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**TRAINING OF TRAINERS  
WORKSHOP FOR HANDPUMP  
INSTALLATION AND MAINTENANCE  
IN SRI LANKA  
FEBRUARY 12-26, 1984**

**WASH FIELD REPORT NO. 122**

**APRIL 1984**

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Prepared for:  
USAID Mission to the Republic of Sri Lanka  
Order of Technical Direction No. 138

2322-84TR



MEMORANDUM

T-160

TO: Colleagues

FROM: Fred Rosensweig, Associate Director  
Human Resource Development *Fred Rosensweig*

SUBJECT: Training Documents

DATE: April 6, 1984

I am pleased to provide you two documents on training which were recently developed by WASH. One, WASH Field Report No. 117, identifies training and educational institutions in the urban water and wastewater sector which offer quality programs for participants from developing countries. The focus is on U.S. institutions although some institutions outside the U.S. are included. The other document, WASH Field Report No. 118, identifies sources of training materials.

Although both documents were developed for the Near East Bureau, they should still be very relevant to other regions with training needs in the urban water and wastewater sector.

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**WATER AND SANITATION  
FOR HEALTH PROJECT**



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April 5, 1984

Mr. William Schoux  
Acting Mission Director  
Colombo, Sri Lanka

Attention: Eric Loken

Dear Mr. Schoux:

On behalf of the WASH Project I am pleased to provide you with 20 copies of a report on the training of trainers workshop for handpump installation and maintenance.

This is the final report by Wilma Gormley and Alan Pashkevich and is based on their trip to Sri Lanka from January 28 to February 29, 1984.

This assistance is the result of a request by the Mission on October 14, 1983. The work was undertaken by the WASH Project on December 12, 1983 by means of Order of Technical Direction No. 138, authorized by the USAID Office of Health in Washington.

In addition to USAID, we would recommend that the following organizations and individuals receive a copy:

- Mahaweli Development Authority
- GTZ
- FINIDA
- UNICEF
- Women's Bureau
- WHO
- Redd Barna
- H.K. Perrera
- P. Dharmabalan

If you have any questions or comments regarding the findings or recommendations contained in this report we will be happy to discuss them.

Sincerely,

*Dennis B. Warner*

Dennis B. Warner  
Director  
WASH Project

cc: Mr. Victor W.R. Wehman, Jr.  
S&T/H/WS

DBW:ybw

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WASH FIELD REPORT NO. 122

TRAINING OF TRAINERS WORKSHOP FOR HANDPUMP INSTALLATION  
AND MAINTENANCE IN SRI LANKA, FEBRUARY 12-26, 1984

Prepared for the USAID Mission to the Republic of Sri Lanka  
Under Order of Technical Direction No. 138

Prepared by:

Wilma Gormley

and

Alan Pashkevich

April 1984

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for Community Water Supply

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Contract No. AID/DSPE-C-0080, Project No. 931-1176  
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## TABLE OF CONTENTS

Chapter	Page
EXECUTIVE SUMMARY.....	iii
1. BACKGROUND AND INTRODUCTION.....	1
2. PLANNING.....	2
2.1 Training Staff.....	2
2.2 Initial Stages of Planning in the United States.....	2
2.3 Final Design Planning in Sri Lanka.....	2
3. IMPLEMENTATION.....	5
3.1 Location.....	5
3.2 Methods.....	5
3.3 Overall Workshop Goals and Training Design.....	5
3.4 Specific Training Sessions.....	6
3.4.1 Opening Session.....	6
3.4.2 Overview of the Handpump Workshop.....	6
3.4.3 Case Study on Rural Water Supply Systems.....	8
3.4.4 Principles of Adult Learning.....	9
3.4.5 A Demonstration Session from the WASH Handpump Installation and Maintenance Training Guide.....	9
3.4.6 Components of an Experiential Training Session.....	10
3.4.7 Understanding the Design of the Handpump Installation and Maintenance Workshop.....	10
3.4.8 Setting Up Practice Training Sessions.....	10
3.4.9 Practice Session: Working with the Village Community...	11
3.4.10 Practice Session: Constructing the Apron.....	12
3.4.11 Practice Session: Implementing Water Supply Programs with Handpumps.....	14
3.4.12 Mid-Course Review.....	14
3.4.13 Practice Session: Training Caretakers.....	16
3.4.14 Setting Up Practice Training: Round II.....	16
3.4.15 Practice Session: User Education Strategies.....	16
3.4.16 Optional Session: Case Study Clinic.....	17
3.4.17 Practice Session: Installing the Handpump and Disinfecting the Well.....	18
3.4.18 Practice Session: Maintenance and Repair.....	18
3.4.19 Identifying "Lessons Learned" from the Practice Training.....	18
3.4.20 "Back Home" Planning.....	19
3.4.21 Designing a Five-Day Caretaker Training Program.....	19

3.4.22	Resolving Common Issues Which Arise When Delivering Training.....	20
3.4.23	Closure.....	20
4.	ASSESSMENT.....	21
4.1	Participant Evaluation.....	21
4.2	Trainer Assessment.....	21
5.	RECOMMENDATIONS.....	23
5.1	Recommendations for Future Training of Trainers.....	23
5.2	Recommendations for the USAID Mission and the National Water Supply and Drainage Board.....	23
APPENDICES		
A.	List of Participants.....	26
B.	Case Study.....	28
C.	Fact Sheet on Handpump Installation and Maintenance: A Guide for Trainers.....	36
D.	Workshop Schedule.....	39
E.	Project Cycle from Training Guide.....	40
F.	Practice Training Teams.....	41

## EXECUTIVE SUMMARY

A USAID-sponsored workshop was held in Anuradhapura, Sri Lanka, from February 12 to 26, 1984 to train trainers in adult learning theory and experiential learning methods so that they can train others in the installation, operation, and maintenance of handpumps in support of the rural water supply programs of the National Water Supply and Drainage Board (NWSDB). The training team consisted of a trainer and an engineer from the United States and a member of the training unit of NWSDB. There were 24 participants, 13 of whom were from the NWSDB. The remainder were from the Mahaweli Development Authority, the German Technical Assistance Agency, Finida, the Women's Bureau, UNICEF and Redd Barna. The training consisted of a combination of classroom presentation and practice training in the installation, repair, and maintenance of hand-pumps in rural communities.

Based on participant and trainer assessments, the goals and objectives of the workshop were achieved. This was due in large part to the preplanning begun months in advance and to the logistical support of WASH, the USAID Mission and the Water Board in setting up training facilities, housing, and field sites. The workshop classroom facilities were close to the construction sites and both of them were far enough away from offices and homes of the participants to permit almost total concentration on the task at hand and time for reflection, discussion, and relaxation. Another key to its success was the fact that the workshop could be conducted in Sinhala thanks to Mr. Abhayagoonewardhena, a talented Water Board trainer and manager of training, who helped develop and deliver the workshop.

The following recommendations are a result of the workshop.

- o The NWSDB now has a cadre of people who can deliver practical, hands-on training in handpump installation and maintenance. The NWSDB needs to commit itself to a training plan to implement its goals and to place these trainers in teams in a systematic way which will give them the structural and managerial support they need to use what they have learned.
- o The NWSDB needs to look carefully at its strategies for increasing community participation through finding and training local caretakers and providing them the support they need to do their work.
- o Community extension workers should be trained and given the time to work with communities to develop and maintain water supply projects.
- o Government and donor agencies need to give careful attention to maintenance of the water supply systems and do something about it before they are forced to deal with disgruntled villagers and a plethora of malfunctioning handpumps.
- o The training unit of the NWSDB is a highly motivated skilled group who can further the goals of the Water Board. While awaiting the proposed USAID institution-building project, which could be operational within the next year, well-placed resources for helping this

training unit would be highly effective. Additional support over the next few months to a year might include:

- technical assistance to help change existing courses to a more participant-centered approach
- resources which allow the trainers in the unit to write their courses out in trainer guidelines format
- opportunities for them to work as two-member training teams rather than as individuals
- translation of relevant portions of the WASH Handpump Training Guide into Sinhala
- designing and conducting management and supervisory courses especially for the NWSDB staff
- extra efforts to build the skills of Mr. Abhayagoonewardhena, the training engineer in NWSDB in institution-building and management training.



## Chapter 1

### BACKGROUND AND INTRODUCTION

Due to the high priority that handpump programs have in the rural water supply schemes in Sri Lanka, the National Water Supply and Drainage Board (NWSDB) asked USAID to sponsor a training of trainers workshop for them using A Workshop Design for Handpump Installation and Maintenance: A Training Guide produced by the Water and Sanitation for Health (WASH) Project. It was felt that many of the training sessions in the WASH handpump training guide would be useful to the Board as it embarked upon an extensive program to support handpump installations during the next few years.

The need for a workshop to train trainers was discussed with H.K. Perrera head of the training unit of NWSDB, AID Washington staff, and the WASH staff in August 1983 when Mr. Perrera was in Washington. It was again discussed when Mr. Dharmapalen was in Washington in November and December of 1983. The final dates for the workshop were agreed on in late December 1983. Alan Pashkevich and Wilma Gormley were selected as the consultants to do the training.

The workshop took place February 12-26, 1984. The participants were members of the NWSDB as well as members of appropriate donor agencies and NGOs active in rural water supply programs in Sri Lanka. A list of the participants and their organizations is included in Appendix A.

The WASH Training Guide on handpump installation and maintenance contains all the information a trainer needs to plan and conduct a comprehensive workshop including training designs, trainer guidelines, participant handouts, and trainer reference materials. The workshop is two weeks long and designed for those individuals responsible for village handpump projects--preplanning, planning, construction, and maintenance. The actual training guide is written for intermediate trainers responsible for training those who work with communities. The purpose of this training of trainers workshop was to train those trainers to use the handpump training guide. A brief fact sheet describing the training guide and the overall workshop design are found in appendices C and D.

## Chapter 2

### PLANNING

#### 2.1 Training Staff

The training staff for this program consisted of Alan Pashkevich, a mechanical engineer from Georgia Institute of Technology, Wilma Gormley, a training specialist from the Training Resources Group, and P. Abhayagoonewardhena, from the training unit of the NWSDB.

#### 2.2 Initial Stages of Planning in the United States

Dharmapalen met with Gormley, Pashkevich, and WASH staff in Washington, D.C., in mid-November and again in early December. Plans were developed at that time around the following issues:

- o Exactly what is "training of trainers" and how could it be useful to handpump programs in Sri Lanka?
- o What should this training attempt to achieve?
- o Who should attend the program?
- o How long should the training be?
- o Where should it be held?
- o How should its occurrence be made known?
- o How many well sites should be used?
- o What pumps should be used?
- o What materials, tools and labor would be required for the practice handpump installation?

At the end of these initial planning efforts Dharmapalen was prepared to continue the planning and preparation efforts required in Sri Lanka while Gormley and Pashkevich were able to design the training to meet the specific requirements of the Water Board.

#### 2.3 Final Design Planning in Sri Lanka

Pashkevich and Gormley arrived in Sri Lanka January 29 and February 1 respectively. A preliminary meeting was held with Eric Loken from the USAID mission. Loken briefed the two consultants and prepared them for a meeting with the NWSDB to be held the next morning. The purpose of this meeting was to explain the training of trainers course and to learn what adaptations would be needed in the workshop itself to make it appropriate for Sri Lanka.

The meeting was intended for all the key people in rural water supply projects in Sri Lanka, not just officials and staff from the Board. The following persons attended:

Mr. N.D. Peiris  
Chairman, NWSDB

Mr. Rafael Diaz-Diaz  
Chief, Water & Sanitation Section,  
UNICEF

Mr. T.B. Madugalle  
General Manager, NWSDB

Mr. K.D. Tewari  
Project Officer, UNICEF

P. Abhayagoonewardhena  
Training Engineer, NWSDB

Mr. Soren Persson  
Project Officer, UNICEF

C.J.A. Stambo  
Chief Engineer (Groundwater)  
NWSDB

Mr. Lakshman Fernando  
Program Officer, UNDP

Dr. R. Rao, Hydrologist  
World Health Organization  
c/o National Water Supply &  
Drainage Board

Ms. P. Ranatunga  
Mahaweli Economic Agency

Mr. Hans Schroter  
Project Manager  
German Agency for Technical  
Cooperation

Mr. F.G. Yallop  
Mechanical Superintendent  
Kampsax-Kruger

Juhani Efraimsson  
Harispattuwa Water Supply &  
Sanitation Project

S.S. Sothirajah  
Project Coordinator  
Redd Barna Water Supply Project  
Vavuniya

Eric R. Loken  
Environmental Engineer  
U.S. Agency for International  
Development

Eric Loken had sent each person invited to the meeting a copy of the introduction to the training guide for handpump installation as well as the goals and overview section for each training session. Thus, they came prepared to discuss the workshop and what they felt was appropriate for Sri Lanka. The meeting included discussion of:

- The goals of the training.
- The training methods used in both training of trainers and handpump workshops.
- The design of the training of trainers workshop.

- The training sessions in the handpump workshop and what adaptations were needed.
- Setting the date for a meeting after the training.

The individuals at this meeting were quite complimentary of the design and methods used in the handpump workshop. They felt the following points were very important:

- More time should be spent on health issues
- Community participation was essential and should be a part of each training session

The consultants traveled to Anuradhapura on February 3 to review the arrangements that had been made for the training workshop. Meetings were held with Eng. Boyagoda and the Senior Technical Assistant, Dharmapala, from the Groundwater Section of the NWSDB.

During these meetings final plans were made for selecting the well sites; procuring tools, materials and a labor force for construction; determining which handpumps the workshop should deal with; and various other logistical details such as transportation, etc.

Sarvodaya Hall, where the workshop was to be held, was visited and final arrangements were made for workshop facilities.

Gormley and Pashkevich returned to Colombo where they made final course decisions. Two full days were spent with Mr. Abhayagoonewardhena to seek his participation in design decisions and to help him prepare to work on the actual delivery of the workshop.

The consultants left Colombo again for Anuradhapura on Thursday, February 9. The following two days were spent in the final preparation for the workshop which began Sunday evening, February 12 at 6:30.

## Chapter 3

### IMPLEMENTATION

#### 3.1 Location

The workshop was held at Sarvodaya Hall in Anuradhapura, Sri Lanka. Anuradhapura is in the north central part of Sri Lanka about 120 miles from Colombo. There is an active handpump program in the Anuradhapura Region. There are two rainy seasons, a major monsoon in November and December and a less severe one in June and July. The remainder of the year is extremely dry and water is extremely scarce.

The workshop site was chosen because of the presence of handpump programs, because the Groundwater Section of the NWSDB has an office there with the technical staff and equipment required for the workshop and because workshop and residential facilities were available for the participants and trainers.

Sarvodaya Hall was an excellent facility. The organization itself, Sarvodaya, is a well-known Sri Lankan private voluntary organization active in various types of community development. The staff at Sarvodaya was especially interested and supportive of the workshop, and the site certainly proved to be a good choice for the workshop.

#### 3.2 Methods

The training methods used were based on principles of adult learning theory and included experiential training techniques. This method is participant centered, creates an active approach to learning, and assumes that responsibility for learning is shared between trainers and participants. The emphasis of the course was to prepare the participants to conduct their own workshops based on the training sessions in this workshop on handpump installation and maintenance. The focus was on helping participants learn how to conduct the experiential training sessions in A Workshop for the Handpump Installation and Maintenance: A Training Guide produced by WASH. Thus, a large portion of the training was spent on practice training when the participants took turns delivering sessions. The specific workshop activities will be described later in this chapter.

#### 3.3 Overall Workshop Goals and Training Design

The workshop goals were as follows:

At the end of this workshop, participants will be able to:

- Plan and deliver training sessions using the WASH training guide
- Conduct effective training using a variety of participant-centered, hands-on, practical training methodologies.

- Adapt the training guide to fit the needs of handpump programs in Sri Lanka.
- Provide technical expertise in specific handpump technologies
- Plan, implement, and evaluate a handpump installation project.

The first two goals were the basic ones and took a major share of the workshop time. During the training program the training guide was adapted to suit the needs of Sri Lanka. (For example, drawings and technical information were used about the Mark II pump, and the platform design was adapted to the one used by the Groundwater Section.) There remained, of course, additional adaptations to be made after the training such as translation into Sinhala. The last two goals were less important since this was a training of trainers and most of the participants were quite knowledgeable technically about handpump technologies and handpump projects.

A complete workshop schedule is provided in Figure 1. This schedule gives an overall idea of the time spent on each session as well as the general flow of activities.

### 3.4 Specific Training Sessions

#### 3.4.1 Opening Session (Sunday, February 12)

This session began with an introductory welcome by Mr. P. Abhayagoonewardhena. The participants then introduced themselves stating where they were from and what they did. The staff trainers introduced themselves and explained their role and particular expertise. The course goals were presented and discussed. Participant goals were elicited through a group exercise on expectations. The course schedule was presented, norms for the group were discussed, and various logistical details were settled. The group was given the introduction to the training guide and asked to read the first eight pages. This session began at 6:30 p.m. and ended at 8:30.

#### 3.4.2 Overview of the Handpump Workshop (Monday, February 13)

The overview of the handpump workshop was the participants' first exposure to the purpose and procedures in the training guide. The session was structured around three questions: Who is this training for? What skills and knowledge is it attempting to teach? And what are the principal ways it teaches them?

In answering the first question the cycle of a village handpump project was referred to with the explanation that the training is for the person or persons responsible for a part or all of the phases of the project cycle. The project cycle consists of preplanning and assessment, planning and design, construction, maintenance and repair, and evaluation. The skills and knowledge question was covered by having the participants scan the task analysis and later the workshop goals. Finally the approach and methodology were discussed with emphasis on the following:

FIGURE 1  
Training Schedule

Sunday 2/12	<ul style="list-style-type: none"> <li>o Workshop Opening Goals Expectations Schedule</li> </ul>	<ul style="list-style-type: none"> <li>o Overview of Handpump Workshop</li> <li>o Case Study on Rural Water Systems</li> <li>o Principles of Adult Learning</li> </ul>	<p>Tuesday 2/14</p> <ul style="list-style-type: none"> <li>o Demonstration Training Session from training guide</li> <li>o Components of an Experiential Training</li> </ul>	<p>Wednesday 2/15</p> <ul style="list-style-type: none"> <li>o Design of the Hand-pump Training Program</li> <li>o Preparation for Practice Training</li> </ul>	<p>Thursday 2/16</p> <p><u>Practice Sessions</u></p> <ul style="list-style-type: none"> <li>o Working with the Village</li> <li>o Constructing the Platform</li> </ul>	<p>Friday 2/17</p> <p><u>Practice Sessions</u></p> <ul style="list-style-type: none"> <li>o Constructing the Platform</li> </ul>	<p>Saturday 2/18</p> <p><u>Practice Session</u></p> <ul style="list-style-type: none"> <li>o Implementing Water Supply Program with Handpumps</li> <li>o Skill Building Clinic on leading discussions</li> </ul>
Sunday 2/19		<p>Monday 2/20</p> <ul style="list-style-type: none"> <li>o Mid-course Review</li> <li>o Caretaker Training</li> <li>o Preparation for Practice Training Round II</li> </ul>	<p>Tuesday 2/21</p> <p><u>Practice Sessions</u></p> <ul style="list-style-type: none"> <li>o User Education Strategies</li> <li>o Installation and Disinfection</li> <li>o Case Study Clinic</li> </ul>	<p>Wednesday 2/22</p> <p><u>Practice Sessions</u></p> <ul style="list-style-type: none"> <li>o Installation &amp; Disinfection</li> </ul>	<p>Thursday 2/23</p> <p><u>Practice Sessions</u></p> <ul style="list-style-type: none"> <li>o Maintenance and Repair</li> </ul>	<p>Friday 2/24</p> <ul style="list-style-type: none"> <li>o Back Home Planning</li> <li>o Designing a 5-day Caretaker Training Program</li> </ul>	<p>Saturday 2/25</p> <ul style="list-style-type: none"> <li>o Resolving Issues that Arise in Training Programs</li> <li>o Closure</li> </ul>

- o the hands-on nature of the workshop,
- o the workshop as a balance of class and field activities,
- o the level of detail in the trainer procedures,
- o the level of detail in the technical guidelines including session set up,
- o the attention which must be given to materials, tools and labor for each session,
- o the workshop is built around an actual, in-the-village handpump project.

### 3.4.3 Case Study on Rural Water Supply Systems (Monday February 13)

This case study (see Appendix B) was used for three purposes: 1) to provide knowledge about and create awareness of the total scope of a handpump installation project (community involvement and technical aspects), 2) to provide the trainers with the opportunity to demonstrate several experiential training methods; and 3) to allow trainees to review and analyze the use of a case study as a training technique.

The specific goals of the case study were:

- o to identify common problems which occur in rural water supply projects
- o to analyze these problems and to identify causes or contributing factors
- o to develop strategies for resolving these problems

Part I of the case study was read and analyzed. The participants worked in six, four-member discussion groups. The following questions were used as discussion points:

- 1) What problems do you see occurring?
- 2) What are the causes of these problems?
- 3) What should Issa have done differently?

Part II consisted of analysis followed by a role play. The role play was around Issa meeting with the village water committee to help them choose a caretaker. Each of the six groups contributed one person to the role play which then consisted of a five-member village committee meeting with Issa.

Part III was analyzed and discussed. Part IV was not used because time ran out. Lessons learned from the case study were identified and discussed. Application points were discussed--how could they apply the lessons learned to their current job?



This case study was discussed by focussing on the following questions:

- 1) What did you feel was effective about the case study as a learning tool?
- 2) What did you see the trainers doing that helped make it work?
- 3) If you were going to use a case study in one of your training sessions, what concerns would you have?

Four hours of workshop time were spent on the case study. This amount of time was required because the participants read slowly in English and because trainer-led discussions were done in both Sinhala and English.

#### 3.4.4 Principles of Adult Learning (Monday, February 13)

The discussions analyzing the case study as a training technique led into a discussion on how adults learn. The total group was asked to brainstorm a list of phrases that would complete the statement "adults learn best when..." A lecturette on the experiential cycle was then delivered. It was followed by the handout on Androgogy.

#### 3.4.5 A Demonstration Session from the WASH Handpump Installation and Maintenance Training Guide (Tuesday, February 14)

Session 2, "Work Site and Handpump Orientation" of the trainers guide, was chosen as the model because it used a variety of training methods and also introduced the participants to the work site and the handpumps. The session was led by Mr. Abhayagoonewardhena and Mr. Pashkevich. The trainer's guidelines were followed closely but because a large portion of the session had to be translated into Sinhala and because of the distance to the sites (aggravated by the rain-deteriorated conditions of the road) the session lasted for four hours. The participants responded well to the field trip and the hands-on work. They remained reluctant to express themselves freely in large group discussions but were generally on target with their comments when they expressed them.

At the end of this session, the trainers were asked to critique themselves. Then the participants were given the following questions to discuss in groups of three:

- o What went well in your opinion?
- o What improvements could you suggest?

The small group discussions were lively. Each group was asked to report out one or two answers to the above questions. Their suggestions were accepted by the training staff and misunderstandings were cleared up. The translating efforts of Mr. Abhayagoonewardhena helped immensely in putting the participants at ease as they could respond in the language of their choice. The

session took four hours and the debriefing 90 minutes. During the debriefing the participants were given the training guidelines for this session which they could read as they analyzed the session.

#### 3.4.6 Components of an Experiential Training Session (Tuesday, February 14)

A lecturette was given that reviewed the concepts of the adult learning cycle. Afterwards staff trainers explained the following components of a training session:

- o climate setting
- o goals and rationale for the session
- o experience or training activity
- o processing or discussion
- o generalizing (lessons learned)
- o applying
- o closure

The group was divided into smaller groups, each small group taking a particular session from the training guide and noting where and how these components were presented in that session. This session took about an hour.

#### 3.4.7 Understanding the Design of the Handpump Installation and Maintenance Workshop (Wednesday, February 15)

Staff trainers referred to the project cycle for a handpump project and related this to the design of the actual workshop. The Table of Contents in the training guide (see Appendix D) was used as a way for participants to see how the sessions flowed. The rationale for the session sequence was discussed. Then the context and make up of the trainer guidelines were discussed. This session took about 45 minutes.

#### 3.4.8 Setting Up Practice Training Sessions (Wednesday, February 15)

The goals for practice training were:

- o To build skills at delivering training sessions from the handpump manual.
- o To build skills for preparing to deliver training sessions.
- o To develop skills for team training.

The trainers explained the practice training process. The schedule was explained and the practice training teams assigned. The trainers selected the members of the teams. Because each team needed to have a balance of training and technical experience as well as the English required to read the trainer guidelines, a trainer was assigned to each practice trainer as an advisor/consultant.

The training teams were urged to prepare themselves through the following sequence of activities:

1. Read the trainer guidelines and study them for clarity. (This required a good deal of effort since reading in English was time-consuming for many.)
2. Meet as a training team to discuss questions in understanding the guidelines.
3. Prepare questions for consulting with their consultant/advisor.
4. Meet with their advisor/consultant if necessary.
5. Work on preparations for delivery.
6. Consult with advisor/consultant when necessary.
7. Share delivery plan with advisor.
8. Make final preparation.
9. Delivery session.

A full afternoon was used for preparation. The advisor/consultant worked with the training teams to help make sure they were sufficiently prepared. Table 2 shows the practice training schedule.

#### 3.4.9 Practice Session: Working with the Village Community (Thursday, February 16)

This four-hour session was conducted by two three-member training teams. Each team was to conduct half the session. The practice trainers did a good job for a first try.

The session was debriefed in the following format:

1. Three-member groups worked together to complete the feedback form (one form per group) which was given to the practice training team.
2. The total group listened to the training team analyze and critique their work.
3. The total group engaged in a discussion of what went well in the session and what didn't work so effectively.

Discussions centered on the use of flipcharts, discussion-leading techniques, how total group discussions following small group work should be handled, and how to facilitate differences of opinion within the group. This debriefing took one hour.

The group was very slow to critique their colleagues work. We surmised this to be true for several reasons: 1) Sri Lankan culture values politeness, and it is not polite to critique one's peers, 2) there was so little experience with this type of training, it was hard to know what worked and what didn't, 3) lack of experience with analytical approaches to critiquing and studying an event, and 4) a lack of skill with feedback techniques since, because of workshop time, a formal session on giving and receiving feedback was not held.

The trainers decided to use another format for the next debriefing.

#### 3.4.10 Practice Session: Constructing the Apron (Thursday, February 16)

This construction session was again handled by two three-member training teams. The classroom portion took about an hour to an hour and a half. Each training team was responsible for conducting the session at one of the two well sites. A labor force from the Groundwater Office in Anuradhapura supplied the materials, transportation, and extra labor. They also completed the construction that couldn't be finished during the session itself.

The sessions went reasonably well. The practice trainers had the most difficulty with organizing the participants so that they were all able to learn from concurrent construction activities. The practice trainers also did not use questions enough in helping the participant trainers learn from the hands-on experience.

The debriefing session took about 90 minutes. First the training teams shared their answers to the question. "If you were going to do this session again, what would you do differently?" Next the total group was divided into four five-member teams and asked to respond to the following questions which were each discussed in the total group before proceeding to the next one:

- o What did the practice trainers do that helped you learn?
- o How can you make certain all the trainees learn about each aspect (occurring concurrently) in constructing the platform (mixing concrete, installing the pedestal, making the reinforcement, placing the forms, etc.)?
- o Choose one of the above construction tasks and list all the things you would want the trainee to learn about that task. Be specific.
- o What questions should you ask so your trainees can discover or learn the above things?

Before the last question was discussed the staff trainers put these three questions on the flip chart and asked the group which question was the best one and why.

- o Which direction should the pump spout face?
- o Don't you think the spout should face the road?
- o How should we decide which direction the spout should face?

FIGURE 2  
Practice Training Schedule

Thursday 2/16	Friday 2/17	Saturday 2/18	Sunday 2/19
<p>8:00-12:30 Session #8 Working with the Village Community</p> <p>1:30-2:30 Debriefing</p> <p>3:00-4:30 Session #9 Constructing the Platform (classroom)</p>	<p>8:30-2:00 Cont. Session #9 Construction (field sites)</p> <p>3:00-4:30 Debriefing</p>	<p>8:30-12:30 Session #3 Implementing Water Supply Programs with Handpumps</p> <p>1:30-2:00 Debriefing</p> <p>2:00-4:00 Skill Building Clinic</p>	
Monday 2/20	Tuesday 2/21	Wednesday 2/22	Thursday 2/23
<p>8:00-9:30 Mid-Course Review</p> <p>10:00-12:30 Session #13, Training the Caretaker</p> <p>1:30-4:30 Preparation for Practice Training Round II</p>	<p>8:00-12:00 Session #15 User Education Strategies</p> <p>1:00-2:30 Debriefing</p> <p>3:00-4:30 Installation and Disinfection (classroom)</p> <p>5:00-6:00 Case Study Clinic</p>	<p>8:00-1:00 Installation and Disinfection (field site)</p> <p>1:00-1:30 Debriefing</p> <p>1:30-2:30 Lunch in Field</p> <p>2:30-4:30 Rest and Excursion</p>	<p>8:00-2:00 Session #12 Maintenance and Repair</p> <p>Lunch &amp; clean-up time</p> <p>3:30-4:00 Debriefing</p>

This debriefing was intended to build skills at asking questions. The trainers had observed from the field session that the participant trainers had not used questions effectively. This debriefing was quite successful and resulted in a much superior analysis of the practice training session than the one held the previous day.

#### 3.4.11 Practice Session: Implementing Water Supply Programs with Handpumps (Saturday, February 18)

This session was also delivered by two three-member training teams. The session took about four hours to deliver. Again, the session went fairly well; however, it was clear that the practice trainers were having difficulty in giving instructions and in leading discussions.

The staff trainers quickly put together a clinic to build trainer skills at giving instructions and leading discussions. Goals for this session were:

- o To build skills at giving clear, concise instructions to the group.
- o To develop additional skills at leading thought-provoking discussions.

The group was asked to list the characteristics of an effective classroom session. The group was divided into four groups and two different instruction-giving tasks were given to the four groups. After about 15 minutes of preparation time the groups practiced giving instructions to one another.

The second practice was for leading group discussions. The four groups were asked to go through these steps in preparation for leading a discussion.

1. What do you want your trainees to learn or become more aware of as a result of this discussion?
2. What specific things would you want the trainees to mention during the discussion?
3. What questions could you ask to facilitate or guide this discussion in the directions you want?

This practice was done in a "fishbowl" setting with the facilitator changing every five minutes. Four persons took the part of facilitator for about 25 minutes of practice.

This entire session took about two hours.

#### 3.4.12 Mid-Course Review (Monday, February 20)

For a mid-course review each individual was asked to spend 10 minutes thinking through and writing down their responses to this question:

- o What have you learned about training so far?

After 10 minutes of individual reflection, pairs were formed to share and compare what they had learned. Examples were then listed in the total group as follows:

I have learned...

- o How lecturettes are presented
- o How to lead discussions
- o How to ask questions
- o How to work as a training team
- o How to analyze things
- o How to plan for a session
- o How to be clearer and make participants understand better
- o The importance of making presentations simple and clear
- o The importance of timing the various activities
- o It is necessary to be very careful about arranging materials and logistics for field sessions
- o How to use a variety of methods
- o How to provide a good model by coming on time
- o Not to treat participants as children
- o How to make participants share their knowledge
- o How to use case studies for analysis
- o Effective ways to conduct field sessions
- o Use of flipcharts
- o How to arrange seating
- o How to use the manual
- o How to get participants to generalize
- o The value of practical, hands-on training
- o The value of debriefing training sessions
- o Not to try to teach more and more after trainees are tired
- o The value of climate setting

From this list each participant selected those things he/she wished to improve on and practice further during round two of the practice training.

Then the group engaged in a discussion around how the staff trainers might be more useful or helpful to them. The following items were mentioned:

- Help us learn how to write a case study
- Refer us to books that we can read about training
- Do more work with shallow wells
- Let us report recent statistics on field tests of pumps
- Help us learn more about the problems of implementing projects

#### 3.4.13 Practice Training: Training Caretakers (Monday, February 20)

This session was conducted by a three-member training team. The session went quite well and was debriefed with the following discussion points:

- 1) What worked well in this session?
- 2) What improvements could you suggest?
- 3) How do you know when to end a discussion and move on to the next activity?

It was clear that the skill-building clinic had helped a great deal. Practice trainers did a much better job with this classroom session.

#### 3.4.14 Setting Up Practice Training: Round II (Monday, February 20)

Teams of two and three members were assigned practice sessions on user education strategies, pump installation and disinfection, maintenance, and repair (see Appendix F).

The groups were given the rest of the afternoon to prepare.

#### 3.4.15 Practice Session: User Education Strategies (Tuesday, February 21)

This three-hour session was delivered by a three-member training team. It was done quite effectively. The debriefing was conducted around the following points:

- 1) What was especially effective about the training in this session?
- 2) What improvements could you suggest?
- 3) What is the difference between brainstorming and leading a discussion? Why/when would you use brainstorming?



- 4) How was small group reporting handled differently? What factors should one consider in deciding how the small groups should report out?
- 5) What are advantages/disadvantages of having small groups report out on flipcharts?

The debriefing took about 90 minutes.

#### 3.4.16 Optional Session: Case Study Clinic (Tuesday, February 21)

The group asked for a session to learn how to write their own case studies. A one-hour evening session was held for this purpose. Sixteen trainees attended. Activities were:

- 1) What kind of learning opportunities do case studies offer?
- 2) What are the characteristics of a good case study?
- 3) Steps for writing a case study
  - a. Determine specifically what you want the group to learn through the use of the case study.
  - b. How do these issues or problems occur in real life?
  - c. How can I arrange these problems or issues into a believable story.
  - d. How would I envision the discussions that would take place?
- 4) Assignment: Write a case study.

It was the intentions of everyone to have another hour to critique these case studies; however, time ran so short, there was no time to finish it. The intended design for the second part was:

- 1) Evaluating case studies
  - a. Does it allow for discussions that will obtain the desired learning?
  - b. Does it meet the characteristics previously described of a good case study?
- 2) Individuals exchanged case studies and helped one another make improvements.

#### 3.4.17 Practice Session: Installing the Handpump and Disinfecting the Well (Wednesday, February 22)

This session was begun in the classroom on Tuesday afternoon and continued in the field on Wednesday. The field session lasted until 1:00 p.m. Debriefing was done in the field and only took about a half hour. The practice trainers were more effective at keeping the training organized and using questions to enrich the hands-on practice. However, the use of questions still remained a weak point.

Lunch was brought to the field and enjoyed by all. By 2:00 in the afternoon people were ready to return to the workshop site. It was decided that everyone had earned a bit of rest and relaxation so the group stopped at Mihintale, a famous ancient holy site about five miles from the well site. The workshop began again on the next day.

#### 3.4.18 Practice Session: Maintenance and Repair (Thursday, February 23)

This session was conducted by four three-member training teams. It took about six hours to get through the session. The extra time was required because the "practice" pumps had not been arranged quite right and extra time was needed to work this out. The session went well. The debriefing took only 30 minutes.

This session is rather difficult to set up since malfunctioning pumps have to be arranged so trainees can practice diagnosing and repairing the pump. In this case pumps were set up in a cement tank, and the diagnosis and repair were done in that way. However, it remains a difficult session to arrange and requires considerable trainer preparation.

#### 3.4.19 Identifying "Lessons Learned" from the Practice Training (Thursday, February 23)

The "lessons learned" were discussed in a large group. The discussion focused on the following questions:

- o What do you think are the most important trainer delivery skills needed to conduct training sessions using the training guide?
- o What advice would you give someone on how to prepare for delivering a session?
- o What advantage/disadvantage do you find in team training?

These questions were then followed by questions on applying what was learned for which the participants were given 10-15 minutes to reflect and write down their thoughts before reporting to the large group. The questions were:

- o What are the ways I can use the training skills I have developed?
- o In what ways will I be able to use the trainer guide?

### 3.4.20 "Back Home" Planning (Friday, February 24)

From the list generated in the above session on "Lessons Learned," seven possible planning topics were identified. The participants selected which topics they would like to work on. This resulted in four groups with one group covering two closely related topics. The selected topics were:

- o Prepare a workshop for getting the community involved in the construction and implementation of handpump projects.
- o Caretaker training in maintenance and repair.
- o User education and building community participation into handpump projects (including health education).
- o How to modify and write training guidelines for all of our training courses (aimed at Water Board training programs).

The teams were given sufficient time to prepare a short presentation. After each group delivered its presentation there was a question and discussion period.

After the presentations the following questions were asked:

- o What "road blocks" might prevent you from accomplishing the plans you just presented?
- o What are some strategies you could use to overcome these "road blocks?"

This session (of about three hours) did not work especially well. The level of thought and planning by the participants was quite superficial. As a result, the staff trainers put together the next exercise based on a five-day caretaker training course.

### 3.4.21 Designing a Five-day Caretaker Training Program (Friday, February 24)

The group was presented with the role and responsibilities of the caretaker in a typical handpump installation and maintenance program. Four working teams were formed, each with the responsibility to design a five-day caretaker training course. The following specific instructions were given:

1. From the role/responsibilities of the caretaker, determine specifically what you want the trainees to learn. Establish course goals.
2. Which sessions from the training guide could you use?
3. Plan the sequence of workshop topics you would use for five days.
4. What practical methods would you use in each session?

5. Using this workshop format as a model, determine a workshop schedule including how you would get started, what should happen each day, and how you would end.

The teams were given two hours for this task.

All the designs were posted on the wall. The total group formed an informal circle around each one, asking questions, and suggesting improvements.

Next the group brainstormed the planning and preparation tasks for conducting this five-day workshop. The last activity involved brainstorming problems one could expect in delivering workshops. Several key problems were discussed and resolution strategies developed.

This session (four hours) went especially well. The training unit took all the five-day designs and felt they could be quite useful in changing the way they are currently doing caretaker training.

#### 3.4.22 Resolving Common Issues Which Arise When Delivering Training (Saturday, February 25)

The group brainstormed a list of things that could "go wrong" while doing a training program. Staff trainers joined in this, and the list was quite extensive.

The most important issues were chosen from this list and short problem-solving discussions were held to arrive at solutions.

#### 3.4.23 Closure (Saturday, February 25)

The workshop was formally closed about 2:30 on Saturday afternoon. Evaluation forms were filled out, speeches made, refreshments served, and gifts presented to the staff trainers. In general, everyone expressed feelings of warmth and accomplishment.

## Chapter 4

### ASSESSMENT

#### 4.1 Participant Evaluation

The participants were asked to rate the degree to which they felt each of the course goals had been achieved. An evaluation scale of one to five was used. The following is a composite of those scores based on what they felt they could do as a result of the workshop:

1. Plan and prepare to deliver a handpump training workshop.

1	2	3	4	X	5
Low					High

2. Deliver effective training using a variety of hands-on, participant-centered, practical training methodologies.

1	2	3	4	X	5
Low					High

3. Adapt the handpump training manual to fit the needs of handpump programs in Sri Lanka.

1	2	3	4	X	5
Low					High

4. Provide technical expertise in specific handpump technologies.

1	2	3	4	X	5
Low					High

5. Plan, implement and evaluate a handpump installation project.

1	2	3	4	X	5
Low					High

#### 4.2 Trainer Assessment

The trainers felt the workshop went well and that it was a successful effort to help the NWSDB improve its capacity to provide effective training to supplement its handpump implementation and maintenance projects. The trainers in the Training Unit in the Water Board will, in the opinion of the consultants, be able to use and manage others who use A Workshop for Handpump Installation and Maintenance: A Training Guide. These same trainers will be able to use a more practical, hands-on participant-centered approach in all the training they do which should enable them to conduct training that will have a substantial impact on skills and knowledge of their trainees.

There were several critical factors which contributed to the success of this workshop that ought not to be overlooked.

- 1) The enthusiasm and motivation of the participants were both instrumental in making the workshop effective. All the participants were open to new ideas and were willing to take risks and try out new things. They worked long hours throughout the workshop. Attendance was never a problem.
- 2) Mr. P. Abhayagoonewardhena (who worked with the two consultants to comprise the three-member staff trainer team) is an extremely talented trainer and manager of training. He had to play quite a lead role in the training since it was done mostly in Sinhala, while at the same time he learned how to use different methodologies and approaches himself. The strength he brought to the training team was certainly a key factor in the success of the workshop.
- 3) The preplanning done by WASH, the USAID Mission, and the Water Board was essential. Training of trainer workshops which include field sessions are complicated training programs which require a high degree of mutual understanding of what is about to happen, as well as a commitment to organizing and following up to see that materials are available, logistics set up, and field sites arranged, etc. The planning schemes, long cables, and phone calls surely helped in this communication process. The USAID Mission, Eric Loken in particular, had done an excellent job in arranging for and managing for this training effort.
- 4) A workshop site that was residential and far enough away from the offices and homes of the participants to minimize distractions was an advantage. Participants were able to live and work together in ways that allowed for both long working hours and time for the rest, relaxation, and reflection which is so essential to an effective learning environment.
- 5) The fact that most of the workshop could be done in the local language was important. Participants could study and deliver sessions in the language with which they were most comfortable.
- 6) In the workshop group there was a core of participants from the training unit who had training experience. This experience was essential to the final outcome. A training of trainers using the WASH training guide will not work effectively unless part of the group has worked as trainers and has experience with adults as learners.

## Chapter 5

### RECOMMENDATIONS

#### 5.1 Recommendations for Future Training of Trainers

Following are several recommendations for anyone planning to train trainers using the WASH training guides:

- 1) Plan for the training itself to be longer than 12 days, perhaps 14 or 15 days. There are at least three specific design changes two or three extra days would allow: (a) more demonstration of training techniques by the staff trainers before practice training begins, (b) a session on giving and receiving feedback which would help in the debriefing of practice sessions, and (c) the demonstration by staff trainers of a field session so the participants get an opportunity to see how to handle the many issues that arise in making field sessions effective.
- 2) Be prepared to "let go" and allow the workshop, especially the practice training, to occur in the local language even if not understood by the staff trainers. Learning from practice training will come without the trainers knowing exactly what is being said minute by minute. This makes it even more essential to have a national on the training staff to help communicate effectively with the participants.
- 3) Two member training teams (trainer and engineer) make a very strong, credible training staff. Conducting workshops in developing countries where a good many logistical arrangements are required involves a good deal of work, frequently more than can be handled by one person. In addition, the skill and knowledge combination of trainer and engineer is essential for achieving the desired results from the workshop.

#### 5.2 Recommendations for the USAID Mission and the National Water Supply and Drainage Board

Implementing this training program in Sri Lanka permitted the following observations and generated the following recommendations which might prove helpful.

- 1) The Water Board now has a cadre of people who can deliver practical, hands-on training in handpump technologies. However, these individuals need a well-thought-out training system in which to operate. The Water Board needs to commit itself to a training plan which has been designed to help implement the goals and objectives of the rural water supply schemes. The trainers who were in the workshop and who are now prepared to conduct this training need to be part of teams of trainers for rural water supplies. This should be done in a systematic way which gives them the structural and managerial support they need to use what they have learned.

Simply sending individuals to a training of trainers on handpump installation and maintenance and assuming they will return to the job and begin to find ways and places to do training (in addition to other work) is not realistic. A training plan with the managerial efforts required to carry out the plan is essential if these workshop participants are to do any serious training.

- 2) The NWSDB needs to look carefully at its strategies for increasing community participation in handpump projects. Community participation is, of course, a complex and often difficult process. Sporadic attempts to train caretakers and expect them to function as volunteers in their communities without much support from either the Water Board or the community is not likely to work. Finding and training a caretaker is one part of building active community support for handpump programs. However, this caretaker will get discouraged and "burned out" quickly without on-going support and recognition from both the Water Board and the community.

The Water Board has a community-based handpump maintenance program which was conceived during the last 18 months and is explained in the "Maintenance of Community Wells" by R. Paskaralingam of the Ministry of Local Government Housing and Construction. This appeared to be a good, workable plan and ought to be implemented exactly as it is. However, any community participation project requires a staff of well-trained community extension agents that have the time and commitment to working with the communities. We suggest that the Water Board needs to implement this plan in its entirety and to develop a team of community extension agents who can communicate this plan to communities and get them to support it.

- 3) It is certainly essential that handpump projects throughout Sri Lanka do something substantive about maintenance issues. Thousands of handpumps installed all over a country without a fairly comprehensive maintenance plan are only inviting problems. Donor agencies and the Water Board need to address this issue and do something about it before the country is forced to deal with angry villagers and a plethora of malfunctioning handpumps. It appears that everyone is concerned and agrees that there is a problem, but efforts continue to focus solely on getting wells dug and handpumps in the ground, ignoring the maintenance problems that will undoubtedly occur.
- 4) The training unit in the NWSDB is a highly motivated, skilled group who can do much to further the goals of the Water Board and its efforts throughout the water sector. The proposed USAID/Sri Lanka institution-building project, which could be operational within the next nine to twelve months, should expect to rely on this Training Unit for project implementation. Well-placed resources for helping this Training Unit would be highly effective.

Perhaps the next nine to twelve months before the project start can be used as a bridge to this start-up. After participating in this training of trainers the training unit has a good foundation for



improving the way they do training. They are motivated and enthusiastic to make these changes. Some additional consultant support over the next nine months could help them to begin to do some of the things the project calls for.

This help might be as follows:

- o technical assistance to help change existing courses to a more participant-centered approach
- o resources which allow the trainers in the training unit to write their courses out in trainer guidelines' format
- o opportunities to work as two-member training teams rather than as individuals
- o resources to translate relevant portions of the handpump training guide into Sinhala
- o designing and conducting management and supervisory courses especially for NWSDB staff
- o extra efforts to acquaint and build skills of Abhayagoonewardhena in the areas of institution building and management training.

During the next year while waiting for the proposed AID project the training unit should be helped and encouraged to make the changes that need to be made. This will improve the chances for making significant contributions early in the life of the project.

APPENDIX A

PARTICIPANTS

USAID/NWSDB HANDPUMP TRAINING-OF-TRAINERS COURSE

(February 13-25, Anuradhapura)

National Water Supply & Drainage Board

Training Center

Mr. R.A. Henry	- Training Officer
Mr. H.I. Kariyawasam	" "
Mr. B.M.P. Premawardene	" "
Mr. H.U. Kandamy	" "
Mr. K.D. Perera	" "

Groundwater Section

Mr. V. Mahasen	- Engineering Assistant
Mr. K. Dharmapala	" "
Mr. K.A.R.J. Fernando	" "
Mr. Anura Perera	" "

Operation and Maintenance

Mr. T. Tilakumara	- Mechanical Engineer
Mr. K.D. Dayaratne	" "

Construction

Mr. P. Abeysantha	- Technical Officer (Matale)
Mr. N.S.K. Ratnayaka	" "

Mahaweli Development Authority

Mr. T.A. Perera  
Mr. D.M. Hewapala Dissanayake

German Technical Assistance Agency

Mr. A. Kurukulasuriya  
Mr. J. Knapp\*

Finida

Miss. A. Keinanen\*  
Mr. A.M.P.B. Atapattu

Women's Bureau

Mr. J.K.D. Seneratha  
Mrs. Sirima Kumarasing

UNICEF

Mr. Soren Pearsson\*

Redd Barna

Mr. S. Nithiyanthan  
Mr. G. Saththiyan

WHO

Skanda De Sarem\*

\* Attended parts of the program

## APPENDIX B

### CASE STUDY

#### Part I

Issa Fasil has been assigned a new two year post as a rural development technician in a region of the country he has never visited before. He has just learned of his assignment to be in charge of managing a new rural water supply and sanitation project in a district of the Western Province. His supervisors in the Ministry of Rural Development, pleased with the work he has performed during the past five years in the Aldelona District of the Eastern Region, feel he is now qualified to tackle the problems of a new water supply and sanitation project in the Western Region, where the population is known to be difficult to work with. Fortunately, Issa can speak Fonduna the lingua franca of the Region, although not the dialect of the Kahalekta District where the project will begin. He wonders whether he should take the time to learn Kahalekti, but decides that his knowledge of Fonduna will do.

His experiences in the Eastern Region over the past five years had been a source of great pride to him. Forty-five wells had been dug and ten gravity-fed systems had been installed in his district, largely through community-based efforts. So well organized were the people that he had had little more to do than to guide the technical aspects of the work and help involved communities train caretakers and set up an accounting system for the maintenance funds. A nationally important private voluntary organization had been working with those communities for years before Issa's arrival. He had learned a great deal about their methods. In the region to which he was now assigned this PVO had no such activity.

When he was a student at the National Institute for Rural Development he had developed a great respect for one particular professor, Mohammed Khalil, who had stressed the need for populations to participate from the early planning stages in all kinds of development projects. Professor Khalil had recounted dozens of instances in which the success or failure of a particular project had seemed to depend upon the degree and type of participation by the population concerned. One story that comes to mind is that of a community in the Northern Region that had resisted the construction of a new well, even though it was in a water-short region, when they found the well was to be dug on the land of a private landholder. The people had refused to help the well-digging team, even to the extent of denying them lodging or food. So unsatisfactory was the experience, that the drilling team withdrew after the well was completed although five wells had been planned for that large village.

The technical demands of the project are the theme of his briefing session at the Ministry of Rural Development before his departure for Kahalekta the following week. The Western Region has the highest infant and child mortality rates in the country. The long dry season and periodic drought combine to bring about a nearly perpetual shortage of water. There are almost no springs on the hot dusty plain, and wells are few and far between. Those that exist are of the hand-dug variety. Most go dry in three to four years. Diarrhea and undernutrition are the most important causes of mortality, with measles and bronchopneumonia taking seasonal tolls. When the rains are heavy, every two to three years, malaria is rampant.

No well construction effort has been tried since colonial times. The open wells built during that period are still functioning in some of the market towns. Because of recent drought, the adverse health statistics, and especially the political unrest in the region, the wells program is a top government priority. An international agency has agreed to finance a program of village wells with handpumps, one per village, with a first goal of 400 wells in three years. The Kahalekta District is to serve as the starting point, receiving 50 wells in the first year.

When Issa tries to question the feasibility of completing 50 wells in the first year by posing the problem of obtaining cooperation from the people, he is brushed aside. The wells must go in on time. Digging is to start in a month. Issa's job is to prepare the villages to contribute labor, local materials, and funds for the apron around the well and the drain. A maintenance contract is to be drawn up with each village, and the village will pay a certain sum each month into a maintenance fund. He is handed a list of well sites and a tentative drilling schedule. The geologist had already completed his work.

His last stop before leaving is the Public Works Department. Here he learns that the work is to be based not in Kahalekta (as he had supposed since it had been designated as the pilot area) but in Muntoa the regional capital. It is from Muntoa at a distance of 300 kilometers that the drilling team will haul its rig and the lorry will bring cement and other supplies. Thankfully there remain six months until the rains begin in the North.

He leaves early the next day for Kahalekta via Muntoa. The bus leaves at 5:30 and already at 5:00 it is packed with people. He thinks about what is waiting for him in Muntoa and then in Kahalekta. He should be in Muntoa by noon, pick up his motor bike there, see the Regional Rural Development Director and the Regional Public Works Engineer to confirm the drilling schedule and the village list, and purchase enough supplies for an early departure the next morning. He is anxious to arrive in Kahalekta to see his living quarters. As an unmarried technician he doesn't expect much. He hopes it will be adequate, and with that thought he dozes off, not awakening until they are on the outskirts of Muntoa. It is 12:30, too late to pick up his motor bike before lunch.

The bus stops in front of the hotel. Checking his pocket to see how many Tahuta he has, he decides to find a local soup shop instead of eating at the hotel. His salary was two weeks late last month and the money he has may have to last longer than he expects.

After lunch he walks to the Regional Rural Development Office, where he checks with the Director's Office. He is told to wait, and while waiting begins talking with the clerk, who it turns out is a distant cousin on his mother's side. As they talk on, Issa thinks to himself how fortunate he is to have found a kinsman in this place. The phone buzzes and he is told the Director can see him. The clerk reminds him to stop by on the way out.

It seems his reputation has preceded him. The Director greets him warmly and asks about the trip and his health, then proceeds directly to the question, "How do you plan to work with the people in the villages?" Issa confesses his apprehension in view of all he's heard. The Director confirms the difficulties he is likely to face, but cites the example of another Rural Development

Technican, also an easterner who recently had managed a successful agricultural project in the Region. The Director tells Issa he will meet him in Kahalekta the following Monday and go with him to meet the District Administrator. They will discuss the village list with him and visit several villages during that week. Issa can pick up his motor bike in the Rural Development garage. As Issa gets up to leave the Director reaches out his hand "Good luck, my son, peace be with you!"

On the way out the clerk stops him, offering a place for the night. Issa accepts since his Tahuta are not many, and he must still buy supplies and petrol and pay his first week's rent. When he arrives at the garage his motor bike is ready. After filling out the registration forms he returns to the Ministry to wait for his cousin. There is no time left for the rest of the things he had hoped to do.

The next day he buys his supplies and petrol and stops by the Ministry of Public Works to talk with the engineer assigned to the wells project. A few revisions in the village list have been made already. The hydrogeologist had apparently found some of the sites unacceptable. The engineer seems excessively concerned about the project schedule and leaves Issa with the impression that if there were delays it would be because he had failed to secure the cooperation of the population.

The Rural Development Director is as good as his word. At 9:00 that morning they visit the District Administrator. Issa produces the revised list. Seeing several villages removed and others added upsets the Administrator a great deal, for he had promised wells to all the villages dropped from the list. Those selected had in fact been included for important reasons. Issa wonders if the Project Engineer understood this issue.

Three weeks remain until the drilling team will come down from Mundoa. He remembers that he has not yet discussed with the village elders their commitment to collect sand, gravel, and clay, contribute money for cement, and organize work teams. It is estimated the rig will be in the District for about three months in order to complete the fifty wells. Following the well-drilling in a village, the pump installation team will arrive. Then the village must install the apron and drain. Finally the pump caretaker, whom Issa will train, will take over routine maintenance. It is for these latter steps that Issa must work with the village leaders.

The first village to receive a well will be Kahamala. That is the village that Issa, the Regional Director, and the District Administrator visit on Tuesday. No sooner do they arrive in the village than, after hurried greetings, the village leaders accost them with their displeasure over the selected site. Without prior discussion with the village leaders, the geologist had left a stake marking the site at the edge of the village near only a few houses. After they have vented their frustration, the meeting begins. As the discussion continues, partly in Fonduna, partly in Kahalekti, Issa grows uneasy. It appears the village Headman has little control over most of the households. The leaders are divided in their support of the well project. Those whose homes are far from the site are less than enthusiastic. In this first meeting it could only be pointed out that the drilling team would be arriving in three weeks, whether or not the village is ready. Meanwhile the District Administrator urges the leaders to consider how they might look ahead

to organizing the collection of sand, gravel, and clay, begin to collect money for the cement, appoint caretakers for the pump, and arrange for a work team to be ready for the pump installation team when it arrives. Lastly he asks the villagers to provide food and lodging for the well drilling team. He promises that Issa will be back to help them. He feels every eye is on him at that moment. These are people whom his ancestors had dominated. What chance does he have to gain their trust in order to help them with their problems? It is only three weeks until the drilling rig arrives, and they are unhappy with the site. Issa nods in agreement and smiles at the Headman and the other leaders.

After the meeting he arranges his next visit. Meanwhile the women have prepared a great feast and there is drumming and dancing.

## Part II

Three weeks pass. The drilling team had arrived in Kahalekta the day before. Issa was on hand to greet them along with the District Administrator. That evening they had gone over the plans for the following day. Issa had worked hard with the leaders of Kahamala to organize support for the pump installation, but he was afraid the gravel, rock, clay, and sand would not be enough. Gravel in particular was a problem, for the people had to travel 8 kilometers to find it in a dry riverbed. With the small number of people who came out to help, the quantity obtained was small. He wondered if the drilling team could spare its pick-up truck to bring back an additional load of gravel.

Of even greater concern was the resistance to participating in the undertaking shown by the leaders representing the parts of the village farthest from the proposed well site. They had never given an outright refusal but left no assurance that they would be there when the work began.

During the first few days, when the well is being drilled, there are curious bystanders from all parts of the village. Issa notes that those from the parts farthest way from the site stand for a while and then leave, whereas those nearby stay for longer periods. The drilling team members are kept by households near the site.

Near the end of the second day, water is struck. A great shout goes up from the bystanders. The team quickly removes the equipment and caps the tube with a plug. The pump installation team will come later to put the pump in place.

Issa had urged the leaders to appoint a volunteer caretaker to maintain the pump which was to be installed. The person should be conscientious, respected by all, have good manual skills, and be from a participating household. For several weeks there was no response, despite several reminders to which Issa always received a silent nod from the village Headman. After the departure of the drilling team he feels he really must get the training of the pump caretaker started. Thus, he asks for a meeting of the leaders to discuss the matter.

The meeting never takes place. Two days later one of the leaders from a household benefitting most from the well brings a young man to him, his brother's youngest son. He is to be the caretaker. The young man looks about 20 years old. He has completed primary school, can read and write English and Fonduna, but his speaking ability in Fonduna is limited. Thus, he and Issa will have some difficulties communicating. His father's death had forced him to return to the village six years earlier and his Fonduna had fallen into disuse. He had recently apprenticed himself to a local craftsman (a member of the family). Issa tells him about the responsibilities of the job and the training program for all the potential pump caretakers from the District that will be held for three days in two weeks at the Rural Development Office in Kahalekta. The young man whose name is Mba Lenota smiles and promises to be there.

Weeks later, the day the pump installation team comes, it begins to rain, just a few showers but enough to send the people to the fields to plant millet. As a result, only a few people come to prepare the ground for the apron and to



dig the pit for the drain. As before, only those from households nearest the pump participate. The pump installation team members help lay the forms and direct the work of cementing in the apron and drain. Because the village has collected enough money for only a small quantity of cement, they have to make the apron smaller and the drain shorter than they hoped. Because of so few laborers, the work schedule was also delayed, but the pump installation team, needing to get on to the next village, rushes to finish on time.

After two days the work is completed. Before they leave the team observes Mba as he takes apart the pump and puts it back together again.

### Part III

After six months Issa feels satisfied. Of 50 projected wells, 30 holes have been drilled and lined, 20 with pumps. Every pump has a caretaker. True, not all caretakers are the most promising, but each one has been selected by the village, or by at least a part of the village as in the case of Kahamala. Not all the aprons are as wide as they should be. It seems that when the well is situated near the center of the village, the participation of the people is greater, more money is collected, and a larger apron results.

On his last visit to Kahamala he was surprised by the number of children at the well. He estimated that more than half those waiting to pump were under 15. He had thought most of the water drawing was done by women. Most of the young girls were having a hard time pumping. The pump handle was obviously too long and too high for them. To facilitate pumping, one girl would sit on the end of the pump handle to get it down while another controlled the motion. To raise the handle again, the girl seated on it would push with her feet.

His thoughts are interrupted by a knock at the door. It is Mba who has walked from the village to say the pump is broken, such that he cannot repair it. It appears the handle has broken off from the connecting rod and several key parts have been lost. Issa remembers the girls on the pump handle.

During the trip out to the village he and Mba talk about the pump. It seems that even though they did not participate in the work, some people from the farthest parts of the village are using the well, in particular since the dry season has set in. Now there are long queues of girls waiting to draw water. At six o'clock in the morning every day there is already a crowd. When Issa asks about maintenance, Mba confessed he'd done very little. The money collected by the nearby households had been enough for some lubricating oil, but not to buy tools. Since the well had come under heavier use he had found it impossible to enforce the rules, especially among those from distant parts of the village.

When they arrive at the well Issa notices that the apron is already cracked and chipped, and the drain is clogged resulting in pools of stagnant water. The pump is just as Mba described it. It's a job for Public Works, but the village must buy a new handle. With local support of the project as it has been to date, that may be an insurmountable obstacle.

#### Part IV

The village leaders request a meeting with Issa. At the meeting they complain that they have less water than before the well was drilled. They say the villagers are up in arms demanding an early repair of the pump, so that the children don't have to walk so far.

APPENDIX C  
FACT SHEET

HANDPUMP  
Installation and Maintenance

A Guide for Trainers

The overall purpose of this 12-day workshop is to increase the skills and knowledge of field workers who are interested in playing a role in the implementation of successful village based handpump programs. The training program is for participants who do not currently have the technical skills and knowledge to implement a handpump program or who desire to practice, review, and refine their present level of understanding and skill.

Our definition of "successful" is a program that is managed effectively over time by the village itself with a minimum dependence on outside expertise and that results in the use of safe drinking water by a majority of the village people including the practice of proper hygiene and sanitation once the water has left the well.

Participants will have an opportunity to actually plan and implement major aspects of a handpump program during the training course. Through this practical, "hands on" approach, participants will increase their skills and knowledge in two major areas:

- o Technical skills including site selection and preparation, handpump installation, and maintenance and repairs.
- o Community development skills including facilitating village mobilization and decision making, problem-solving, user education, and technology transfer.

Goals of the Workshop

At the end of this workshop, trainees will be able to:

- o Conduct preliminary studies to determine most appropriate villages for handpump projects.
- o Identify and apply strategies for involving the community in handpump projects.
- o Survey, evaluate, and select sites for handpumps including an assessment of the quantity and quality of water needed to warrant installation.
- o Develop an awareness of relevant theories about water and its relationship to health.
- o Use a handpump project as a strategy for designing and implementing a user education dialogue at the village level.

- o Design and conduct appropriate training sessions on pump maintenance, repair and monitoring using visual aids, job aids, and other non-formal education methods for use with villagers.
- o Develop and implement with appropriate village group work plans and logistics necessary for project start-up.
- o Coordinate and supervise work force and the procurement and delivery of materials.
- o Prepare selected sites for receiving handpumps.
- o Install locally available shallow or deep well pumps.
- o Operate, maintain, and repair a handpump.
- o Identify alternative strategies for solving most common non-technical problems which develop before, during, and after handpump installation.
- o Monitor and evaluate the effectiveness of the handpump program.
- o Develop an awareness of national and regional handpump program resources and design a strategy for linking village based projects to these resources.

#### Predominant Technology

These training materials are applicable for both boreholes and hand dug wells. They are adaptable to whatever model and type of handpump is found in an area. The AID handpump is used as a basis for the workshop design, but the sessions are written in such a way that they apply to any type of deep or shallow well handpump. The workshop starts at an existing well which needs improvement.

#### Training Project

The handpump training project has two purposes: 1) to provide a laboratory for learning which simulates actual conditions trainees will face in implementing handpump projects and 2) to install a handpump for a village and leave an improved, functioning water source for the community.

In order to accomplish both the above purposes, the project and the workshop are connected and inter-dependent in the following ways:

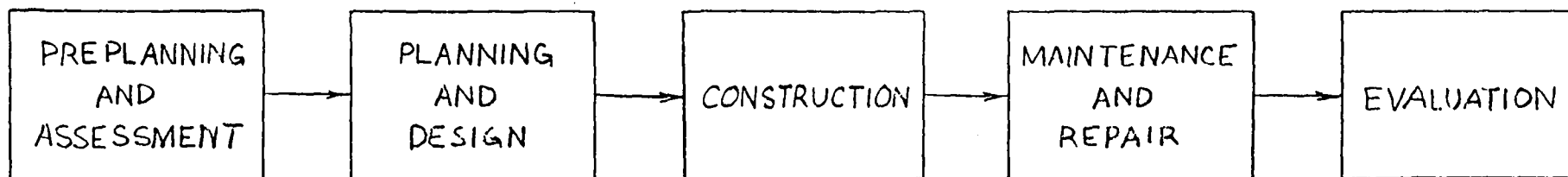
- o Trainees actually work on the project
- o Workshop topics are scheduled to fit into the natural sequence of project completion. Many sessions begin in the classroom, move to the field, and are completed back in the classroom.
- o Training staff is responsible for conducting the training program and for completing the project.

- o Labor force is available to supplement the labor of the trainees. For example, when constructing the drainage system trainees would size the ditch and sump but workmen would actually do the digging. When the opportunities for learning have been exhausted and only the labor remains, the trainees move to another training session and the labor force completes the activity.

## WORKSHOP SCHEDULE

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
<u>Total Time:</u> 5 hrs 50 min.	<u>Total Time:</u> 7 hrs 5 min.	<u>Total Time:</u> Dug Well: 6 hrs 10 min. Drilled Well: 4 hrs 10 min.	<u>Total Time:</u> Dug Well: 5 hrs 50 min. Drilled Well: 4 hrs 50 min.	<u>Total Time:</u> 7 hrs 35 min.	<u>Total Time:</u> 8 hrs 35 min.	
Session 1	Session 3	Session 5	Session 5, pt. 2	Session 6, pt. 2	Session 7, pt. 2	
Introduction to the Handpump Workshop (2 hrs 55 min.)	Implementing Water Supply Programs with Handpumps: an Overview (3 hrs 40 min.)	Constructing the Apron	Constructing the Apron (Dug well: 4 hrs 25 min Drilled well: 3 hrs 25 min.)	Preparing for Conducting Initial Village Assessment for Project Feasibility (3 hrs 35 min.)	Conducting the Assessment and Analyzing Assessment Results (3 hours 15 min.)	
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Session 2	Session 4		Session 6	Session 7	Session 8	OFF
Work Site and Handpump Orientation (2 hrs 25 min.)	Determining Well Recharge Rate (3 hrs 25 min.)		Preparing for Conducting Initial Village Assessment for Project Feasibility (1 hr 25 min.)	Conducting the Assessment and Analyzing Assessment Results (4 hrs)	Working with the Village Community (4 hrs 5 min.)	
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DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14
<u>Total Time:</u> Dug well/Shallow well pump: 5 hrs 35 min. Dug well/Deep well pump: 6 hrs 20 min. Drilled well/Shallow well pump: 5 hrs 5 min. Drilled well/Deep well pump: 5 hrs 50 min.	<u>Total Time:</u> Shallow well pump: 7 hrs 35 min. Deep well pump: 8 hrs 35 min.	<u>Total Time:</u> 6 hrs 55 min.	<u>Total Time:</u> 5 hrs 35 min.	<u>Total Time:</u> 6 hrs 30 min.		
Session 10	Session 11, Pt. 2	Session 13	Session 15	Session 17		
Finishing the Site (Dug Well: 3 hrs 5 min. Drilled Well: 2 hrs 35 min.)	Installing the Handpump and Disinfecting the Well - (Shallow Well: 3 hrs 20 min.) Deep Well: 4 hrs 20 min.)	Training the Care-takers (2 hrs 40 min.)	Developing and Implementing User Education Strategies (2 hrs 55 min.)	Evaluating the Handpump Project (2 hrs 25 min.)		
-----	-----	-----	-----	-----	-----	-----
Session 11	Session 12	Session 14	Session 16	Session 18	Session 19	OFF
Installing the Handpump and Disinfecting the Well (Shallow Well Pump: 2 hrs 30 min. Deep Well Pump: 3 hrs 15 min.)	Maintaining and Repairing the Pump (4 hrs 15 min.)	Developing a Project Cost Estimate and Construction Work Plan (4 hrs 15 min.)	Linking Up to Regional and National Efforts (2 hrs 40 min.)	Planning a Handpump Project (2 hrs. 35 min.)	Workshop Evaluation (1 hr 30 min.)	

# THE PROJECT CYCLE



PREPLANNING AND ASSESSMENT

- o Meet with and explain handpump project to village leadership.
- o Identify with community basic resources needed for a handpump project.
- o Conduct with community initial village assessment for project feasibility; determine well recharge rate.
- o Obtain commitment to handpump project from village.
- o Make commitment to village regarding support.

PLANNING AND DESIGN

- o Meet with local users to find out their concerns and desires regarding a handpump project.
- o Rough design apron slab.
- o Find material quantities and develop cost estimate for proposed wells.
- o Present cost estimate for each well to village leadership, facilitate decision to proceed.
- o Finalize apron design.
- o Develop with community work plan for construction including materials, tools, labor and what to do with well users during construction.
- o Facilitate procurement of materials, tools and labor (make sure everyone does their job to get ready for construction)

CONSTRUCTION

- o Organize work force, assign responsibilities, explain construction tasks.
- o Reline the well.
- o Construct the apron; allow three days for curing.
- o Finish the well site.
- o Install pump.
- o Disinfect well.

MAINTENANCE AND REPAIR

- o Select caretakers with community.
- o Train caretakers in maintenance, repair and disinfection.
- o Design/implement with community necessary maintenance schedule.
- o Train users in proper handling and storage of water, other user education.
- o Be prepared to solve any operational problems that arise or do repairs.

EVALUATION

- o Reflect on project with community, noting what changes should be made before beginning next handpump project.
- o Determine ways to integrate handpump projects into other community health and sanitation programs.
- o Identify future work for improving village water resources.



## APPENDIX F

### PRACTICE TRAINING TEAMS

#### Round I

##### Practice Session: Working with the Village Community

Training Team #1: Henry\*  
Dharmapala  
Ananda\*\*

Training Team #2: BMP\*  
Dayaratne  
Nithianandan\*\*

##### Practice Session: Constructing the Platform

Training Team #1: Kari\*  
Anura  
Kandamby\*

Training Team #2: Mahesan  
Tilakumara  
Abeysantha

##### Practice Session: Implementing Water Supply Programs with Handpumps

Training Team #1: Dissanayake\*\*  
Sirima\*\*  
Atapattu\*\*

Training Team #2: K.D. Perera\*  
Ratnayaka  
Saththiyan\*

##### Practice Session: Training the Caretaker

Training Team: Rohitha  
K.D. Perera\*  
Seneratna\*\*

#### Round II

##### Practice Session: User Education Strategies

Trainer Team: BMP\*  
Anura  
Rohitha (Fernando)

Practice Session: Installation and Disinfection

Trainer Team #1:	Kari*
" "	Kandamby*
" " #2:	Henry*
" " #3:	Mahesan
" " #4:	Kari*
" " #5:	Tilakumara
" " #6:	Damapala
" " #7:	Dayaratna
" " #8:	T.A. Perera
" " #9:	Saththiyani**
" " #10:	Nithianandan**
" " #11:	Ananda**

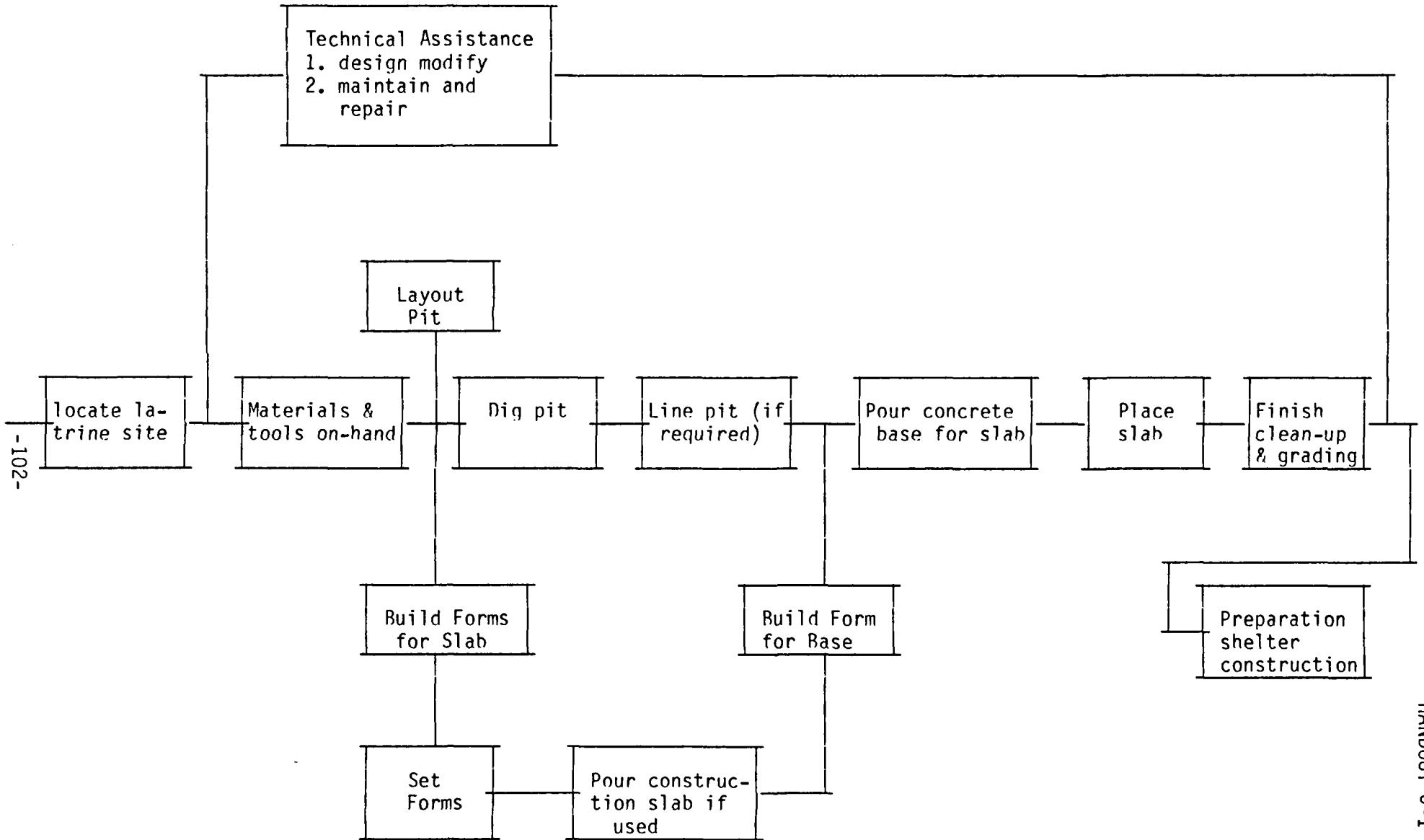
Practice Session: Maintenance and Repair

Training Team #1:	Henry*
" "	Sirima**
" " #2:	Abeysantha
" " #3:	K.D. Perera*
" " #4:	Ratnayaka
" " #5:	Kari*
" " #6:	Atapattu**
" " #7:	Seneratna**
" " #8:	BMP*
" " #9:	Rohitna
" " #10:	Dissanayake**

\* Members of Training Unit at NWSDB

\*\* Participants from NGOs

CONSTRUCTION FLOW CHART



-102-