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**USAID Village and Sanitation Program
West Bank**

Environmental Health Project

**Behavior-Centered Communication Project-
Lessons Learned**

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TABLE OF CONTENTS

| | |
|--|-----|
| ACKNOWLEDGEMENTS..... | V |
| EXECUTIVE SUMMARY..... | VII |
| REPORT FORMAT | 1 |
| 1. BACKGROUND AND HISTORY..... | 1 |
| 2. TASK ORDER 806 PURPOSE..... | 1 |
| 3. INCEPTION OF EHP TASK 2: EHA I AND II RESULTS AND THE SCF PROPOSAL FOR THE EHP | 2 |
| PROJECT INTERMEDIATE RESULTS | 3 |
| ORIGINAL KEY INTERVENTIONS..... | 3 |
| 4. BEHAVIOR CENTERED PROGRAMMING APPROACH | 4 |
| 5. COMMUNICATION STRATEGY: INTER-PERSONAL COMMUNICATION | 4 |
| 6. PROJECT NATIONAL STEERING COMMITTEE..... | 4 |
| ROLE OF LOCAL CIVIC LEADERS..... | 4 |
| 7. THE ENVIRONMENTAL HEALTH PROJECT WEST BANK AND GAZA: RAPID COMMUNICATION STRATEGY DEVELOPMENT IN A COMPLEX OPERATIONAL ENVIRONMENT: A SUMMARY OF BCP COMMUNITY BASED ACTIVITY | 5 |
| PROJECT STAFF TRAINING | 5 |
| CHILD-TO-CHILD TEACHER TRAINING..... | 6 |
| TANKER DRIVER BEST PRACTICES TRAINING..... | 6 |
| IEC MATERIALS DEVELOPMENT | 6 |
| CHILD-TO-CHILD PROJECT | 7 |
| CHANGES IN THE SCOPE OF WORK | 8 |
| TANKER DRIVERS’ BEST PRACTICES TRAINING OBJECTIVES | 8 |
| IN NABLUS DRIVERS REPORTED LEARNING | 9 |
| ACTION TO BE TAKEN IF WATER IS POLLUTED..... | 10 |
| BARRIERS TO DISINFECTING WATER..... | 10 |
| DRIVER TRAINING QUALITY OPINION | 10 |
| TANKER DRIVERS’ RECOMMENDATIONS FOR FUTURE ACTION..... | 10 |
| DRIVERS SUGGEST INCLUDING THESE GROUPS IN TRAINING | 10 |
| ACTION RECOMMENDED | 10 |
| TRAINING MOTIVATION..... | 10 |
| 8. IMPLEMENTATION STEP BY STEP: FORMATIVE RESEARCH: JANUARY 2004..... | 11 |
| RESEARCH FOCUSED ON | 11 |
| METHODOLOGY | 12 |
| OPERATIONS RESEARCH CONDUCTED IN THE FOLLOWING AREAS | 12 |
| FINDINGS | 13 |
| CONCLUSIONS..... | 21 |
| 9. STEPS FORWARD PROPOSED: MARCH 2004 AND RESULTS PRÉCIS..... | 22 |
| 10. TRIALS OF IMPROVED PRACTICES (TIPS)..... | 24 |
| HAND WASHING METHODOLOGY | 24 |
| HOME MANAGEMENT OF DIARRHEA..... | 25 |
| WATER QUALITY..... | 28 |
| 11. PROJECT EVALUATION: QUALITATIVE SURVEY LESSONS LEARNED..... | 30 |
| BACKGROUND..... | 30 |
| SOW | 30 |

| | |
|--|-----------|
| QUALITATIVE RESEARCH METHODS..... | 30 |
| QUESTION GUIDE: ENGLISH VERSION..... | 31 |
| MOTIVATIONS AND BARRIERS TO PRACTICE..... | 31 |
| EXPOSURE TO BCC PROGRAM: CHANGES IN BEHAVIOR..... | 31 |
| ADDITIONAL QUESTIONS FOR THE CHILDREN..... | 31 |
| DISCUSSION..... | 32 |
| PARTICIPANT GROUPS CITED THE FOLLOWING AS MOTIVATING FACTORS TO ADOPT IMPROVED PRACTICES..... | 32 |
| BARRIERS TO SUSTAINING IMPROVED PRACTICES MENTIONED BY PARTICIPANT GROUPS INCLUDE THE FOLLOWING..... | 33 |
| HOME MANAGEMENT OF DIARRHEAL ILLNESS IN CHILDREN UNDER 5 | 33 |
| • <i>Health Facility Staff Interviews</i> | 33 |
| • <i>Mothers and Grandmothers- Focuss Group Discussions</i> | 34 |
| WATER QUALITY MANAGEMENT | 35 |
| CIVIC AUTHORITIES COMMENTS ON PROGRAMMING | 36 |
| • <i>IEC materials</i> | 39 |
| • <i>Recommendations</i> | 39 |
| 12. MAJOR CONCERN/RECOMMENDATIONS | 40 |

ATTACHMENTS

| | |
|---------------|--|
| Attachment A- | EHP/CDM Approach |
| Attachment B- | Behavior-Centered Programming: The Manoff Group Inc. Approach |
| Attachment C- | EHP/SCF Project Area List |
| Attachment D- | EHP Staff List |
| Attachment E- | EHP/SCF Project Implementation Timeline October,2003 |
| Attachment F- | Hygiene Behavior Change Communication Training Module- West Bank |
| Attachment G- | Hygiene Behavior Change Communication Training Module- Gaza |

ABBREVIATIONS AND ACRONYMS

| | |
|--------|--|
| BCC | Behavior Change Communication |
| BCP | Behavior Centered Programming |
| CDM | Camp, Dresser and McKee Inc. |
| CHW | Community Health Worker |
| C-T-C | Child-to-Child Program |
| EHP | Environmental Health Project |
| FS | Field Supervisor |
| HH | Household |
| HIF | Hygiene Improvement Framework |
| IEC | Information, Education and Communication |
| IPC | Inter-personal Communication |
| IMCI | Integrated Management of Childhood Illnesses |
| MOE | Ministry of Education |
| MOH | Ministry of Health |
| MOLG | Ministry of Local Government |
| PM | Project Manager |
| PC | Project Coordinator |
| PWA | Palestinian Water Authority |
| SCF | Save the Children Federation |
| SO | Strategic Objective |
| Team | EHP/SCF Project Staff: PM, PC, CHW and FS |
| TIPS | Trials of Improved Practices |
| UNICEF | United Nations International Children's Fund |
| USAID | United States Agency for International Development |
| VC | Village Committee |
| WHO | World Health Organization |

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4. Municipal and village council heads and members, who provided all needed facilitation and support in carrying out project interventions and in conducting the field work in extremely difficult conditions.
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6. Consultants both external and local who helped develop and facilitate Behavior Change Communication training for EHP/SCF project staff and IEC materials development.

In recognition of all the efforts that have been devoted to the completion of this Environmental Health Project the entire Team hopes that the results of this process will help in the developing of interventions that will lead to a better environment and improved health and quality of life for Palestinian children and families.

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EXECUTIVE SUMMARY

Task 2 of USAID Task Order 806: CHRN-I07-99-00011-001 Provided for:

Environmental health programming: Implementing an environmental health program in rural communities to improve the quality of water used in the household and the treatment of children with water-borne illness.

In response to findings from two USAID supported CDM/Save the Children Federation implemented Environmental Health Assessments carried out in 2002, Save the Children submitted a project proposal to USAID and CDM to create a one-year project intervention designed to address these critical findings. The project's strategic objective was *to improve child health by reducing incidence of diarrhea and other water-born diseases*.

The project aimed to reach 442,785 beneficiaries throughout the West Bank and Gaza and proposed to achieve the objective by improving water quality throughout the distribution chain, by promoting healthy behaviors at the household level, and by enhancing case management of diarrhea in children under 5 at the household and clinic level.

Project Intermediate Results Included:

IR1: Improved safety of drinking water at the household level and within schools

IR2: Enhanced healthy behaviors related to water use at the household level and in schools

IR3: Improved case management of diarrheal diseases

Behavior Centered Programming Approach Adopted

The project adopted a Behavior-Centered Programming approach to communication and program strategy rapid development and implementation. A series of Trials of Improved Practices (TIPs) were conducted, based upon initial formative research into motivations to and barriers to improved hygiene-related practices and were used to define feasible best practices messages that could potentially lead to improved health.

Communication Strategy: Inter-personal Communication:

The project decided to gear the communication focus towards Interpersonal Communication (IPC) with a concomitant emphasis on the development of a package of printed Information, Education and Communication (IEC) materials that would complement the mass media materials and campaigns on hygiene developed by USAID's flagship health project, the MARAM project.

Project Results:

Project staff carried out 2880 home visits total during a series of TIPs that identified a series of feasible and potentially sustainable practices that if implemented and sustained, could, over time contribute to an improvement in child health.

Operations research findings used to plan and implement Trials of Improved Practices (TIPs) on hand washing and water storage disinfection practices at the household level and home management of diarrheal disease in children age 0 to 5 years to identify and negotiate feasible changes in practices that will lead to improved hygiene with participant groups. These operations research results were used throughout the life of the project to help design project activities.

Results: A series of 3 trials carried out and results used to design a communications strategy based upon Inter-personal Communication (IPC) that resulted in the implementation of a regular series of home visits to households and social group meetings where hygiene best practices were promoted. The communication strategy, using inter-personal communication strategies, was put in place in May 2004 and ran until the end of July 2004. A series of print IEC materials were developed and pre-tested based upon results from TIPs and considering promotion of standard best practices for improved hygiene.

The project implemented Child- to -Child activities focused on hygiene behaviors at selected schools in the West Bank and Gaza. Use the program methodology to help teachers and children identify and participate in the implementation of small- scale sanitation projects at the participating schools. Projects can include, but are not limited to improving hand washing facilities, developing systems for the provision of soap and improving water supply.

Results: Child-to-Child activities were carried out in A total of 417 students from 17 schools participated in Gaza; a total of 349 students from 14 schools in Hebron participated and in Nablus some 240 students from 12 schools participated. Sanitation infrastructure work was completed at 22 schools throughout the project area in a bid to support improved hygiene practices promoted by the students and teachers during the Child-to-Child program. All schools selected for infrastructure work were chosen in conjunction with the MOE. Civic authorities participated in festivals held at the end of the school year where the children presented the materials they developed to promote improved hygiene practices at their schools during the course. These included plays, songs, dances, puppet shows and posters promoting improved practices.

Designed and implemented a pilot water tanker driver regulation scheme in selected communities in Nablus and Hebron in collaboration with the PWA. Participants include village council representatives; private tanker drivers and PWA sponsored tanker drivers. Possible incentives for private tanker drivers' participation include assistance with tanker truck repair and endorsement by PWA to the NGO community of participating tankers and receipt of a certificate. Include pilot water tanker driver regulation scheme in selected communities in Nablus and Hebron in collaboration with the PWA. Participants include village council representatives; private tanker drivers and PWA sponsored tanker drivers. Possible incentives for private tanker drivers' participation include assistance with tanker truck repair and endorsement by PWA to the NGO community of participating tankers and receipt of a certificate.

Results: A best practices training for a total of 50 water tanker drivers was designed and implemented based upon results from formative research carried out in January 2004. The training focused on water tanker drivers' behavior handling water at the source and during delivery to the house, examined the drivers' role in preserving the quality of the water and suggested methods for drivers to better maintain their vehicles and promoted drivers chlorinating the water delivered in their tankers if necessary. The attempt to develop a pilot water regulatory scheme proved premature, but the best practices training would not have

been possible without the cooperation and active collaboration of the relevant Palestinian government authorities including the PWA and the MOH.

Used TIPs results to design an IEC strategy and revise existing materials to promote feasible, acceptable hygiene messages identified by participant groups during TIPs.

Results: A series of IEC print materials including counseling cards, reminder materials and stickers were developed and pre-tested in all project areas in 2 rounds. Project staff began distribution of reminder materials to all households in the project area completing the task in August 2004. Thousands of women participated in home visits and group activities facilitated by the EHP SCF staff throughout the West Bank and Gaza.

Supported MOH roll out of IMCI with EHP/SCF Community Health Workers and Field Supervisors promoting and supporting MOH IMCI policy on the home management of diarrheal disease in children age 0 to 5 years old in the community through home visits and other social mobilization activities.

Results: the project supported 4 IMCI training courses in the project area for 15 participants per course with one course in Gaza, 2 courses in Hebron and 1 course in Nablus. In addition to this support the project funded the printing of IMCI training course materials for the West Bank in addition to the 4 courses run in the project area. These activities were undertaken in partnership with the MOH and UNICEF.

Results Summary/Lessons Learned

The rapid development of a sound, evidence based Behavior Change Communications project promoting improved hygiene practices in a challenging, complex environment is possible. The results presented in this report point to evidence that the process itself is sound and if provided with sufficient time could yield results by continuing to focus efforts on behavior change with participant groups at the community level. This focus combined with support at the policy level and in terms of water and sanitation infrastructure development has a great chance to yield even better health outcomes in the future. It is, however, impossible to say with any degree of accuracy that the behaviors agreed by the Project Team with the Participant Groups and promoted as best practices in the communication strategy, are sustainable given the very short period of time allowed for implementation. But the results seen in this short time and discussed in the body of this report provide us with hope for this strategy.

There are a few prerequisites to preparing this type of program in these complex circumstances. These are:

1. Quantitative and qualitative evidence providing a solid basis for project interventions and communication strategy development. These include operations research and TIPs.
2. TIPS can be used simultaneously as a communication strategy even as it is being used as a formative research tool in situations where the project timeframe is short. Behavior centered strategies provide participant groups an opportunity to help shape programming and develop clear, effective, attractive IEC counseling materials and reminder materials.

3. Multi-level planning, devolution of implementation contingency planning duties and a clear understanding by all project staff of all levels of roles and responsibilities is essential to rapid, effective project implementation in a complex environment.
4. A commitment to high quality staff training in both discrete increments and through out the life of the project is essential to the achievement of project goals and objectives.
5. Excellent relations with and buy in from local civic leaders and influential persons helps smooth the facilitation of activities.
6. A mechanism for project development and implementation combining relevant government ministries and authorities is essential for project development and implementation.

Recommendations and Concerns

A major concern for the project, though one that time and resources were insufficient to adequately address, was the system for obtaining chlorine tablets for household level water disinfection. At present it is the responsibility of the MOH to provide chlorine tablets to village councils in the West Bank who in turn are to provide the chlorine tablets to households that request it. While many agree that the present system is not sustainable in the long term a feasible replacement system has yet to be identified. As a stopgap measure to assist the MOH, which did not have stocks of chlorine, tablets to distribute, CDM, through the Emergency Water Operations Center, funded by USAID, purchased 4 tons of chlorine tablets and gave them to the MOH. The tablets were received, tested and accepted by the MOH in mid July 2004. The EHP then arranged for West Bank project area Village Council representatives to participate in chlorination training facilitated by the MOH at the end of July 2004. The MOH then distributed stocks of chlorine tablets to village councils. It is not entirely clear whether or not chlorine tablets were distributed to households for use chlorinating water by the time of the quantitative survey in mid-August 2004.

A second major concern that is linked to the first is the short timeframe allowed for implementation. More time and perhaps a higher than project level effort is required to realize institutional strengthening that is broad based, cutting across multiple government institutions charged with responsibility for health, water resources, local governance, statutory regulation development and enforcement and implementation that can effectively complement the community based mobilization activities developed to promote feasible, sustainable improved hygiene practices.

A third major concern also linked to the EHP HIF is the development of programs that match water and sanitation infrastructure development with community mobilization and the promotion of improved hygiene practices. Community participant groups regularly raised concerns about the lack of sanitation infrastructure and how this lack regularly exposed their children to an increased risk of developing diarrheal disease, skin and eye infections through exposure to untreated, raw sewage and solid waste. The project cites a lack of time to adequately begin to address these very issues.

Explore the possibility of establishing a comprehensive project with sufficient resources and expertise to develop water and sanitation infrastructure, expand community based behavior centered programs to promote improved hygiene practices at the community and household

level and facilitate policy development and institutional strengthening at multiple governmental institutional levels to promote these goals and objectives. These projects may also include sufficient provision for strategic operations research to support policy development and institutional

Extend the implementation period of the project in order to allow time to promote the messages developed for the communication strategy and to allow the project to build local strategic alliances with key influential community opinion leaders and local civic authorities that will promote sustainable behavior change leading to better hygiene and improved health outcomes.

Expand and strengthen the Child-to-Child project and extend the time period for implementation. Work with local civic authorities and influential persons as well as school authorities, teachers, students and parents to solve small- scale sanitation issues such as the lack of soap and towels available for use at the schools. Explore further partnership opportunities for improving school sanitation infrastructure and promoting improved hygiene practices at school.

Foster the links with local health facility staff established through project support for IMCI training courses in the project area and strengthen the partnership established with the MOH and UNICEF. Explore other opportunities for additional collaboration between project staff and health facility staff through various possible means including joint training support and project implementation.

REPORT FORMAT

This best practices and lessons learned report focuses exclusively upon Task 2: environmental health programming and concerns the rapid development and implementation of a Behavior- Centered Program designed to improve the quality of water used and to promote improved hygiene practices in the household and home management of children with diarrhea in 59 communities in the West Bank and Gaza. The total lifespan of the project was just short of one year and even shorter in terms of implementation of the fully developed communication strategy in the community. The level of effort required to swiftly and effectively develop this project was at all times intensive. This report is an attempt to document the development of the project, to provide a future reader with some answers to the question “How did they do it?”

The reader will find a list of attachments with this report that are intended to document many of the “things” that went into the making of this project. These include a description of the CDM/EHP approach, the Manoff Group’s Behavior Centered Programming Approach, a list of the EHP/SCF project areas in the West Bank and Gaza and the names of the EHP/SCF staff. The list of attachments also contains a table that outlines the dates of implementation for the project from start to finish that provides the reader with a real sense of just how much activity went on at all times through the life of the project. In addition to these the Behavior Change Training Curricula developed for and used to train the West Bank and Gaza EHP/SCF Team are included for reference. The IEC materials development report that contains useful information about the development of the package of print materials created for and used by the project follow this.

1. Background and History

Task Order 806 of the USAID Environmental Health Project-II (EHP) was a one-year effort, beginning September 28, 2003, that followed up several other USAID-funded EHP task orders in the West Bank and Gaza. These task orders all supported of a broader USAID program in the West Bank and Gaza – the Village Water and Sanitation Program.

2. Task Order 806 Purpose

The overall purpose of the Task Order was to improve health and living standards of Palestinians in the West Bank and Gaza through well-targeted, high-impact water supply and sanitation interventions. Specific objectives include:

- Project management and reporting: Establishing effective administrative, management and reporting systems for the Task Order as a whole;
- Environmental health programming: Implementing an environmental health program in rural communities to improve the quality of water used in the household and the treatment of children with water-borne illness;
- Tracking access to water and wastewater services: Establishing and maintaining systems to appropriately assess and monitor access to water and sanitation services throughout the West Bank and Gaza; and

- Emergency support: Assessing needs and coordinating responses to address emergency water and sanitation priorities in the West Bank and Gaza (to include the provision of limited technical assistance, as well as commodity and construction service support).

3. Inception of EHP Task 2: EHA I and II Results and the SCF Proposal for the EHP

In 2002, with support from USAID, CDM and Save the Children completed two Environmental Health Assessment surveys on household water quality in 50 communities throughout the West Bank. These were the key findings:

1. Access to and quality of water had been compromised over the period of the assessments with water quality worsening, supply decreasing and an increased reliance on water delivered via commercial water tankers with a concomitant decline in the quality of the water delivered to the household;
2. A 42% increase in the incidence of diarrhea was reported throughout the survey areas with a 40 –60% increase in the prevalence of amoeba and giardia;
3. Diminished access to health care, as indicated by a 14% drop in clinic consultations for children with diarrhea;
4. Household behaviors contributed to deteriorating child health, including a (false) general belief in the safety of water quality, inadequate water treatment at the household level, and few children with diarrhea receiving appropriate care;
5. Socioeconomic indicators declined throughout the survey areas.

These factors in the West Bank, along with similar water quality and household behavior issues in Gaza, contributed to diarrhea, malnutrition, growth retardation, and potentially to blue-baby syndrome where nitrate concentrations in drinking water exceed norms. Causes for this decline in water quality and child health were linked to access, quality, and oversight issues.

The EHA survey found a high prevalence of household cistern contamination in many areas, the same areas where Ministry of Health statistics indicate a high incidence of water-borne diseases. In fact, the research found that 70.1% of water samples are of unacceptable quality per WHO standards, and 56.5% of household water has fecal coliforms present. In addition, research conducted in Dahariyya showed that 85% of the household water cisterns sampled were contaminated with coliforms, and 80% of those contained E. coli even when delivered water was reported to be of acceptable quality at the source. Lack of access to potable water s contributed to unsanitary living conditions and the growing risk of disease outbreak, like cholera.

In response to these findings, Save the Children submitted a project proposal to USAID and CDM to create a one-year project intervention designed to address these critical findings. The project's strategic objective was *to improve child health by reducing incidence of diarrhea and other water-born diseases* and was linked to USAID's SO7 health objective, specifically IR2 "improved behavior related to maternal and child health, nutrition and well-being." The

project proposed to achieve the objective by improving water quality throughout the distribution chain, by promoting healthy behaviors at the household level, and by enhancing case management of diarrhea in children under 5 at the household and clinic level.

Project Intermediate Results

- **IR1:** Improved safety of drinking water at the household level and within schools
- **IR2:** Enhanced healthy behaviors related to water use at the household level and in schools
- **IR3:** Improved case management of diarrheal diseases.

The proposal made strong argument, ultimately accepted, to include 8 communities in Gaza in the project, although the baseline EHA surveys were carried out in only 50 West Bank communities. An additional West Bank community that was not part of the original surveys, Tamoun, was added at the request of CDM to provide a BCC element for a CDM cistern-building project there that lacked a best practices education component. The project rolled out in 51 West Bank communities and 8 Gaza communities aiming to reach 442,785 beneficiaries throughout the West Bank and Gaza. The interventions planned encouraged healthy practices and better household case management of diarrhea with children and their families the key participant groups for in an intensive communication campaign developed and implemented using behavior-change communication, inter-personal communication (IPC) and Child-to-Child methodologies. Health workers were the key groups for training designed to enhance local health facility capacity to manage parasitic illnesses in children under 5. Ultimately this evolved into a partnership with the Ministry of Health and UNICEF to conduct four IMCI training courses in the project area: one in Gaza, two in Hebron and one in Nablus. The project aimed, additionally, to put systems in place to regularly monitor water quality and to manage contamination and to maximize the impact of the intervention by focusing on national-level monitoring and assessment of water quality safety throughout the distribution chain.

Original Key Interventions

- Improvement of hand washing practices in households and in schools
- Improvement of prevention, management and care seeking practices in cases of diarrhea in children under 5
- Improvement of health facility staff capacity to appropriately manage diarrhea in children under 5 at the facility level
- Improvement of household water storage practices and promotion of disinfection of drinking water
- Improvement of water transportation safety via water tanker trucks through setting standards for water handling and tanker maintenance practices and training water tanker drivers to adopt improved practices
- Improvement of community water sources through minor rehabilitation of springs

4. Behavior Centered Programming Approach

The project adopted a Behavior-Centered Programming approach to communication and program strategy rapid development and implementation. Programmatic operational principles defined communities as participant groups, partners in the process to define and determine feasible behaviors to adopt in order to improve health outcomes. Mothers and children were the primary participant groups in this program, with men, mothers-in-law and other influential groups as additional participants. A series of Trials of Improved Practices (TIPs) were conducted, based upon initial formative research into motivations to and barriers to improved hygiene-related practices, to define feasible best practices messages that if implemented could potentially lead to improved health.

5. Communication Strategy: Inter-personal Communication

Early on in the project inception phase the project decided to gear the communication focus towards Interpersonal Communication (IPC) with a concomitant emphasis on the development of a package of printed Information, Education and Communication (IEC) materials that would complement the mass media materials and campaigns on hygiene developed by USAID's flagship health project, the MARAM project. The MARAM project and EHP mutually agreed upon a strategy to work together on water and hygiene IEC materials messages development to ensure quality, consistency and technical appropriateness of any materials created. Information obtained during the initial formative research and from the series of TIPs served to inform IEC materials development. The materials, both counseling cards to be used by the CHWs during home visits and group sessions and reminder materials to be left in the homes of participant groups were pre-tested in two separate rounds with participant groups. Great emphasis was placed on the consistency, technical appropriateness and clarity of the images and language used.

6. Project National Steering Committee

A project National Steering Committee in the West Bank, sub-regional Committees in Hebron and Nablus and a Gaza National Steering Committee -- composed of representatives from the Ministries of Health, Education, Local Government and the Palestinian Water Authority -- helped to form project approaches and to provide technical advice and backstopping for intervention development. The members of these bodies provided the necessary support required to implement project activities and were an indispensable part of the project.

Role of Local Civic Leaders

Members of area municipalities, including mayors and municipal workers and members of local Village Councils, provided indispensable support for and participated in project interventions. Members of established women's social networks provided invaluable service providing private homes in which to hold group meetings and word-of-mouth advertising of project-sponsored activities in their communities that helped to bring the project into contact with many participant groups. Save the Children was able to effectively bring to bear their long term work history in the project area on quickly obtaining local civic leaders support for the project.

7. The Environmental Health Project West Bank and Gaza: Rapid Communication Strategy Development in a Complex Operational Environment: A Summary of BCP Community Based Activity

The EHP Lessons Learned report on “Hygiene Improvement for Diarrhea Prevention” presented at the Global Health Council’s annual meeting in Washington, DC, in June 2004 reported that the yet incomplete project in the West Bank and Gaza as an example of: “The HIF can be applied in a crisis or natural disaster situation. While the time-frame and pressures for project completion are compressed in these situations, the principles of project planning and implementation remain the same.”

The project focused on simple, community-based interventions that have the potential to lead to a reduction in child diarrhea and intestinal parasites. These interventions included improving hand-washing practices, improving management of child diarrhea at home and at the health facility and improved household-level water storage and disinfection practices.

The compressed timeframe of the project combined with work undertaken in a complex security environment called for a strategically developed staff skills upgrading training plan building on discrete increments of formal training combined with regular, on the job mentoring and coaching. Adaptability and flexibility in planning project implementation and fostering the Team’s understanding of the project’s basis, goals, objectives, strategies and their role in achieving goals and objectives have been critical to achieving any success. Fostering the Team’s ability to develop and adapt multiple variations of implementation plans has also been an absolute requisite to achieving project milestones rapidly. Roles and responsibilities for each member of the Team from management to field level were clearly spelled out during training and agreed upon by all project staff. Team members, at all levels, cite a clear understanding of the interplay between multiple levels of responsibilities as critical to the successful implementation of this short- term community based project operating in a complex environment.

Project Staff Training

Emphasis on strategic staff training early on in the project cycle rapidly developed CHW and FS skills that enabled the Team to develop and implement a behavior change communication strategy that promoted improved hygiene practices using a multi-stage approach. Initial staff training carried out in both West Bank and Gaza in early January 2004 fostered development of team spirit and acceptance of the management and planning structure of the project with all staff coming away with a clear understanding of their roles and responsibilities as an individual, and as members of a larger project team. The staff received a thorough briefing on the results of the EHA I and II and the goals and objectives of USAID’s overall VWS and community needs resulting in a clear understanding of the development of the project. This training prepared the Team members to better use existent communication and listening skills and equipped them with the skills to carry out rapid formative research using direct observation, key informant interview and indirect observation to fill in gaps on motivations and barriers to practice related to hand washing, home management of Diarrhea in a child under age 5 and water storage and disinfection practices at home. The formative research also extended to water handling practices of water tanker drivers, MOH facility workers views on hygiene and community ability to manage child diarrhea at home and school level hygiene practices

The second, concentrated training input carried out in early February in the West Bank and then repeated in Gaza developed staff behavior change communication skills and emphasized communication, negotiation and listening skills in the context of developing major behavior change programming. Critical public health issues related to hygiene and sanitation defined by the results of the EHA surveys were re-examined in light of the results of rapid operations field research carried out by the Team in January. With these EHA survey and operations research results fresh in their minds and with continuous emphasis placed on effective, technically correct and culturally appropriate health communication strategy development, the Team learned to prepare and implement Trials of Improved Practices (TIPs). The program staff analyzed and used formative research results to plan for and implement a series of Trials of Improved Practices (TIPs) on hand washing practices, on the home management of diarrhea in children under age 5 and in home water storage and disinfection practices. The BCC training completed in both the West Bank and Gaza in February 2004 with the first round of TIPs, hand washing implemented immediately. The set of three trials followed one right after the other from February 2004 through the end of April 2004. By the end of April a series of technically vetted and community identified feasible practices to improve hand-washing behavior, the home management of diarrhea in children under age 5 and water storage and disinfection had been tried and identified. The messages became part of the project communication strategy and provided the basis for the development of the IEC package.

Child-to-Child Teacher Training

Between March and May of 2004 the Team assisted in the training of teachers for the implementation of Child-to-Child activities with the same hygiene components as the greater, community wide program. In early May the Team supported a round of festivals at the participating schools where the children showed the materials, plays, songs and dances they created to promote improved hygiene practices to their parents and local civic authorities including mayors and representatives of local village councils and project partner ministries and government authorities.

Tanker Driver Best Practices Training

During February and March the Team identified all eligible public and private water tanker drivers to participate in a best practices training held in the project area in early April 2004. The 2 full days of best practices training for water tanker drivers were carried out in both Nablus and Hebron in April 2004.

IEC Materials Development

Throughout May 2004 and into June 2004 the Team pre-tested IEC print materials developed by the project, as a result of the series of TIPs held from February through April 2004, created during a month long IEC consultancy in April 2004. The Team field tested materials with participant groups including mothers, mothers-in-law, husbands and fathers and children by showing the materials, asking 4 simple questions: what do you see in this picture, what do understand from this picture, what you like about the picture and what would you change and recording the answers. The Team completed 2 rounds of pre-testing throughout the project area. After each round the artist carefully revised the materials based upon information received from the field. The materials were considered to be ready for

printing when most respondents indicated understanding of the message as intended. The full package of IEC materials was ready by the third week of July and the Team then proceeded to distribute copies to each household in the project area completing the task by early August 2004.

The communication strategy was ready for implementation by June 2004 with all sets of feasible messages from the TIPs series prepared for dissemination. While the Team carried out home visits to vulnerable populations and carried on with group meetings and activities, effective communication was not possible until the completed IEC materials were received from the printer by the third week of July 2004. Staff in the West Bank immediately began using counseling materials in all planned activities as well as distributing reminder materials to all homes in the project area. IEC materials distribution continued until the first week of August. Getting the materials into Gaza was very difficult and required a week of coordination effort on the part of CDM to obtain permission from the authorities to bring the materials into Gaza. Once in Gaza at the end of July and into early August, the Gaza based Team began to distribute IEC materials to as many project area households as security considerations allowed.

Through July, August and September the project completed final arrangements to run 4 IMCI training courses in the EHP area, 1 in Gaza, 2 in Hebron and 1 in Nablus in cooperation with MOH staff. One course was completed in Gaza, one is underway in Hebron with a second planned and the last underway in Nablus. Discussions regarding the agreement and arrangements between the EHP, the MOH and UNICEF began earlier in the life of the project, but were of greater intensity between June and early September of 2004.

In August the Team completed two rounds of evaluation surveys were held. The first set, a qualitative survey following up on initial formative research and the series of TIPs, was carried out in Hebron, Nablus and Gaza. A second round of surveying, a limited, post intervention, quantitative survey repeating elements of EHA I and II was carried out in Nablus and Hebron only.

Child-to-Child Project

The project complemented these broader community activities with a Child-to-Child program implemented in 43 schools selected in coordination with the Ministry of Education. The children focused on:

- Improving hand washing practices
- Preventing and managing diarrhea
- Improving water quality

Each school participating in the program selected one teacher each to participate in a Child-to-Child training workshop facilitated by SCF staff. Upon returning to their schools, each teacher --with support from project staff and the participating school principals -- implemented a two- month-long program focused on improving school student hygiene through the implementation of the six steps to learning and doing. These steps are:

1. Understanding hygiene and sanitation issues in their communities
2. Finding out more about poor hygiene practices and how lack of sanitation infrastructure affects their community

3. Discussing the findings and planning action
4. Taking action
5. Evaluating action
6. Doing it better

Changes in the Scope of Work

The original scope of work envisioned carrying out rehabilitation of chlorination systems at selected springs in the project area in order to achieve the goal of improving water throughout the chain. Ultimately, this proved to be not feasible. At the suggestion of USAID, the project shifted emphasis to carrying out rehabilitation of sanitation infrastructure in selected Child-to-Child schools in order to build on discoveries the children made about improving hygiene behavior and to provide them with the necessary sanitary structures for the children to sustain healthy hygiene behavior at school.

Data from the EHA surveys carried out in the West Bank indicated that 60% of all households relied on tanker-delivered water for all or at least part of the household water requirements. None of the tanker delivered water tested met WHO standards for water quality safety. The surveys also found that in the summer time tanker-delivered water cost between 17% to 40% of household income. Recognizing this delivery of poor quality water to the household as a significant problem and the lack of a mechanism for regulating the water-tanker delivery industry, the project hoped to work with the Palestinian Water Authority, the Ministry of Health, the Ministry of Local Government, Municipalities and Village Councils to develop a pilot project for both the development of a regulatory mechanism and licensing of water tankers.

Ultimately, time constraints and organizational issues external to the project proved to be too much, so the pilot project idea was dropped in favor of a Best Practices Behavior Change Communication training course focusing on the water-handling practices of tanker drivers and the drivers' role in protecting the quality of water delivered to the consumer. Colleagues from the relevant Palestinian ministries and bodies, particularly the PWA and the MOH participated in the development of the course and as facilitators were instrumental in the successful implementation of the course. The training was based both on results of formative research on water tanker drivers' water-handling practices (observations and key informant interviews with tanker drivers) and best practices promoted by colleagues from relevant Palestinian partners, both governmental and non-governmental.

Tanker Drivers' Best Practices Training Objectives

By the end of the two- day, participatory training, participants will be able to:

- Recognize the relation between polluted water and health
- Understand the water contamination sources and the role of water transportation in water contamination
- Understand the importance of using an official, approved water source for obtaining water for delivery to households
- Demonstrate correct and appropriate water collection and delivery techniques according to the protocol developed by the PWA
- Properly maintain water-tanker vehicles according to the protocol developed by the PWA.

A total of 50 water tanker drivers participated in two training courses in Hebron and Nablus in April 2004. In addition to this members of Village Councils and municipal officials attended as observers. Copies of these course objectives, schedules and materials were later given to other organizations, the ICRC and ACF, for preparation of courses in their project areas.

One driver said, "After the training, we discovered that we don't have any experience regarding water disinfection methods. We don't even know about uncontaminated sources for water tanks points for which PWA is responsible." This is what most of tanker drivers revealed after attending the training.

A tanker driver from Dora said, "Who is responsible to talk with me about clean source, my role is fetching water, so what do I need to know "clean source "do you think that I'm happy to spend efforts, time, money and Benzene and buying contaminated water".

Abu Raed from Beit Ola said" for 12 years I worked in this field. This is the first time that I know about polluted sources as Mosslem cistern."

Tanker drivers reported many benefits from their training in Hebron in August 2004. They had become familiar with contaminated sources Mussallem and Jala springs as well as clean sources, especially water tanks points that PWA is responsible for such as filling point in Halhoul, Yatta and Alfahs and municipality's points such as in Suiref, Kharas and Beit Ola. In Beit Ola, a tanker driver said "I'm proud to tell you that before the training I didn't pay any attention to the tank cover after finishing the process of filling water in the tanks. After attending the training, I told people that they should close their tanks' cover to avoid anything falling in." They reported that they started to make a connection between water pollution and diseases such as worms and diarrhea. On the other hand, they advise people to make special drinking places for their animals and to avoid any possibility of drinking from the same cisterns to avoid diseases.

They reported that they advise people to keep a long distance between their cisterns and cesspit, and to avoid the issue of building the cesspit higher than the cisterns. Hassan from Suiref said, "I learned how to avoid walking on the plastic pipes while supplying water to the houses by truck tanks to prevent the presence of germs in the cisterns." Tanker drivers reported that they learned about water-disinfection methods such as using chlorine tablets. They also learned a lot through the practical side of the training. Abu Raed from Beit Ola said," In my view, I think that this is very serious training, especially when MOH trainer told one of the participants that he had polluted tanks, then he proved this practically and technically through the training. As a result, I think that we learned a lot through this training about our unhealthy practices."

In Nablus drivers Reported Learning

- Their role in controlling water quality.
- Proper filling from the water source, keeping the hose away from dust.
- Advising people to have ventilation for their wells, chlorination in their wells.
- Advising people to have the well clean and educate them about the right way of cleaning.

The Tanker Driver is supposed to keep water quality because the village council or municipality assigns him and is supervised by the municipality, maintenance, and quality control.

Action To Be Taken If Water Is Polluted

- I fill my tanks from a well known source and I leave other suspected water sources, but if there is no other alternative, I inform the village council and they are supposed to inform MOH.
- I advise people to chlorinate their wells.
- I chlorinate water inside my tank if the chlorine is available in the village council.
- I keep cleaning my water tank.

Barriers To Disinfecting Water

- People are not convinced that water disinfection is necessary.
- People are not convinced in the fact that water is polluted.
- Chlorine is not available for free.
- They do not know how to use chlorine tablets.

Driver Training Quality Opinion

“I liked the training because I got new information concerning water quality, and water situation in Palestine, water reliable sources, how to protect water source, getting to know pollution sources, and how to deal with that. And I have no recommendation for better performance because it was good.”

Tanker Drivers’ Recommendations for Future Action

- Conduct tanker drivers meeting at least yearly or according to urgent new conditions as new information about contaminated water sources becomes known in order to avoid using these sources.
- Implement regular training for all tanker drivers targeting different groups in each training.

Drivers Suggest Including These Groups in Training

- The mayor of the municipalities or village councils
- The directors of local schools
- Food factories, restaurants and bakeries owner.

Action Recommended

- Make sure that Chlorine tablets always available in the municipalities/VCs under direct supervision from MOH
- MOH and PWA employees should follow up on reports about the polluted cisterns or springs continuously and inform tanker drivers about the results.

Training Motivation

- Social: they wish to be seen as good neighbors and responsible business men/members of the community.
- Economic: as people are likely to refuse to buy water from drivers perceived as honest.

8. Implementation Step by Step: Formative Research: January 2004

Introduction

In order to develop an effective program aimed at changing hygiene related behavior at the household level the project needed to know the practical, cultural reasons for the behavior. The purpose of this formative action research was to learn, as quickly as possible, the reasons why people think that their water is good quality when data from the EHA assessments indicated that it is not, how people store water, maintain and use water and when and how they wash their hands. The project needed to know what factors motivated people to change their hygiene practices and to clearly identify the barriers that prevent them from changing to improved practices. The project also looked at current home management of diarrhea practices in children under age 5.

The information provided a solid basis for developing effective program interventions that contribute to a reduction in diarrheal disease episodes in children age 0 – 5 years of age. The rapid research filled in gaps of knowledge about human hygiene behavior, a private and culturally sensitive issue, arising from the quantitative Environmental Health Assessments on the following specific hygiene practices and to promote the development of a behavior change program based upon evidence provided by the participant groups themselves. This information was used to design Trials of Improved Practices (TIPs) that tested proposed hygiene practices with participant groups for feasibility and acceptability and after completing TIPs, developing IEC materials used to promote that set of hygiene behaviors that is feasible and that participant groups indicated that they are willing to adopt. This methodology increased, the project believes, the possibility that the program will promote real change.

Research Focused On

- Mothers' current hand washing practices and reasons for them; current hand washing practices of school children age 6 – 12 years old and reasons for them; current water storage and quality management practices at the household level and reasons for them;
- Tanker drivers' water handling practices while collecting, transporting and delivering water to household and reasons for them.
- Identify feasible improvements in practices related to hand washing practices, water quality management and storage that Mothers, children in schools and tanker drivers can make that can contribute to a reduction in diarrheal disease.
- Identify obstacles to as well as motivations for improved practices among these aforementioned groups.
- Identify the skills and motivations available to reduce barriers and focus attention on motivations to change to improved practices.

The results of the rapid assessment were used to design a set of three Trials of Improved Practices (TIPs) that negotiated trials of specific practices with participant groups on hand washing behavior, water storage and quality management, home management of childhood (under age 5) diarrhea practices and to design a pilot project to improve the quality of water delivered to households in selected West Bank communities by water Tanker drivers.

Methodology

SCF EHP Community Health Workers and Field Supervisors completed in-depth interviews, field observations and focus group discussions with mothers at the household level on hand washing practices, home based management of diarrheal illness in children age 0 to 5 years of age and water quality and storage practices at the household level. The team obtained information from mothers on motivations for promoting best practices and also, importantly, barriers to adopting best practices filled in gaps of knowledge about specific behavior that came out of the original Environmental Health Assessments. Behavioral information the Team collected from other participant groups including school children age 6 to 12 years, MOH health workers, the PWA and other key informants was used to help design Tanker Driver Best Practices Training and Child-to-Child program. (Please see the attached question guide for further information).

The team chose communities considered to be representative samples of the area. (Please see the annex containing selection criteria). Adjustments were made for communities that varied from the majority in terms of culture, socio-economic status and/or access to services. The Team used in depth interviews, focus group interviews and both direct and indirect observation methods to carry out the operations research.

Operations Research Conducted in the Following Areas

Gaza:

- Al Moghraqa
- Jühr and Aldeek
- In Rafah: Alshoka, Kherbet Aldas and Al Nasr
- Jabalia and Beit Hanoun
- Beit Lahia: Ghaben, Aslant and Alsalaten

Nablus:

- Beit Furik
- Rujeeb
- Tamoun
- Burin
- Tell
- Awata
- Duma
- Qusra
- Aqraba
- Alyanon

Hebron:

- Kharas, Beit Ola and Idna
- Beit Omar, Jala, Jab'a and Noba
- Deir Samit, Al-Birj, Deir Al-Assal, Alfoka and Beit Mersim

Findings

- **General Points**

- A. Knowledge gap between communities
- B. Variation among health facilities concerning commitment to providing health counseling and counseling practice
- C. Denial culture (tanker drivers) and poor connection between hygiene and health
- D. Poor maintenance of infrastructure when available (school sanitation units)
- E. Superficial involvement of village councils in the process of water supply. There appear to be elements of good system to follow in Tamoun and Beit Furik.
- F. Good knowledge about water sources in the community, it is possible to identify one or two sources for monitoring by PWA. A variety of alternatives have been identified in the communities. These alternatives form a pool of practices for adoption.

- **Practices**

- A. Water Storage Practices at Household Level: Tank and Cistern Cleaning**

- In Tamoun some participants reported cleaning cisterns once a year. The head of the household cleans the cistern with assistance from the children after emptying it and rigorously washing it out. Direct observation of a cistern in Tamoun, however, showed that the cistern was not clean with flies observed above the water and worms in the water. The cistern door was not shut tight and was rusted and dirt was observed on the surface of the water.
- Participants reported that the school cistern was cleaned with the help of children small enough to fit through the cistern opening. In Beit Furik, cisterns were reported to have stairs that allowed for better access to clean the cistern. Here too children clean the cisterns with reasons mentioned for cleaning the cisterns include removing sedimentation and a belief that germs and fungi grow in the cistern if it is not cleaned.
- In the south and different from the practice of using children to clean cisterns in the north, cisterns are usually cleaned by adults for fear of letting children fall into the cistern, but roof tanks are cleaned by children.

- Frequency of cistern and tank cleaning varies from North to South and Gaza or all over the project areas.
 - Some reported cleaning each summer
 - Some reported cleaning upon detecting a change in the taste of water
 - Some are cleaned every 4-5 months
 - When the cistern empties out
 - In some areas in Gaza people do not clean roof tanks

Few people said that they knew about using chlorine tablets to disinfect water or used them.

A 1. Process of cistern washing

The same procedure was used in all locations: after the cistern is emptied out the cistern is scrubbed out with a cleaning agent and then rinsed. In the south participants reported that they also clean the immediate area around the cistern.

A 2. Motivation for cistern cleaning

- Elimination of germs
- Elimination of worms
- Personal hygiene
- Get rid of soil and dirt

A 3. Obstacles to cleaning cisterns and roof tanks reported in the south

- Difficulty reaching the roof tanks as well as access to the cistern
- The presence of water in the cistern
- Ignorance about the importance of cistern cleaning

In the south people perceive water brought to them by network as clean. People reported using soil and kerosene to treat cistern water specifically to kill insects.

Data referred to various frequencies in cleaning cistern and tanks. It is interesting to note that in the north children are used to help clean cisterns, but not in the south. The techniques used to clean cisterns were found to be generally ok.

B. Water Treatment Practices at the Household Level

Generally, no special efforts were reported for treating household water, however, certain practices were reported in some locations. Chlorination is least used in houses with people reporting that they do not like the taste of chlorine in the water, noting particularly that chlorinated water produces a bad taste when used to make tea. Participants reported that good water has no taste and when probed said that no taste meant no chlorine taste, is clear not cloudy and has no smell. Boiling is reported in some locations, for example, when making up milk for babies and for preparing drinks for people who are sick or recovering from illness.

B 1. Sources of information about water treatment mentioned in the south

- Health worker
- Neighbors
- Older people
- Television

In the south in all locations participants reported using traditional methods learned from their parents to treat water stored in cisterns. These methods include application of kerosene, benzene and gasoline to water to kill bacteria and insects. These materials are available in their homes for the most part. Cleaning is also held to mean removing sediment from the bottom of the cistern, cleaning the inlet and discarding the run off from the first rainfall before commencing rainwater harvesting. Cleaning the cistern is an annual family affair with younger children physically entering the cistern to clean it under adult supervision. People reported that annual cleaning of cisterns improves water quality.

C. Hand Washing Practices

At household level and through discussions with mothers, hand washing was reported to be important in the morning, after going to the bathroom, at prayer time, before eating, after cleaning the house and after feeding the animals. This was reported in all locations.

Respondents reported the use of Hawaii soap, Olive oil soap and Shampoos. The Nabulsi soap seemed to be the preferred soap as it is hard and lasts for a longer period.

Observations of hand washing in Burin revealed irregular use of soap and slight rubbing of parts of the hands only. In Beit Furik, hand washing was done by rubbing hands with soap till the soap disappears or only by rubbing the hands with water and shaking hands to dry. In the south, hand-washing observation revealed appropriate hand washing technique (good rubbing). Most respondents believe that the way they wash their hands is correct. In some areas of Gaza observation reported little, if any, use of soap. In some areas people did not use soap at all and washed their hands with water only.

Good knowledge about the importance, benefits and timing for hand washing. Satisfactory quality of hand washing also reported in general, but not all the time and not everywhere.

C 1. Motivations for hand washing

The motivations for hand washing were reported as getting rid of the bad smell on hands and eliminating the spread of germs. This was reported in all locations.

C 2. Obstacles to hand washing

Obstacles were reported as the cold weather and cold water, allergy to soap and scarcity of water. In the south, other obstacles were added to the above: laziness, difficulties in fetching water from the cistern and busy working outside on the farm.

D. Home Management of Child Diarrhea

D 1. Definition, Causes and Symptoms

The definition of diarrhea reported in all locations as the increase of stool frequency and consistency with mucous sometimes.

In all locations: Symptoms of diarrhea are reported as abdominal colic and stools more than five times with liquid consistency. Fever and mucous in stools were also reported as symptoms of diarrhea. Mothers in the focus groups in Beit Furik reported two types of diarrhea the simple one caused by cold and water pollution, and the dangerous one that is caused by germs and Giardia.

Causes of diarrhea were reported as bad mixture of foods, cold, water contamination, gastro-intestinal infections and some medications.

Mothers in the focus groups reported symptoms of dehydration to include the child asking for more fluids to drink, fever, pale face, tiredness and loss of appetite. Quite good level of knowledge was reported in most of the locations with Gaza women appearing to have better knowledge concerning causes, symptoms and a markedly lower level of knowledge in Gaza concerning the home-available alternatives to manage a child with diarrhea. The data from Gaza show high dependence on facility management of diarrhea. Women reported seeking the doctor on most occasions and also reported the use of a green medication to stop the diarrhea. This medication is an anti-diarrhea medication that should have been removed from practice according to the MOH policies. Use of ORS/ORT seems to be less prevalent in Gaza households than West Bank households.

D 2. Prevention

For prevention of diarrhea participants in the women's focus groups reported hand washing, cleaning elements with which the child comes into contact, cleaning of nipple when breast feeding, boiling water before giving to the child and use of herbs. Continuing breast-feeding at least for one year of the child age was reported as a protective factor in the south. Cleaning the cistern and roof tanks was reported as a protective factor in the south. Gaza data show a good level of knowledge concerning the prevention of diarrhea through environmental hygiene, good nutrition and keeping the child warm.

D 3. Home Management Practices

For home management of diarrhea, use of at-home available resources was reported. Such resources included boiled herbs, boiled potatoes, plenty of fluids and continuing breast-feeding. The findings were similar in all locations in the north and south and again with Gaza being more dependent on facility management.

Home alternative treatments for a child with diarrhea did not differ among the survey communities.

- herbs (chamomile, mairamieh, Zaàtar)
- boiled vegetables
- fluids in general
- rice water
- barley water
- home-made ORS (water, table salt, sugar, lemon or grip juice)
- coffee with lemon juice
- banana
- stop bottle feeding
- yogurt
- water and table salt

D 4. Sources of Information

Sources of information for management of diarrhea reported were mothers and mothers in-law. Experienced neighbors were also reported as a source of information. In Gaza women cited doctors and nurses as important sources of information about the management of diarrhea.

At home mothers reported that they give the child the Oral Rehydration Solution and if the diarrhea was severe, mothers consult the doctor or go to the hospital.

Consequences of diarrhea for the child and family are reported to be significant in all locations. Mothers having a child with diarrhea concentrate efforts on this child resulting in neglect of the rest of the family. Having a sick child also exhausts the mother and causes a lot of anxiety and discomfort.

A mother, whose child had diarrhea two months ago reported that she did not do anything because she does not know what to do. Her mother in-law provided help and gave the child boiled vegetables with yogurt and rice water. The mother continued to breast-feed. The child developed dehydration and was referred to hospital and received IV solution. The mother did not get any information about the child at the hospital because the hospital was busy and full of children with dehydration.

Some mothers reported that they do not give the child with diarrhea a medication prescribed by the doctor and prefer the use of homemade treatments. In the south people reported a fear that the hospital might cause the transmission of infections to the child.

Women in the focus groups from the south reported the need for health education.

The PRA results show fairly good knowledge about causes, symptoms and appropriate treatment. There is a rich pool of in-house alternatives for oral rehydration therapy consistent with MOH policies and protocols. Very important sources of information are peers, mothers, mothers-in-law and nurses. Important also the variation in above mentioned especially poor knowledge and ability to manage a sick child by young mothers. Access to formal health education varies dramatically among locations!

Knowledge about home preparation of ORS varies from location to location and needs strengthening.

E. Water Tanker Driver Practices

Observations in the north and south yielded similar results to a large extent. Tanker drivers brought water to communities from any available source including regulated as well as unregulated sources. This varied from Mekarot source with treated water to those sources containing contaminated water. Access and price seem to be of importance for decision-making regarding which source to access and this applies to customers.

The actual water handling practices of tanker drivers can be summarized through the following observation made in the Nablus area of a tanker driver fetching water from Fawwar spring.

Rusted tanker with no painting and more than 20 years in service. 3m³ capacity tanker with opening of the tank is covered by an old car tire to prevent water leakage. The pipe is fixed to a metal cage at the end of the tanker. In order to fill the tanker the driver put the pipe on the ground and then into the water source that was uncovered and open for cattle to drink from. Upon reaching the house to deliver the water, the tanker driver put the tube into the house cistern and emptied the tanker. A plastic bag was wrapped around the tube to prevent water from leaking out. Observation notes described the driver as having dirty hands with long nails. After finishing the filling the cistern, the driver took water into his hands and sipped it commenting, "They say that Fawwar water is contaminated"?

Observations from other locations report similar findings and the following remarks are valid for all tanker drivers observed at work in the West Bank:

- It is possible to identify tanker drivers in most communities.
- Quality of tanker maintenance varies (suggestion to verify abc tankers according to quality and appropriateness for water transportation).
- Profit is the leading consideration in the decision as to which water sources to access.
- Tanker drivers do not display any understanding regarding the importance of using clean water from regulated water sources. Denial is evident in the tankers attitude towards water quality.

- Role of village councils is not clear and in some cases the village councils are not at all involved in water tanker transportation regulation especially as a regulating body for water transportation.
- Important to separate the effect of closures from the profitability when looking at tanker water supply.
- Drivers expressed a concern that chlorination of tanker water might damage the internal wall of the tank.
- Tanker drivers could deliver chlorine tablets to houses if chlorination of household water is an option to adopt Role of customers as a change agent to promote improved tanker driver behavior may not be effective due to the high need for water by consumers in water short areas.

F. Tankered water in Gaza

For Tankered water in Gaza the situation is different from the West Bank, as tankers should be licensed to distribute filtered water for distillation station to houses or shops where this water is sold to users. However, it is not clear to which extent the water filled into tankers is clean or whether water conservation is appropriate. Observations in Gaza revealed a clear opportunity for water contamination at the filtration station, water storage at shops and within households. This has critical programmatic implications on the level and point of intervention for water quality testing and the BCC program

G. Schools: Hand washing Practices and Facilities

Availability of appropriate hand washing space is poor in all locations. Even in schools where significant infrastructure improvements took place, neglect and poor hygienic practices resulted in poor environment.

In all locations, infrastructure was reported as poor, maintenance weak or even absent. Timing of school sanitation units in the break results in a huge number of students using the unit in a very short time. Overcrowding and this short time allocated does not allow for students to practice proper hand washing when using the unit.

In Gaza observation revealed that children did not wash their hands with soap the reason being that soap was available. In addition to this there was not enough time for the huge number of children in the schools to use the available facilities in the period of time allowed. The school reports that many children have worms and lice. The few sanitation units are dirty and poorly maintained, so the children prefer to not use the facilities. The number of water taps is insufficient for the number of students attending the school and most times are broken.

In Tamoun in the north, researchers noted elements of a system in which students bring soap and their own towel to school. Observation revealed that students wash their hands and dry them revealed low level of hygiene. At this school there were 12 basins with some taps broken and no soap or towels. Observation in this school revealed 102 students used the sanitation unit and none washed their hands. 60 female students used the sanitation unit and only one washed her hands

Observation of Burj School in the south also revealed poor infrastructure of the sanitation unit with dirt and absence of soap and towels. Some students in this school dried their hands on clothes. When asked one of those students replied that he doesn't use soap even in the house because it is not available. The Headmaster of the school informed that water at the school is used only for drinking, and there is no water for washing. This school reports a high prevalence of illnesses among children.

- Poor/ dirty infrastructure
- No maintenance
- Bad use

Nurses interviewed at health facilities reported that few mothers who attended the facility managed diarrhea illness well at home. The nurses reported that many mothers come to the clinic with a sick child without attempting to manage the diarrhea home. Mothers usually seek care in early stage on the disease, reported the nurses.

The nurses reported that they not entitled to provide care for children with diarrhea at the facility, as this is the responsibility of the doctor. ORS is available at the facility but can only prescribed by the doctor.

Mothers go to the hospital if the sick child develops signs of dehydration.

Obstacles mentioned by nurses as preventing mothers from effectively managing diarrhea at home include mothers' lack of knowledge of proper case management, particularly young mothers. Nurses reported early marriage as a main cause for low level of knowledge of proper home management of diarrhea by mothers.

In one facility, Rujeeb, the nurse was conservative in giving information to researchers, but this was not the case in other facilities.

In general operations research found that

- Most communities have access to health facilities (MOH).
- Management of a child with diarrhea in MOH facilities is considered to be the responsibility of the physician.
- ORS is available, but according to MOH staff should be prescribed by the doctor.
- Nurse/ community health worker at the facility provide health education to those attending the facility there is a great variation in this. Skill, ability, use of materials, knowledge
- Availability of health education materials at the clinic varies and these materials were not found in some facilities.

Summary Table-Motivations and Obstacles to Practices

| | Hand washing | Cleaning the tanker | Home Management of Children with Diarrhea | Water Quality Management and Storage at Household Level | Hand washing Practices at Schools |
|------------|---|--|---|---|--|
| Motivation | Cleanliness Purity/remove bad smells Prevention of diseases | Clean water Tanker driver desire to sell water to customers | Available home alternatives known by mothers Cure the child Low cost of home treatment Anxiety, stress and strain on mother and family during child's illness | Elimination of germs Elimination of worms Personal hygiene Remove soil and dirt | |
| Obstacles | Scarcity of water High cost of water Inappropriate space | High cost of water Damage to internal surface of tanker Time | Lack of knowledge how Lack of access to education materials Belief that ORS is a medicine that only doctors can prescribe Anxiety, stress and strain on mother and family during child's illness | Difficulty reaching the roof tanks as well as access to the cistern The presence of water in the cistern Lack of knowledge on the importance of cleaning cisterns and roof tanks to maintain water quality Community identifies clean water as tasting good (no taste of chlorine), water looks clear and no smell | Lack of facilities and infrastructure Poorly maintained facilities Lack of soap Overcrowding Insufficient time allowed to use facilities |

Conclusions

Participant groups demonstrated a high degree of awareness of the importance of hand washing in personal hygiene practice and when asked demonstrated appropriate hand washing technique. Direct and indirect observation, however, revealed a great degree of variation to best practices across participants groups. Both schools and homes reported problems with water availability, concern about cost of water, lack of appropriate facilities and lack of soap. On the plus side, with the exception of school respondents, motivating factors for promoting hand washing exist including removing bad smells from hands, appearing to be clean and protecting one's self from germs. Taking into account concern about availability and cost of water, key messages can be developed and pilot tested with participant groups that promote hand washing at critical times without wasting water. There is reason to believe based upon the information collected during the operations

research that an improvement in appropriate hand washing practices at critical times can be negotiated with Participant Groups by the Community Health Workers.

The conditions found at schools are cause for concern, but an effectively planned Child-to-Child program implemented with committed and well-trained teachers and project Field Supervisors focused on the key hygiene behaviors outlined in the project can have an impact. Small scale projects defined within and by the Child to Child project in the schools selected for participation that mitigate the appalling sanitary conditions found at the school together with a focus on maintenance of facilities can help improve hand washing practices at participating schools.

Support for implementation of and health worker training on IMCI coupled with an IEC strategy that promotes the MOH protocol on home management of diarrheal illness among children under 5 is a strong double cover strategy. Participants in all locations expressed concern and anxiety over the social and monetary costs to the family of a given episode of diarrhea in a young child. This concern can be translated into both preventive and mitigating action focusing on channels of communication mentioned by participants as well as mothers. That nurses in all locations discussed their perception that mothers, particularly young mothers, did not know how to manage child diarrhea at home could be used to help promote an interest in improving counseling skills for nurses. Participants reported that many know about the same fluids that the MOH policy promotes be given to children with diarrhea and this knowledge can be built on in an IEC strategy.

Home management of water including storage practices and disinfection practices present a different set of challenges. The good news is that when tanks and cisterns are cleaned the techniques used to clean are good and in most cases more than one member of the family is involved. Challenges to be surmounted include the continuing perception that water quality is good if the water tastes good (no chlorine taste), is clear and has no odor. Participants expressed a dislike for chlorinated water due to the taste of chlorine, turbidity and the effect of chlorinated water on tea. Participants reported little knowledge of other water disinfection methods aside from boiling.

9. Steps Forward Proposed: March 2004 and Results Summary

Use operations research findings to plan and implement Trials of Improved Practices (TIPs) on hand washing and water storage disinfection practices at the household level and home management of diarrhea disease in children age 0 to 5 years to identify and negotiate feasible changes in practices that will lead to improved hygiene with participant groups. These operations research results will be used throughout the life of the project to help design project activities.

Results: A series of 3 trials carried out and results used to design a communications strategy based upon Inter-personal Communication (IPC) that resulted in the implementation of a regular series of home visits to households and social group meetings where hygiene best practices were promoted. The communication strategy, using inter-personal communication strategies, was put in place in May 2004 and ran until the end of July 2004. A series of print IEC materials were developed and pre-tested based upon results from TIPs and considering promotion of standard best practices for improved hygiene.

Implement Child- to -Child activities focused on hygiene behaviors at selected schools in the West Bank and Gaza. Use the program methodology to help teachers and children identify and participate in the implementation of small- scale sanitation projects at the participating schools. Projects can include, but are not limited to improving hand washing facilities, developing systems for the provision of soap and improving water supply.

Results: Child-to-Child activities were carried out in A total of 417 students from 17 schools participated in Gaza; a total of 349 students from 14 schools in Hebron participated and in Nablus some 240 students from 12 schools participated. Sanitation infrastructure work was completed at 22 schools throughout the project area in a bid to support improved hygiene practices promoted by the students and teachers during the Child-to-Child program. All schools selected for infrastructure work were chosen in conjunction with the MOE. Civic authorities participated in festivals held at the end of the school year where the children presented the materials they developed to promote improved hygiene practices at their schools during the course. These included plays, songs, dances, puppet shows and posters promoting improved practices.

Design and implement a pilot water tanker driver regulation scheme in selected communities in Nablus and Hebron in collaboration with the PWA. Participants include village council representatives, private tanker drivers and PWA sponsored tanker drivers. Possible incentives for private tanker drivers participation include assistance with tanker truck repair and endorsement by PWA to the NGO community of participating tankers and receipt of a certificate. Include

Results: A best practices training for a total of 50 water tanker drivers was designed and implemented based upon results from formative research carried out in January 2004. The training focused on water tanker drivers' behavior handling water at the source and during delivery to the house, examined the drivers' role in preserving the quality of the water and suggested methods for drivers to better maintain their vehicles and promoted drivers chlorinating the water delivered in their tankers if necessary. The attempt to develop a pilot water regulatory scheme proved premature, but the best practices training would not have been possible without the cooperation and active collaboration of the relevant Palestinian government authorities including the PWA and the MOH.

Use TIPs results to help design an IEC strategy and revise existing materials to promote feasible, acceptable hygiene messages identified by participant groups during TIPs.

Results: A series of IEC print materials including counseling cards, reminder materials and stickers were developed and pre-tested in all project areas in 2 rounds. Upon completion of printing in July, field staff began distribution of reminder materials to all households in the project area completing the task in August 2004.

Support MOH roll out of IMCI with EHP/SCF Community Health Workers and Field Supervisors promoting and supporting MOH IMCI policy on the home management of diarrheal disease in children age 0 to 5 years old in the community through home visits and other social mobilization activities.

Results: the project supported 4 IMCI training courses in the project area for 15 participants per course with one course in Gaza, 2 courses in Hebron and 1 course in Nablus. In addition to this support the project funded the printing of IMCI training course materials for the West

Bank in addition to the 4 courses run in the project area. These activities were undertaken in partnership with the MOH and UNICEF.

10. Trials of Improved Practices (TIPs)

TIPS is a formative research tool used to help program planners select and pre-test the actual practices that the program will promote in the broader communication strategy. The tool is participatory in nature given that mothers, or any participant group, actually try out and sometimes help to modify a menu of possible improved practices prepared on the basis of previous formative research carried out in the community and technically sound best practices. The results of the trials are used to develop a broader communications strategy.

In the West Bank and Gaza EHP TIPs grew beyond its original scope as a pure research tool when it became an opportunity for this short term project to not only engage in a dialogue with participant groups about trying out a set of practices designed to improve selected hygiene practices, but also engaged in a dialogue about promoting feasible best practices solidly built on their reactions to TIPs. This series of TIPs transformed into a unique teachable moment for the participant groups and the project as the people taught the project how to best promote improved hygiene practices in the West Bank and Gaza life context and the project shared information that if acted on held the potential to improve health.

The Team carried out 2880 home visits over the series of 3 TIPs.

Hand Washing Methodology

| | |
|-------------------------|--|
| Sample Selection | Random households were selected through cooperation with village councils and municipalities, and coordination took place with other stakeholders in project locations like women leaders in charitable societies, women clubs, etc. |
| First Visit | The CHW observes the hand washing practices of the women and children |
| Second Visit | The CHW negotiates with women to try the new and more effective hand washing practice at the right times |
| Third Visit | The CHW monitors the results from the women and her children to observe if they have effectively changed their practice as advised |

Results:

Best Practices Promoted:

Participant groups agreed to promote effective washing of the hands with soap and water for all members of the family at these 4 critical times:

1. After using the toilet.
2. Before eating.
3. Before preparing food.
4. After changing a baby's diapers or cleaning up a child's feces.

Participant groups were concerned about the cost of and wastage of water used for additional, regular washing of hands at these 4 critical times, and mentioned this as a barrier to regular improved practice.

Two possible solutions to this barrier that came out of the TIPs were:

Shut off the water tap immediately after wetting and soaping the hands and only turn the tap back on when rinsing the soap of the hands. Then immediately shut off the tap.
Place an ebreek or similar vessels filled with water at the hand washing area and instruct all family members to use this water to wash their hands.

Motivations to sustain improved hand washing practices at the 4 critical times using soap and water mentioned by the Participant Groups included the following:

- Improved hand washing practices with soap and water saves money and time in the future by helping to prevent child diarrhea.
- Mothers save time going to the clinic to consult the doctor and on purchasing expensive medicine as well as time traveling and caring for a sick child.
- People enjoy having clean smelling hands. Social status improves when neighbors praise a mother for having clean and healthy children.
- Barriers to sustaining practice include:
- Concern over using too much water and the cost associated with increased numbers of family members washing their hands with greater frequency.
- Soap costs money and disappears faster with frequent use. Cold water washing in cold weather increases skin irritation and discomfort.
- Influential family members may not agree that frequent hand washing with soap at key times is necessary.
- Mothers report that they are busy with housework and childcare and cannot effectively supervise their children’s hand washing habits.

Home Management of Diarrhea

| | |
|-------------------------|--|
| Sample Selection | Each CHW selected the sample by referring to the clinic records of children who suffered or are still suffering from diarrhea. If those records were not available, they selected families who have children under five and are willing to participate in the project. |
| First visit | CHW visits the house, talks to the mother, and records what is the mother’s knowledge about diarrhea causes, symptoms, and consequences |
| Second visit | CHW tells the mother about definitions, symptoms, causes, and outcomes of diarrhea |
| Third visit | CHW tells the mother about treatment at household level and prophylaxis of diarrhea |
| Fourth visit | CHW tells the mothers about MOH plans of diarrhea treatment |
| Fifth visit | CHW monitors the results if the mother has children currently affected by diarrhea, or monitors if the mother adopted information about treatment of diarrhea and prevention, and how does she feels about that behavior |

Results:

Best Practices Promoted:

Primary: Mothers with children

Secondary: Mothers-in-law, husbands, influential people in the community

Protocol to be followed: At the present time, the Ministry of Health is in the process of adopting the WHO-CHD/UNICEF Integrated Management of Childhood Illness (IMCI) protocol. This is the protocol that the BCC materials of this project must follow.

Objective of the case management diarrhea at home: to manage diarrhea effectively at home so that a child does not become dehydrated and therefore require treatment at a health facility. If the home care is not producing positive results or there are specific danger signs, the mother will be directed to take her child to a health facility.

Dehydration is the real danger associated with diarrhea, not the diarrhea itself in most cases. The younger the child, the more quickly dehydration can kill. Most diarrhea cases are simple and the child will recover by him- or herself in three or four days without the use of drugs, provided the mother gives enough fluids to prevent dehydration.

There are forms of diarrhea that are much more dangerous. These include amoebic dysentery and giardia. They have specific danger signs that mothers need to recognize and then take her child to a health facility, immediately.

Definition of diarrhea: your child has more than three runny stools in a day

First: Give your child extra fluids by doing the following things:

- Continue to breast feed, but do it more frequently and for a longer time at each feeding than you normally do.
- Give ORS or clean water in addition to breast milk if your child is breast fed exclusively.
- Give one or more of the following fluids you are likely to have in your home if you are not feeding your child exclusively with breast milk.
 - Rice water
 - Herbal teas (*Chamomile, Mairamieh, Zaa'tar*)
 - Boiled vegetables
 - ORS (from packets)
 - Barely water
 - Yogurt
 - Juices
- Give these amounts of extra fluids:
 - Less than two years old: 50 to 100 ml after each loose stool
 - Two years old or older: 100 to 200 ml after each loose
- Give extra fluids these ways:
 - Give frequent small sips from a cup
 - Use a spoon for an infant

- Use a bottle but boil the bottle and nipple to be sure they are clean.
 - Wait 10 minutes if your child vomits. Then continue, but more slowly.
- Continue giving extra fluids until the diarrhea stops

Second: Keep your child and the child's environment clean when your child is sick by doing the following:

1. Wash your nipples before breast feeding
2. Dispose of your child's faeces and diapers by putting them in a covered dust bin
3. Wash your hands with soap after changing your child's diapers and cleaning your child, after using the toilet yourself, and before preparing food and eating.
4. Continue to feed your child but give more food than you usually do. See page 19 of the IMCI, "Feeding Recommendations during Sickness and Health".

Third: Take your child to a health facility immediately if you see any of the following danger signs:

- Blood or mucous in the stool
- Repeated vomiting
- A fever greater than 38.5 degrees
- Signs of dehydration: sunken eyes, abdominal skin pinch that doesn't go back within 2 seconds
- The child's condition is not responding to your home care.

Fourth: When taking your child to a health facility, do the following things while you are traveling:

- Continue to breast feed
- Take along some fluids and a cup or spoon from your home and give them to your child

- **Motivations to Practice**

Economic reasons:

1. Frequent bouts of diarrhea are expensive in terms of money spent to see the doctor and to buy medicine. Mothers also report that they have to take time out to take care of their sick child both at home and in terms of travel time to seek assistance and this makes them feel that they are neglecting the rest of the family.
2. Mothers love their children and want to take the best possible care to protect them from illness.
3. Mothers are curious for more information on preventing and managing child diarrhea because they realize that the environment in which they live exposes their children to increased risk of disease. Many mothers express concern

over inadequate sanitation infrastructure and the lack of effective solid waste management programs.

4. Having a healthy child means recognition from husbands, mothers-in-law, doctors and nurses as a good mother.
5. Healthy children are signal to the neighbors that your house is clean.

- **Barriers to Practice**

Conflicting and inappropriate child diarrheal illness management practices recommended by trusted “other sources.”

Overwhelming concerns: economic and security concerns divert the mothers attention away from the key messages promoted.

Some false beliefs and practices that do not help a sick child to improve including:

- More liquids will lead to more runny stools (diarrhea).
- Stopping feeding and breast feeding will stop the diarrhea.
- Certain herbs that can harm a child are given and some give liquids that are not helpful including tea without sugar, Yansson, camomlina, and nasha with lemon.

Water Quality

| | |
|-------------------------|---|
| Sample Selection | 10 houses per CHW were selected (107 in total) with the following criteria: Random selection for households that have metal tank and plastic tanks. Households that have wells of known dimensions in which the CHW can calculate the well’s volume. |
| First visit | CHW visits the house, talks to the mother, and records the mother’s knowledge about: The method and frequency of cleaning tanks and wells. Household water source and connections. Methods of collecting water to the well. Water born diseases. Water pollution and water disinfection. The volume of the well and if any tiny worms are present on water surface. Observations of the well, the space around it, presence of ventilation, connection to the tank, way of pumping water to the tank |
| Second visit | CHW tells the mother about: Proper disinfections methods. Proper cleaning of wells and tanks. |
| Third visit | CHW explains to the mother water born diseases, measures the residual chlorine and then demonstrates chlorination after calculating the well’s volume. |
| Fourth visit | CHW evaluates the mother’s new knowledge, and if any mother cleaned her well or tank. |

- **Best Practices Promoted**

Regular annual draining and cleaning of roof tanks and cisterns, covering tanks and cisterns to prevent animal and bird droppings from contaminating the water,

moving animal pens away from cistern area and filtering the water to remove tiny, red worms in addition to using calcium oxide to kill the worms. Promotion of effective chlorination of water stored in cisterns using chlorine tablets and boiling water for use of sick children, but for less than 5 minutes. The Team reminded participant groups to disconnect the electricity (powering pumps) during the cleaning process and promoted cleaning as a family activity requiring adult supervision of children.

- **Motivations to Practice**

- Participant groups agreed that cleaning roof tanks and cisterns helped to prevent disease, eliminated precipitate, got rid of tiny, red worms, helped to kill microorganisms and helped to keep stored water, clean, clear and smell free.
- Participant groups reported that the water disinfection reminder material was clear and easy to understand. They felt that the reminder material provided a useful reference for use when chlorinating the cistern.
- Women recommended that the project target men for water disinfection training.
- Participant groups liked the idea of using calcium dioxide to get rid of the tiny, red worms.
- Participants expressed an interest in and willingness to try chlorinating water.

- **Barriers to Practice**

- Participant groups are not necessarily convinced that their water is contaminated because it looks clean and clear and does not smell.
- Chlorine tablets are not readily available and are considered (by some participant groups) to be expensive if purchased in the market.
- Cleaning tanks and cisterns is an exhausting process requiring a great deal of effort.

- **IEC Materials**

A series of Information, Education and Communication (IEC) materials were developed to support the BCC messages. All **IEC materials** are print materials designed to be used as counseling cards (used by community health workers) or as reminder materials for households. The flow of materials development came out of initial formative research, 3 sets of TIPs and then 2 rounds of pre-testing of draft materials throughout all project areas. Every effort was made by the team throughout the project area to ensure that all IEC reminder materials were delivered to all households included in the project area from the receipt of materials from the printer in mid-July and finishing delivery in early August. Participants in focus groups conducted in August to examine local opinion of the project's progress reported that they noticed that recommendations made to adapt IEC materials during pre-testing had been adopted and that they felt like full partners in the IEC materials development process. Civic officials interviewed during this time period also mentioned hearing from neighbors and their own families that people felt that they were taken seriously by the project

11. Project Evaluation: Qualitative Survey Lessons Learned

Background

The final, qualitative evaluation completes the cycle of operations research begun in January 2004 in throughout Gaza, Hebron and Nablus including initial formative research into barriers and motivations to improve selected hygiene practices, a series of Trials of Improved Practices (TIPs) on hand washing practices, home management of child diarrhea and water storage and disinfection practices at the household level. Health facility staff, civic authorities and water tanker drivers also participated in this cycle of operations research.

SOW

Tools for Qualitative Research: focus groups and key informant interviews.

Participant groups: mothers and mothers-in-law/children/ municipality staff/MoH facility staff/ teachers/Village Council Members

Locations for qualitative and quantitative research provided full coverage of the variations among communities concerning size, exposure and logistical appropriateness.

Hebron: Jala, Jabaa, Al Birj, Beit Mirsim

Nablus: Duma, Alyamun, and Tamoun

Gaza: Dependent upon access and security: Juhraldeek, Jabalia, Beitlahia, Alshoka, Almoghraqa, Aslan, Alnasr and Kherbetaladas

Qualitative Research Methods

(Focus Group Discussions and Key Informant Interviews) were used to look at the following:

- Hand washing: Participant Groups: Mothers: 2 Focus Groups/location and 1 Focus Group with children age 6 - 12 years/ location
- Home management of Diarrhea: Participant Groups: Mothers: 2 Focus Groups/location and Mothers-In-Law: 1 Focus Group/location
- Key Informant Interview with MOH staff at MOH local clinic/area
- Water Quality Management at Household Level: Participant Groups: Mothers and Fathers: 3 Focus Groups/location
- Water Tanker Drivers: Participant Groups: 3 Training Course participants per location: Key Informant Interview
- Civic Authorities: Key Informant Interviews: Village Council/Municipality Officials 3 interviews per area/
- Changes in practices at the household and school level
- Exposure to Behavior Change Communication (BCC) program (exposure, coverage awareness)
- Improved knowledge at the household
- Quality: perceived positives and negatives and opportunities for better programming and implementation.

- Policy effect with emphasis at the local level

Question Guide: English Version

Hand Washing Practices

Focus Group Discussion: Mothers/Children (Note that we repeat some of the same questions we asked during our initial research in January along with new questions).

These questions check to see if people remember the key messages for hand washing and checks to see if they understood the key messages.

- How do you think we should wash our hands? (Technique)
- What should we use to wash our hands? (soap and water)
- When should we wash our hands? (4 key times)
- Where should we wash our hands? (place)
- What is the best way to dry our hands after we wash them? (clean towel or let them air dry)

If appropriate, ask the participants to demonstrate hand-washing method here, please feel free to do so.

Motivations and Barriers to Practice

- What do you think are the barriers to improving hand washing practices in our community?
- Can you think of any way to help people overcome these barriers?
- What are the factors that motivate people in our community to wash their hands?

Exposure to BCC Program: Changes in Behavior

- Have you seen any changes in hand washing practices in your household recently? If so, what changes have you noticed? Please describe them. Adults? Children? Have you noticed other changes in practices in your household? (I am wondering if people are buying soap regularly, if they set up or changed the place where people wash their hands etc.).
- Can you tell me how and why you decided to change your hand washing practices?

If the FGD talks about our program activities including home visits, group activities, IEC materials and even C-T-C (their children may have participated in school), ask them describe the activities they were exposed to, when and how. In addition to this ask how people felt about the quality of the program, what worked, what did not work and what they would suggest to improve the program.

Additional Questions for the Children

- Do you wash your hands at school?
- Where do you wash your hands at school and is soap available?
- Ask if the children participated in C-T-C activities at school. If the answer is yes, ask the children to tell you about the activities and then ask the children their opinion of the activities.

- Ask the children to tell you how children can help their families to improve hand-washing practices at home and what they can do at school.

Discussion

Hand washing:

Participant groups in the qualitative evaluation focus groups reported across the board in Hebron, Nablus and Gaza on the 4 critical times for washing hands promoted by the EHP in addition to other times thought important by the participants. In all areas participants were able to demonstrate effective hand washing technique as promoted by the project and were able to discuss the importance of correctly washing their hands, using soap at the 4 critical times as a method for preventing diarrhea particularly for children. This ability to comprehensively discuss the package of hand washing packages promoted by the project suggests a high degree of awareness of the specific hand washing practices messages promoted by the Team on the part of participant groups. Many of those interviewed also talked about the package of printed IEC reminder materials developed and distributed by the project reporting that the materials were colorful, attractive and most importantly, easy for all people in the household to understand and suggested that further, wider distribution of the IEC materials would help to promote improved hand washing practices.

Participant Groups Cited the Following as Motivating Factors to Adopt Improved Practices

- Personal hygiene
- Economic factors: spending money on soap and water saved money in the long run because children were less likely to have diarrhea and money and time would not have to be spent seeking healthcare and buying medicine.
- Social acceptance: people would be encouraged to deal with a clean family.
- Clean hands smell beautiful.
- Psychological factor: mothers love their children and feel more comfortable if their children are healthy.

Participants mentioned that the hand washing techniques promoted are easy to follow and that they want their children to learn this early on.

Mothers in Hebron reported that “Small children in the family watch their brothers to see if they are washing their hands continuously at the critical times.” Women in Nablus said that the project should “Concentrate on children as they get the message easily.” Women in Gaza reported that changing hand washing practices is a good thing to do for religious reasons, it saves money and it helps to improve child health. These comments suggest that the package of messages have been successfully shared with and discussed with participant groups and so awareness of improved hand washing practices and the advantages to adopting these is relatively high.

Nevertheless, there is evidence that clearly indicates that while awareness of the benefits of improving hand washing practices is high and that participant groups indicate a certain degree of motivation to sustain changed practices, it is too early to claim sustained behavior change.

Barriers to Sustaining Improved Practices Mentioned by Participant Groups Include the Following

- Lack of water and increased costs associated with increased water usage.
- In Gaza participants cited contaminated water as a barrier to improving hand washing practices.
- Participants in Hebron mentioned lack of awareness as did respondents in Gaza and Nablus. In Nablus some women mentioned that they do not easily change their behavior.
- In Hebron some respondents talked about a lack of soap, cold water and cold weather in addition to irritated skin on the hands.

When asked how to overcome these obstacles participants throughout the project area all recommended the following:

1. More education programs particularly for children that focus on the relationship between effective hand washing practices and the prevention of disease.
2. Wider distribution of IEC materials together with regular BCC program visits.
3. Participants noted that they appreciated the CHWs willingness to carry out both home visits and social group activities depending upon the preferences expressed by the women and were pleased with the CHWs flexibility.
4. Participants were able to come up with practical recommendations for overcoming obstacles including when and how to heat water for hand washing and how to estimate how much water and soap would be needed for an increased rate of hand washing in the household.
5. The response of participant groups to these questions indicates an interest in and a willingness to practice improved hand washing and to encourage it in the family, but clearly a commitment to practice changed behavior has not yet been made. It is reasonable to think, however, that properly supported for an extended period of time that obstacles to improved behavior could be overcome with input from the participant groups themselves.

Home Management of Diarrheal Illness in Children Under 5

• Health Facility Staff Interviews

Interviews of health facility staff carried out in Gaza, Hebron and Nablus offered exciting and valuable insight into nascent signs of change in the way Mothers say they are managing episodes of diarrhea experienced by their children. Health facility staff interviewed in Gaza said:

“The clinics observed a lot of progress in the behavior of women. They are more knowledgeable about how to deal with child diarrhea at home. They give food, fluids and continue to breast feed during the episode of diarrhea. They boil the bottle and water for bottle-feeding. Mothers became more active and sharing. They ask the doctor to do lab tests in order to know the exact cause of diarrhea.

They ask about and discuss a lot of issues related to child health. Mothers got the new information through health sessions, lectures and home visits.” In addition to this the health staff reported that mothers “are no longer referring the cause of

diarrhea as a result of cold and learn that the poor hygienic behavior is the reason behind having diarrhea during teething.”

Health facility staff from Hebron reported “that in the last period women learned new healthy behaviors to avoid diarrhea or treat it at the home level.”

In Nablus health facility staff noted that “Women got new information about diarrhea management on the household level including the kind of food that should be given to the affected child, kind of liquids, prophylaxis from diarrhea and the relation between water and diarrhea.” Even more encouraging was a comment by a nurse in an MOH clinic.

“There was a common language between the nurse and the women as the information the nurse gives them is not new. The SCF CHW told them about these during home visits”.

A nurse working in Nablus commented that she liked the IEC materials and asked for copies to distribute at the clinic. She went on to say that she thought the materials were the best that she had seen.

- **Mothers and Grandmothers- Focuss Group Discussions**

Across the board throughout the project area women, both mothers and grandmothers reported that during episodes of diarrhea that they care for the child in the following way:

They give the child increased fluids such as bitter tea, yogurt, boiled potato, they continue and even increase breast feeding. In Gaza mothers reported that they also give rice water, warm fluids and vegetable soup. Additional data indicate that some mothers are still include fluids such as orange juice and 7 Up on the list of acceptable fluids that may not be recommended by the MOH protocols indicating that while knowledge of correct management may have increased amongst women this does not mean that all behavioral practices have changed and become self sustaining. It is encouraging to hear from the mothers and grandmothers, however, that they like the home management of diarrhea reminder material developed and distributed by the project. Women throughout the project area reported that they found the material to be easily understood and clear and they were glad to have it as a reminder material.

Mothers reported giving ORS to their children during episodes of diarrhea. Respondents in Hebron and Nablus reported that their children did not like ORS while some mothers in Nablus reported that their children took ORS without any difficulty. In Gaza women reported that they prepare ORS at home using this recipe: Boil water and let it cool and then add to 1 liter of boiled water 4 spoons of sugar, ¼ spoon of salt, sodium bicarbonate and some lemon.

Mothers also reported improved knowledge of danger signs including fever and reported earlier recognition of dehydration. Mothers also reported that fever, pale skin, dry eyes, refusal to eat and vomiting as signs for concern.

While this is encouraging it is important to note that Mothers as a rule do not make decisions regarding how to manage their child's diarrhea on their own. They are often influenced by the opinions of health care providers, family members, friends and neighbors and so may offer traditional advice that may conflict with the best practices being promoted. A sustained effort to promote these improved practices at the community level, expanding efforts to include grandmothers, grandfathers and fathers combined with sustained support for IMCI training for health facility staff may help to strengthen and sustain these best practices for the long term. In addition to this women report a strong interest in learning more about protecting their child's health in order to prevent disease as well as managing it. Many women see an economic advantage to preventing and/or managing episodes of diarrhea at home as this saves money that might otherwise have been spent on travel, doctors' fees and medicines. But most of all mothers love their children and want what is best for them. Clearly a longer-term effort to foster the adoption of a set of best practices is required, but these early indications suggest that this level of intensive effort coupled with inputs at the facility level and in the wider community may lead to adoption of sustainable and improved practices.

Staff from Hebron health facilities told the Team "It's better if you arranged with us from the beginning to plan for statistics regarding the number of children who are suffering from diarrhea before and after the project. We can tell you that the number is less than before, but we couldn't supply you with clear numbers". Nurses reported that the IEC materials prepared by the project were useful as counseling materials – particularly for management of diarrhea. These are indications that a partnership to promote best practices at community and health facility level is possible and perhaps mutually perceived as beneficial.

Water Quality Management

Please note that the MOH does not use or distribute chlorine tablets in Gaza, these are used only in the West Bank. Water tankering and so best practices training for tanker drivers is limited to the West Bank only and did not feature in community level efforts in Gaza.

Participants throughout the project area reported an increased willingness to clean roof top water tanks and cisterns (ground level and in ground) in order to prevent contamination of water with germs and protect against the spread of disease. In all areas people reported that information provided regarding the removal of the universally disliked tiny, red worms through filtering the water and the use of calcium chlorite was welcome. Participants also indicated a willingness to cover cisterns to protect the water from animal and bird droppings as well as a need to preserve the quality of water used in the household for drinking. While respondents in the West Bank indicated an interest in chlorinating their water as promoted by the project, it is still too early to determine if people have overcome concerns about the taste and safety of chlorinated water. Participants in Hebron and Nablus noted, however, that the reminder material on water disinfection prepared and distributed by the project was clear and easy to understand as a reference material. At the time of the survey chlorine tablets had only just been made available to Village Councils and Municipalities in the project area by the MOH and it is not clear if participants were willing to try chlorination or not. It is also acknowledged that a sustainable solution to the procurement and distribution of chlorine tablets has not yet been researched and discussed

with the relevant bodies. It is possible that participants are ready to adopt chlorination as a water disinfection practice, but it is too soon in the cycle to tell for certain.

Civic Authorities Comments On Programming

Gaza:

Individual interview with village council/municipal mayors in Jabalia, Beit Lahia, and Almoghraqa. They noted the following:

- **Changes in practices at house hold and school level**

There are clear changes on the level of personal and environmental cleanness. IT is unbelievable to observe the big change at the houses in this short period. The changes occur as the CHW worked hard with the community. People don't complain from the smell of chlorine in water and understand more about the importance of chlorination for health and they are using municipal water for home use. They are concerned about cleaning inside the house from solid waste and sewage. The mothers are boiling the bottles for children use and boil water. They keep their child away from the dirt and wash their hands after playing in the sand.

They get rid of solid waste in plastic bags.

They learned that cleaning water tanks is very essential for better health.

- **Exposure to BCC program /CTC approach**

This program is very important and useful. It focuses on very sensible and critical condition of the children health .CTC approach played very important role in changing the attitudes among the families and children succeed to transmit messages to their families even though it was implemented in a short time. The spread of messages through out the home visits were very positive method to reach large number of people especially those who are working in the farms and in the boarder near to the settlements. This project was implemented in a short period and needs to cover larger areas and more population as many areas need awareness and construction work for sewage and water to improve the environmental situation.

- **Improved knowledge at household**

The information that was given was very useful and helpful for the people. The mother learned how to take care of her child at home which saves money and effort. They learned how to manage their child sickness with simple, cheap and effective way at house level. The need for the educational materials was very critical from the first as it support the information given verbally.

- **Positive & negative & opportunities for better program**

The spread of messages through home visits is effective and successful way to reach large number of people and decrease the effort on the municipality as the people learn the proper behavior that reflects good use of the water, solid waste and sewage. The educational materials that were developed and distributed by the project were very helpful and easy understood.

The project as a whole is effective, successful, and positive but need to cover more areas and touch other problem related to child health and water pollution as the situation in Gaza Strip is getting worse.

Still in some areas it is difficult to achieve big changes in short period and we need a lot of efforts and time to achieve progress and change the poor traditional habits of the families.

Nablus:

Target group: Mayor of Aqraba Municipality.

The Mayor mentioned the following:

- He knows that there is counseling about diarrhea and hand washing through home visits in the town.
- He noticed that:
 1. Women started to clean their roof tanks.
 2. Men referred to the municipality asking for chlorine to disinfect their water.
 3. People started inquiring about water sources.
- He participated in the training conducted by SCF in Alyasmeen hotel.
- He participated in the shows prepared by CTC groups.
- Their messages did not reach 100% of houses, we need to cover all.
- CTC program: His daughter was a participant in this program, she was very eager for its activities, and used to tell all the family about the messages of the program and the kind of activities she participates in, the program is very successful and motivates children.
- About the clarity of our messages: Information was not all new to most of people, but some new information was delivered, as such, in case of dehydration mother should hold a bottle of water while visiting the doctor, other new information is hand washing, i.e. rubbing hands, and washing under nails.
- Other message, which is water chlorination, and especially use of Calcium Oxide to eliminate tiny worms, cleaning the area of the well, separating animals from the well's area, and disconnecting electricity while cleaning the well.
- These IEC materials could be used as a reference for women.
- He liked the idea of providing the municipality with chlorine tablets, and residual chlorine kits, also the training to youth volunteers and municipal board members.

Hebron:

Village Councils and Municipalities

Decision makers in municipalities revealed that they noticed a lot of changes in people practices as the following:

- People started to ask the VCs or municipalities about good and known tanker drivers who fetch water from uncontaminated sources. Before the project they used to buy water from any tanker driver.
- People visited municipalities several times to ask about chlorine tablets, they reported that people knew through CHWs about water disinfections.
- People asked municipalities to test their water , springs and other water sources regularly if they can or through other organizations like MOH or PWA
- Children visited municipalities and village councils several times to ask about soups, or to ask about formal reasons of water pollution in their locations, Also, they talked about CTC children, Idna municipality said" group of children came to municipality to tell me that water in Idna is contaminated, they asked me strongly about my roles and responsibilities regarding this problems" the mayors indicated that they were attended the final festival for CTC and they saw the children activities and exhibition.
- They revealed that they noticed their children washing their hands in the proper way in their homes.
- They noticed that percent of children who suffering from diarrhea is more less than before because mothers start to manage diarrhea at the home level by using different alternatives as rice water, fluids (and other examples as what indicated through management of diarrhea). Mayors revealed that they noticed this through their daily life in their homes.
- In Beit Omar, the head of health department said "EHP targeted women and children, (the main bridge in the community)."
- Municipalities liked training programs especially regarding water quality as tanker drivers and water testing for their members. They participated actively in the last training. They reported that they will conduct regular testing for the cisterns and springs in their locations specially after getting chlorine tablets from SCF/MOH. Also, they will use the other water disinfection methods to improve water quality in their locations.
- They feel that all of the people in the area have heard about the messages: water quality, home based management of diarrhea and hand washing.
- The mayor of Beit Awa said "Its true that we didn't know about all details, but at least we know about the main aims and project activities, the most important thing

is that we noticed huge changes regarding peoples' practices and they spoke a great deal about the SCF project."

- Municipalities supported CHWs in the fields and some times they helped them to reach their target areas.
- All of them knew children who participated in CTC approach; they supported this program and attended the final festival to support the children.

They liked the Child-to-Child approach because it's useful for all of the family members and children to disseminate health messages, particularly regarding hand washing and personal hygiene.

- **IEC materials**

All of the civic leaders said that they saw the IEC materials, but in Idna the mayor didn't look at them in detail, but he noticed that his family had copies. Mayors liked the idea of reminder materials left in the household, especially about chlorination because the material helps them in their jobs. They indicated that they participated actively with CHWs in the distribution of the IEC materials to households.

In Deir Samet, the Mayor said:

"I'm proud to say that based on good cooperation and coordination with SCF and CHWs: All houses had a copy of IEC material".

- **Recommendations**

1. Concentrate on developing a solid waste program
2. Increase the number of infrastructure activities in general. For example, In Idna they asked about a sewage net work" and in Deir Samet they talked about their need for a water net work.
3. Repeat tanker drivers training for other target groups.
4. Rehabilitate the springs at Mussallam and Jala .Regular water testing for cisterns and springs
5. They thought that the amount of time allocated for the project was not sufficient, and suggested an extension to increase the concentration process for the health education program.

12. Major Concern/Recommendations

- A major concern for the project, though one that time and resources were insufficient to adequately address, was the system for obtaining chlorine tablets for household level water disinfection. At present it is the responsibility of the MOH to provide chlorine tablets to village councils in the West Bank who in turn are to provide the chlorine tablets to households that request it. While many agree that the present system is not sustainable in the long term a feasible replacement system has yet to be identified. As a stopgap measure to assist the MOH, which did not have stocks of chlorine tablets to distribute, CDM purchased 4 tons of chlorine tablets and gave them to the MOH. The tablets were received, tested and accepted by the MOH in mid July 2004. The EHP then arranged for West Bank project area Village Council representatives to participate in chlorination training facilitated by the MOH at the end of July 2004. The MOH then distributed stocks of chlorine tablets to village councils. It is not entirely clear whether or not chlorine tablets were distributed to households for use chlorinating water by the time of the quantitative survey in mid-August 2004.
- A second major concern that is linked to the first is the short timeframe allowed for implementation. More time and perhaps a higher than project level effort is required to realize institutional strengthening broad based cutting across multiple government institutions charged with responsibility for health, water resources, local governance, statutory regulation development and enforcement and implementation that can effectively complement the community based mobilization activities developed to promote feasible, sustainable improved hygiene practices.
- A third major concern also linked to the EHP HIF is the development of programs that match water and sanitation infrastructure development with community mobilization and the promotion of improved hygiene practices. Community participant groups regularly raised concerns about the lack of sanitation infrastructure and how this lack regularly exposed their children to an increased risk of developing diarrheal disease, skin and eye infections through exposure to untreated, raw sewage and solid waste. The project cites a lack of time to adequately begin to address these issues.
- Explore the possibility of establishing a comprehensive project with sufficient resources and expertise to develop water and sanitation infrastructure, expand community based behavior centered programs to promote improved hygiene practices at the community and household level and facilitate policy development and institutional strengthening at multiple governmental institutional levels to promote these goals and objectives. These projects may also include sufficient provision for strategic operations research to support policy development and institutional
- Extend the implementation period of the project in order to allow time to promote the messages developed for the communication strategy and to allow the project to build local strategic alliances with key influential community opinion leaders and local civic authorities that will promote sustainable behavior change leading to better hygiene and improved health outcomes.

- Expand and strengthen the Child-to-Child project and extend the time period for implementation. Work with local civic authorities and influential persons as well as school authorities, teachers, students and parents to solve small- scale sanitation issues such as the lack of soap and towels available for use at the schools. Explore further partnership opportunities for improving school sanitation infrastructure and promoting improved hygiene practices at school.
- Foster the links with local health facility staff established through project support for IMCI training courses in the project area and strengthen the partnership established with the MOH and UNICEF. Explore other opportunities for additional collaboration between project staff and health facility staff through various possible means including joint training support and project implementation.