

WATER AND SANITATION
FOR HEALTH PROJECT



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The WASH Project is managed
by Camp Dresser & McKee
Incorporated. Principal
Cooperating Institutions and
subcontractors are: Interna-
tional Science and Technology
Institute; Research Triangle
Institute; University of North
Carolina at Chapel Hill;
Georgia Institute of Tech-
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SECOND TRAINING OF TRAINERS WORKSHOP FOR TECHNOLOGY TRANSFER IN WATER SUPPLY AND SANITATION

WASH FIELD REPORT NO. 60

NOVEMBER 1982

Prepared For:
Office of Health
Bureau for Science and Technology
U.S. Agency for International Development
Order of Technical Direction No. 90

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November 5, 1982

Mr. Victor Wehman, Jr.
AID WASH Project Manager
ST/H/WS AID
Room 702-C, SA 18

Dear Mr. Wehman:

On behalf of the WASH Project, I am pleased to provide you with five copies of a report on the second training of trainers workshop for technology transfer in water and sanitation. This is the final report by Fred Rosensweig and James Carney and is based on the workshop conducted from September 14 to 17, 1982.

The work was undertaken by the WASH Project by means of Order of Technical Direction No. 90, authorized by the USAID Office of Health in Washington.

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, Ph.D., P.E.
WASH Project Director

Enclosures

DBW/FR/cei

The WASH Project is managed by Camp Dresser & McKee Incorporated. Principal Cooperating Institutions and subcontractors are: International Science and Technology Institute; Research Triangle Institute; University of North Carolina at Chapel Hill; Georgia Institute of Technology—Engineering Experiment Station.

Revised 1

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Under Order of Technical Direction No. 90

Prepared by:

James Carney
and
Fred Rosensweig

November 1982

Water and Sanitation for Health Project
Contract No. AID/DSPE-C-0080, Project No. 931-1176
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Washington, DC 20523

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EXECUTIVE SUMMARY

The Water and Sanitation for Health Project (WASH) planned and implemented a training of trainers workshop September 14-17, 1982. This workshop was the second in a series of training of trainers workshops, the first having been held in February 1982. There were eight participants in this workshop, seven of whom attended the first workshop and all of whom work in the area of technology transfer.

The overall purpose of the workshop was to continue the development of the training skills of the participants and to build on the skills learned in the first workshop.

The planning process for the workshop took place over a period of three months and involved telephone or personal interviews with all the participants. These interviews generated data which served as a basis for designing the workshop.

The workshop focused on three major themes: training design, training delivery, and training materials development. Those three areas were carefully integrated into the workshop design. As in the first workshop, the workshop emphasized performance-based training and an experiential approach, which requires the active involvement of the participants.

A summary of participant and trainer assessment of the workshop is provided in the following report along with recommendations for follow-up activities.

Chapter 1

BACKGROUND AND INTRODUCTION

In February 1982, the WASH Project planned and implemented a training of trainers workshop for WASH subcontractor personnel working on technology transfer projects. This workshop is documented in WASH Field Report No. 45. In order to continue to develop the training skills of the participants, it was decided soon after the first workshop to have a second training of trainers workshop. This was an explicit recommendation of the participants and was supported by both AID and WASH staff.

Accordingly, the dates for the second workshop were fixed for September 14-17, 1982. This was approximately seven months after the first workshop and provided enough time for the participants to have put into practice the skills learned in the initial workshop. The date was also set well in advance of the workshop, allowing all participants to arrange their travel schedules accordingly.

The participants, with one exception, were all engineers actively involved in WASH technology transfer activities. The workshop was designed to focus on the training needs of technology transfer projects. Six of the eight participants were from the Georgia Institute of Technology and are assisting countries to manufacture, install, operate, and maintain the AID handpump. A member of the WASH staff, who manages most of WASH's technology transfer activities, and one WASH technical consultant also participated. A list of participants can be found in Appendix B.

The overall purpose of the second workshop was to further develop the applied training skills of WASH subcontractor personnel working in technology transfer. It was clearly understood that the first workshop had laid a foundation, but that to solidify the skills learned, a second workshop would be needed. The specific goals of the workshop would be defined during the needs assessment and design phase of the workshop.

Chapter 2

PLANNING

2.1 Training Staff

There were two trainers for this workshop, one a full time training consultant, James Carney, and the other the WASH Senior Training Officer, Fred Rosensweig. The training consultant was one of the two trainers at the first workshop and thus ensured a smooth transition and a logical progression in the second workshop. The WASH Senior Training Officer provided a familiarity with the participants and with their technology transfer activities and training needs in the field.

The two lead trainers designed and conducted the workshop together and shared all responsibilities.

2.2 Initial Stages of Planning

Initial planning for the September training of trainers began on June 23. Mr. Carney and Mr. Rosensweig met to develop a preliminary outline of all that had to be done in preparation for the course. Out of this meeting came a schedule for the needs assessment interviews, the design of the workshop itself, materials preparation, a debriefing, and the report. A short letter was drafted to inform the participants of the basic plan and schedule and a broad overview of what to expect.

It was also agreed that Paul Howard of the WASH staff would coordinate an administrative and technical session just prior to the workshop and that the two trainers would provide consulting design and facilitation assistance.

A month later, Mr. Carney and Mr. Rosensweig met again to develop a needs assessment interview outline and strategy. At that time (in late July) it was intended to visit Atlanta in August to interview the Georgia Tech participants. This plan had to be abandoned when it was found that, due to field trips, less than half the group would be in Atlanta at any one time. As a result, the trainers were obliged to do telephone interviews with the Georgia Tech contingent.

The interviews were conducted during the first ten days of August. All but one, who was in the field until September, were interviewed. Two participants who were in Washington were interviewed in person so that by August 11 the trainers were prepared to do an initial workshop design.

2.3 The Design Stage

To begin the design process, the trainers first went through the interview data to extract all the issues and topics raised by the participants. This material was synthesized and organized into major topic/subject categories. Then, drawing on the experience from the previous workshop and their own sense of what needed to be accomplished in this one, Carney and Rosensweig blocked out the training time available. This design process enabled the trainers to state the goals for the workshop, develop a flow of events over the three days, and to build in the training activities which would respond to the needs of the group.

2.4 Final Design Planning

With this basic design in place by mid-August, the final planning steps would come in the two weeks prior to the workshop. On September 1 the last planned interview was done by telephone, and it was learned that Georgia Tech was about to hire a new staff member. The trainers concluded that were he to be hired, he should come to the workshop and that they would conduct an orientation and interview by phone at that time.

A second letter to the participants was drafted. This letter spelled out the overall design of the workshop and the flow of activities so that the group would know what to expect from the sessions. The trainers had found in the prior workshop that this group preferred to know in advance what they would be doing at the workshop.

During the first week of September the trainers began to fill in the details of the design. Each session was reviewed for both content and process, and ideas for methods and approaches were generated. For the session on training materials another consultant, Rebecca Birch, was called. She had worked with the Georgia Tech group in preparing training manuals and job aids, so that her input on the needs of the participants was timely and helpful.

The final design was completed on September 9. That same day the new person on the Georgia Tech staff was interviewed. His input strongly supported the direction and focus of workshop design. The following day materials to be used for the workshop were gathered and prepared.

2.5 Administrative/Technical Meeting Design

One other planning piece remained--the design for the administrative and technical meeting which preceded the workshop. On September 3 Rosensweig and Carney had met with Paul Howard, David Donaldson and Ray Isely to discuss the scope and content

of this meeting. A week later, they and Mr. Howard spent several hours working out the structure and flow of this one and a half day meeting. They felt it was critical to the success of the workshop that the Georgia Tech group have a chance to discuss administrative and technical issues with the WASH and AID staff before the training, so that they would have their full attention on the goals of the workshop. An agenda for this meeting can be found in Appendix E.

By Monday, September 13, all that remained was to complete the self-evaluation instrument, prepare the flip charts for the first day, and pack up everything for the trip to Harper's Ferry.

Chapter 3

IMPLEMENTATION

3.1 Location

The workshop was held at the Cliffside Inn in Harper's Ferry, West Virginia, about 75 miles from Washington, D.C. A site was chosen away from Washington in order to avoid distractions and to have time available for evening sessions. It was also felt that a residential setting, including accommodations for sleeping and eating, lends itself readily to a close working relationship and an effective learning environment.

The Cliffside Inn gave us a suite of two workshop rooms for the entire time. This proved to be very convenient for small group work since there was adequate space. The rooms had two easels and several large tables as well as chairs. There were flip chart paper, magic markers, and a copying machine.

3.2 Methodology

The methodology used was based on experiential learning techniques. This methodology is participant centered, creates an active approach to learning, and assumes that responsibility for learning is shared between the trainers and participants. The emphasis in this workshop was not on training theory but on concrete applications to training activities in the field and on performance based job needs. The participants spent most of the time working on designing and delivering training sessions, presenting them to the group, and receiving feedback from both trainers and other participants. The specific workshop activities will be described later in this chapter.

3.3 Overall Workshop Goals and Training Design

Based on the needs assessment interviews described in Chapter 2, four major goals for the workshop emerged:

- To provide participants with an opportunity to review and update learning from the first workshop
- To provide participants with the opportunity to gain practice and experience in designing a full training event
- To allow them to practice skills and be critiqued in the delivery of a training session, and
- To allow them to explore the dimensions of and practice developing training materials.

The last three goals implied three major skill areas for the workshop. These three were the design of a training event, the delivery of a training session, and the development of training materials. The trainers decided to design the workshop by integrating these three skill areas rather than treating them separately. This integration was done by first asking the participants to design a full training event (defined for the purposes of this workshop as a 3-5 day workshop) and then taking a one-hour session from that full training event and designing and delivering it. The training materials goal was integrated by asking the participants to refer back to their training design exercises and write materials for one of the sessions in detail. This approach served to integrate the three major areas of the workshop.

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. Following is a brief session by session description of the workshop along with the goals and objectives for each session.

3.4 Specific Training Sessions

Following is a day-by-day description of the training sessions as they happened during the workshop. Each session description will include the goals and objectives for that session as well as a brief overview of the activities.

3.4.1 Tuesday Evening, September 14 - Day One

Introduction

The goals and objectives for the opening session were as follows:

Goal: To bring the group back together and re-establish a climate for group learning.

Objectives: To present the overall goals of the workshop and the schedule.

To share formal and non-formal training experiences since the last workshop.

This session began with an icebreaker in which each participant was asked to draw a picture of how he saw himself in relation to training in the field. The pictures were then shared with the rest of the group. In general, the drawings were quite

Figure 1:
Training Schedule

Tuesday 9/14	Wednesday 9/15	Thursday 9/16	Friday 9/17
8:30 a.m.	8:30 Process Session 8:45 Overall training design 10:00 Designing a full training event	8:30 Process Session 9:00 Continuation of presentation of training designs 11:00 Training Techniques	8:30 Process Session 9:00 Developing training materials 11:00 Review of training materials and critique
12:30 p.m.	LUNCH	LUNCH	LUNCH
2 p.m.	2 p.m. Presentation of Training Designs	2 p.m. Preparation of Training Sessions 4 p.m. Delivery of Training Sessions	2 p.m. Review of workshop objectives 2:30 Self Evaluation of training skills 2:45 Trainer review of individual evaluations 3:45 Closure
6 p.m. DINNER	DINNER	DINNER	
7:30 p.m. - Icebreaker - Formal and non-formal training approaches - Agenda Review	Free Evening	7:30 Continuation of Delivery of Training Sessions	

creative and helped the group loosen up and establish an informal climate for the workshop. The entire activity took about 45 minutes.

The purpose of the next activity was to allow group participants the opportunity to share their training experiences since the first workshop and, in the process, to review what had happened in that workshop. The trainers asked the participants to discuss not only their formal training experiences (i.e. workshops, training materials) but also ways in which they had used their training skills in non-formal ways (i.e. meetings, written tasks, etc.). Participants were asked two questions:

1. What have you done in training since the last workshop?
2. What have you learned from those experiences?

The trainers also posted the seven major themes of the first workshop on newsprint (experiential learning model, individual training styles, communication and feedback skills, motivation, task analysis, performance objectives, and phases of training). The participants were asked to write what they wanted to review as such questions arose during this discussion. This activity took about 45 minutes and was done in two subgroups of four participants.

The evening session concluded by reviewing the workshop agenda and schedule. The overall flow of the workshop including the three major themes of training design, training delivery, and training materials development was presented.

3.4.2 Wednesday, September 15 - Day Two

The first half hour of each morning was devoted to reviewing the previous day's session from a training perspective. Calling this a process session, the trainers wanted to provide the participants with an opportunity to raise questions about the training process. The participants were asked to comment on what they saw the trainers doing and to ask any "trainer questions" that they had. It was hoped that this would stimulate the participants to think about the process issues of designing and delivering training. The rest of the day was devoted to the theme of training design.

Training Design

Goal: To increase skills in designing a full training event by creating a more complete understanding of the elements of training design.

Objectives: To generate a sequential list of training design considerations.

To develop a design for a 3-5 day training event for an actual field project.

To present and discuss the training designs with the entire group.

The first activity was to examine the specific steps in designing a training program, defined as a 3-5 day event. The participants were divided into two groups and asked to generate a checklist of the steps, in sequential order, that must be taken to do a training design. After working for 30 minutes, both groups shared their checklists and discussed in detail their findings.

Using these checklists, the participants were then given one hour and a half to design individually a 3-5 day training event for a real project that they might implement in the field. The level of detail and the format were to be similar to the training schedule for this workshop as presented in Figure 1. Each participant was also told that they would give a 10-minute presentation of their training designs to the group.

After preparing their designs, the rest of the morning and the afternoon were devoted to presenting and discussing the designs. The key questions covered when reviewing each design were as follows:

1. What problems did you have in designing? Were any design aspects particularly difficult?
2. Is the design consistent with the checklist?
3. How could the design be improved?

3.4.3 Thursday, September 16 - Day Three

Thursday morning began with a half hour review of Wednesday's activities. This was followed by the conclusion of the presentations of the training designs. At 11:00 a.m., the second major theme of the workshop, training delivery, was introduced.

Training Delivery

Goal: To expand an awareness of the scope, importance, and applicability of delivery techniques and choice of training activities.

Objectives: To explore the range of possibilities in delivery skills and choice of activities.

To develop an understanding of the relationship between delivery skills and choice of activities.

To examine how training techniques relate to training design.

To prepare the participants to incorporate a wider range of training techniques in a training session.

To provide practice and feedback in designing and delivering a short training session.

This second major theme of the workshop was introduced by focusing on the issue of training techniques. Training techniques were defined as a combination of delivery skills and specific training activities. A list of delivery skills was presented (Appendix C) and then each item was briefly discussed. The training activities aspect was handled by asking the participants to generate a list of activities that they commonly use as well as activities that they had seen the trainers use. A list of activities prepared by the trainers was then shown (Appendix C) and compared and contrasted with the participants' list. The ensuing discussion centered on which activities are generally successful, which ones are not, and what criteria the participants use in choosing activities. This session concluded by linking the choice of training activities to delivery skills in order to increase the participants' awareness of the importance of the mastery of certain delivery skills in the use of activities.

The rest of Day Three was devoted to preparing and delivering a one-hour training session. The participants were first divided into two groups of three and one group of two. The groups then chose one session from the participants' training designs from the previous day, and as a group designed that session in detail. The participants were also asked to try out some delivery skills they particularly wanted to work on. After approximately one hour of preparation time, the groups conducted their sessions. All the sessions were jointly conducted by all the participants in each group thus allowing each participant the opportunity to practice his training skills. The critique following each session lasted about 30 minutes and focused on the design of the session itself and the training skills of the participants. The three practice sessions and critiques took the remainder of the day.

3.4.4 Friday, September 17 - Day Four

Friday began with a half-hour process review of Thursday's activities. The rest of the day was divided into two segments, the morning being spent on the subject of training materials development and the afternoon on review, evaluation, and closure.

Training Materials Development

Goal: . To enhance the participants' understanding and skills in the development and use of training materials.

Objectives: To provide experience in developing training materials.

To explore the various dimensions of developing training materials.

To integrate training materials into the context of training design and delivery.

To tie the learning back into real and current applications.

The session on training materials development was introduced by a presentation on the difference between job aids and training materials. Training materials were defined as session-by-session course materials including trainer guidelines, procedures, and technical material. Job aids were defined as materials meant to guide on-the-job performance without benefit of an instructor. After discussing these two types of materials, the participants were asked to go back to their training designs from Day Two of the workshop, choose one session from that design, and develop detailed training materials for that session. The level of detail was such that another technical trainer could be expected to deliver that session without benefit of direct explanation or a walk through by the materials developer.

After preparing training materials for that session, the participants were then paired to review each other's work. Finally, the pairs were grouped into two groups of four to get further feedback on the materials. The ensuing full group discussion centered primarily on the concept of how training design precedes and is the basis for the development of training materials. The discussion also made linkages to various training materials projects that the participants were working on in their every-day situations.

Review, Evaluation, and Closure

Goal: To establish what was learned in the workshop and explore ways in which those learnings might be applied.

Objectives: To review the objectives of the workshop.

To evaluate individual skills and learning.

To identify ways in which the learning and skills will be used and what assistance will be needed.

The afternoon session started with a review of the workshop goals. The trainer then handed out the Training Skills List (Appendix C) and explained how the participants would use it to do a self-evaluation. The participants were given about 15 minutes to fill out the Training Skills List, after which the trainers held 15 minute conferences with each participant. These conferences provided both the trainers and participants with an opportunity to review the self-evaluations and comment on them. While the individual conferences were going on, the participants filled out a short evaluation questionnaire the results of which will be reported in the next chapter.

The workshop closed with the asking of the three following questions in a full group discussion.

1. What have you learned during this workshop that will be useful?
2. What specific future applications do you see?
3. What kind of assistance would you need and from whom do you envision it?

The participants' comments on these questions are summarized in the next chapter. The workshop ended at 4:00 p.m.

Chapter 4

ASSESSMENT AND RECOMMENDATIONS

4.1 Participant Evaluation

The evaluation questionnaire, referred to in the previous chapter, contained six questions. They are listed below and a summary of participants' comments follows each stated question:

1. "Did the workshop meet your expectations? Please explain."

All the participants responded with a "yes." Several said they had no expectations beyond improving their training skills. Others felt that the review and the applied sessions had expanded their horizons. One remarked that he felt that at the conclusion of the workshop he did not have a "commanding grasp" of training or, put another way, he had gained an awareness of what he did not know.

2. "Was Cliffside an appropriate site?"

There were mostly neutral responses to this question, with some remarks on the slowness of meal service and highway noise. Comparisons to the site of the first workshop were mixed.

3. "What was the most useful session in the workshop?"

Training delivery and the critique was the majority response to this question, with the design session and the training materials session each favored by one or two.

4. "What was the least useful session in the workshop?"

The response to this question was varied, with the only theme being that some discussions and critiques digressed and went on too long. Two participants said all the sessions were useful. The others each had a different perception, ranging from the morning process sessions through the training materials session.

5. "What recommendations do you have for improving this workshop?"

Additional time for the workshop was the majority vote and an additional day was strongly recommended. The other side of the coin regarding the time issue was

that digressions and critique discussions should be curtailed. Two specific recommendations emerged. The first was that pre-workshop preparation would be useful. The second was that the trainers provide a "good" design for the participants to deliver, so that they could practice with and critique a professional design and delivery.

6. "What recommendations do you have for future or follow-up activities?"

The responses to this question will be covered in Section 4.3 - Participant Follow-up Recommendations.

4.2 Trainer Assessment

The two trainers believe that this second workshop was successful. The participants' needs had been accurately assessed and the workshop design successfully reflected those needs and provided them with specific, useful knowledge and skills. While the time available was limited, the trainers were able to cover almost all of what they intended, albeit in a very intense schedule.

The attitude and willingness of the participants to learn was substantially stronger in this workshop than in the first, an observation also made by several of the participants. As a result, a collaborative learning environment was created which enhanced the training considerably.

Several specific points emerged for the trainers and are outlined below.

1. This second training of trainers workshop made the first one seem more palatable and productive in retrospect. This change in attitude allowed the participants to view the learning from both workshops as a developmental continuum and increased their desire to further develop their training skills.
2. The trainers found a much greater desire on the part of the participants to pursue learning areas in richer detail than expected. As noted in Section 4.1, some participants felt the discussions were overly long, but none agreed on which sessions were that way, an indication, perhaps, of the various areas of interest and focus each participant had.
3. The workshop demonstrated the effectiveness of a design which systematized training into the three categories (design, delivery and materials), with specific skills in each category. This format seemed

to appeal particularly to the participants, all technically oriented individuals who liked an organized, structured way to look at "soft" topics.

4. The extensive preparation, advance notice, information on workshop content, and tight design all contributed to the improved participant attitudes. These elements had all been issues in the first workshop, and the trainers consciously attempted to alleviate these pitfalls.
5. The session on training materials was timely, though truncated. With an additional day, this session could have more directly tied into the work the Georgia Tech group was doing with Rebecca Birch (see Section 2.4).

4.3 Participant Follow-up Recommendations

Most of the group requested a third workshop, with a primary focus on training materials and delivery. They also requested that adequate time be scheduled so that they could all do practice work and would have time between sessions to absorb what they were learning.

A second major desire was for the opportunity to co-train with a professional and/or have a full-time trainer available as a consultant to them while they trained. All expressed in one way or another the desire for more experience in the training skills areas and some insights on the more subtle aspects of dealing effectively with training groups.

Some specific suggestions which emerged are as follows:

1. Use of video-tape as a feedback mechanism for practice sessions.
2. More articles and information about training skills.
3. Instruments, exercises and training materials they could experiment with.
4. Examples of good effective training designs and materials that they could study.
5. Other places where they can develop individually their training skills beside their own work environment (e.g., workshops, conferences, seminars and training sessions).

4.4 Trainers' Follow-up Recommendations

The trainers generally concur with the participants' suggestions. There is no question that the participants need the opportunity to practice the skills they have learned. The problem, of course, is where and how an issue that both Georgia Tech and WASH will be addressing.

A third workshop is a possibility, depending on developments over the next four to six months. All the recommendations made, including time factors, should be seriously considered in preparation for such a workshop.

Some specific follow-up activities will be undertaken by the WASH office.

1. Periodically sending articles on training to the participants.
2. Providing participants with examples of training designs, materials, and job aids.
3. Sending them some instruments and exercises they can use for practice and application in their work.
4. Looking for opportunities for participants to co-train with a professional trainer.
5. Occasionally talking with the participants on the telephone to follow up on their training activities, and if necessary, to provide assistance.
6. In approximately six months examining the possibility of a third workshop.

4.5 Conclusion

In general, this workshop was well received by the participants, seems to have built logically on the first workshop, and focused on some needed areas of training. The supportive attitude of the participants aided greatly in achieving the goals. If the participants are able to put into practice the skills they acquired in this workshop within the next four to six months, then this effort will have been a success.

APPENDIX A

WATER AND SANITATION FOR HEALTH (WASH) PROJECT
ORDER OF TECHNICAL DIRECTION (OTD) NUMBER 90
April 27, 1982

Assoc. Director of WASH, Inc.
WASH PROJECT

TO: Dennis Warner, Ph.D., P.E.
WASH Contract Project Director

APR 28 1982

FROM: Victor W.R. Wehman, Jr., P.E., R.S.
A.I.D. WASH Project Manager
A.I.D./S&T/H/IS

VWR

SUBJECT: Provision of Technical Assistance Under WASH Project Scope of Work for S&T/H to Provide Second in Series of Training of Trainers Workshop for WASH Contractor/Subcontractor Staff Working in Technology Transfer

REF: 1) OTD 80
2) Memo: Warner to Austin, dated 5 April 1982

1. WASH contractor requested to provide technical assistance to S&T/H as per following scope of work.
2. WASH contractor/subcontractor/consultants authorized to expend up to eighty (80) person days of salaried effort over a four (4) month period to accomplish this technical assistance effort. Salary to be paid for CIC, Georgia Tech, University of Maryland, and ISTI participants from WASH project upon approval of WASH Project Manager.
3. Contractor authorized to expend up to seventy-five (75) person days of domestic per diem to accomplish this effort.
4. Contractor to coordinate with S&T/H, John H. Austin, on workshop preparation, design, implementation and evaluation aspects.
5. Contractor authorized to provide up to six (6) domestic round trips from Atlanta, Georgia to Washington, D.C. and return to Atlanta during life of this OTD, and two (2) domestic round trips from Washington, D.C. to Atlanta and return for consultant.
6. Contractor authorized local travel in and around Washington, D.C. area for participants and consultants/trainers between participants'/consultants' home base or work place to workshop site and return to consultants'/participants' home base.
7. Contractor authorized to rent greater Washington, D.C. area training/workshop space for purposes of giving workshop, i.e., a room for fifteen (15) to twenty (20) people plus three (3) or four (4) adjacent or nearby rooms for small group workshop sessions.
8. Contractor authorized to obtain secretarial, graphics or reproduction services through WASH project to support this effort.

9. Contractor authorized to expend up to \$900 (nine hundred) for training materials for the development or support of training workshop. Any further authorization should be approved by WASH Project Manager.
10. Workshop should take place over period September 13-15, 1982. Participants should be prepared to be at workshop site by late afternoon on September 12 and not plan to leave until after 1800 hours on September 15. The contractor will design, develop, implement and evaluate a three (3) day "Training of Trainers" (task and performance oriented training approaches and methodologies) training program for selected Georgia Institute of Technology, University of Maryland, ISTI, and CIC personnel and S&T/H Staff actively engaged in A.I.D. operational field technology transfer projects involving the field local manufacture, installation, operation and maintenance of the A.I.D. handpump in developing countries.

The workshop should reinforce and expand on the material covered in the February 1982 workshop. Although the workshop is to be based on a careful needs assessment, topics likely to be included are:

- a. Review of progress since first workshop.
 - b. Identification of training problems.
 - c. Reinforcement of training design and delivery skills.
 - d. Additional practice in training techniques.
 - e. Practice in writing training materials.
11. Contractor authorized one (1) domestic round trip from workshop trainer home base to WASH CIC (for design and preparation of workshop), to workshop site, to WASH CIC (for debriefing and report) and return to workshop trainers' home base.
 12. Contractor authorized to provide for car rental, if necessary, to facilitate effort at workshop site.
 13. The workshop will take place in the Washington, D.C. area or within driving distance of Washington, D.C.
 14. The number of participants will be a minimum of six (6) and a maximum of twelve (12).
 15. WASH contractor is suggested to have the workshop trainer consultants work directly under the supervision of the WASH Project Senior Training Officer.
 16. The workshop should use experiential learning techniques and be participant based.
 17. WASH contractor should report on overall activity (preparation, workshop, highlights, training objectives, training schedule, actual training sessions, workshop evaluation and recommended approach for future workshops, adequacy of WASH CIC backup for workshop.

18. In conjunction with this workshop, contractor should conduct a one to one and a half (1 to 1&1/2) day session with Georgia Tech, ISTI, CIC and S&T/H Staff working on handpump activities to discuss administrative and technical subjects. Principal consultant engaged for the subsequent workshop should be available to take part in this meeting.
19. Training consultants and participants should be contacted immediately and technical assistance activities initiated ASAP.
20. Appreciate your prompt attention to this matter. Good luck!



MEMORANDUM

TO: → John Austin, S&T/HEA

FROM: Dennis Warner, Project Director

SUBJECT: Meeting on Future Training Efforts with
Georgia Tech

DATE: April 5, 1982

On Thursday, April 1, a meeting was held in the WASH office to discuss a number of training issues that relate directly to the Georgia Tech handpump activities. Present at the meeting were Phil Potts and Ben James from Georgia Tech, Paul Howard and Fred Rosensweig from WASH, and yourself from AID.

Based on the meeting, we would like to request authorization for the following:

1. On July 12-13, we would like to have a day-and-a-half session at WASH with Georgia Tech and ISTI staff working on handpump activities to discuss a variety of issues both administrative and technical in nature. This would be similar to the January 1982 meeting but would follow a more highly structured agenda. This meeting would be coordinated by Paul Howard.
2. Directly following the above meeting, we would like to hold a three-day follow-up (July 14-16) to the Training of Trainers' workshop held at the Airlie House in February. The participants would essentially be the same. The workshop would also be held at Airlie and be coordinated by Fred Rosensweig.

The purpose of this workshop would be to continue the development of training skills begun in the February workshop. Progress in the training area would be reviewed, problems identified, and new skills worked on. We see this workshop as a complement to the first and a way to further solidify the work done in February.



Memorandum John Austin
page 2
April 5, 1982

3. In order to assist Georgia Tech with the development of the O & M and quality control training manuals requested in OTD's 82 (Ecuador) and 85 (Honduras), we would recommend engaging a training consultant. This was discussed with Georgia Tech during the meeting and they were in agreement with the need for such a consultant. Since the OTD's do not take into account the person days needed for engaging such a consultant, an amendment would be necessary. Approximately 25 person days and three round trips to Atlanta, Georgia, from the consultant's home base are envisioned.

We would appreciate your comments on these requests. As soon as we have the approvals we will move ahead.

DW/pd

Copies to: P. Howard
D. Donaldson
F. Rosensweig

APPENDIX B

List of Participants

Georgia Tech

Phil Potts
Ben James
Terry Moy
Alan Pashkevich
Henry Van
Carol Aton

WASH Staff

Paul Howard

WASH Consultant

David Goff

APPENDIX C

MATERIAL GENERATED DURING WORKSHOP

Delivery Skills

Flexibility/Adaptability

Using space and place

Keeping an appropriate pace

Non-verbals (e.g., body language)

Using voice

Timing

Giving directions

Making transitions

Asking questions

Use of visuals (handouts, films, slides, etc.)

Giving lecturettes

Giving demonstrations

Leading discussions

Use of training exercises

Processing

Effecting closure

Training Activities

Trainer List

Large groups
Subgroups
Reporting Out
Role-plays
Training aids
 (films/slides)
Problem-solving
 checklist
 case studies
 rankings
 ratings
 pro/con
 agree/disagree
Demonstration
Lecturette/Pre-
 sentation
Discussion
Open Forum
Brainstorming
Readings

Group 1 List

Different speakers
Different locations
Different group size
Demonstrations
 model/actual
Exercises
Audio visual
Role-playing
Group games
Icebreaker
Brainstorming
Lectures/lecturettes
Breaks/parties
Group discussions
Conferences/seminars

Field trips/tours

Group 2 List

Brainstorming
Lectures/lecturettes
Video/Films/Slides
Discussion groups
 large and small
Role-playing
Interviews
Field trips
Demonstrations
Storytelling
Games
Drawings
Sharing experiences
Testing/evaluation
On the job practice

Listening
Writing/reports
Role reversal
Lab exercises
Handouts

TRAINING SKILLS LIST

Below is a list of key training skills. Please rate yourself on a scale of 1 to 5 for each of these skills by checking the appropriate column. The rating scale is as follows:

1. Needs much more work
2. Minimum level of skill
3. Average ability
4. Good level
5. Outstanding

DESIGN SKILLS

	1	2	3	4	5
Doing a Task Analysis					
Writing objectives					
Formulating session goals					
Designing against objectives					
Appropriate choice of exercises/activities					
Appropriate choice of training materials/aids					
Sequencing of activities					
Ability to integrate sessions					
Ability to vary exercises					
Ability to choose an appropriate setting					
Ability to pace activities/sessions					
Monitoring the design					

DELIVERY SKILLS

	1	2	3	4	5
Using space and place					
Keeping an appropriate pace					
Using voice					
Timing					
Giving directions					

DELIVERY SKILLS (Cont'd)

- Asking questions
- Making interventions
- Use of visuals
- Giving lecturettes
- Leading discussions
- Use of instruments/exercises
- Processing
- Effecting closure

	1	2	3	4	5

MATERIALS DEVELOPMENT

- Linking materials to the design
- Writing materials based on goals and objectives
- Clarity of writing
- Writing clear visual instructions
- Ability to format
- Ability to organize
- Ability to define the users of the materials
- Ability to define the target audience
- Writing trainer guidelines
- Ability to pilot and revise materials

	1	2	3	4	5

BV

APPENDIX D

WORKSHOP HANDOUTS

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SOME TRAPS IN PLANNING AND CONDUCTING WORKSHOPS*

One of the greatest resources for all of us is the ability to learn from our achievements. Another good resource is the opportunity to learn from our mistakes, and from the learnings of others who have "tried that before" and have been innovative in finding ways to avoid traps and improve upon their successes.

Traps During Planning and Preparation

- #1. Workshop planners often plan with no data about the participants, their hopes and expectations about the purpose of the workshop. Often workshops are planned in a vacuum with no idea about who is coming, why they are coming, or really what specifically ought to be accomplished at the workshop.
- #2. Lack of involvement in the planning by those who will be at the workshop. When potential participants are not involved in some way they'll probably not take an active part, or they may not even come. They feel that have been planned for, so their attitude is: let the planners do it! We have no "ownership" of this workshop!
- #3. Beautiful, but illegible, visual aids. So often visual aids are produced that are visually very pleasing but have not been tried out in large rooms or have been tested for the distance from which they can be seen. Be sure to check all your visual aids beforehand, and all pieces of equipment, in the room where they are to be used.
- #4. Same place and plan, same time. Though sameness gives security to some, it bores others. Why not vary the place and time to suit different people of the group? Or ask group members what, where, and when, they'd like to meet next time.
- #5. Equipment that does not work. Check your equipment beforehand, but even when equipment checks out it sometimes breaks down at the time you most need it. So have an alternative plan up your sleeve, just in case.
- #6. No agenda, or the one that omits among the items a review of the purposes for this particular workshop. For some workshops no agenda exists or if it does it is only in the head and maybe the hand of the leader. Also it is important to review and communicate the purpose(s) of each workshop phase.
- #7. Too many items/activities planned for the time available. This is a trap that many workshops fall into, and a realistic plan is needed in relation to how much time various items or activities will take. If you have more items than the time allows then cut out some items, or else arrange to put them in as pieces you can work on in small groups after the workshop or substitute these for items of lower priorities.

* Adapted from: Eva Schindler-Rainman and Ronald Lippitt, in collaboration with Jack Cole. Taking Your Meetings Out of the Doldrums. San Diego, CA: University Associates, 1975. Used with permission.

Traps During the Workshop

- #8. No sharing of agenda. There is only one copy of the agenda available, and the leader has that. It is hard for participants to feel involved when they cannot see and hear the plans of the workshop.
- #9. Formal, classroom style seating, that is rows of chairs all facing the front. This gives the participants the non-verbal clue that all action and wisdom comes from the front of the room. It makes it hard to participate actively. The only reason to have this kind of room setup is when the seats are fastened to the floor.
- #10. Workshop starts with nothing to do for early arrivers. If you know that your workshop will have a "raggedy start" plan something for the ahead timers to do, discuss, to think about. It may be a question you want them to discuss, or it may be the use of the paired interview, or it may be some other way to get together in a table group. There needs to be some programmed way to utilize the pre starting time constructively.
- #11. Long introductions of speakers, consultants, helpers, etc. This usually produces psychological distance between them and the participants. If you need an extensive introduction/background material on a person in order to acquaint them with that person, have those materials dittoed or mimeographed for everyone beforehand. Or give them out at the beginning of the workshop. Then you can give a short, warm relevant welcome instead of a long introduction. Often speakers have ideas how they would like to be introduced.
- #12. Too long coffee breaks are often a waste of time and money, and also disrupt the continuity. Why not have coffee and tea available throughout the workshop and design the workshop in such a way that there will be moving around and stand-up time as part of the way the work of the workshop gets done?
- #13. Failure to deal with feelings of participants. Often groups are so task oriented, that they skip even obvious feeling issues that need to be dealt with in order to better proceed with the task. For example, if people are very hostile to one another, it is important to deal with that hostility rather than overlook it. The task will get done much better if this is done.
- #14. Neglecting to carry the group "into the future" to guarantee that the work of the workshop will pay off - such as being sure that decisions and commitments are made about who will do what and when to follow through.

* Adapted from: Eva Schindler-Rauman and Ronald Lippitt, in collaboration with Jack Cole. Taking Your Meeting Out of the Doldrums. San Diego, CA: University Associates, 1975. Used with permission.

A CHECKLIST FOR PLANNING WORKSHOPS*

It is so easy to forget some crucial items in the planning of workshops--some materials you wanted to be sure to have available, the telephone call to the custodian, the name tags, and many others. We have found it indispensable, and very embarrassment-preventing to have a checklist to review and check off as part of the process of planning and leading workshops. The one on the following pages should be a good starter; one to add to because all workshops, of course, are different--all items are not relevant for every workshop. But in our experience the main headings and most of the items are quite universal.

The checklist is organized under:

1. Publicity - Promotion - Notifying
2. Agenda and Resource Materials
3. Responsibilities at the Workshop
4. Space Check-out
5. Equipment for the Workshop
6. Materials for the Workshop
7. Budget
8. Just before the Workshop
9. At the Workshop
10. After the Workshop

CHECKLIST

<u>1. PUBLICITY/PROMOTION/NOTIFYING</u>	<u>Who Responsible</u>	<u>By When</u>
_____ notices - to whom	_____	_____
_____ letters of invitation	_____	_____
_____ direction to workshop place	_____	_____
_____ phone calls	_____	_____
_____ news releases	_____	_____
_____ contact with the media	_____	_____
_____ copies of workshop plan	_____	_____
_____ pictures/photographs	_____	_____
_____ other	_____	_____
<u>2. AGENDA AND RESOURCE MATERIALS</u>		
_____ copies of agenda	_____	_____
_____ contact people on the agenda	_____	_____
_____ materials needed (e.g., reprints)	_____	_____
_____ previous agreement and time commitments	_____	_____
_____ others	_____	_____

* Adapted from: Eva Schindler-Rainman and Ronald Lippitt, in collaboration with Jack Cole. Taking Your Meetings Out of the Doldrums. San Diego, CA: University Associates, 1975. Used with permission.

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3. RESPONSIBILITIES BEFORE THE WORKSHOP

Who Responsible

By When

_____ leadership assignments	_____	_____
_____ documentation or recording assignments	_____	_____
_____ resource persons	_____	_____
_____ observers	_____	_____
_____ "hosting" roles	_____	_____
_____ trying out equipment	_____	_____
_____ test whether charts, posters are readable	_____	_____
_____ test electrical outlets	_____	_____
_____ preview films for timing and content	_____	_____

4. SPACE CHECK OUT

_____ size and shape of space	_____ access to meeting room(s)
_____ electrical outlets	_____ lighting
_____ mike outlets	_____ name of custodian/engineering, where to be reached
_____ acoustics	_____ telephone access for messages and calling out exhibit space
_____ doors	_____ wall space for newsprints, etc.
_____ bathrooms (where, number can accommodate)	_____ emotional impact (color, aesthetics)
_____ stairs	_____ others
_____ elevators	_____
_____ heat/cold regulation	_____
_____ ventilation	_____
_____ parking facilities: number and access	_____
_____ registration area	_____
_____ location	_____
_____ transportation, access to facility	_____
_____ room set up arrangements	_____

5. EQUIPMENT FOR WORKSHOP

_____ tables (number, size, shape)	_____ film projector
_____ chairs (comfort, number)	_____ chalkboard - chalk
_____ microphones	_____ typewriters
_____ audio tape recorder	_____ waste baskets
_____ audio tape cassettes	_____ bulletin boards
_____ video tape recorder	_____ pillows
_____ video tape cassettes	_____ chalkboard eraser
_____ extension cords	_____ projection table(s)
_____ overhead projector	_____ flannel board
_____ newsprint easel (chart stand)	_____ easel
_____ slide projector	_____ others
_____ screen	_____
_____ platform	_____
_____ coffee, tea dispensers	_____
_____ water pitchers	_____
_____ cups	_____
_____ transparencies and appropriate pens and grease pencils	_____
_____ extension cords	_____
_____ ditto machine or other duplication equipment	_____

* Adapted from: Eva Schindler-Rainman and Ronald Lippitt, in collaboration with Jack Cole. Taking Your Meetings Out of the Boardrooms. San Diego, CA: University Associates, 1975. Used with permission.

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6. MATERIALS AND SUPPLIES FOR THE WORKSHOP

_____ name tags/tents
 _____ small tip felt pens
 _____ large tip felt pens
 _____ masking tape
 _____ paper clips
 _____ crayons
 _____ pins
 _____ scissors
 _____ stapler
 _____ glue
 _____ newsprint paper
 _____ scratch paper
 _____ pencils
 _____ reprints of articles
 _____ books
 _____ visual aids
 _____ colored paper

_____ pamphlets
 _____ display materials
 _____ posters
 _____ instruction sheets
 _____ resume of resource
 people
 _____ directional signs
 (to workshop)
 _____ chalk (various
 colors)
 _____ file folders
 _____ others

7. BUDGET (if applicable)

Costs

Estimated Cost

_____ mailing and stamps	_____
_____ telephone calls	_____
_____ telephone conferences	_____
_____ rental of equipment	_____
_____ rental of space	_____
_____ paper materials	_____
_____ name tags	_____
_____ newsprint	_____
_____ paper	_____
_____ construction paper	_____
_____ writing materials	_____
_____ pens	_____
_____ crayons	_____
_____ special pens for overhead	_____
_____ grease pencils	_____
_____ secretarial time	_____
_____ transportation	_____
_____ meals	_____
_____ bar	_____
_____ coffee, tea, juice	_____
_____ reproduction of materials	_____
_____ folders	_____
_____ tapes	_____
_____ operator of projection equipment	_____
_____ operator of P.A. equipment	_____
_____ speaker fees	_____
_____ consultant fees	_____
_____ entertainment	_____
_____ flowers	_____
_____ film reproduction	_____
_____ tape reproduction	_____
_____ others	_____
_____	_____

* Adapted from: Eva Schindler-Rainman and Ronald Lippitt, in collaboration with Jack Cole. Taking Your Meetings Out of the Doldrums. San Diego, CA: University Associates, 1975. Used with permission.

Income

Estimated Income

- _____ registration fees
- _____ sale of materials
- _____ grants
- _____ sale of meal tickets
- _____ donations
- _____ membership fees
- _____ coffee and tea charges
- _____ others
- _____
- _____
- _____
- _____

8. JUST BEFORE THE WORKSHOP

Who Responsible

- _____ seating arrangements - general session and subgroupings
- _____ extra chairs
- _____ extra tables
- _____ P.A. system checkout
- _____ equipment (easels, screens, etc.)
- _____ materials (paper, pens, etc.)
- _____ ash trays
- _____ water, glasses
- _____ thermostat
- _____ opening and closing of windows
- _____ refreshment set-up
- _____ registration set-up
- _____ check that charts, boards, screens can be seen from everywhere
- _____ agendas available
- _____ other materials available for handouts
- _____ name tags/tents
- _____ table numbers
- _____ coffee, tea, etc.
- _____ evaluation forms ready
- _____ reproduction equipment (e.g., ditto machine)
- _____ audio-visual equipment ready
- _____ others
- _____
- _____
- _____

9. DURING THE WORKSHOP

Who Responsible

- _____ meeting, greeting, seating of participants and guests
- _____ documentation - recording
- _____ greeting of late comers
- _____ evaluation activity
- _____ handing out materials
- _____ operation of equipment
- _____ process review, stop sessions, etc.

* Adapted from: Eva Schindler-Raiman and Ronald Lippitt, in collaboration with Jack Cole. Taking Your Meetings Out of the Doldrums. San Diego, CA: University Associates, 1975. Used with permission.

TRAINING METHODS WORKSHOP TEACHING METHODS

1. BUZZ SESSION

a. Definition

A buzz session or group is a short-term device used to divide a large group into subgroups of three to six persons to consider a specific, limited problem or question for three to eight minutes. The smallness of the subgroup enables each member to participate; the shortness of the time requires each to work hard and on target.

b. Utilization

- (1) To warm up a large group for general discussion.
- (2) To overcome a feeling of helplessness or apathy and to direct a group toward action.
- (3) To obtain a cross section of ideas, opinions, suggestions, decisions in a minimum of time with maximum participation.
- (4) To give everyone a chance to contribute.
- (5) To take time out for quick assessment of additional data, materials, and suggestions.
- (6) To set up an agenda for a meaningful learning experience in the total group.
- (7) To test a set of ideas and to increase communication between the speaker and the audience.

c. Procedure

- (1) Give a survey presentation of the problem to the large group.
- * (2) Subdivide the group into subgroups--buzz groups of three to six persons, each group to meet by itself. Count off 1 to 3 or 1 to 6, or use any other quick method.
- * (3) Specify and limit the problem for buzz group discussion. Write it large on a chalkboard or newsprint for everyone to see and to understand clearly. Every buzz group may work on the same problem, or each group may be given a facet of the problem.
- * (4) Quickly appoint a chairman and a recorder in each buzz group.
- (5) Teacher circulates among the groups to keep them on target.
- (6) Each buzz group prepares a concise written or oral report of its recommendations, decisions, or whatever action was called for.
- (7) Reconvene for subgroup reports. If every group had the same problem, call for one item from each group in turn, so that the first group does not give all the points at once.
- * (8) Teacher summarizes the findings.

d. Tools

Paper and pencil, chalkboard, newsprint, or acetate sheets where reports are to be projected on the screen with the overhead projector.

e. Advantages

- * (1) Small size of buzz group permits everyone to participate and to express himself, resulting in a variety of ideas and opinions in a short time.
- (2) Small groups work better and faster because they know that they have no time to waste and will have to come up with a group report.
- * (3) Easier and faster to obtain better choices and agreement from each of six groups of five persons than from a total group of thirty people.
- * (4) Group feelings throughout the main group can be readily obtained.
- (5) Each subgroup must take responsibility for its own operation and for its expressions.
- * (6) Pride is established and morale is boosted in everyone, in himself and in his subgroup, by his individual contribution.
- * (7) Surprisingly less time is required to obtain fuller agreement or better solution in the reconvened large group.
- * (8) Little equipment needed beyond paper and pencil and chalkboard.

f. Disadvantages

- (1) If the teacher fails to choose the right moment to initiate buzzing, the subgroups might find little purpose or interest in buzzing.
- * (2) If the problem for buzzing is not clearly defined, limited, and understood, the subgroup members might become frustrated and the buzz results will be poor.
- * (3) Not providing a time limit might allow the participants just to visit or to over-develop their decisions.

2. DEMONSTRATION

a. Definition

A demonstration is a visual presentation of one or more techniques, processes, skills, facts, concepts, or principles to be learned. Someone, often assisted by others, goes through the motions or processes or showing, doing, illustrating and explaining. (It is one of the most effective methods of teaching.)

b. Utilization

- (1) Certain mental processes involved in developing concepts are best explained by examples--through showing.
- (2) Is a means of helping people achieve their goals.
- (3) Can involve one to many of the group members, depending on the demonstration.

c. Procedure

- (1) Re-examine the objective of the lesson or discussion before giving the demonstration.
- * (2) Practice the demonstration. Never give one without a trial run, because there is always the possibility that it may not work.
- * (3) Make sure that all needed equipment and materials are on hand before starting the demonstration.
- * (4) Seat students so everyone can see and hear.
- (5) Explain the purpose and prepare the students in advance what to look for.
- (6) Keep the directions simple; vary the tempo to suit the group.
- (7) Check periodically during the demonstration to know that each step is being followed.
- (8) Whenever possible, involve the students in the demonstration.
- (9) Use vocabulary understood by all.
- (10) Don't prolong the demonstration. It should usually not exceed twenty-five minutes.
- * (11) Summarize and briefly review, with the group, the key points of the demonstration after it has been concluded.

d. Tools

Chalkboard, tapes, slides, filmstrips, pictures, posters, graphs, maps, charts, and other aids as the demonstration requires.

e. Advantages

- * (1) Is basically concrete instead of being abstract.
- (2) Because showing often involves the learner's first-hand contact with what is referred to in a concept, the impact is extremely vivid.
- (3) Can clarify points during a lesson.
- (4) Can heighten interest and increase learning.
- (5) Good experience for the demonstrators.
- * (6) Showing and telling are better than mere telling.
- (7) Provides a break from the repetition of lectures.

f. Disadvantages

- * (1) Requires careful planning and rehearsal and can be time consuming.
- * (2) Requires assembling of equipment, supplies, and materials, and sometimes of getting extra help.
- (3) Usually involves only a few people, frequently only the demonstrator.
- * (4) If the group is too large, those in the rear may not be able to see and hear everything.
- * (5) The attention span of the viewers varies in proportion to how meaningful the demonstration is.

3. DISCUSSION

a. Definition

Discussion is a group activity in which the leader and the group members cooperatively talk over some problem or topic. It is a process of thinking aloud together.

b. Utilization

- (1) For working over concepts which have already been presented to the group, in order to make them clear.
- (2) In analyzing problems of common concern to the group.
- (3) Valuable for both motivating the participants and enabling them to comprehend the meaning of what they are learning.
- (4) In terms of learning, the concept that is discussed, however haltingly, is usually more lasting than the unvoiced concept.
- (5) Can be used to improve the speaking and listening skills of the participants.

c. Procedure

Major responsibilities of the teacher are to:

- (1) Start the discussion.
 - (a) Discussion goals must be clearly defined and be understood by the students.
 - (b) A circular seating arrangement will help increase interest and participation.
- (2) Keep the discussion on the topic. Sometimes the teacher may ask a recorder to summarize for the group.
- (3) Recognize and involve if possible all students within the class. Stimulate thinking by asking thought questions; at the same time, encourage each student to do his own thinking.

- (4) Devote time to periodic summaries.
 - (a) Teacher should take time to ask, "Where are we?" "What have we been doing?" "Do we have an answer?"
 - (b) Encourage the students to evaluate the progress of their discussion.

Some ways of starting discussions:

- (1) Introducing challenging topics.
- (2) After viewing motion pictures, bulletin board displays, or objects brought to class.
- (3) After listening to a tape recording or record.

d. Advantages

- (1) Allows everyone to participate.
- (2) Provides for the informal expression of personal experiences and information not included in formal written materials.
- (3) Permits both teacher and student leadership.
- (4) In thinking aloud together, individual errors in judgment can be revised.
- (5) When ideas are carefully explored and considered, the finished product represents the thinking of many individuals.
- (6) Makes students take sides, defend their points of view, and then live with the consequences.
- (7) Student becomes an active participant in the learning process.
- (8) Involves creative thinking.
- (9) Helps to develop respect for others even though rejecting their points of view.

e. Disadvantages

- (1) Is not as effective with large groups as with small, because many will not have a chance to participate orally.
- (2) Unless the teacher encourages a maximum of participation by the members, a few talkative members may end up monopolizing the time.
- (3) Discussion has to be on a topic or issue that is common knowledge to the students, because a fruitful discussion can only proceed from the known.
- (4) It is time consuming.
- (5) Sometimes the teacher cannot tell exactly how much or what the students have learned.
- (6) Without good leadership, the discussion may get off the track.

4. INCIDENT PROCESS

a. Definition

The incident process is a method of learning how to solve problems and work out decisions by studying actual incidents that involved real people in real situations. (This is a less formal, less demanding form of case study.)

b. Utilization

- (1) Useful in giving practice in analyzing particular problems.

c. Procedure

- (1) A written statement of an incident is made. It does not provide all necessary facts for making a decision. The class members are required to take the role of a responsible person and make a decision.
- (2) Members try to recreate the action by asking the instructor questions concerning relevant facts and clues. They try to learn what happened, to whom, when, where, and how.
- (3) A group member summarizes the facts at the end of this phase.
- (4) Each student makes and submits his own decision for action in the incident.
- (5) The class evaluates actions, decisions, and consequences.
- (6) The class discusses what was useful, what caused difficulties and how they could have been avoided.
- (7) The class generalizes on how to do better by using some of the effective methods, avoiding action which brings difficulty.

d. Advantages

- (1) Easy to share understanding and pool experience.
- (2) Helps members to think clearly, to appreciate feelings, and to improve in practical judgment.

e. Disadvantages

- (1) Good case reports require considerable study before discussion, and some students will not prepare adequately.
- (2) Incomplete case reports lead to guesswork.
- (3) Group discussion can become limited to members who are adequately prepared.
- (4) Case discussion may lead to argument rather than discussion.

5. GROUP PROCEDURE

a. Definition

Group procedure is a method of having several students working together on a task that requires their cooperation. (Involvement of students in group procedures highlights the old proverb "hear and forget, see and remember, do and understand.")

b. Utilization

- (1) Use group discussion method as a means of identifying, analyzing, and solving problems.
- (2) When a big job has to be done in a short time, it can be divided into smaller parts and given to small groups (committees).
- (3) When there are many jobs to be done, each job can be done by a separate group.
- (4) Planning for an occasional event may be done by a small group.
- (5) When a group has varied interest, those with similar interests can work together.
- (6) Group work, with its considerable stress on initiative and independence, gives students a chance to improve in these areas.
- (7) Use different procedures for different purposes. Some procedures are whole-group discussion, small study groups, buzz groups, panel or round table, symposium, debate, role playing, and case studies.

c. Procedure

- * (1) Select group procedures that will best help the members reach specified goals.
- * (2) For student-directed group activities, make sure the students understand the purpose of the activity and exactly how it is to be accomplished.
- (3) Assign responsibilities to the participants to insure effective group work.

d. Advantages

- (1) Groups do not err as readily as does the average individual.
- (2) Groups have a larger percentage of correct answers--two heads are better than one.
- * (3) Group decisions have a stronger effect upon behavior than other learning situations do.
- (4) More viewpoints, varied experiences, and wider store of knowledge can be brought to bear on the task.
- * (5) Discussion encourages mental activity--exchange of ideas can be stimulating and motivational.

- * (6) Helps student to give-and-take and to examine all facets of an issue before making a decision.
- * (7) Enables students to acquire knowledge that they might not have enjoyed without group effort.
- * (8) Improves the student's power of self-expression and helps him to take a more active role in subsequent group work. It encourages the development of leadership qualities.
- * (9) Group activities tend to encourage teamwork.

e. Disadvantages

- * (1) Doing things by group methods takes considerable time and effort, especially in the beginning.
- (2) Discussion in the absence of relevant information is meaningless.
- (3) The range of the teacher's experience determines, in part, how meaningfully he can direct group work.
- * (4) Some teachers are not able to break away from the habit of "telling others what to do."

6. LECTURE

a. Definition

The lecture is a formal talk on a specific subject for instruction or information. It is a method of "telling." It is usually a one-way channel of communication.

b. Utilization

- (1) In presenting the material to large groups in a limited period of time.
- (2) In introducing new material or an overview of a lesson.
- (3) In elaborating on the subject.
- (4) In explaining a process.
- (5) In bridging gaps between topics to be studied in depth.
- (6) In explaining difficult points.
- (7) In summarizing.
- (8) In reinforcing the written word with oral methods.
- (9) In providing a change of pace from other methods.

c. Some Ways That May Be Used to Improve the Lecture Method

- (1) Introduce appropriate visual aids to put the sense of sight to work.
- (2) Motivate the class by relating the lecture to problems the students are familiar with.
- (3) Express ideas so as to stimulate thinking.

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- (4) Use language which the students can follow with understanding and interest.
- (5) Emphasize important points.
- (6) Return several times to the main thought so that it is emphasized and kept upper-most in mind by the listeners.
- (7) Get to the conclusion as rapidly as the class is able to follow.
- (8) Be sure the ladder of ideas on which the conclusion must stand is clear to the class.
- (9) Distribute instructional material, both written and graphic, to supplement the lecture.
- (10) Open the subject for questions and discussion.
- (11) Do not read the material word by word.
- (12) Direct instruction to individuals.
- (13) Tell the students what is expected of them.
- (14) Develop effective speech habits.

d. Tools

- (1) Use chalkboard to list the main points of the talk, for outlines, unfamiliar terms, diagrams, and graphs.
- (2) Use pictures, posters, objects, models, specimens, and flip-charts to illustrate the talk.
- (3) Use stories, examples, and comparisons to bring out points.
- (4) Use slides, tapes, and films to clarify meaning.

e. Advantages

- (1) Saves time.
- (2) Can cover a lot of material.
- (3) Can be fully prepared ahead of time.
- (4) Information that is difficult for the students to obtain can be given by the teacher.
- (5) Presents material in an orderly, logical fashion so that it can be clearly understood by the students.

f. Disadvantages

- (1) Puts the student in the passive role of merely listening.
- (2) Is often a waste of time, because, being passive, the students learn little. (We generally remember only ten percent of what we hear.)
- (3) Does not guarantee that the student will understand its contents.
- (4) Unless well prepared and delivered, a lecture can become boring to the class.

7. QUESTION-ANSWER

a. Definition

The question-answer method is a device wherein the instructor asks questions and the class members reply concerning (a) the retention or remembering of materials presented in lectures, discussions, and assignments; and (b) the stimulation of thinking about concepts, issues, ideas, meanings, and activities of significance, whether or not covered in lectures or assignments.

b. Utilization

- (1) Good method, if properly used, for stimulating reviews, sparking discussions, arousing interests, and developing deeper thinking.
- (2) Good springboard for further assignments, particularly away from the text book, in response to questions by the students during the class period.
- (3) Should aim at fitting fragments of information into meaningful wholes. A sequence of questions should lead progressively to specific understanding.

c. Procedure

- * (1) Use thought-provoking questions frequently.
- * (2) Use related questions that become progressively more difficult to help students to acquire concepts in depth.
- (3) If a question should be answered in a certain way (define, compare, classify, evaluate, etc.), indicate this clearly.
- * (4) Ask questions that are within the range of experience and knowledge of the students.
- * (5) As a general rule, use some portion of a student's answer if only to encourage him and keep him interested.
- * (6) Include as many students as possible in the questioning. Direct questions to the entire class.
- * (7) It is often better to ask the question and then to call on the individual.
- (8) Questions may be presented orally, written on the chalkboard, charts, given on typed slips or sheets, flashed on a screen with the opaque or overhead projector, or be taped.
- (9) An essential part of the question-answer technique involves encouraging students to ask questions.
- * (10) Don't bluff when not sure of an answer. Say "I don't know." and then find out the answer.

d. Tools

Chalkboard, charts, slides, tapes, typed sheets, questions on transparencies for overhead projection.

e. Advantages

- * (1) Convenient device to review the lesson, to uncover the known through member responses.
- * (2) Provides checks on whether or not the students did their work, on the instructor's presentation, and on the students' understanding of the lesson or topic.
- (3) Good personal training in oral expression, in speaking up before a group, and in thinking on one's feet extemporaneously.
- * (4) Wisely selected and carefully phrased questions can contribute substantially to improved learning by stimulating reasoning evaluating, and generalizing.
- (5) Gets someone besides the instructor to speak up.

f. Disadvantages

- * (1) Questioning is not profitable when the students don't have a background that will enable them to react intelligently.
- * (2) Questions might be chiefly those which can be answered by "yes" and "no" or by repeating memorized statements from the book.
- * (3) Ambiguous, wordy, or unclear questions can block effective communication.
- (4) Some instructors tend to specialize in one particular type of question to the exclusion of others.
- (5) The quality of questioning is limited by the instructor's knowledge of content and his quality of thinking.
- * (6) The instructor might use questioning to substitute for his lack of preparation of the lesson for the day.
- (7) The instructor's lack of tact might embarrass a person and cause him to withdraw from further participation or involvement.

8. ROLE PLAYING

a. Definition

Role playing is unrehearsed, informal dramatization in which people spontaneously act out human relations problems to become aware of the feelings of someone else, to see a situation through other people's eyes, or to experience how they would act or react in a given situation.

b. Utilization

- (1) To train in leadership and human relations skill.
- (2) To train in solving group problems--actual problems can be reenacted.

- (3) Role playing the characters in a story or situation to make their feelings more real to the class.
- (4) To figure out how to handle a difficult situation.
- (5) To teach certain subject content more effectively, such as historical incidents.
- (6) To give students a chance to say, in a role, what they actually feel rather than what they think you want to hear-- they can explore their own feelings and gain insight.
- (7) Helpful in deepening or changing attitudes, particularly toward members of another ethnic group.

c. Procedure

- (1) Describe the situation to be role played. "Warm up" the class.
- (2) Select the role players and ask each one to put himself into the frame of mind of the person he is representing. Emphasize that he is playing a role, not himself.
- (3) Assign tasks to the class. Some can put themselves into the shoes of particular actors, or watch for specific events, or judge how realistic the role-playing is.
- (4) Set the stage and start the action. Stop it as soon as it illustrates the problem.
- (5) Discuss what took place and try to identify the values and feelings of those involved, and the conditions which caused them to feel or to act as they did.
- (6) Evaluate and summarize the points learned.
- (7) Role play may be repeated with the same players reversing their roles or with new players.

d. Advantages

- (1) Gives students a chance to examine and experiment with roles in situations where actual problems can be worked on. Some mistakes will be made.
- (2) Enables a student to become aware of and impressed with the thoughts, attitudes, and perspective of someone else, and thus to appreciate the other person's point of view.
- (3) Class members can put themselves into other people's shoes to experiment with new ways of behaving and to learn by doing.
- (4) Situations can be devised to fit the needs and interests of the class.

e. Disadvantages

- (1) Unless the group is sensitive and open-minded enough to try new ways of working together, the role playing may be superficial and fail to produce desired results.
- (2) Players often tend to "ham up" their parts and make the role play mere entertainment.

- (3) The teacher must plan it carefully to keep it at the level of understanding and maturity of the group.
- (4) Can backfire if suddenly thrust upon the uninitiated.
- (5) Can be time consuming, depending on the situations enacted.

ADDITIONAL TEACHING METHODS FOR FLEXIBILITY

1. BRAINSTORMING

a. Definition

Brainstorming is a group attempt to solve a well-defined problem by offering any solution which comes to mind, no matter how extreme. This technique attempts to generate ideas quickly and in large quantity by the free association of ideas while suspending all criticisms. It is "using the brain to storm a problem."

b. Utilization

- (1) For helping to solve specific individual problems.
- (2) Especially beneficial for the more able people who need help in channeling and directing their thinking.
- (3) When a group bogs down on a problem, brainstorming may pave the way to a solution.
- (4) When application of an idea is desired, brainstorming can suggest many applications which no one individual could think of.

c. Procedure

- * (1) Select a problem and state it clearly and specifically.
- * (2) Designate a recorder who will list all ideas on the chalkboard, or newsprint if a chalkboard is not available.
- * (3) Rule out all critical judgments, negative comments, and evaluation.
- * (4) Keep the setting informal and relaxed.
- * (5) Encourage free flow of ideas no matter how far out or free-wheeling.
- (6) Encourage building on to ideas, combining, or improving them.
- * (7) Make suggestions only to keep thinking active, to open up new lines of thought.
- (8) - Close the session after 15 to 20 minutes.

- * (9) Restate the problem and move into the sorting out and refining period.
- * (10) Evaluate the ideas objectively without giving blame or credit.
- * (11) Narrow the ideas to one final solution.
- (12) Summarize.
- (13) If possible, contact each participant the following day for afterthoughts which often are of a higher quality than the original ones.

d. Tools

Chalkboard or newsprint sheets.

e. Advantages

- * (1) Everybody participates.
- * (2) With the ground rule that no idea may be criticized, many bright ideas can appear quickly.
- * (3) One idea can spark off other ideas in rapid succession.
- (4) Brainstorming often frees the individual to be more creative and productive than he usually is.
- (5) A spirit of fun and congeniality can bring the members close together.

f. Disadvantages

- * (1) Difficult in a large group. Better results may be obtained by breaking up into groups of 5 or 6.
- * (2) Unless guided properly, a group may begin criticizing and evaluating before all the ideas are out.
- (3) Is more effective if the group is made up of people of approximately the same training or rank.

2. CASE STUDY

a. Definition

A case study is an analysis and a solving of a problem that might be typical. It is an open-end proposition with "What would you do?" The solution must be practical and the best under the circumstances.

b. Utilization

- (1) Especially useful for analyzing personal problems of people.
- (2) Good method for training students to participate orally (under the close attention of others), to think through, to feel vicariously the roles of the persons concerned in the problem.

- (3) Excellent for teaching students to be open to suggestion, viewpoints, and feelings of others.
- (4) Trains one to deal with himself and with others before facing the real thing,

c. Procedure

The case method is essentially a problem-solving technique which leads thinking through effective group discussion and may be supplemented with role playing.

- (1) A group of four or five persons is headed by a trained leader, who oversees but does not dominate the study.
- (2) The members seek individual solutions of the problem by critical examination of the data and through frank discussion in the group.
- (3) A summary of observations, opinions, and preliminary conclusions is made on a chalkboard.
- (4) Each person then writes out what action he would take, if confronted with that or a similar problem, and defends his decision before the group.
- (5) Finally, the entire group formulates one solution, and, if the case had a previous solution, a comparison is made and differences are noted and discussed, and the group's answer is modified, if necessary.
- (6) Each participant should leave the study with a clear understanding as to how he would handle a similar problem if he met it in reality.

d. Tools

The nature of the particular problem, its circumstances, the available information, and other factors will decide what tools or aids are useful in the study. Experts, witnesses, and subjects may be called. Among audio-visual aids, frequently useful ones include paper, chalkboards, charts, diagrams, films, pictures, tables of data, tests, objects, models, samples, and tapes, and appropriate equipment associated with aids.

e. Advantages

- (1) The case approach is the best substitute for reality: the investigator must analyze and solve selected case problems from real life, but without suffering the problems and the consequences of failure. By putting himself into the roles of the examiner and of the examined, he becomes sensitive to the many factors that may enter a problem.
- (2) The smallness of the group (about five or six persons) permits and requires each member to participate fully, and to think through what he might do, if the problem were his. Each one

must open up, overcome shyness, speak up, learn to give and take, respect the thinking of others, and be unbiased in his viewpoint and judgment.

- (3) The deliberations require that one be clear and specific in introducing a problem, be concise in assembling appropriate data, and be logical, reasonable, and practical in summarizing and in formulating a workable solution.
- (4) The solution of the case is the concentrated effort of several alert minds, and so should be better than that of one mind.

f. Disadvantages

- (1) Insufficient and inadequate information and being in too much of a hurry can lead to inappropriate results.
- (2) If the teacher fails to arouse the participants to a free flow of ideas, discussions, and decisions, the method may fail to develop the participants appropriately and to obtain a good solution.

3. PANEL, SYMPOSIUM

a. Definition

Panels and symposiums are discussion procedures which may be used in either large or small groups. The purpose is to provide an opportunity for a few well-prepared students to discuss a topic of general concern and interest in front of the class. (the ideal number of participants is four or five, plus the moderator.) Both procedures are followed by questions or discussion from the floor.

Panel--Participants engage in an informal, free exchange of ideas among themselves concerning the topic. The presentations are considered impromptu, but the participants should be well informed.

Symposium--Participants, usually with divergent viewpoints, prepare and formally present a set speech (statement) of facts or opinions regarding various facets of the topic. They may then engage in an informal discussion among themselves.

b. Utilization

- (1) To study a topic in more depth than can be done in a general discussion.
- (2) Where it is desirable for the students to look for needed information, instead of the teacher spoonfeeding the answers.

- (3) For introduction of new materials; enrichment of the topic being studied; culmination of the study.
- (4) For motivation.
- (5) To provide variety in the group procedures.
- (6) To utilize resource people effectively.

c. Procedure

- (1) Select a pertinent problem cooperatively with the group.
- (2) Choose panel or symposium participants carefully, especially the moderator, because the presentation will be no better than those who engage directly in it.
- (3) All class members may be assigned to prepare for a panel, and then the panelists can be selected extemporaneously.
- (4) Assist the participants in obtaining the information needed for worthwhile discussion.
- (5) Have a few practice sessions, if possible.
- (6) Provide the class with guidelines on what values and learnings to look for during the panel or symposium.

Since much of the success of the presentation depends on the moderator, his major responsibilities are listed below. He should:

- (1) Become well versed on the topic.
- (2) Inform the audience of the topic to be discussed, giving enough background information so that their interest and attention may be aroused and secured.
- (3) Introduce the members of the panel or symposium.
- (4) Get the discussion under way, usually by stating a provocative question and then calling upon one of the participants.
- (5) Guide the discussion--keep the remarks focused on the problem, energize a lagging discussion, bring each participant into the discussion, see that no one monopolizes, make both periodic and final summaries.
- (6) Stimulate questions and discussion from the audience.

d. Advantages

- (1) Both the panel and symposium actively involve a number of individuals.
- (2) Provide opportunity for participants to work together as a group.
- (3) A given topic can be discussed in depth by a panel or symposium, whereas it would be difficult in a large group.
- (4) Can be used to launch small-group discussions in a large group.
- (5) Change of pace from the usual activities can be refreshing.

e. Disadvantages

- (1) Only a small number of individuals is directly involved.
- (2) Even during the question or discussion period, not everyone in the class can participate.
- (3) Unless all class members have been given the assignment to prepare for the panel, only the panelists have the benefit of studying the topic in depth.
- (4) When the participants are well qualified, the procedure is more effective and rewarding.

4. PROBLEM SOLVING

a. Definition

Problem solving is a method of analyzing problems systematically in order to arrive at solutions. (It is a method richly productive of the highest quality of learning.)

b. Utilization

- (1) Basically is a means of approaching problems with a searching mind.

c. Procedure

- (1) Identify the problem issue, or question requiring an answer or solution, and define it specifically so that the students know exactly what they are to do.
- (2) Gather evidence or data that will help in the solution of the problem.
- (3) Organize and analyze the information.
- (4) Form a tentative solution to the problem (hypothesis).
- (5) Try out the solution.
- (6) If successful, the problem is solved; if not, repeat steps 3, 4, and 5.

d. Advantages

- (1) Can lead to a good understanding of a problem because it provides for the students becoming really involved in their learning.
- (2) Places emphasis on the students actively acquiring information and critically examining it, rather than on the teacher's presentation of it.
- (3) Involves not only learning but actual use of what has been learned.

- (4) Leads students through a series of experiences and helps them "discover" basic generalizations themselves-- to learn things for themselves; by use of their own abilities.
- (5) Provides students a chance to learn from their successes and failures.
- (6) Problem-solving approach to knowledge may be engaged in by all, in varying degrees.
- (7) Can be used by individuals as well as by groups.

e. Disadvantages

- (1) Without guidance, individuals may select problems whose solution requires materials and equipment beyond the available resources, or problems too big and unyielding in the time allotted.
- (2) Unless a problem is defined clearly and sharply, the students may flounder in the problem-solving steps and not arrive at a reasonable solution.

5. SEMINAR

a. Definition

The seminar is a means of enabling a group to meet informally with leaders for discussions in depth of common responsibilities and problems. All concerned have a chance to contribute through cooperative effort.

b. Utilization

- (1) One type of seminar consists of a student leading a discussion on an assigned topic he has prepared for the group.
- (2) Another type consists of general discussion on topics with which all are familiar.

c. Procedure

The seminar leader (teacher):

- (1) Assists students in selecting topics to discuss.
- (2) Helps in arranging short reports or presentations.
- (3) Guides the discussion following the presentation.
- (4) Acts as a source of information and makes corrections where necessary.
- (5) May invite outside specialists to contribute to the discussion or lead it in areas where they are specially competent.

d. Tools

Chalkboard, charts, graphs, pictures, films, motion pictures, slides, tapes, appropriate books, or any other audio-visual aids which the reporter wishes to utilize to make the presentation more interesting.

e. Advantages

- (1) When the class members are experienced and mature, this method is one of the best in achieving the objectives of the seminar.
- (2) Supplies not only information but provides food for thought and opportunity for free interchange of thought and sharing of experiences.

f. Disadvantages

- (1) Cannot be used with immature, inexperienced people.
- (2) Group membership generally should not be more than fifteen in number.

6. SPECIAL REPORT

a. Definition

A special report is a means of getting some particular information before the group, in cases where the data are not generally available to the group but are essential to the lesson or discussion.

b. Utilization

- (1) To show research findings which will strengthen the lesson or discussion.
- (2) To bring in data, whether from books or specialists, which are needed to make the lesson more meaningful.

c. Procedure

- (1) Assignments should be planned well ahead, and the students making the reports should have enough time to research the topics properly.
- (2) Content and extent of the assignment should be made clear, suggestions made as to where to find the material, and examples of similar reports made available, if possible.

- (3) Report, when given, should not be read word for word. The person reporting should be assisted to make his presentation interesting through careful planning and utilization of appropriate teaching aids.
- (4) Copies of the report may be given to the class members, so that they may follow it during the report or study it beforehand if it is distributed earlier.
- (5) Presentation should use only part of the class period, so that questions, comments, and discussion may be permitted.
- (6) Oral reports can become monotonous, if the class has to listen to several, one following the other. Space reports between other activities.

d. Tools

In addition to a written report or the outline of the report, the following tools are often useful in presenting the material effectively: chalkboard, charts, diagrams, maps, pictures, sketches, tables, graphs, posters, models, live items, tapes, assisted by needed projectors and recorders, and even resource people.

e. Advantages

- (1) Extends the lesson content beyond the instructor, the text, and the classroom into the library and to other resource points.
- (2) The research, preparation, and presentation develop the students doing the assignment.
- (3) Acquaints those reporting with expanded sources for information and teaches logical organization.
- (4) Provides more experience in preparing written reports and delivering oral reports to group members.
- (5) Relieves the instructor of much additional work.

f. Disadvantages

- (1) If the assignments, reports, and presentations are not planned well, they can miss the point, wander around, be boring, and be quite wasteful of time and effort.
- (2) Assignment involves directly only a few students.
- (3) Unless the report is presented interestingly, it will not gain the attention of the class.



APPENDIX E

AGENDA FOR MEETINGS TO DISCUSS
WASH TECHNOLOGY TRANSFER
PROGRAMS

To be conducted by Mr. Paul Howard at the WASH Office in conjunction with the WASH AID Project Manager, Georgia Tech personnel, University of Maryland personnel and WASH Office personnel.

The intent of the general sessions is to discuss matters of interest and importance for the entire technology transfer program. Items concerning individual OTD's (for example, specific amendments) or other concerns which are not program-wide should be handled during the times set aside for individual business and not during the general sessions.

Monday, 13 September 1982

- | | |
|-------------|---|
| 1:00-1:15pm | General session for introduction and review of agenda. |
| 1:15-2:00pm | Individual business session to discuss OTD's 68, (hydropneumatic pump) and 71 (Robovalve testing). Ron Sternberg, Phil Potts, Vic Wehman, Dave Donaldson and Paul Howard should be present for this session. |
| 2:00-3:00pm | General session to discuss the program in three (3) countries: Honduras, Ecuador and Tunisia. |
| 3:00-4:30pm | General session to discuss the manuals being prepared at Georgia Tech on manufacturing processes (quality control), acceptance testing, training host country organizational manpower (training of trainers) and community-level operation and maintenance. |
| 4:30-5:00pm | General session to discuss scheduling of the tech transfer projects. |

Tuesday, 14 September 1982

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|-------------|--|
| 8:00-9:00am | Individual business. |
| 9:00-9:30am | General session to discuss the program in two (2) countries: Dominican Republic and Haiti. |



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| 9:30-10:00am | General session to discuss summary of learnings from the tech transfer program up to the present time. |
| 10:00-10:30am | Individual business. |
| 10:30-11:30am | General session to discuss the process of technology transfer. |
| 11:30-12:00am | General session to discuss language training. |
| 12:00-1:00pm | Lunch |
| 1:00-1:30pm | Individual business. |
| 1:30-2:30pm | General session to discuss handpump testing at Georgia Tech (OTD 69) and technical field problems. |
| 2:30-3:00pm | General session to discuss follow-up inspection and reporting on pilot projects in technology transfer over the long term (for example, in Costa Rica and the Dominican Republic). |

The meetings will end at 3:00pm. Those participating in the Cliffside training must be ready to depart no later than 3:30pm.



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