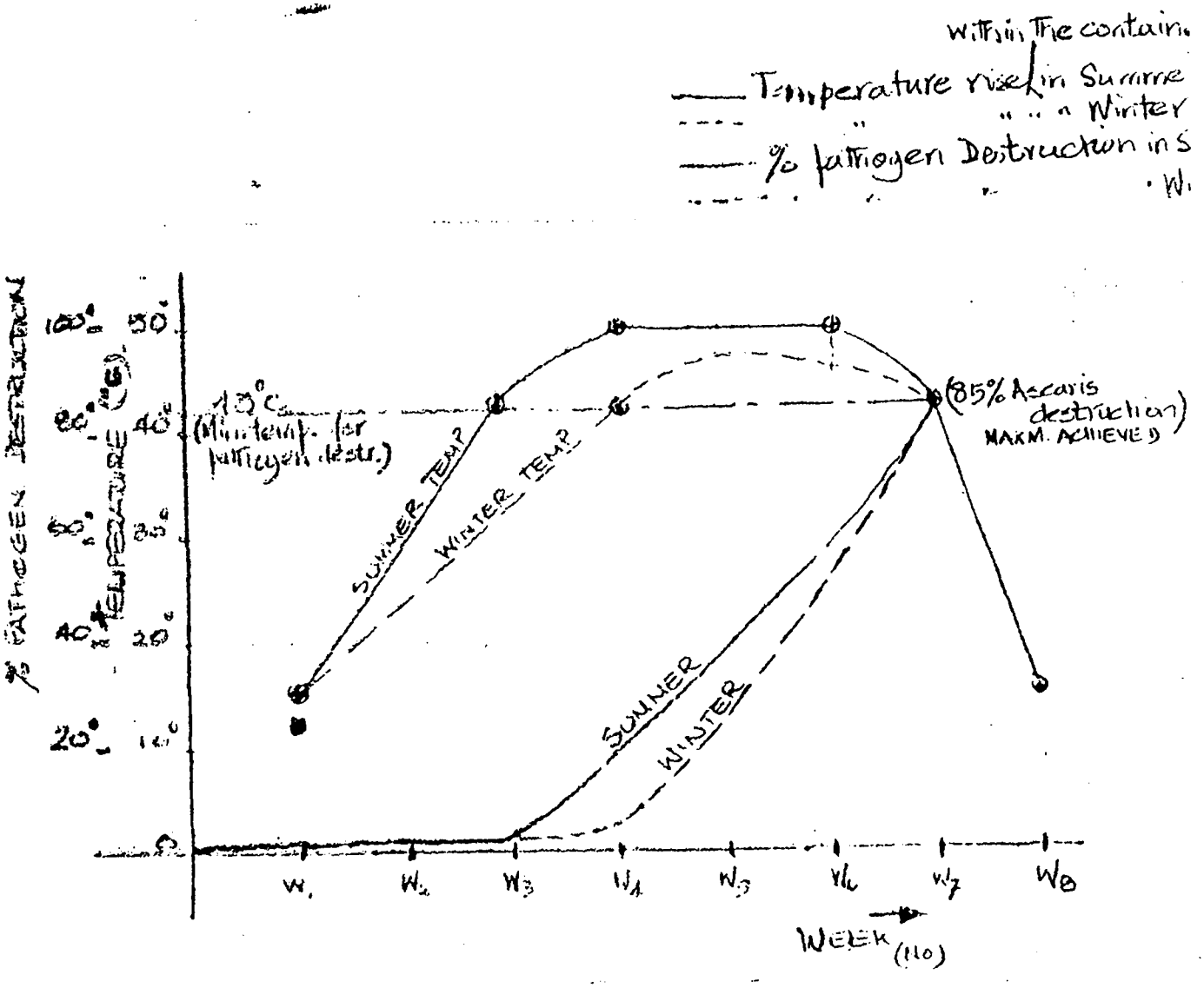

Figure: Temperature increase within the container and percentage destruction of pathogens in relation to time (3 weeks), in the Vietnamese Double Septic Bin latrine.

Notes: The most important parameters to monitor are:

(a) Ambient temperature;

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(b) Maintenance of a suitable carbon/nitrogen ratio by adding 2 bowlfulls (1 kg.) of ash before use and ½ kg. after each use;

(c) Destruction of worm eggs (periodical laboratory analysis);

(d) Analysis of heavy metals in the faeces, at least in the initial stage.

19. What quantity of ash is used?

After each defecation 0.5 kg. of ash is spread over the stool. Before composting, some 20 litres of ash are spread to seal off the surface of the mixture.

20. What happens to the urine?

It is collected in a separate container, or mixed with ash and used for vegetable growing.

21. What is the average cost of the Double Septic Bin?

The cost is equivalent to US$ 25 per unit.

22. Can household refuse be added?

Powdered soil (humus) can be used in lieu of ash, to the detriment of the quality of the compost.

23. What is usually done for anal cleansing?

Any kind of paper.

24. As 55% of the families are provided with a Double Septic Bin, what is the reduction in worm infestation of children? Does composting eliminate tetanus bacteria?

Where the construction programme of the Double Septic Bin is completed, there are no intestinal disease or

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Questions | Answers

epidemics (cholera, dysentry, diarrhoea.) Some incidences still exist, but severe cases calling for emergency treatment are scarce. Since the use of the Double Septic Bin, no tetanus bacteria have been detected in the compost.

25. Is there any code on sanitation?

The code was promulgated in 1974 by the Prime Minister's Office, but instructions had already been issued by the Ministry of Health in mid-1956.

26. Is there any other technology used in the Rural Sanitation Programme, other than the Double Septic Bin latrine?

(See illustration, Annex A7)

Pit latrines are used in mountainous areas. When full, they are sealed off and new ones excavated.

The Sterile Septic Tank type of latrine is used in suburban areas with no agricultural production, in certain locations in rural areas (factories, hospitals, markets, theatres, restaurant, etc.), and generally where no ash is available.

27. What are the types and management of public latrines?

The Double Septic Bin type is being replaced by the Sterile Septic Tank type with waterproof tank. Public latrines are supervised by attendants paid by the communities using the facilities.

28. When will the target of one latrine per family be reached?

In rural areas = 1985

In urban areas = 1990

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Questions | Answers

29. What problems were encountered and what solutions arrived at?

Shortages of materials were overcome through a change in peoples' mind; it was no longer necessary to rely on cement to build a Double Septic Bin. Following instruction by the Ministry of Health to use local materials (bamboo, mud bricks, straw, etc.), pilot demonstration projects were built. They were visited during study tours, which in certain districts resulted in the completion of the full programme within 1-2 months.

30. What is the range of building materials/bonding agents considered suitable?

This depends on what is available on site or nearby. If a better unit cannot be made of cement and bricks, then mud and bamboo can be used; even then, a Double Septic Bin unit can last over 10 years.

A participant noted that although the Workshop had extensively discussed the desirability of improving home/community environments by the construction and use of latrines, waste disposal points, bio-gas production from human, animal and domestic wastes, etc., no mention had been made of the United Nation Environmental Programme (UNEP). It was agreed that it would be advantageous to pursue the possibility of collaborating with UNEP in the promotion of activities to improve home/community environments in developing countries.

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MONITORING AND EVALUATION

The relationship and differences between evaluation and monitoring were explored. In the Workshop, however, much of the discussion centred around monitoring.

Monitoring and Evaluation (M and E), it was agreed:

- are poorly understood;
- often arouse suspicion, and those in authority (at all levels) may feel that information may be uncovered which is best left covered.

However, it was thought that:

> "...the systems being promoted are usually very academic, and although perhaps applicable to situations in developed countries, more appropriate systems should be devised for developing countries."

Most tellingly, it was said that:

> "(M and E) usually appear at the end of the project documents and usually do not reflect the purpose of the activity sufficiently."

This perception of M and E as coming at the "end" of the project operation was emphatically rejected by the Workshop groups. Having realized the almost total dependency of evaluation and monitoring on the existence of a well-prepared plan, the consensus was that at the planning

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stage of every project, M and E must be built in as an integral part of the project strategy and the detailed implementation plan.

Monitoring and evaluation should not be interpreted as the collection of data, transmittal of forms and aggregation of information, which is often supplemented by one-shot surveys (because of the lack of organizational framework, staff and resources.) M and E must be viewed as a continuous and on-going process:

- stating clearly the objectives of the programme;
- differentiating levels of objectives; (goals - through to - inputs)
- identifying the hypotheses (assumptions) that link the hierarchy of objectives;
- specifying all the actions that are expected to take place;
- specifying all the supplies which must be delivered to the site of the action;
- specifying significant changes in behaviour;
- making sure that all maintenance systems have a monitoring and evaluation process built-in;

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- determining what measurements or "indicators' are appropriate for monitoring each item;

- clarifying why the information is of importance (is it really worth collection? for what purpose?);

- examining the current information system (utilize this; plan to improve it if necessary; be hesitant to create new systems; but if necessary, this requires careful planning and more inputs);

- considering the feasibility of collecting the information (realistic organizational capability);

- identifying who will collect what information from whom, when;

- distinguishing between reporting notes, such as regular, routine, quantitative arrangements, and those which require judgement and qualitative assessment where field visit skills are appropriate.

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MANPOWER DEVELOPMENT AND TRAINING

Community Level

The discussion called for clarification of what was meant by communication skills, and of what was to be communicated by those skills.

It is presumed that communication skills refers to two major areas: interpersonal communication and the use of low-cost, community-based media.

Interpersonal communication is most effective for influencing behaviour. So when community workers (and community leaders) are able to demonstrate sincerity caring, and command of water and sanitation issues (therefore establishing credibility), they are in a much better position to organize and assist communities in planning and implementing water and sanitation programmes. Sincerity, caring and credibility can be stimulated and encouraged in training programmes and these can be coupled with skills. Such training should be an integral part of development programmes.

The use of low-cost, localized, community-based media can also be taught. Because it is community-based, it is within the ability of community workers to produce and use.

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A comment was made that the tasks to be performed need to be understood by those in communities before they can be carried out. Another comment pointed out that current research shows understanding, positive attitudes follow the public performance of tasks, and that the successful performance of tasks does not necessarily require understanding and positive attitudes first.

It was explained that the term "external resources" for training village leaders meant external to the community, but internal to the country.

The major role of international advisers should be the training of trainers, including curriculum development at the university level. To avoid the imposition of "outside" experts within projects and to increase responsiveness to country requirements, trained national personnel should be utilized to the fullest extent.

Interchange of expert personnel between countries in the region should be encouraged as part of promoting technical co-operation between countries.

Implementation Level

It was noted that mention of the community was missing from the implementation level training, which concentrated on professional technical training requirements. There was a comment that the list of posts was not exhaustive,

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i.e., drilling superintendents, geophysicists, photo-geologists, water quality analysts, areas and workshop.

Korea has also been advocating to economists and planners the social and health benefits of water/sanitation programmes as yielding separate but equally important benefits as economic ones.

It was pointed out that in the Philippines, "training" of the legal staffs of each relevant ministry, and briefing them about the WATSAN Decade, was done in a series of seminar workshops. These led to the issuance of Presidential decrees, legislation, etc.

Agency Involvements

There was a strong interest in the exchange of appropriate technologies. It was also interesting to note that in view of discussion of constraints vis-a-vis the absorption capacity of countries (lack of skills, manpower, etc.) four "countries" said they did not require external agency involvement in manpower at the policy level and two "countries" did not require outside involvement at the implementation level.

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FIELD VISITS

Field visits were intended to provide a "live" experience of Thai village life; to illustrate some of the contents of the Workshop discussions; and to stimulate issues and insights into programme processes which would derive from the participants' observations. In addition, it was expected that a day away from talk in conference rooms would enhance informal exchanges and group cohesion. Background information and guide-lines for discussion were provided for each visit.

The visits consisted of:

1. A water and sanitation programme which derived from Primary Health Care activities and illustrated the contrast between a village with strong leadership and one without.

2. A programme which had been initiated originally as a nutrition programme, included income generating activities, and in time had incorporated water and sanitation. Subsequently villages near-by, which had fewer resources, followed the example set by their neighbours.

3. An emergency programme for refugees which had necessitated a "crash" effort (including water and sanitation), and which had subsequently become a semi-permanent habitation for a large number of slow-moving transients.

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In programming and the implementation of programme, it was seen that field visits served a number of valuable purposes:

- exposure of planners and policy makers to field conditions;
- exposure of officials and communities to community-based projects, although the projects may have a different content or focus;
- exposure of officials and communities to projects similar to the ones being planned;
- field testing of approaches and skills in contacting and working with communities;
- field testing of communication materials;
- construction and testing of "how to...guides";
- training and practice "on-the-job";
- initiating and conducting local level surveys;
- examining feasibility and acceptability of technology;
- monitoring and progress;
- supervision and enhancement of skills of field workers;
- conducting the activities at the community level which appear in the preparatory, planning, implementation, monitoring and evaluation stages of water and sanitation programmes.

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In exceptional cases "spot-check" visits may serve a purpose, but generally - in the context of partnership and mutual trust - visits should be well-prepared, and the purpose and objectives of visits well-thought out.

- the "skills" of field visiting should be identified, and training and practice in these skills promoted for all levels.

The field visits underlined:

- that field visits should be conducted in the context of a "two-way" exchange, so that visitor and visited both derive benefits from the contact;

- that the "volume" of information extracted, facts and figures, did not necessarily indicate the value of field visits;

- that (as in monitoring and evaluation), information gathering must be tempered and given weight in terms of "meaning". Field visits require an intellectual activity and "feel" for keen observation, intepretation of observations, identification of a hypothesis or the implications of observation, testing of the intepretation, identification of the range of implications (problems, associated solutions, etc.)* (What is information to be used for, beyond curiosity and academic interest?)

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* It was observed that the Workshop groups had gathered a great deal of information and (like much survey work and monitoring systems), the groups were strong on information but much less so in giving meaning to the information and spelling out action which could be directly derived from, and responsive to the information.

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- that behind facts and figures there is important information available during field visits regarding social, qualitative non-tangibles such as "community spirit", "conflicts and tensions", "latent capabilities", etc.

- that there are disparities between "understanding" and "behaviour" which have important implications, for example in training and health education activities. (These "disparities" were a theme that surfaced a number of times throughout the Workshop in different contexts);

- the very strong impression that "personality" and the "drive of leadership" were very crucial factors in all development activity in the rural areas.

The implications for programme planning were examined.

"It was pointed out that initiatives and innovations will be responded to by action in well-led and organized communities. We are pleased to have these when we start or demonstrate a new scheme. We have a built-in need to succeed. But how do we reconcile these considerations with our wish to reach the poorest and the most underprivileged?

By definition these communities are likely to be short in leadership and active organizational capacity. We will need to be more discriminating and devise

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different strategies and sets of activity for the different qualities of community capabilities. Otherwise we will always be diverting resources in the direction of the "haves" rather than the "have nots", and we may even be helping to consolidate power where it already may negatively reside in power elites.

It is not difficult to get one-shot community response to outside inputs, although most services require on-going inputs. Real success is seen if innovations become an integral part of present activities, and an everyday activity in the social fabric. How to properly and smoothly institutionalize activities is the problem.

Models are all very well, but how to bring about broad coverage?

It was concluded that the question of "who defines the problem", which is fundamental to effective community involvement, was of great importance in this context. For programmers and project formulation, there seemed to be a clear need for:

- an approach which differentiated "diagnostically" between the different capacities of communities to effectively participate. This would entail different strategies and techniques for getting communities started. The preparatory stage would therefore take longer and require more skill in some communities than in others.

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This reinforces the idea that underlying principles require different interpretations in action, so that uniformity of action is not necessarily an indicator of good programming and planning. While accepting this slowing down of pace and the need for extra resources in "infertile" situations, participants were, however, quick to stress that although step-by-step processes needed to be spelled out and understood for conceptual and planning purposes, different circumstances would require sensitive variations in emphasis, sequence and content, and there might well be justification for taking "short-cuts" when conditions are favourable;

- emergency conditions (in which large numbers of people either "overwhelm" existing communities and facilities, or are collected where no facilities previously existed) result in ad-hoc arrangements which demand that for a short period provision is made according to what is near at hand or is quickly made available. Notwithstanding, the fact is that temporarily such populations:

    - have special dependency needs (although the success of their flight and survival indicates strengths) which require protective and reassuring responses;

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. tend to be transient as they move on or are channelled away; but there is a discernible pattern in which social organization springs up and the situation begins to resemble permanent or semi-permanent habitation.

Although for all kinds of reasons, there is an unwillingness to invest and install long-term water and sanitation facilities, nevertheless, resources do become available, and systematic phased or contingency planning can and should take place. In contrast to the view that such transient populations cannot be successfully involved in participatory activities, there is reason to believe that efforts made to initiate and sustain participatory activity could result in much improved sanitary conditions; encourage equitable sharing of scarce resources, and lift the morale of the population, which would make it all the more ready to accept responsibilities and contribute positive resources.

Therefore, beyond the programming and servicing which are compellingly needed in emergency situations, programmers should:

- look beyond immediate needs to more long-range planning;

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- advocate and promote active community involvement along the lines and principles appropriate for ordinary programmes and projects (with the usual sensitiveness to the need to modify the processes according to specific situations);

- consider specifically the impact and needs of the existings communities which are immediately affecte by the influx of displaced persons;

- plan to meet these special needs;

- assist in efforts to resolve the stresses and tensions between recipient and transient communities;

- particularly bring together and promote integrated planning (linkages) between the agencies and services which are thrust into responding to the unexpected demands.

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INTERLINKAGES IMPLIED BY WATER AND SANITATION PROGRAMMES

There was some confusion regarding what was meant by "Interlinkages" and "Linkages". These terms were used interchangeably and needed clarification.

1. Intellectual connections: i.e., putting concepts and ideas together, such as understanding the link between water, sanitation, disease, etc.

2. Co-operation between agencies, sectors, governments, UN organization, etc., the links being the shared objectives, designated and related responsibilities, duties and activities.

3. Project level activities which tie in with each other.

4. Horizontal and vertical relationships within and between organizations. Feedback considerations from the grass-roots and back again.

Participants must be clear which of these linkages were being addressed.

There was agreement that links must exist between water and sanitation and basic services; that these were to be found in all Primary Health Care activities, such as maternal and child health nutrition, school health and population programmes.

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There must be proper links in the provision of water supply and the provision of activities at every step of the process of taking water from its source to the mouths of the consumers.

There was firm agreement on the need for multi-sectoral planning. Health linkages were themselves to be considered in the context of general rural development. Cross-sectoral involvement should be encouraged and worked out in effective practice to include agriculture, planning organizations, and even religious affairs.

A word of caution was introduced. Although linkages between water and sanitation may (and should) exist, this is not obvious at the moment either at the community or at any of the national levels.

Programmes need strong educational and motivational components which spell out and reinforce the idea of these linkages, and encourage and guide people to discover these for themselves.

How These Interlinkages could be Strengthened and Operationalized

There was general agreement that mechanisms for co-operation needed to be explored and developed so that interlinkages could be established. A number of possibilities were suggested.

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When the necessary roles and responsibilities have been worked out, one must then move towards the clear and firm adoption of these by appropriate committees and councils at all levels in a society (community councils, national committees to make policy and co-ordinate activities, provincial and district committees).

However, the proliferation of committees and establishment of new infrastructure should be guarded against where the existing infrastructure is able and prepared to shoulder the new roles and responsibilities. Other suggestions included:

- the finding of channels for exchange of information of a technical and social nature. This is one method of advocacy.

- the establishment of common procedures, reporting forms and summaries (so that the information can be understood) to facilitate channelling for feedback at all levels and across sectors to the appropriate agencies. Monitoring and evaluation activities could thus be of themselves an internal advocacy tool.

What UNICEF and other International Agencies should do to Overcome the Main Obstacles

Obstacles frequently arise because of the strong sectorialization of various agencies and, ironically, because of

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unclear definitions of the role of the agencies. Some agencies have strong technical biases, for example, and would be unwilling to undertake social programmes or link up with social programmes, however much the technical agency might benefit. There is a tendency for new implementing agencies to be created, rather than to explore ways for the functions of ongoing agencies to be expanded.

The inadequacy of existing government agencies to absorb new and added responsibilities is another factor. Pilot projects are frequently welcomed but the inability to secure manpower, funding, and organizational expansion to extend coverage beyond the pilot situation is a common situation. This is true both at national and community levels of activity.

The point was made that the use of coercion to launch projects is likely to result in failures.

Many traditional values are considered to be obstacles (as the culturally determined roles of women, for example), but what should be realized is that traditional values may also be the strengths upon which societies can build to meet water and sanitation interventions.

The obstacles, it was thought, could be dealt with by facilitating dialogue and communication between agencies, government, and communities; sponsoring of country level workshop and seminars; facilitating transfer of information and funds; providing opportunities to expose all levels to demonstration projects.

However, there was some doubt that such generalized recommendations were good enough to deal with the problems.

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Water and Sanitation Activities could be used as a Starting Point for Development of PHC at the Programme or Project Level

It was noted that Water and Sanitation activities may not necessarily be the starting or entry point for PHC activities. However, where water is scarce and obviously a community need, water and sanitation activities can spearhead development and earn the confidence of governments and communities in the establishment of PHC.

Where there is water, of course, there is a need to strengthen health education and motivational activities at the community level, so that the water is protected, fit to drink, and sanitation activities can be launched.

It was felt that demonstration units and pilot projects were extremely effective ways of advocating and motivating for the benefits of water and sanitation activities. However, such projects must be properly carried out, the lessons properly learned, and replication achieved.

What UNICEF and other International Agencies can do to achieve Inter-Department Co-operation for better Management of Water and Sanitation Programmes which are fragmented between different Agencies

One of the main activities of the international agencies is to provide opportunities for interchange between ministries, between agencies, and between communities, with all levels of government.

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UNICEF has a good record in bringing together groups who have found it difficult to meet with each other, by providing a neutral grow̸d; by providing informal exchange; and managing this by "in-house" methods.

UN agencies can ensure the co-operation between government and community leaders; continue to advocate and demonstrate how to achieve "integrated" planning; provide information, support its collection, and advocate information sharing.

Some General Comments

Community participation was said to be basic to most development projects and must be considered at each step. But government and external agencies must be able to deliver their part in the partnership once there has been social preparation, because there are dangers in creating false expectations.

There seems to have been an emphasis in the Workshop discussions on institutional obstacles.

It was most noticeable that the sessions on "linkages" remained rather abstract. They were held at the beginning of the Workshop, before the participants had grown used to each other and the working method. Later linkages surfaced in many different contexts. Perhaps the most interesting and important for UNICEF were:

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(a) How will the planning style emerging from the Workshop's view of community participation link with the timing and requirement of UNICEF's present planning and practices;

(b) How will what is being proposed at the Workshop be responded to by UNICEF in terms of appropriate staffing and support to the field?

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BACKGROUND TO THE WORKSHOP,

ITS METHODOLOGY, AND

WORKSHOP EVALUATION

The initiative for the Regional Water/Sanitation Workshop began with a UNICEF/Pakistan request in late 1978 that a Water Supply Workshop be convened to discuss technical problems. This request was circulated throughout the region for comment in March of 1979, and an EAPRO working group was convened to collate regional opinions and formulate a tentative agenda. The idea was endorsed at a Regional Meeting in 1979. A plan for a series of six global workshops was devised by UNICEF, New York and the EAPRO workshop was designated to be the last in this series, alternating with WHO-sponsored meetings.

Throughout the preparations, a need was identified to broaden the discussion to the social/community aspects of water supply and sanitation programming. This emphasis was expanded as country offices continued their suggestions.

The long-term objectives were:

- To bring about better co-operation between UNICEF and governments in achieving the goals of the Drinking Water and Sanitation Decade, and Health For All by the Year 2000;

- To improve UNICEF's performance in its assistance to rural water supply and environmental sanitation programmes.

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The Workshop tasks were:

- To examine how water and sanitation programmes could be made more responsive to communities' needs;

- To identify common problems in the water supply and sanitation sectors, and to share experiences on various approaches used in solving the problems;

- To examine the interlinkages of basic services for children with water and sanitation.

The Workshop products were to be:

- A set of guidelines illustrating ways to make water supply and sanitation programmes more responsive to communities' needs;

- A description of the various approaches used in solving water and sanitation problems and their general applicability;

- A list of existing problems/constraints in current UNICEF planning and programming for water supply and sanitation, and suggestions/ strategies to solve the problems and minimize the constraints.

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Following upon the Workshop, a two-day In-House meeting was planned with the purpose of exploring issues of immediate concern to UNICEF staff members. These are reflected in the agenda for the In-House meeting.

- Implications for fund raising and advocacy for water and sanitation:
  - general resources
  - noted projects

- Field participation in the establishment of new policy or amendments, particularly in relation to co-operation with other UN organizations and technical agencies.

- UNICEF's involvement in WHO and UNDP projects (or those of other agencies) for which UNICEF is expected to provide financial and other inputs.

- Budgeting and Financing:
  - counterpart funding
  - roles of various levels in financing
  - noted versus general resources

- Technical co-operation; knowledge network; study tours

- Personnel Issues:
  - recruitment
  - project staff and core staff
  - job classification
  - transfers
  - resource people
  - field advisory services

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. Supply Issues:

  - procurement within the Region

. Water and Sanitation Section of Field Manual and its Applicability to this Region

. Summary of other WAT/SAN Workshops.

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WORKSHOP METHODOLOGY

The Workshop was built around a series of papers * especially commissioned to explore Water Sanitation Programming topics:

1. Inter linkages Implied by Water and Sanitation Programmes, by Dr. Lay Maung, Senior Regional Planning Officer, UNICEF-EAPRO, Bangkok, Thailand. (Annex B4)

2. Rural Water Supply and Sanitation in the Context of People-Based Development, by N.M. Pestelos, Consultant for Community Participation, Project Compassion, Green Revolution Command Center, Nayong Pilipino, Pasay City, Philippines. (Annex B5)

3. Sanitation, by Margarita Cardenas, Sanitarian, UNICEF, Islamabad, Pakistan, (Annex B3)

4. Maintenance of Water Supply and Sanitation Facilities, by Abdul Awal Rural Water Adviser, UNICEF, Manila, Philippines. (Annex B6)

5. Monitoring and Evaluation: A Question of Stop Talking and Start Doing, by Cecilio Adorna, Consultant for Monitoring and Evaluation, UNICEF, Bangkok, Thailand. (Annex B7)

6. Discussion Guide: Manpower Development and Training, by Guy B. Scandlen, Regional Project Support Communications Officer, UNICEF-EAPRO, Bangkok, Thailand. (Annex B8)

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* All "three" Annexes are available from EAPRO on request

Each author was asked to examine and review the country papers:

1. Country Report on Water Supply and Environmental Sanitation in Burma, by J. Bertrand Mendis, Programme Officer (Water Supply & Sanitation); Dr. Ko Gyi, Senior Adviser to the UNICEF Representative, UNICEF, Rangoon, Burma. (Annex B9)

2. Country Report on Water Supply and Environmental Sanitation in Indonesia, by M. Akhter, Programme Co-ordinator, Water, UNICEF, Jakarta, Indonesia. (Annex B10)

3. Country Paper on Water and Sanitation Activities in the Socialist Republic of Vietnam, by Leo Goulet, Water Supply Officer, UNICEF, Vietnam. (Annex B11)

4. Evaluation of Rural Water Supply Projects in Thailand: Rural Water Supply Planning Sub-Committee, National Economic and Social Development Board in Co-operation with United Nations Children's Fund, prepared by National Institute of Development Administration, September 1978. (Annex B12)

5. Country Report on Water Supply and Sanitation in the Philippines, by Abdul Awal, Rural Water Adviser, UNICEF, Manila, Philippines. (Annex B13)

6. Country Report for UNICEF Regional Water and Sanitation Workshop (Ubol Ratchathanee Province, Thailand), Malaysia. (Annex B14)

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7. Country Report on Water and Sanitation Workshop in Bangladesh, by Kenneth R. Gibbs, Project Officer (Chief, Water and Sanitation) UNICEF, Dacca, Bangladesh. (Annex B15)

8. Country Paper for Water & Environmental Sanitation Programme in the Islamic Republic of Pakistan, by Michel C. Nowacki, Project Officer (Co-ordinator, Water & Sanitation), UNICEF, Islamabad, Pakistan. (Annex B16)

9. Country Report on Water and Sanitation Workshop in Vientiane, Laos, by Anthony Griffith, Assistant Project Officer (Supply and Logistics), UNICEF, Vientiane, Laos. (Anned B17)

Drawing material from the country papers, each author was asked to construct his topic paper under the following headings:

- The State of the Art
- Salient Issues and Trends - World Wide
- Summary of Status in the East Asia & Pakistan Region
- Issues for the Workshop and Guidelines for Discussions
- Summary of Country Papers (Constraints & Solutions)

At the Workshop, the papers were supplied to the participants ahead of time and the author was asked to open the topic by an informal summary of his paper, drawing special attention to the discussion guides which he had prepared and which were distributed to the participants. The plenary group was then invited by a "Moderator" to seek clarification following the presentation.

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The Workshop then divided into four balanced discussion groups and under the guidance of a "Group Leader" and a "Rapporteur" (appointed for each topic by each group) examined the topic in detail. Each group's deliberations were then presented to a plenary meeting.

The presentations were illustrated through transparencies on an overhead projector. There were four projectors, so that it was possible for the summaries of each group to be considered side-by-side. The range of similarities and differences in the material presented by the groups was pulled together by the "Synthesiser", who assisted the moderator in the open discussion that followed the group presentations. Moderators, Group Leaders, Rapporteurs, and Synthesisers met with the "Organizers" to prepare final topic summaries which were subsequently provided to the participants. At a final session the summaries were modified and endorsed. Moderators, Group Leaders, Rapporteurs and Synthesisers were each provided with a guide to their roles (Annex B26). In addition to the topic plenary and group discussion sessions, the Workshop included:

Technology and Sanitation "Clinics"

- Time set aside for presentations around subject matter of particular interest to participants (see Annexes AL-7)

- Exchanges around field problems (plus many ad-hoc informal gatherings)

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. An evening meeting with films provided by the participants from the Japanese Organization for International Co-operation in Family Planning (JOICFP).

Presentation by: Mr. Tameyoshi Katagiri, Director, JOICFP. The films were:

- Community Development in West Sumatra (Indonesia)
- Parasites
- "Our Village, Our Future" (Philippines)

(see Annex B18)

Field Trips

The participants divided into three groups and a full day's programme was organized to:

- Nong Hai, Baan Daeng
- Don Do and Do[illegible] Pawk
- Refugee Centre (Ubol Ratchathanee Province)

Field trip notes (Annex B19) were provided as background material for each field location and the groups were given a preparatory briefing. Discussion guides (Annex B19) were provided for each group, and the field trips were the subject of full group discussion and plenary sessions the following day. Some of the field personnel were invited and attended the discussion sessions.

Films

A series of films were screened in order to add material for discussion. A set of notes and an illustrative guide

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to demonstrate what kind of issues and material can be extrapolated from films was provided. (Annex B20)

1. Water Means Life
2. Patel Ganga
3. Hidden Treasures
4. Water For All
5. A New Change (Vietnam)
6. Journey for Survival
7. Water is Our Only Hope

Displays

Sets of photographs and some models were displayed, illustrating various aspects of water and sanitation projects and technologies.

The Workshop was inaugurated with opening addresses:

- People, Water, Sanitation, People Mrs. Memet Tanumidjaja, Regional Director, UNICEF-EAPRO, Bangkok, Thailand. (Annex B1)

- Water, Sanitation and Social Planning, Mr. Vira Osatanon, Deputy Secretary-General, National Economic & Social Development Board, Bangkok, Thailand. (Annex B2)

- Water, Sanitation and Primary Health Care, Dr. Amorn Nontasut, Director-General, Department of Health Ministry of Public Health, Bangkok, Thailand. (Annex B22)

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- The International Drinking Water Supply and Sanitation Decade and the United Nations Co-operative Action

  Mr. Paul J. Biron, Senior Programme Officer, Drinking Water Programmes, UNICEF, New York. (Annex B25)

- The UN International Drinking Water and Sanitation Decade, Dr. Peter Bourne, Assistant Secretary-General & Co-Ordinator, International Drinking Water Supply & Sanitation Decade, UNDP, United Nations Plaza, New York. (Annex B23)

- Welcome to Ubol Ratchathanee Province, Dr. Yanyong Pootrakook, Provincial Chief Medical Officer, Ubol Ratchathanee.

- A telegram of greetings from Mr. Martin Beyer, Senior Adviser (Water Programmes), UNICEF, New York. (Annex B24).

An evaluation of the Workshop was prepared by Mr. Cecilio Adorna, Annex B21. The completed evaluation forms were collated, reviewed and presented back to the plenary group by Ms. Muriel Glasgow, and a report written on the findings.

Each discussion group gave a final appreciation of the Workshop and acknowledged thanks to the UNICEF organizers and especially to the great friendship and hospitality of their Thai hosts; the Lao and Vietnamese participants expressed their particular pleasure in being present at the Workshop, thanked UNICEF, emphasized their gratitude to their Thai neighbours and hoped the Workshop would lead to mutual visits and further exchanges.

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REGIONAL WATER & ENVIRONMENTAL SANITATION WORKSHOP

12-20 January 1981
Ubol Ratchathanee

A G E N D A

Sunday 11 January

2.00 - 4.30	.	Administrative facilities available at Viengtai Hotel. (Kindly fill out all forms, Receive Welcome Kit, Agenda, TOT materials, Interlinkages Community paper; field visit background papers; topics to be discussed at technology clinics.)
5.00	.	Pick up at Viengtai Hotel for transport to Scandlen's (108/1 Wireless Road; Tel. 2510789) (Dress: Sportshirts, etc.)
5.30 - 9.00	.	Informal party at Scandlen's (Collection of completed travel forms for consultation with UNICEF Admin. Section for return travel arrangements).
9.00	.	Return to hotel, pack, check out for early departure in the morning

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Monday 12 January

7.00	.	Pick up at Viengtai Hotel; Bangkok (all baggages will be taken to the UNICEF office)
7.30 - 9.00	.	Administrative Arrangements at UNICEF office, 19 Phra Atit Road; 5th Floor.
9.00	.	Depart from UNICEF for Don Muang Airport
11.00	.	Depart Bangkok (Don Muang Airport) for Ubol via TH-234
12.45 - 2.00	.	Arrival Ubol; Transfer to hotel, Check in: Pratoomratana Hotel Individual Lunches
2.00 - 3.00	.	Registration of participants
3.00 - 3.30	.	Organizer's Meeting
3.30	.	OPENING CEREMONY

- UNICEF Address by
  Mrs. Titi Memet
  Regional Director
  East Asia & Pakistan Regional Office

- Royal Government of Thailand
  Mr. Vira Osatananda
  Deputy Secretary General
  National Economic & Social Development Board

  Dr. Amorn Nondasuta
  Director-General
  Department of Health
  Ministry of Public Health

- Welcome Address

  His Excellency the Governor of Ubol Ratchathanee

7.00 - 9.00	.	Traditional Northeastern Dinner and Culture Show

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Tuesday 13 January

8.00 - 8.30	.	ORGANIZERS' MEETING
8.30 - 9.00	.	INTRODUCTION to the Workshop and Method of Work (Guy Scandlen)
9.00 - 10.30	.	PRESENTATION The International Drinking Water Supply and Sanitation Decade; the U.N. Co-operative Action (Peter Bourne/Paul Biron)
10.30 - 10.45	.	Coffee
10.45 - 11.15	.	PLENARY Interlinkages Implied by Water and Sanitation Programmes (Lay Maung)
11.15 - 12.30	.	GROUP DISCUSSION (Guidelines will be presented during Plenary)
12.30 - 2.00	.	Lunch Break
2.00 - 3.30	.	PLENARY Group Discussions/Conclusions
3.30 - 3.45	.	Coffee
3.45 - 4.15	.	PLENARY Community Involvement in Water and Sanitatio (Nestor Pestelos)
4.15 - 5.30	.	GROUP DISCUSSIONS (Guidelines will be presented during Plenary
5.30 - 7.00	.	PLENARY Group Discussions/Conclusions
7.30 - 9.00	.	Dinner

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Wednesday 14 January

8.00 - 8.30	.	ORGANIZERS' MEETING
8.30 - 9.30	.	Briefing for field visit (David Drucker)
9.30 -	.	Field visits to selected UNICEF-assisted Projects and Refugee Camp (in three separate groups)
	.	Lunch en Route

Thursday 15 January

8.00 - 8.30	.	ORGANIZERS' MEETING
8.30 - 9.30	.	GROUP DISCUSSIONS on field trip
9.30 - 10.45	.	PLENARY GROUP DISCUSSIONS/CONCLUSIONS
10.45 - 11.00	.	Coffee
11.00 - 12.00	.	GROUND WATER INVESTIGATION AND DEVELOPMENT Vachi Ramnarong
12.00 - 1.30	.	Lunch Break
1.30 - 3.30	.	DRILLING Per Engebek/Tadeusz Ciurzynski/Abdul Awal
3.30 - 3.45	.	Coffee
3.45 - 5.15	.	The Role of FERRO cement in the Water Decade Pichai Nimityongskul/Wahyu Widodo
7.00 - 8.30	.	Presentation: JOICFP PROJECT (with film showing) Tameyoshi Katagiri/Masamitsu Yamaguchi Venue: Pratoomrat Hotel, 6th Floor.

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Friday 16 January

8.00 - 8.30	.	ORGANISERS' MEETING
8.30 - 9.30	.	PLENARY (Community Participation (continued)) Nestor Pestelos
9.30 - 9.45	.	Coffee break
9.45 - 11.00	.	GROUP DISCUSSIONS (Guidelines will be presented in the plenary session)
11.00 - 12.00	.	PLENARY (Group Discussions/Conclusions)
12.00 - 14.00	.	Lunch Break
14.00 - 15.00	.	PLENARY MAINTENANCE (Abdul Awal)
15.00 - 16.30	.	GROUP DISCUSSIONS
16.30 - 17.30	.	PLENARY (Group Discussion/Conclusions)

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REVISED AGENDA

Saturday 17 January

8.00 - 8.30	.	ORGANIZERS' MEETING
8.30 - 9.30	.	PLENARY Sanitation (Margarita Cardenas)
9.30 - 12.15	.	TECHNOLOGY CLINIC - SANITATION
9.30 - 10.00	.	Introduction (Leo Goulet)
10.00 - 10.15	.	COFFEE
10.15 - 11.15	.	The Viet Nam Experience (Pham The)
11.15 - 11.45	.	The Thailand Experience (Chit Chaiwong)
11.45 - 12.15	.	The Patna, India, Experience (Leo Goulet)
12.15 - 1.45	.	LUNCH
1.45 - 3.45	.	QUESTION & ANSWER PERIOD Questions produced through group discussion
3.45 - 4.00	.	COFFEE
4.00 - 5.00	.	PLENARY Summary of the Question & Answer Period.

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Sunday 18 January

8.00 - 8.30	.	ORGANIZERS' MEETING
8.30 - 10.00	.	PLENARY Monitoring and Evaluation (Cecilio L. Adorna)
10.00 - 11.15	.	GROUP DISCUSSIONS
11.15 - 11.30	.	Coffee
11.30 - 1.00	.	PLENARY Group Discussions/Conclusions
1.00 - 3.00	.	Lunch
3.00 - 6.00	.	Technology Clinic (small groups)

Monday 19 January

8.00 - 8.30	.	ORGANIZERS' MEETING
8.30 - 9.00	.	PLENARY Manpower, Development and Training (Guy Scandler
9.00 - 10.00	.	GROUP DISCUSSIONS
10.00 - 10.15	.	Coffee
10.15 - 11.30	.	GROUP DISCUSSIONS (Continues)
11.30 - 1.00	.	Lunch
1.00 - 2.15	.	PLENARY Group Discussions/Conclusions
2.15	.	Secretarial staff prepares interim report

Tuesday 20 January

10.00 - 12.00	.	PLENARY SUMMARY DISCUSSIONS
12.00 - 2.00	.	Lunch !
2.00 - 4.00	.	SUMMARY DISCUSSIONS (Continues)
7.45	.	Depart for Bangkok via overnight train

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REGIONAL WATER & SANITATION WORKSHOP

Ubol Ratchathanee, Thailand
12-20 January 1981

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Organizers' Vantage

WHAT DID WE LEARN FROM THE EVALUATION AND THE WORKSHOP EXPERIENCE?

While the Workshop is over and the participants are gone, more workshops are surely to come. If you are likely to organize one of these future workshops, then this commentary is addressed to you. It talks about what we as organizers of this Workshop have learned from the Workshop process and its evaluation.

The Workshop Report is a valuable document. While the materia is clearly a "work in progress" it offers some framework in building community participation in the various stages of water and sanitation programme planning and development. Practitioners will find much use for it and in doing so much room for improvement. The Workshop participants have made a significant step towards producing the materials for the Programmer's Guide.

The story of how this document was put together in both interesting and valuable. It provides insights into the difficulties the Workshop went through and the structural factors that led to these difficulties.

Before going into the discussion of the actual Workshop, a brief distinction needs to be made among workshop and other fora as they relate to Workshop goals.

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What is a Workshop?

The distinction of workshops from other fora such as meetings and seminars goes beyond terminology. These various gatherings have defined objectives and processes that are distinct from each other.

A Workshop primarily aims at the development of a product or products. Its process, as the name implies, involves substantial work, whether it be pencil-pushing or physical product development. While it is not easy to use the term "product" for non-physical outputs, one can conceive of contemporary workshop products such as guidelines for a country programme for children development, a programmer's guide for water and sanitation or a revised primary education curriculum, to cite a few.

In contrast, educational objectives and sometimes simple awareness and affective purposes constitute the sine qua non of fora such as meetings and seminars. The process can vary from a peer sharing of knowledge and experiences to a teacher-student learning relationship.

Often, in current practice, workshops bring together these various objectives and processes. This is desirable in a case where educational gains are necessary inputs to product objectives. There would be times, however, when both educational and product objectives are ends in themselves. While this is feasible and at times what is called for, especially when a project is at initiation stage, the scope of the Workshop becomes understandably wide. Success is

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heavily dependent on careful and thorough planning. Management is difficult and the need for much trouble shooting can be expected.

The Workshop in Ubol is a case in point. Few, if any, will argue against the relevance and usefulness of the objectives set for this Workshop, which are: (1) to examine how to make water and sanitation system more responsive to communities' needs, (2) to identify common problems in water supply and sanitation issues and to share experiences on various approaches used in solving the problems; and (3) to examine the interlinkages of basic services for children with water and sanitation.

During the Workshop, the structural problem inherent in these objectives was readily felt. This was the problem of defining the character of the gathering. Clearly, these objectives have elements of learning as well as "product" development. However, the educational purposes were not seen as input to product objectives in this Workshop, but were ends in themselves. This duality permeated the whole Workshop and exacted difficulties in drawing up guide questions for group discussions, in deciding whether there will be a plenary presentation by an expert to introduce the session, defining the direction of the plenary discussions, and in drafting the report.

The evaluation of the Workshop results shown in the attachment supports this observation.

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To questions regarding the extent of objectives met, the following responses were obtained:

A. To examine how to make water and sanitation system more responsive to communities' needs.

largely met	xxxxxxxxxxxxxxxxxxxxxxxxxx	27
little of it met	xxx	3
fully met	xxxxxx	6
not met at all		-
no answer	x	1

B. To identify common problems in water supply and sanitation issues and to share experiences on various approaches used in solving the problems.

largely met	xxxxxxxxxxxxxxxxxxxxxxxx	24
little of it met	xxxxxxxxx	9
fully met	xx	2
not met at all		-
no answer	xx	2

C. To examine the interlinkages of basic service for children with water and sanitation.

little of it met	xxxxxxxxxxxxxxx	15
largely met	xxxxxxxxxxxxx	13
fully met	xxxx	4
not met at all	xx	2
no answer	xxx	3

Although remaining a minority, it is interesting to note that there is a sizable group of participants who thought that the Workshop achieved little relative to one or two of its objectives.

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At this point we can surmise that these participants were looking beyond the educational gains and expected that "products" useful in field operations would be developed in the Workshop. This is, in fact, expressed by some participants in informal discussion during the Workshop. It was further reinforced by some participants who commented in their evaluation sheets that the Workshop was a bit too academic.

Furthermore, one easily notices in page 103, that this particular group of participants who felt that the Workshop achieved little relative to some of its objectives was small vis-a-vis objective (A), became larger vis-a-vis objective (B), and became a majority vis-a-vis (C). Participants will remember that discussions in (A) led to the development of a product, that is, the operational steps in building community participation in planning, implementing and monitoring and evaluating water and sanitation programmes; (B) had a fair amount of both learning and product focus, while (C) had more of learning than product orientation.

Workshop and Need

During the Workshop we realized that discussing issues related to these three objectives merely constituted a step towards meeting a real and urgent need of the sector. This need as said earlier is the programmer's guide for water and sanitation programmes. While drafting the Workshop report, we attempted to extract out of the proceedings relevant inputs for this programmer' guide. Indeed there was much, but not sufficiently precise material to develop a programmer's guide. We decided to call the document "towards" a programmer's guide.

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What the experience seems to suggest is the necessity for organizers to review very carefully why indeed people have to meet. The Organizing Committee must always include members with a balanced view of the sector and its "product" needs.

Designing the Workshop

Having drawn the real product need of the sector in question, an organizer then asks himself, one basic question: If I wanted these "products" developed by x time how do I structure this Workshop to yield these products at minimum cost? Who are the most capable people that we can enlist for this Workshop? What background materials need to be made available? And so on ...

That is the ideal.

Our Workshop in Ubol started with a number of givens. It is a regional Workshop involving an International Organization which by its nature needs to bring together diverse groups of people and institutions. It requires governments' involvement, it should have this and that and the litany goes on. A Workshop designed in such conditions require extraordinary skills to achieve its tasks. It might be said here that such skills were amply displayed in mounting this particular Workshop.

It is important to assign proper labels to gatherings aimed at particular objectives. Promotional activities should not automatically become workshops. How workshops come to be so fashionable remains an interesting puzzle. Of course one is entitled to say that we as organizers have adopted the fashion as well.

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In the attachment the reader easily notices two distinct observations of the Workshop. This seems to be odd since a workshop should draw people of fairly related and complementary 'production capacities' and background, conducive to a team effort to develop 'products'. In the Workshop, we found a good deal of mixture - language, culture, work, need, public exposure, and associations - requiring enormous extra effort on everybody's part to encourage participation and maximize workshop output. This additional tasks added on to the otherwise full workshop agenda.

In Doing Evaluation

Reviewing the evaluation tool used in this Workshop and the responses it elicited, we are tempted to say that asking about the appropriateness of the size of participants, duration and other attributes do not seem to have been meaningful after all. That is because, the proper framework has not been provided for such questions to be meaningfully answered. In other words, the criteria for evaluating a particular attribute of the Workshop goes back to the workshop objectives which in this case have a built in duality and generates different interpretation.

It is also evident that Part I questions on feeling regarding the Workshops are giveaways and should therefore be taken with a grain of salt.

Lastly, this evaluation experience points to one well recognized relationship between objectives and evaluation. Much of the interpretational difficulties in the evaluation results are traceable to the dual nature of the objectives set for this Workshop.

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Looking Back at the Workshop

Despite all these difficulties, the participants and the organizers were united in a common goal to achieve the best in those circumstances. As has been described earlier, some guide questions were recast and some sessions changed their nature and these steps proved of great value.

While the agenda was full, the participants cooperated and worked beyond the Workshop schedules. The French speaking delegates often grasped and digested after-session thoughts during the evenings. Other colleagues worked well into the night doing their homework, be it reading, summarizing or preparing to present papers.

The Workshop was largely participatory; but it was never mechanical in its interpretation of participation. The organizers intervened moderately but decisively throughout the Workshop. On their part, the participants did not only contribute to group and plenary discussions but also shared moderating, recording, synthesizing and workshop management tasks.

Lastly, the participants, who were largely practitioners, openly expressed their realization that in fact key issues like community participation are not being satisfactorily addressed in action in the region. To what extent this realization will translate into remedial action remains to be seem, but the Workshop has clearly achieved one step towards it.

ATTACHMENT

THE REGIONAL WATER & ENVIRONMENTAL SANITATION WORKSHOP

12 - 20 January 1981

Ubol Ratchathanee, Thailand

WHAT DO PARTICIPANTS SAY?

The results of the participant self-rating of this Workshop is presented in this Annex in two parts. Part I contains the answers that lend to tabulation while Part II deals with those requiring some treatment. Some 37 participants returned the evaluation forms.

PART I

I. What is your feeling about the workshop?

A.	it's okay	xxxxxxxxxxxxxxxxxxxxxx	23
	happy	xxxxxxxxxxxxx	14
	bored		
	its just one of those		

B.	very useful to have come	xxxxxxxxxxxxxxxxxxxxxxx	24
	so, so	xxxxxxxx	8
	indifferent	x	1
	no answer	xxxx	4

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II. Column A below is a listing of the objectives of this workshop. Describe the extent these objectives were met.

A. To examine how to make water and sanitation system more responsive to communities' needs.

largely met	xxxxxxxxxxxxxxxxxxxxxxxxxxx	27
little of it met	xxx	3
fully met	xxxxxx	6
not met at all		-
no answer	x	1

B. To identify common problems in water supply and sanitation issues and to share experiences on various approaches used in solving the problems.

largely met	xxxxxxxxxxxxxxxxxxxxxxxx	24
little of it met	xxxxxxxxx	9
fully met	xx	2
not met at all		-
no answer	xx	2

C. To examine the interlinkages of basic service for children with water and sanitation.

little of it met	xxxxxxxxxxxxxxx	15
largely met	xxxxxxxxxxxxx	13
fully met	xxxx	4
not met at all	xx	2
no answer	xxx	3

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D. Average frequency distribution for all three objectives.

largely met	xxxxxxxxxxxxxxxxxxxx	21
little of it	xxxxxxxxxx	10
fully met	xxx	3
not met at all	x	1
no answers	xx	2

III. Describe your feeling to the following subjects.

A. Workshop Duration

adequate	xxxxxxxxxxxxxxxxxxxx	21
short	xxxxx	5
long	xxxxx	5
too short	xxx	3
too long	xx	2
no answer	x	1

B. Discipline

sufficient	xxxxxxxxxxxxxxxxxxxxxxxxxxxx	28
strict	xxx	3
lax	xx	2
too flexible	xx	2
too inflexible		-
no answer	xx	2

C. Documents

just enough reading	xxxxxxxxxxxxxxxxxxxxxxxxx	26
reading quite heavy	xxxxx	5
too much reading	xxx	3
little reading	xx	2
too little reading		-
no answer	x	1

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D. Level of Participant Involvement in Group Discussion, Plenary and other Workshop Tasks.

adequate	xxxxxxxxxxxxxxxxxxxx	21
high	xxxxxxx	7
little	xxxxx	5
very high	xx	2
very insignificant		-
no answer	xx	2

E. Workshop Topics

useful	xxxxxxxxxxxxxxxxxxxxxxxxxxx	27
highly useful	xxxxxxxxx	9
not useful		-
of little use		-
no answer	x	1

F. Degree of Administrative Support

very smooth	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	31
just adequate	xxxxx	5
crippling		-
not adequate		-
no answer	x	1

G. Number of Participants

appropriate	xxxxxxxxxxxxxxxxxxxxxxxxxxx	28
too big	xxxxx	5
a little bigger than it should be	xxx	3
too small		-
smaller than appropriate		-
no answer		1

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H. Mix of Participants

appropriate	xxxxxxxxxxxxxxxxxxxx	21
just okay	xxxxxxxxx	9
inappropriate	xxx	3
matches fully the objective	xx	2
very inappropriate		-
no answer	xx	2

IV. The evaluation asked the participants to evaluate the degree of clarity, extent of knowledge and the practical value of their knowledge in two major workshop subject areas, namely, technology of rural water supply and sanitation, and community participation, before and after the workshop. The following tabulation describes the results.

A. Community Participation

Clarity

no change	xxxxxxxxxxxxxxxxxxx	19
improved	xxxxxxxxxxxxxxxx	16
worsened		-
no answer	xx	2

Extent of Knowledge

no change	xxxxxxxxxxxxxxxxxx	18
improved	xxxxxxxxxxxxxxxxxx	18
worsened		-
no answer	x	1

Practical Value

no change	xxxxxxxxxxxxxxxxxxxx	20
improved	xxxxxxxxxxxxxxxx	16
worsened		-
no answer	x	1

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B. Technical Aspects of Rural Water and Sanitation

Clarity

no change	xxxxxxxxxxxxxxxxxxxxxxxxxx	27
improved	xxxxxxxx	8
worsened		-
no answer	xx	2

Extent of Knowledge

no change	xxxxxxxxxxxxxxxxxxxxxxxx	24
improved	xxxxxxxxx	9
worsened		-
no answer	xxxx	4

Practical Value

no change	xxxxxxxxxxxxxxxxxxxxxxxxx	26
improved	xxxxxxxxxx	10
worsened		-
no answer	x	1

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PART II

Information Gained

It is not meaningful to list here all of these new information gained, but it is useful to highlight the few which seem to run thorugh most of the replies. These are information on : (a) double septic bin latrine; (b) ferrocement; (c) monitoring and evaluation; (d) community participation, strategies and techniques; (e) water decade, the policies; (f) UNICEF's work (very useful in organizing priorities); and (g) country experience in water supply and sanitation in general.

Areas Requiring Further Information

From questions and discussions, it appears that additional information would benefit the following subject areas:

Water	Sanitation
Small scale water supplies and cost	Waste disposal systems
Horizontal Drilling	Flooding and sanitation (problems incurred)
Construction of water tanks	Double septic bin latrine
Water in contaminated over burden	State of the Art of sanitation and its application in this region
Tubewell/handpump development	Sanitary latrines
PVC pumps (performance analysis)	Types of pit latrines
Rectangular roof tanks	Pollution of pit latrines
	The role of teacher and school in sanitation

Appropriate Technology	Other Areas
Biogas (Chinese)	Linkages of water and sanitation with other strategies
Solar energy (photovoltaic cells) for pumping water	Practical mechnisms in developing community participation
Food storage techniques	Hydrological maps
Use of local materials to replace ferrocement steel	Monitoring and evaluation (Philippine experience)
Ferrocement	Health education techniques
Appropriate technology in sanitation	Social acceptance of handpump improvements
	Dominant characteristics of behaviour patterns (cross cultural and country specific)
	Relation of health to sanitation
	Logistics management (especially in mountainous areas)

One participant went further to suggest names of UNICEF staff who could possible act as resource persons in specific areas. This could only be surmised as an expression of the need for setting up a regional water supply and sanitation knowledge network.

Suggestions -- For workshops of similar intent the participants suggested the (1) use of case studies; (2) the provision of more free time; (3) the allocation of more time for community participation in water and sanitation. They recommend the wide circulation of the workshop report and consideration for separate workshops for technicians, policy-makers and UNICEF staff.

Follow-Up -- The participants went beyond the workshop and suggested the following actions for government, UNICEF and other concerned entities:

Government

Increase co-ordination among agencies working/concerned in water and sanitation

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Share report of workshop with colleagues in other departments

Review present Water/Sanitation programmes in relation to Water Decade

Develop sanitation code

Expose more personnel to UNICEF's work

Establish "how-to" guidelines in Monitoring and Evaluation
Strengthen health education

Increase sanitation activities in Primary Health Care

Reassess and intensify community participation

Organize workshops for planners and implementors

UNICEF

Increase advocacy on the importance of water and sanitation programme

Explore community participation approaches, develop guidelines on community participation

Follow-up water and sanitation workshops at country level

Establish knowledge network

Increase budget in sanitation

Follow-up on workshop recommendations

Arrange study tours

Assist in research/development activities

Increase knowledge/skills of national officers

Share information on all workshops held

Distribute workshop reports widely (include UN agencies, especially UNEP)

Provide more supply and logistic support

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Other Entities

UNEP	involve itself more in water resources protection and sanitation
UNDP	assist training of manpower
WHO	provide more technology assistance

A N N E X E S

1. GROUND WATER RESOURCES INVESTIGATION AND DEVELOPMENT
2. METHODS UNCONSOLIDATED ROCKS
3. ROLE OF FERROCEMENT IN THE WATER DECADE
4. A CASE OF TCDC: LOW COST WELL DRILLING
   Technology Clinic on Sanitation
5. THE THAILAND EXPERIENCE
6. THE PATNA (INDIA) EXPERIENCE
7. THE VIETNAM EXPERIENCE

LIST OF ANNEXES AVAILABLE

BIBLIOGRAPHY

Annex A1

GROUND WATER RESOURCES INVESTIGATION AND DEVELOPMENT

Ground water development in Thailand was started in 1914 by the private sector, but the government's programme was begun in 1955 with the collaboration of N.S.G.S. in the Northeastern region, where shortage of water has been pronounced as critical. The objective of the programme was to search for potable ground water for rural supply. The initial stages of the work consisted mainly of the geological survey, test drilling well logging, pumping tests, and water quality analysis. The assistance of USGS ended in 1961, when 411 boreholes had been drilled. Of these figures, 320 boreholes were developed for production wells and were used for village water supply. Since 1961, the ground water resources development programme has been carried out by the Thai staff and the Thai government budget; it was expanded to cover the cutire country since 1965. At the end of 1980, about 17,000 wells will have been drilled throughout the country, with 11,000 wells in the Northeast.

The ground water resources development programme aimed at provision of clean water to rural communities throughout the country has been included in the National Economic Development Plan since 1964. The project objective is to produce sufficient sources of both surface and ground water for domestic consumption in all villages of the country. To meet this goal, at least 50,000 wells have to be drilled for 30,000 communities. Up to now, only about 17,000 wells have been completed. To accelerate this plan, sufficient financial support has been set aside from the beginning in 1981, and included in the Fifth National Economic Development Plan.

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Ground water in Thailand is usually of the artesian type and is mainly recharged by rainfall and influent seepage from streams. Ground water-bearing rocks are divided into 2 groups:

(1) Ground water in unconsolidated rocks, e.g., alluvial deposits of sand and gravel buried channels. Alluviums are far the best aquifers in both quantity and quality.

(2) Ground water in consolidated rocks, i.e., sedimentary, metasedimentary, metamorphic and volcanic rocks. Ground water occurs only in cracks, joints, bedding planes and other fracture systems. The quantity of water from these rocks depends largely on the size, shape and continuity of the fractures. Therefore, the geophysical survey to locate the depth, and size of the fractures is important.

In areas where there is no hydrogeological informations, surface investigation is of prime importance before drilling. Surface investigation includes:

- geological survey, i.e., geological mapping, airphoto interpretation;
- hydrological survey, i.e., inventory of shallow and deep wells existing in the area, surveying of surface water bodies, collecting of rainfall data;
- geophysical survey, i.e., resistivity and seismic surveys, magnetic survey.

Of all surface geophysical methods, the electrical resistivity method has been applied most widely for ground water investigations because of portable equipment and easy operation facilitate rapid measurements. The method is often helpful in planning efficient and economical drilling programmes.

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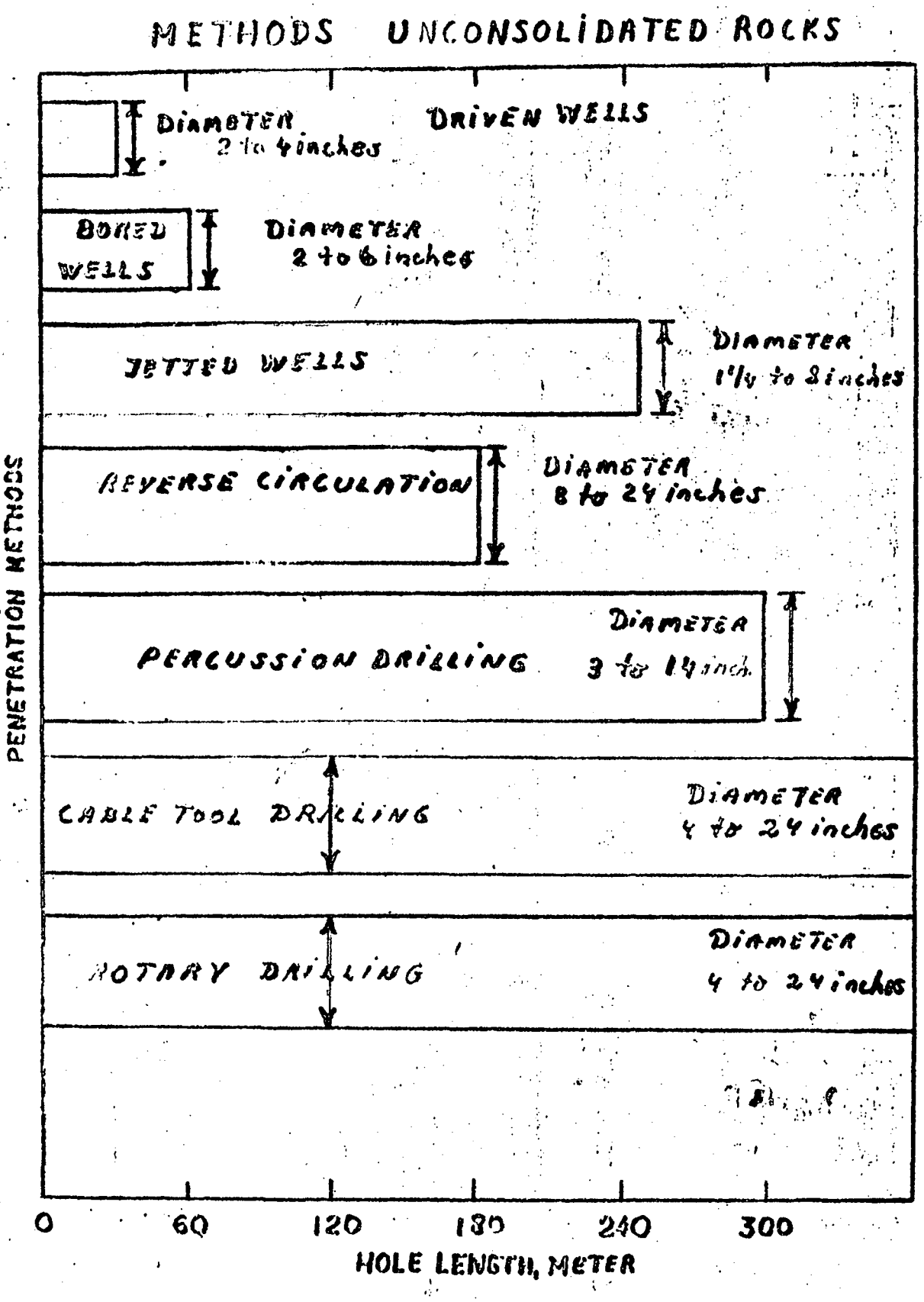
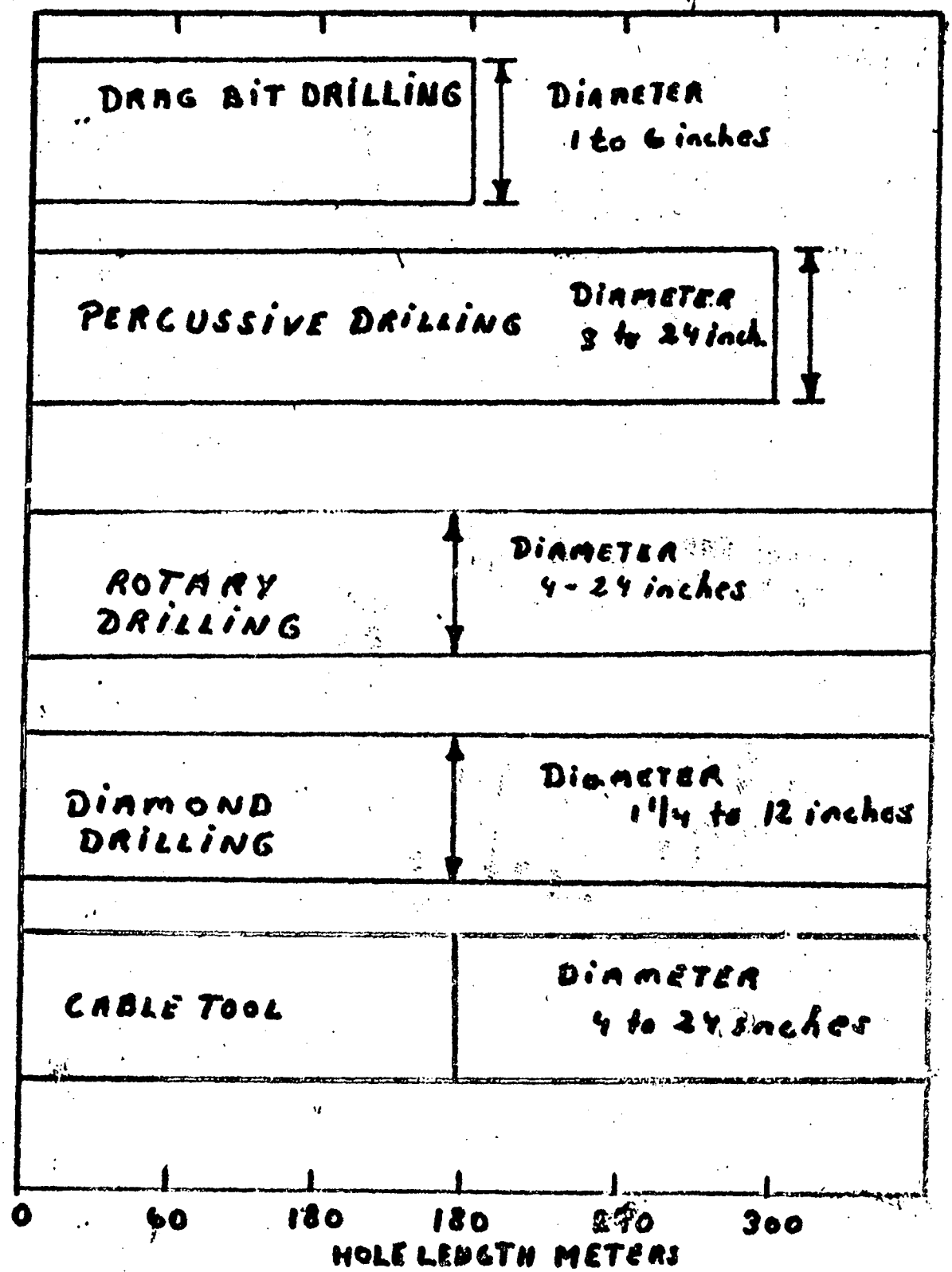
Data from surface and subsurface investigations is kept in systematic ways. The results of investigations are put on the hydrogeological map at a scale of 1 : 500,000. The hydrogeological map illustrates the geology in patterns and the ground water availability and quality in colours. Piezometric levels are shown in contour lines and wells yielding more than 50 m^3/h. are shown on the map. The hydrogeological map is very important for planning a groundwater development.

Previous groundwater investigations were mostly preliminary and the results qualitative. Information gained was not sufficient for proper planning of extensive development and management of the grounwater resources. The Department of Mineral Resources, through its Ground Water Division, proceeds further towards quantitative approaches. Modern techniques on groundwater basin simulation by mathematical models are applied in the Bangkok aquifers where pumping of groundwater is very heavy because of municipal and industrial needs.

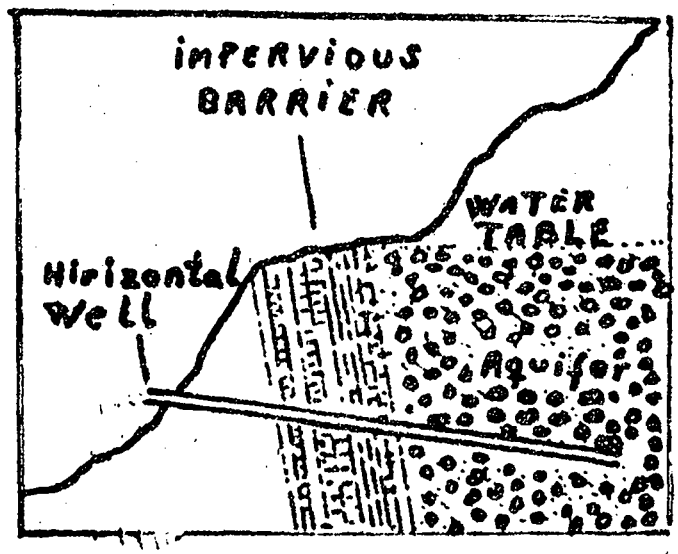
A rapid decline of groundwater levels by 2-3 meters has resulted in sea water intrusion into the fresh aquifers, and land subsidence in the Bangkok area. The results of the management study of the grounwater resources project in Bangkok, a joint venture 4-year project (1977-1981) between The Asian Institute of Technology and the Department of Mineral Resources, will lead to proper planning of the extraction of groundwater in Bangkok.


METHODS UNCONSOLIDATED ROCKS
DRIVEN WELLS
DIAMETER 2 to 4 inches
BORED WELLS
DIAMETER 2 to 6 inches
JETTED WELLS
DIAMETER 1 1/4 to 2 inches
REVERSE CIRCULATION
DIAMETER 8 to 24 inches
PERCUSSION DRILLING
DIAMETER 3 to 14 inch.
CABLE TOOL DRILLING
DIAMETER 4 to 24 inches
ROTARY DRILLING
DIAMETER 4 to 24 inches
PENETRATION METHODS
0
60
120
180
240
300
HOLE LENGTH, METER

METHODS CONSOLIDATED ROCKS



DIKE SPRING FORMATION IN HILLSIDE



CONTACT SPRING W/SEEP AREA.

Annex A3

ROLE OF FERROCEMENT IN THE WATER DECADE

A REPORT PRESENTED AT

THE REGIONAL WATER AND SANITATION WORKSHOP

UBOL RATCHATHANEE, THAILAND

12-20 JANUARY 1981

BY

PICHAI NIMITYONGSKUL

ASIAN INSTITUTE OF TECHNOLOGY

INTRODUCTION

According to the report of the United Nations on International Drinking Water Supply and the Sanitation Decade, the number of people to be reached between 1981-1990 in the Asian and Pacific region with regard to water supply is approximately 1,128 million people. Without proper management of water, this goal could hardly be achieved. Ferrocement being a versatile construction material, it is considered as one of the basic tools in the provision of water to the people living in both urban and rural areas.

DEFINITION OF FERROCEMENT

Ferrocement is a highly versatile form of reinforced concrete made of wire mesh, sand, water and cement, which possesses unique qualities of strength and serviceability. It can be constructed with minimum skilled labour and utilizes readily available materials. More technically, the American Concrete Institute (ACI) Committee 549 defines ferrocement as a type of thin-wall reinforced concrete construction, where usually a hydraulic cement is reinforced with layers of continuous and relatively small diameter mesh. This mesh may be made of metallic material or other suitable materials.

ADVANTAGES OF FERROCEMENT

The advantages of ferrocement for application in developing countries are as follows:

(a) Its basic raw materials are readily available in most countries.

(b) It can be fabricated into almost any desired shape.

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(c) The skill for handling ferrocement can be acquired quickly.

(d) Heavy plants and machinery is not involved in ferrocement construction.

(e) In case of damage, it can be repaired easily.

(f) It is relatively inexpensive.

POTENTIAL APPLICATIONS OF FERROCEMENT

Some of the applications of ferrocement which are relevant to the developing countries include boats, water jars and tanks, septic tanks, biogas holders, water pipes and canal linings, well casings, roofing elements, wall panels, and toilet bowls. Among these applications, water storage tanks, working elements for rain catchment areas, pipe lines, canal linings and well casings can be identified as the significant hardware in the Water Decade*

Ferrocement Water Storage Tanks. The shape of ferrocement water storage tanks can be cylindrical, rectangular, conical or irregula The capacity of the tanks range from 0.5-40.0 m^3. The tank is mainly composed of three parts, namely, the base plate, wall, and roof. Results obtained from laboratory and field tests in Thailan India, Singapore, New Zealand and the United States adequately highlight the superb performance and durability of ferrocement water tanks. Factory production and sales of ferrocement tanks o of various capacities also subtantiate results obtained from laboratory studies. The steps in constructing ferrocement water storage** tanks are summarized as follows:-

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*World Health, the Magazine of the World Health Organization, August-September 1980, special coverage on Water Decade 1981-199

**Ferrocement Water Tank, Do it Yourself Series, Booklet Number 2, by P.C. Sharma and V.S. Gopalaratnam, International Ferrocement Information Centre, Bangkok, Thailand.

(1) Design of reinforcement profiles
(2) Preparing the reinforcement gauge
(3) Auxiliary fittings
(4) Mesh lay-up
(5) Mortar mixing and plastering
(6) Curing, inspection, and painting
(7) Mechanisms for handling

Ferrocement Roofing Elements. For rain catchment area, ferrocement folded-plate roofing elements were found to be very useful. Experimental studies* showed that they are stronger, more durable and most competitive when compared with asbestos roofing elements.

Ferrocement Pipes, Canal Linings, and Well Casings. In the rural areas where water is scarce, there is evidently a need to transport water from distant places; sometimes it is necessary to dig wells in order to obtain water. The use of ferrocement pipes, canal linings, and well casings will be introduced as an alternative to the coventional system.

DISSEMINATION OF FERROCEMENT TECHNOLOGY

It is clear that ferrocement could play a significant role in the provision of water to people in the developing countries. The implementation of this concept is a challenging task for everyone concerned. The dissemination of ferrocement technology can be carried out by:

(1) Establishment of Information Centres. As an example, the International Ferrocement Information Centre (IFIC), founded in 1976, is now in operation at the Asian Institute of Technology,

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* "Evaluation of Ferrocement Folded-Plate Roofing Panels" by R. Fernandes, V.S. Gopalaratnam, and P. Nimityongskul, Journal of Ferrocement, Vol. 10, No. 2, April 1980 pp. 69-88.

Bangkok, Thailand. It is anticipated that this type of information centre will be established in all developing countries.

(2) Transfer of Technology. This involves the training of higher-level national staff or trainers. Hopefully these trainers will in turn transfer the knowledge aquired to local skilled craftmen.

One participant introduced a word of caution: "ferrocement involves the use of steel and wire mesh which is not available or very costly in many developing countries. Where granules and quarried stones are available, care should be exercised in using ferrocement; stone masonry and simple Portland cement concrete will be much cheaper. Also, being very thin, the steel mesh will tend to rust and result in leakage and eventual disintegration of the ferrocement tank."

A CASE OF TCDC : Low Cost Well Drilling

1. Bangladesh Experience

- 40,000 shallow well (150'AVE) per year
- use of PVC Pipes/PVC screens
- indigenous method of drilling

2. Philippines Programme

- visit to Bangladesh a teram from NWRC task force on RWS : 1978
- creation of RWDC
- shallow well programme in line with Bangladesh (low cost)
- request for assistance (technical) from Bangladesh
- situation now

3. Technique

- equipments, tools
- man-power
- principle : soil sampling
  : screen/pipe lowering
- improvement done in Philippines
- precautions : mud water circulation
- cost of drilling
- cost of materials

4. Methodology for Propagation

- first training of 3-4 engineers of RWDC
- demonstrations
  participants from relevant agencies
- procurement of materials
  PVC - locally manufactured
  Non - toxic, specification
- follow up/evaluation - MOH
- screen development

.../2

5. Constraints

- soil condition (only about 35% area)
- economic status (US$400 vs US$100)
- lack of awareness about PVC materials in tubewells
- identification of areas before distribution
  (remark of Government Ayhbayani)

6. Conclusions

- should introduce new thing oradually (pilot studies)
- engineers should learn the method
- progress in the Philippines today
- personal satisfaction

.../3

TECHNOLOGY CLINIC ON SANITATION

Introduced and moderated by
LEO GOULET

METHODOLOGY

Following a short introduction to define the aspects of the subject, three presentations were made of current experiences in Vietnam, Thailand and Patna (Bihar, India). The authors subsequently gathered as a panel and answered questions put out to them in written form, to permit their consolidation whenever possible.

INTRODUCTION -- "Close Encounters"

Regardless of race, sex or cultural background, people have an automatic and instinctive aversion for the smell and sight of human body wastes, i.e., the "close encounters of the first kind".

Subsequently, cultural differences become apparent through distinct behaviours. For "Western" societies, sanitary disposal of human wastes from within the dwelling is not objectionable and in fact represents a logical element of comfort.

To other societies, body functions are of a polluting nature and must necessarily be performed away from the home. The ensueing hazards, resulting from the occasional contact

.../4

of human beings with pathogenic organisms and parasites, may represent "close encounters of the second kind".

The instinctive urge to keep away from human wastes - especially from faeces more than from urine - reflects the potential danger to health of such contacts. There are, however, many other major health hazards, particularly/ in industrialized countries, and the term "sanitation" could be defined in such a way as to encompass the entire range of threats to the environment.

In the context of the meeting, the sanitation clinic is to deal with the sanitary disposal of human faeces. The three examples that follow represent an improvement on what existed before, although much remains to be achieved. They help prevent contact with faecal pathogens by the oral-faecal route, the most risky of all contacts, known for this reason as "close encounters of the third kind".

Annex A5

THE THAILAND EXPERIENCE

Introduced by
Chit Chaiwong

SUMMARY

In Thailand, the objective is to provide latrines to each household, and particular efforts are made to educate the community in order to motivate its active participation, while extending due consideration to the economics of the proposed schemes.

A water-seal latrine pan has been designed, that can be made of cement for approximately 35 baht (US$ 1.50). The corresponding pit, lined with concrete rings or bricks, costs approximately 135 baht (US$7.50).

An improved design to produce biogas and fertilizing sludge collects excreta and wastes in a digesting tank (2m x 3m dia) buried in the ground; the sludge overflows through a pressure differential into a vat at just below ground level. In practice the conversion process last 35-40 days, and the estimated cost is approximately $200 for a unit serving the requirements of a family of 6.

For the same size family, a concrete cistern (2m x 2.4m dia) has been designed to store rain water and would also cost approximately $200.

.../2

The main emphasis, however, is on the motivation/education of the community, for which the role of the technologist/communicator is of paramount importance. He must be: Confident - Convince - Committed - Campaign and Complete (the job). These can be represented figuratively by ascending steps of increasing heights, illustrating their growing importance.

Identification of the C O N S T R A I N T S, likewise, could be based on a spelling scale, to act as a reminder:

		Purposes
C for	Concentration/or Consistency	)
O "	Organization/Organizer	)
N "	National Policy	) i.e. Money inputs
S "	Strategy (where a volunteer could be involved and participate)	)) " to involve population)
T "	Training	) " to avoid wastage
R "	Revolving fund	) " to warrant expansion
A "	Acceptance	) " to fit in with tradition
I "	Integration	) " Education, authorities
N "	Needs	) " Identification
T "	Technology	) " Appropriate & simple

Each phase of the dialogue with the community implies some expense, which can be related figuratively in a "formula of five".

.../3

FORMULA OF FIVE

5 Steps	5 Costs
Consult	Trainee (sanitarian)
Recruit	Trainee (craftsman)
Demonstrate	Demonstration material
Loan	Loan (to craftsman)
Loan	Loan (to villager)

The above are English renderings of similar "gimmicks" currently used in the Thai language to attract the attention of the audience and its understanding.

Songs are also relied upon to convey meassages on Health Education and community participation - the past achievements of the programme which resulted in 3 million latrines, 20,000 small water supply schemes (for schools) and the provision of 10,000 rain water cisterns.

The presentation was supported by a number of posters, exhibit of a cement pan, and a slide show illustrating training courses and various implementation phases.

The questions addressing this particular experience during the discussion appear in the Table.

Annex A6

THE PATNA (India) EXPERIENCE

Sulabh Shauchalaya Sansthan
(water-seal conversion latrine)
commonly referred to as S.S.S.

Introduced by Leo Goulet

Note: This low-cost hand flush water-seal latrine is being introduced in some 29 countries of Asia, Africa and Latin America through the World Bank/UNDP Global Project on low-cost technologies.

Summary

In India it is the policy in many states to eliminate the common "bucket" latrines which require periodic emptying, a degrading job for which labour is no longer available. The S.S.S. can also replace various types of latrines presently used, as its design allows for private or public use; it is airtight and watertight, therefore odourless, and converts faeces into a manure (night soil) after six months to one year.

The compact domestic version can be fitted into a confined space, and because of its water-seal, even inside a house.

The cement/mosaic pan discharges through the water-seal into a V-shaped drain leading to a double compartment tank (1.8 x 0.9 x 1.2 m. or less). One compartment is used at a time until full; then the corresponding drain is closed with a plug of soil, while the other drain is opened.

When the excreta have turned into manure, approximately one year later, the compartment is emptied, cleaned, and made ready for use when the second compartment is full.

.../2

The two compartments, separated by a common wall, are buried in the ground, but should project above it to prevent the entry of rain water.

The dividing wall should be waterproof so that water does not percolate from one compartment to the other. The external brick walls of the tank are provided with openings, and the bottom is earth-based so that all the water and gas released during the process may leach easily, and soil bacteria can decompose the excreta.

When the ground is rocky and sandy, the pit should be filled with homogenous soil from 150 cm to about 60-90 cm. below ground.

Each compartment, with a capacity of approximately 0.5 m^3, can contain the excreta of a family of more than 10 members for more than 3 years.

A heavy cover, air and water-tight, is laid on each tank.

When space is limited, the platform with the pan and foot rests can be built over the tank.

Less than 2 litres of water are necessary for flushing, 7 times less than for the usual septic tank.

In support of the presentation, a set of slides showed actual examples of public latrines (in Calcutta) as well as individual ones. The public ones have attendants who clean the individual cabins between users. A small fee is received from those who can afford to pay. Instrutions for proper use are bill posted.

.../3

The discussion revealed that groundwater is generally considered safe if not less than 1.5 m. from the bottom of the excavated pit, i.e., at least 3 metres below surface. While it was generally presumed that night soil from domestic latrines was used as fertilizer for the family gardens or fields, no details were available concerning the public latrines; however, collection and disposal of night soil may well be considered as a revenue towards their capital and maintenance costs.

Annex A7

THE VIETNAM EXPERIENCE

with the
Double Septic Bin (or double vault) Latrine
commonly referred to as D.S.B.

Introduced by
Dr. Pham Thê

SUMMARY

Since 1956, improvement of water supply and sanitation in rural areas has become the main task of the Health Department because:

- Eighty per cent of the population had to be dispersed in rural areas during the many years of war, and backward habits of relieving oneself in the fields, rivers, etc., still prevail.

- various health centres, dispensaries, etc., are overburdened with children and women suffering from intestinal and other diseases, traceable to water and excreta.

Moreover, agriculture needs fertilizers for its development.

To remedy the situation, the Ministry of Health has mobilized the rural population, in order to provide one double septic bin for each family, one dug well and one bathing room for every three families.

.../2

After several years of continued efforts despite the heavy damages sustained during the years of war, it can be concluded that construction of double septic bins provides a satisfactory solution to the treatment of excreta because:

1. the on-the-spot composting disposes of fresh human waste; the double septic bin compartments, alternatively used, produce compost in two months, during which all intestinal disease bacteria(= e.g., Salmonella typhi and para A-B, Shigella shiga, Escher. coli) and 85% of worm eggs are killed.

2. When used correctly - faeces must be covered with a layer of ash after each defecation - and after the proper composting, the latrine will be very clean; it is odourless, as anhydrous sulfide and ammonia are absorbed by the ash.

3. The latrines are an important source of fertilizer, increasing the yield of food production benefitting the population; they provide the equivalent of 2.3 million tons of sulfate fertilizer per year from the North alone.

With its double compartments, the latrine dimensions are =

length	width	height above ground
1.5-1.7 m	1.1-1.2 m	0.6-0.7 m

providing a capacity of 300 litres for each compartment, suitable for a family of 5-10 persons.

.../3

The double septic bin can be built with locally available materials with no need for iron bars and only little cement; e.g. unburnt bricks or silicate bricks (50% lime + 50% broken brick or sand); the floor can be made of bamboo covered with a layer of clay; cement, however, is useful to make the channel leading the urine to a container outside; the shack or hut can be made of bricks, bamboo or straw, easily repaired after typhoons or floods.

If not submerged by water, the construction can last 10 years, and can be built cheaply from local materials over a period of 5 days by the people themselves.

In 1980, there were 4,748,475 such latrines, or one for every 1.8 rural family; in/48 districts (10.3% of the country), the goal of 1 latrine per family has been achieved. The health of the people has been greatly improved, and intestinal diseases in particular have decreased sharply.

The Government has issued instructions to build DSB's, mobilizing the population under the guidance of the People's Committees and the leadership of various organized bodies at all levels (administrations, women and youth unions,co-operatives, mass organizations, etc.) and the support of the health services.

Mass education and motivation campaigns were launched at appropriate times (e.g. after the harvest or rice replanting), for the purpose of changing backward habits in the countryside, with pilot projects followed by demonstration visits. The use of DSB's is considered an important aspect of Primary Health Care at the grass root level of the health network, and is integrated into the school curriculum.

.../4

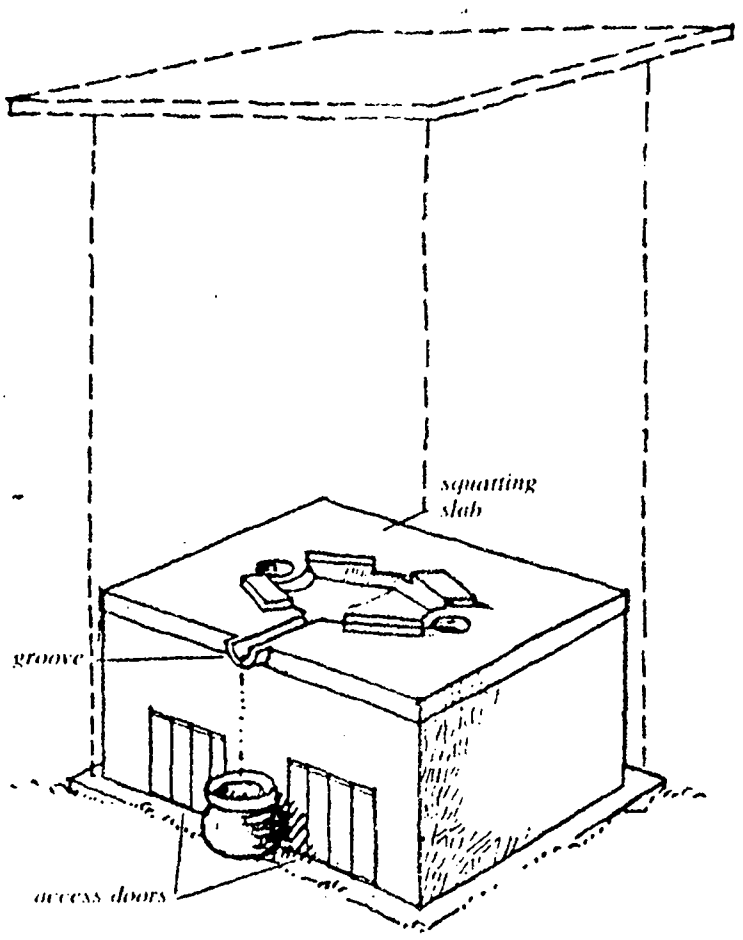
However, the DSB has not been found suitable for public places (schools, restaurant, factories, markets, bus stations, etc.), in townships which do not engage in rice plantation and where hygienic composting conditions do not exist. There, the self-sterilizing water septic tank - or SST - is envisaged; however, the shortage of cement limits its use.

In some southern provinces, use of compost is not generalized; areas in the Mekong Delta are often submerged for 5 to 6 months; no concrete solution has been found yet to prevent people from relieving themselves in fields and canals.

Some 4 million double septic bin latrines are still required in the rural areas; an equal member of latrines is necessary for the urban population. This construction should be achieved during the Five-Year Plan 1981-85 through national effort and, hopefully, UNICEF assistance.

The presentation was followed by the projection of a short film in black and white (translated title: "A New Change") illustrating the step-by-step construction of the latrine.

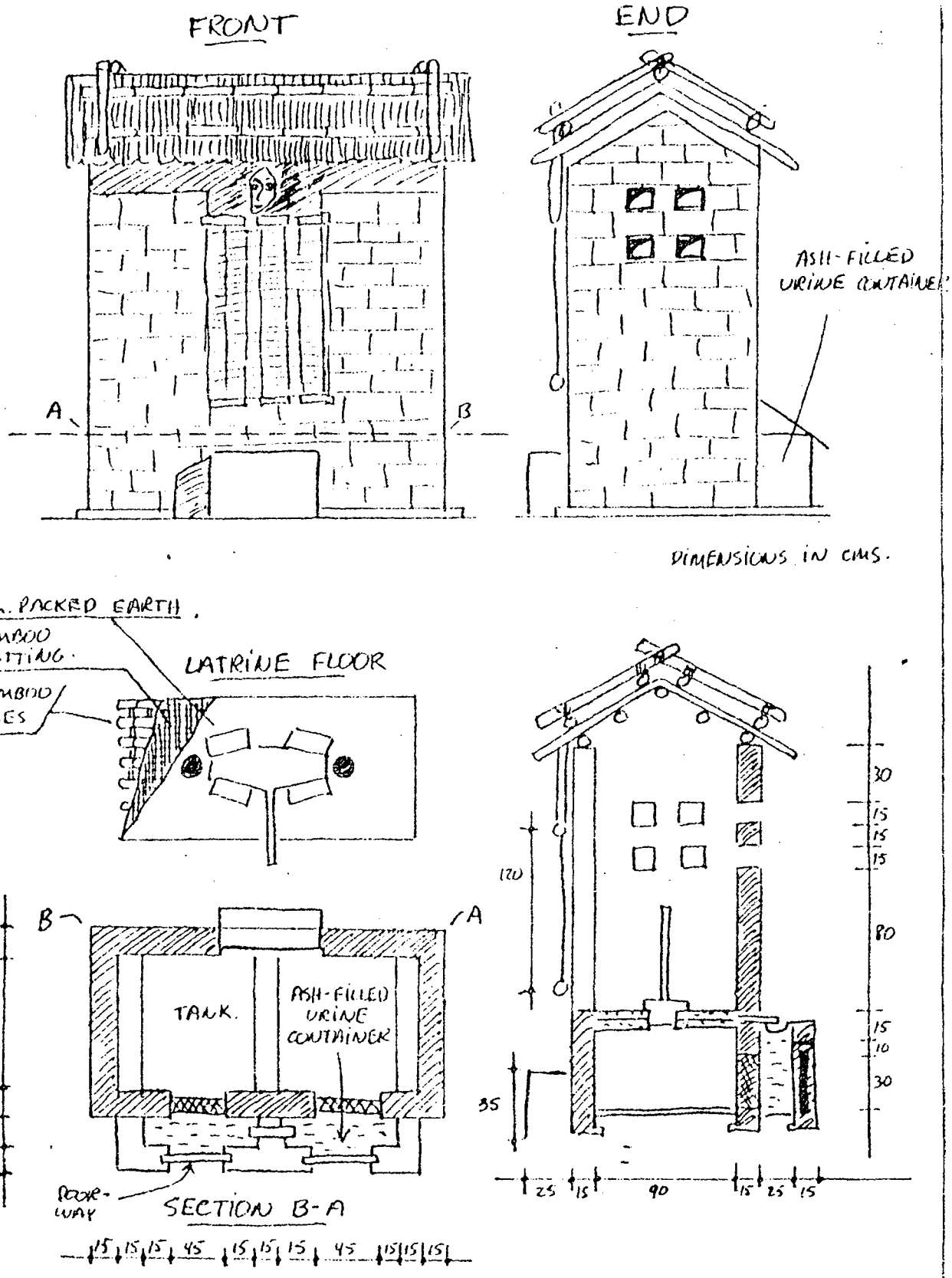
The discussion reflected the interest of the audience: the same questions were often written in different form by the discussion groups.



This latrine is principally found in Vietnam and to some extent in China. It is particularly suited to densely-populated areas, where the water table is high, and the use of ordinary unsealed pit latrines pollutes the ground water. In the "double vault" latrine, there are two cement-lined vaults or boxes above ground level. These are used alternately, and the one not in use is sealed so as to create anaerobic conditions in which harmful bacteria are neutralized. Urine is separated from fecal matter by the use of a groove in the floor, and a run-off into a separate container. The fecal matter is composted, and after a minimum sealed-off period of 45 days, rendered into a dark grey, harmless, odourless, nitrogen-rich fertilizer, which is then removed. The cost of construction of the double vault latrine is very low because only a small amount of cement is needed: $50. The fertilizer produced also has a value. The double vault latrine is now being promoted by UNICEF in Bangladesh, Burma and Egypt.

See illustrated story of construction of this latrine in a Vietnamese village, pages 16 and 17.

Source: Winbad and Kilama, Sanitation without Water, *Sida, Stockholm*



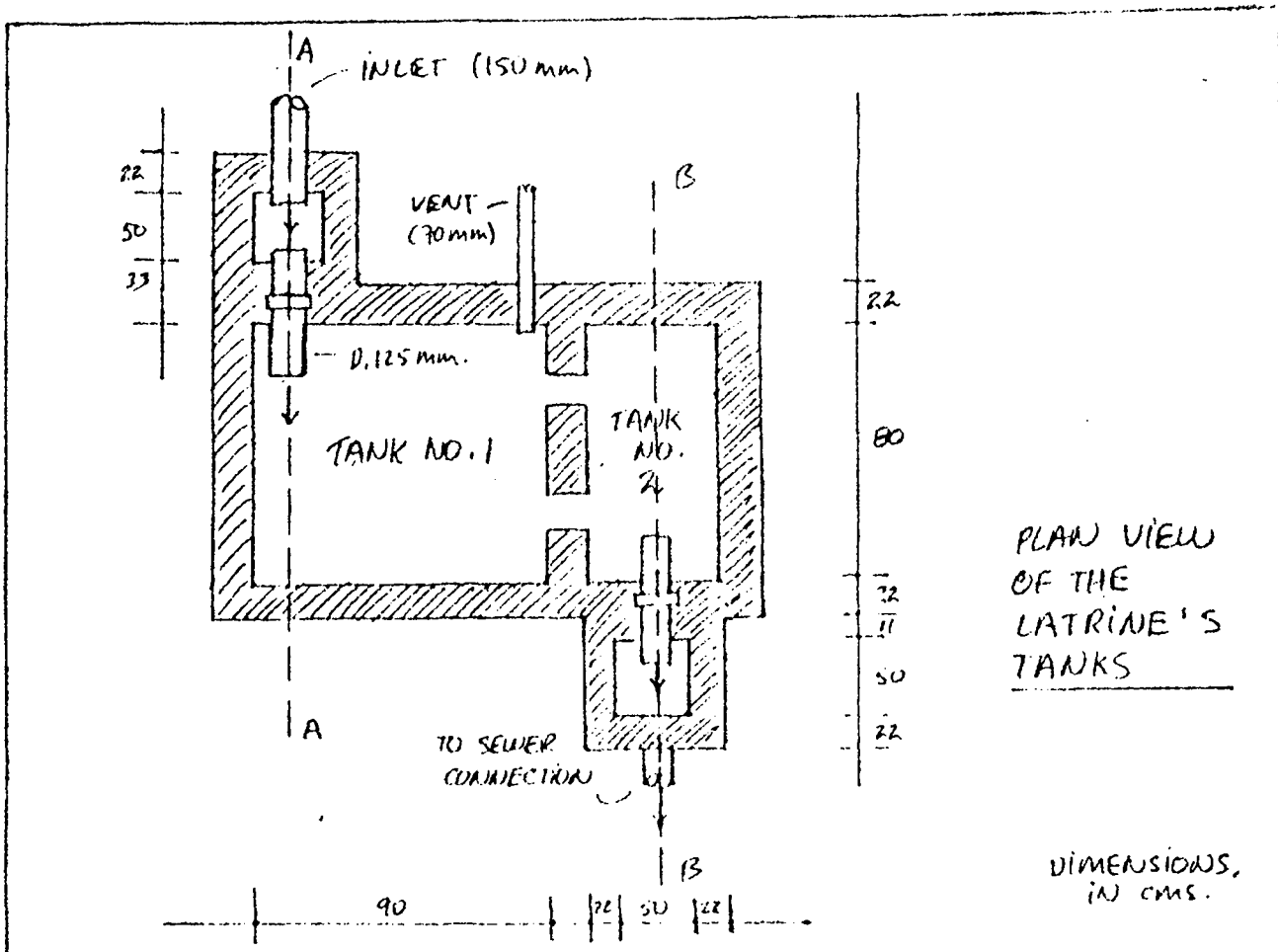
MAIN CONSTRUCTION MATERIALS: BAMBOO & RICE FIELD OR HILL SOIL. (RICH SOIL IS NOT SUITABLE). THE CLAY IS MADE MUDDY AND PACKED IN A FRAME 15×15×30 CM, THEN REMOVED AND LEFT TO DRY FOR TWO DAYS TO FORM BRICKS. AFTER CONSTRUCTION THE STRUCTURE IS WHITE-WASHED.

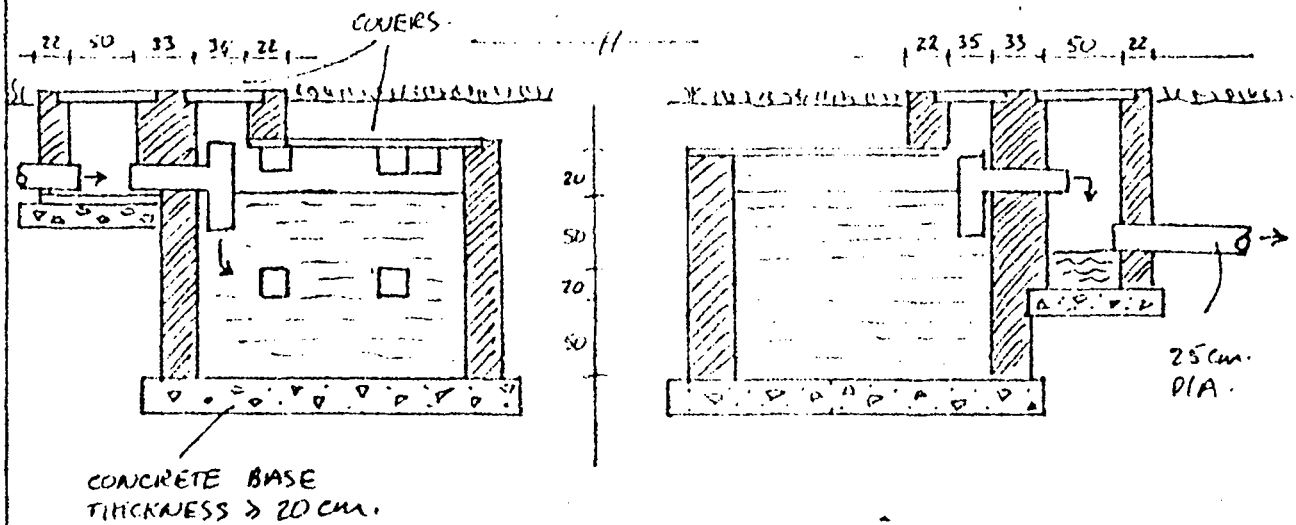
MATERIALS REQUIRED: 360 BRICKS OF 15×15×__ cm.
24 BAMBOO POLES
1.8 m² BAMBOO MATTING
2.7 m² ROOFING
7 MAN-DAYS OF LABOUR

USAGE
- FOR 6 TO 8 PEOPLE
- EACH TANK USED 1½-2 MONTHS ALTERNATELY
- VOLUME EACH TANK 250 L.

FIGURE 3

DOUBLE SEPTIC BIN LATRINE





SECTION A-A

SECTION B-B

- FOR REGULAR USE BY 5-6 PEOPLE
- VOLUME OF TANK NO. 1 : 900 LITRES.
- THE TANKS SHOULD BE EMPTIED AT LEAST ONCE EVERY TWO YEARS.

CONSTRUCTION

- BRICK WALLS PLASTERED WITH LIME & CEMENT.
- DOUBLE COATING OF LIME & CEMENT ON INNER WALLS.
- A THIRD COAT OF CEMENT PLASTER.

FIGURE 5

SST-TANK SECTIONS

LIST OF ANNEXES AVAILABLE

B1 People, Water, Sanitation, Mrs. Memet Tanumidjaja, Regional Director, UNICEF/EAPRO, Bangkok, Thailand.

B2 Water, Sanitation and Social Planning, Mr. Vira Osatanon, Deputy Secretary-General, National Economic & Social Development Board, Bangkok, Thailand.

B3 Sanitation, by Margarita Cardenas, Sanitation, UNICEF, Islamabad, Pakistan.

B4 Interlinkages Implied by Water & Sanitation Programmes, by Dr. Lay Maung, Senior Regional Planning Officer, UNICEF/EAPRO, Bangkok, Thailand.

B5 Rural Water Supply and Sanitation in the Context of People-Based Development, by N. M. Pestelos, Consultant for Community Participation, Project Compassion, Green Revolution Command Centre, Nayong Pilipino, Pasay City, Philippines.

B6 Maintenance of Water Supply and Sanitation Facilities, by Abdul Awal Rural Water Adviser, UNICEF, Manila, Philippines

B7 Monitoring and Evaluation : A Question of Stop Talking and Start Doing, by Cecilio Adorna, Consultant for Monitoring and Evaluation, UNICEF, Bangkok, Thailand.

B8 Discussion Guide : Manpower Development and Training, by Guy B. Scandlen, Regional Project Support Communications Officer, UNICEF/EAPRO, Bangkok, Thailand.

B9 Country Report on Water Supply and Environmental Sanitation in Burma, by J. Bertrand Mendis, Programme Officer (Water Supply & Sanitation); Dr. Ko Gyi, Senior Adviser to the UNICEF Representative, UNICEF, Rangoon, Burma.

B10 Country Report on Water Supply and Environmental Sanitation in Indonesia, by M. Akhter, Programme Co-ordinator, Water, UNICEF, Jakarta, Indonesia.

B11 Country Paper on Water and Sanitation Activities in the Socialist Republic of Vietnam, by Leo Goulet, Water Supply Officer, UNICEF, Vietnam.

B12 Evaluation of Rural Water Supply Projects in Thailand: Rural Water Supply Planning Sub-Committee, National Economic and Social Development Board in Co-operation with United Nations Children's Fund, prepared by National Institute of Development Administration, September 1978.

B13 Country Report on Water Supply and Sanitation in the Philippines, by Abdul Awal, Rural Water Adviser, UNICEF, Manila, Philippines.

B14 Country Report for UNICEF Regional Water and Sanitation Workshop (Ubol Ratchathanee Province, Thailand), Malaysia.

B15 Country Report on Water and Sanitation Workshop in Bangladesh, by Kenneth R. Gibbs, Project Officer (Chief, Water and Sanitation) UNICEF, Dacca, Bangladesh.

B16 Country Paper for Water & Environmental Sanitation Programme in the Islamic Republic of Pakistan, by Michel C. Nowacki, Project Officer (Co-ordinator, Water & Sanitation), UNICEF, Islamabad, Pakistan.

B17 Country Report on Water and Sanitation Workshop in Vientiane, Laos, by Anthony Griffith, Assistant Project Officer (Supply and Logistics), UNICEF, Vientiane, Laos.

B18 Parasite Control Strategies in the Integrated Family Planning, Nutrition and Parasite Control Programme, JOICFP Films

B19 Field Trip Notes: Nong Kai; Baan Daeng; Don Do and Don Pawk; Refugee Centre Ubol Ratchatanee

B20 Water and Sanitation Focused Films :

1. Water Means Life
2. Patel Ganga
3. Hidden Treasures
4. Water For All
5. A New Change (Vietnam)
6. Journey for Survival
7. Water is Our Only Hope.

B21 An Evaluation of the Workshop was prepared by Mr. Cecilio Adorna. UNICEF/EAPRO, Bangkok, Thailand

B22 Water, Sanitation and Primary Health Care, Dr. Amorn Nontasut, Director-General, Department of Health, Ministry of Public Health, Bangkok, Thailand.

B23 The UN International Drinking Water and Sanitation Decade, Dr. Peter Bourne, Assistant Secretary-General & Co-ordinator, International Drinking Water Supply & Sanitation Decade, UNDP, United Nations Plaza, New York.

B24 A telegramme of greetings from Mr. Martin Beyer, Senior Adviser (Water Programmes), UNICEF, New York.

B25 The International Drinking Water Supply and Sanitation Decade and the United Nations Co-operative Action
Mr. Paul J. Biron, Senior Programme Officer, Drinking Water Programmes, UNICEF, New York.

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