APPENDIX D

A.I.D. EVALUATION SUMMARY - PART I

PD-ABJ-177

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit:
Mission or AID/W Office: USAID/G-CAP
(ES# _____)

B. Was Evaluation Scheduled In Current FY Annual Evaluation Plan?
Yes [X] Slipped [ ] Ad Hoc [ ]
Evaluation Plan Submission Date: FY ____ Q ____

C. Evaluation Timing
Interim [ ] Final [X]
Ex Post [ ] Other [ ]

D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
520-0408	CARE Water and Health	09/26/91	Dec. 1993	500	500

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
Mission approved use of monetized PL480 Title - funds for water/sanitation and health education program	PDM-Julia Hussa HEO-Carlos Calderón	completed
There is a need to define other options for financing cost recovery -such as having municipalities pay part or lend money to communities.	CARE	06/30/95
Regarding the micro watershed management activities, it would be convenient for CARE staff to visit CARE/Honduras project sites to observe the successful Honduran strategies on working with women's groups and school children.	CARE	06/30/95
CARE should make an effort to implement strategies like establishing exoneration from water fees to incentive health promoters to continue activities in their communities.	CARE	01/30/95

(Attach extra sheet if necessary)

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: n/a (Month) (Day) (Year)

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
Name (Typed)	Carlos Calderón	Justin R. Jackson	Magaret Kromhout	William Stacy Rhodes
Signature	C. Calderón		M. Kromhout	
Date	7/6/94	7/6/94	8/2/94	

H. EVALUATION ABSTRACT (do not exceed the space provided)

ABSTRACT

The Project was initiated in November, 1991, and was completed in September 1993. Its purpose was to improve the health status of 11,000 people living in 22 rural communities located in the western highlands of Guatemala. The Project was established in 10 communities to reduce diarrheal diseases through the introduction of potable water systems and latrines as well as a health education program and training activities on the maintenance of the water systems. An additional 12 communities that already had water systems and latrines received only the health education component. Intensive community participation in all aspects of construction, education and maintenance was a key project strategy. CARE/Guatemala added new elements to this Project that it has not previously worked on including a partial cost-recovery system, a behavior based monitoring system and education on watershed management. The Project evaluation focused on these three new elements as well as the health education follow-up in the 12 previous communities.

The evaluation showed that the monitoring system was well received by the community volunteer promoters and CARE staff. It helped the promoters to focus attention on hygienic practices. Specific recommendations for improving the instruments were provided.

The cost recovery system is also well received by the participating communities. The evaluators found that the 30% cost recovery target was reasonable and recommended that CARE continue to charge the same fee for all households in one area to avoid conflict.

The micro watershed management activities had a late start and lacked specific objectives but had a significant effect on raising awareness of the consequences of deforestation among Project participants. Specific recommendations for strengthening this component were provided.

The follow-up activities in the 12 communities that already had water/sanitation systems were late in starting but were shown to have some impact. The evaluators provided suggestions for making the follow-up activities more cost-effective and sustainable, and recommended that CARE continue to emphasize this area in the future.

COSTS

I. EVALUATION COSTS

1. Evaluation Team Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (US$)	Source of Funds
Ian Myles	CARE/Canada	10 days	$ 2,000	CARE Canada
Salvador Baldizón	CARE/Guatemala	15 days	$ 4,500	CARE Guatemala

2. Mission/Office Professional Staff Person-Days (estimate) 2

3. Borrower/Grantee Professional Staff Person-Days (estimate) 5

A.I.D. EVALUATION SUMMARY PART II

J. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS AND RECOMMENDATIONS (Try not to exceed the 3 pages provided)
Address the following items:

- Purpose of activity(ies) evaluated
- Purpose of evaluation and Methodology used
- Findings and conclusions (relate to questions)
- Principal recommendations
- Lessons learned

Mission or Office: USAID/G-CAP - HEO **Date this summary prepared:** 01/31/94

Title and Date of Full Evaluation Report: Evaluation of CARE/Guatemala Rural Water and Health Project

SUMMARY

PROJECT PURPOSE

The purpose of the Project was to improve the health status of 11,000 people living in 22 rural communities located in the western highlands of Guatemala. Specifically, the project was established to reduce diarrheal diseases through the introduction of potable water systems and latrines as well as a health education program and training activities on the maintenance of the water systems. Intensive community participation in all aspects of construction, education and maintenance was a key project strategy. The project was initiated in November, 1991, and was completed in September, 1993.

In 12 of the 22 communities, water systems and latrines had already been installed under a previous USAID-supported project; as part of the current project, these communities received only the health education component. The remaining 10 communities received the total program.

PURPOSE OF THE EVALUATION AND METHODOLOGY USED

The final project evaluation focused on four pilot activities: a behavior-based monitoring system; community follow-up of education activities; cost recovery; and micro-watershed management. The principle evaluator was a CARE/Canada staff member and he was assisted by a local CARE/Guatemala technician.

To collect data and information about the project experience, a combination of several approaches was followed: informal discussions, non structured interviews, participation in a project workshop, field observations and review of project documents. A mixture of qualitative information was collected in order to be able to identify and weaknesses of the activities under evaluation.

The field work was conducted from September 1 through 10, 1993, and the data analysis and draft report were completed by October 1, 1993. The final report was submitted to USAID/Guatemala on October 27, 1993.

KEY FINDINGS AND PRINCIPAL RECOMMENDATIONS

<u>The Behavior-Based Monitoring System</u> The monitoring system consists of a monthly survey conducted by community volunteers (health promoters) and is used by them and the project supervisors (the CARE extensionists) to track the prevalence of diarrhea and the status of 21 hygiene knowledge and behavior indicators such as protecting food/water from contamination, use and maintenance of latrines, and appropriate hand washing. The system was designed for use by non-literate community volunteers and has been well received by the project staff and the volunteers. Using a pictorial check list, the promoters identify those hygiene practices that require more promotion in the community. Every three months, an

independent sample survey, tracking the same indicators, is conducted in 19 households per community by the project extensionists.

The promoters understood the purpose of the monitoring sheets and they felt they were a useful guide to help them remember what to look for during home visits. However, some of the promoters, particularly the non-literate ones, tended to be confused by some of the more similar looking pictograms. Some of the promoters, both literate and non-literate ones, were not always sure how to complete the checklist.

Recommendations The health promoters should monitor every house for the first year (or until the project targets are met), then reduce the frequency of the visits to every two months. The number of indicators should be reduced from 22 to about 10. Promoters should keep their monitoring forms, rather than submitting them to the extensionists; extensionists should assist the promoters in analyzing the data and they should compare the results of the promoters' checklist and the extensionists' survey. To improve accuracy, the pictograms should be redrawn by a professional illustrator; the captions should continue to be included since they have been helpful to the literate promoters. Now that the Project has ended, CARE should try to create incentives for promoters to continue their activities such as continued training and/or remuneration.

The Cost Recovery System Before developing and implementing any cost recovery system, CARE/Guatemala analyzed the experiences of other local PVOs and conducted a legal analysis of potential barriers to establishing cost recovery. In the end, the most significant barriers were not legal, but were related to the fact that other PVOs do not attempt any cost recovery.

The cost recovery system was initiated very late in the Project (April, 1993). CARE decided to attempt to recover 30% of the construction costs of the system. Based on this decision, each household that received a tap was asked to contribute 300 quetzales over a 20 month period. This amount was based on 30% of the average cost of previous water and sanitation projects in the same region.

Most of the Project communities have already initiated payments, however, there are some problematic cases. For example, in one community several households are refusing pay based on the advice of their elected representatives (diputados) that no one can be forced to pay. In the communities visited during the evaluation, everyone felt that the Q300/connection was fair, but that it would be difficult for the poorest families to meet that amount. However, based on the Q300 payment, some communities are paying up to 48% of their system costs. This is a positive sign, showing that the overall goal of 30% is reasonable, if not too low.

Recommendations CARE should plan on maintaining the same level of contribution for all communities without making exceptions, unless it is found that a disproportionate number of poorer communities begin refusing to pay. Within individual communities, reductions in the fee could be made on a case by case basis (for example a widow or disable people); the decision should be left to the community who can choose to subsidize these families by making up the difference elsewhere. CARE should aim to collect as much money as possible prior to the completion of the system, when the incentive to pay is probably at its highest. One approach might be to fix specific payment dates according to crop harvests in order to achieve full payments prior to system completion. The fees for operations/maintenance should be collected almost immediately since there is a chance that the community will need the resources soon after inaugurating the project. In the future, CARE should try to define other options for financing cost recovery - such as having municipalities pay part or lend money to communities, or having CARE act as a guarantor for direct credit.

Micro-Watershed Management The micro watershed management activities suffered from both a late start and the lack of any specific objectives. It was not an actual Project component, rather an activity to be conducted with the other principle Project components. CARE hired an Agroforestry technician in July, 1992.

Of the 22 systems making up the Project, 10 were to receive watershed management training from another CARE sector, and the remaining 12 were to receive training from this project microcuenca coordinator. Not all of the 12 communities were interested in the training, and less than half are active in watershed protection improvement activities. This is due, at least in part, to delays in developing a program strategy, lack of clear roles, and a shortage of time/personnel to develop activities. Micro-watershed activities were never systematically monitored since no objectives were ever formally set.

The main activity carried out has been the establishment of tree nurseries of local, fast-growing species. Training has been provided to a few "watershed promoters" in each community, and nurseries appeared to be functioning quite well. The promoters plan to continue activities after the formal termination of the CARE project.

Recommendations Strategies must be developed to address the fact that many of the watershed zones are on privately held lands (private individuals, the municipality, or other communities). The Project should shift its emphasis from agroforestry activities to educating communities about the link between their community water supply and the health of the watershed. Specific objectives and targets should be set within specific time frames (numbers of workshops and participants, messages to be taught, level of understanding to be obtained, etc.); these should be monitored. CARE/Guatemala staff should visit CARE/Honduras project sites to observe the successful Honduran strategies of working with women's groups and school children.

SUMMARY (continued)

The Follow-Up Component From July, 1989 to June, 1991, the 2 years prior to this project, CARE implemented water and sanitation services in 12 rural communities. CARE then proposed to develop a health education component in these 12 communities while the current Rural Water and Health Project was being implemented in 10 communities. The aim of this component was the development of practical, innovative and appealing activities to promote the adoption of hygiene behaviors. For several reasons including the lack of a strategy and qualified staff, this component was not implemented until late in the Project. Instead of a 2 year follow-up, the follow-up took place only during the last nine months of the Project. This component only addressed health education and ignored other important elements such as the functioning of the water committees and systems operations. A user-friendly tracking system to track trends in the indicators was never developed during the life of the Project.

Recommendations An extended follow-up period would increase chances for sustainability of Project benefits and hygiene practices. CARE should consider conducting extended follow-up with a small number of staff to make it more cost-effective, involve local resources such as health committees or schools and convert CARE staff from implementors of the activities to facilitators/supporters of the process. Eventually, responsibility for follow-up could be shifted from CARE to another local organization. All project elements, not just the educational one, should be followed. Regarding the educational component, follow-up should concentrate on those practices which prove most difficult to change.

LESSONS LEARNED

1. A health education component related to water system and latrine projects is very effective during the system construction phase when the community is heavily involved in the activities.

2. The follow-up activities increased the appropriate hygiene practices of the target population. In this case, the increase was small due to unusually high baseline indicators produced by the previous project. A good follow-up period increases the chances for sustainability of the system and maintenance of adequate practices by the community.

3. Specific measurable objectives should be established for the environmental education activities.

4. The real importance of the monitoring system is: 1) a supervisory tool-to give support to volunteers and 2) immediate feedback to volunteers to target educational interventions. In addition, a reliable monitoring system can produce the information required for periodically evaluating results.

5. The concept of cost recovery is well accepted by the rural communities if it is within their financial capability. The communities understand that their contributions, in effect, create a revolving fund and makes resources available for projects in other communities.

6. The collection of a fee for cost recovery increased the sense of ownership of the water systems that improved the quality of maintenance and operation by the community. The evaluation found that the overall goal of 30% of the total cost is reasonable, if not too low, but also recommends that if the poorer communities refuse to pay it may be necessary to consider making exceptions.

ATTACHMENTS

K. ATTACHMENTS (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier)

Evaluation Report for CARE/Guatemala Water and Health Project, October 1993.

MISSION COMMENTS ON FULL REPORT

L. COMMENTS BY MISSION, AID/W OFFICE AND BORROWER/GRANTEE

The evaluation fulfilled the content outlined in the Scope of Work in an appropriate manner. It is also a valuable experience that will allow CARE to continue successfully implementing the follow-on project with monetization funds through a broader focus that covers not only water but also health education, watershed management and cost recovery.

The evaluation also allowed CARE and Mission, at a relatively low cost, to determine achievements of the Project and lessons learned for future activities in this same field.

Given the above, the evaluation may be considered satisfactory and will constitute a very useful tool for the development of any future activities in this area.

EVALUATION REPORT FOR CARE GUATEMALA WATER AND HEALTH PROJECT (PN45) OCTOBER, 1993

By

IAN MYLES,
CARE-Canada,

with assistance from

SALVADOR BALDIZÓN,
CARE-Guatemala

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

The final evaluation of the Rural Water and Health Project was conducted September 1-10 and September 27 to October 1, 1993. As per the scope of work the evaluation was to conduct a formative analysis of the four projects' pilot activities: cost recovery, behavior-based monitoring system, micro watershed management and extended community follow-up. Since recent evaluations of this project had shown high levels of accomplishment, this evaluation did not address the issue of project impact.

The health monitoring component is a simplified system to track diarrhea prevalence and 21 health knowledge and practices that can be used by illiterate people. It has been well received by the project staff and the community promotors. For the community promotor the monitoring instrument is a check list that helps them during home visits. For the project extensionists it is a guide to focus attention on those hard to promote hygiene practices. Some confusion still exists in the interpretation of the drawings and the way the form should be filled out by promotors. Recommendations included:

- to refine the drawings;
- to make instructions easier;
- to keep forms filled out by promotors at the community level to measure progress;
- to reduce monitoring frequency after the first year of implementation;
- to reduce the number of indicators to be tracked;
- to filter information as it moves from the bottom up;
- to use a simplified computerized table to tabulate data at the office level.

The cost recovery component has been well accepted by the ten project communities. After a late start, the project strategy was to charge a fixed fee of Q 300 (US$ 50) equivalent to 30% of the materials and transportation costs and payable over a 15 month period. Six of these communities have already made contributions ranging from 2% to 58% of the amount they ought to contribute and all of them have expressed their willingness to pay in the near future. The main recommendation for future projects is to charge a higher percentage of the materials and transportation costs (40-50%) and to split up the payments in the following way: 40% in advance, 30% during construction, and 30% after construction.

The microwatershed management component also suffered from a late start and from the lack of any specific objectives. The pilot activities, however, have had a significant effect on raising awareness among project participants about the effect of deforestation on the reduction of the water flow of their system water source. In addition, many project participants have learned how to collect seeds and to start tree nurseries at the community level. In some communities these trees have already been transplanted to participants' private lands although not necessarily to the area around and above the water source. It is recommended that future projects increase their emphasis on this component through hiring of more technical staff, training of all project staff in this topic and developing of specific objectives and targets to be achieved by this project component.

The extended follow-up activity was intended for 12 communities covered with water and sanitation services in a previous project. More than a follow-up this was a complementary activity that forced and allowed the project to try more innovative, practical and appealing activities to promote behavioral changes. Cooking demonstrations and handcrafts were use as central activities around which hygiene practices were incorporated and tried in a more like-daily life situation. Activities were well received by participant mothers who had become to feel bored with traditional talks and messages. Comparison between the follow-up (old) and the new communities do not show great differences in relation to the levels of accomplishment for most of the hygiene practices indicators. This is explained partly by the high levels of appropriate practices that already existed in these communities (use of latrines was 85% and 80% during the first baseline and 92% and 96% during the final base lines for the follow-up and new communities respectively). The evaluators concurred with the project staff on the need to continue extended follow-up activities for communities with water and sanitation services as long as it includes all project components (not only health education), is cost/effective (using fewer staff with support rather than implementor roles) and is gradually transferred to regional/local organizations that can continue follow-up for longer time periods.

2. ACKNOWLEDGEMENTS

Special thanks to the staff, particularly Ana Lucia, Alejandro, Julio, Osmar, Oscar Perfecto, Lucky and the health extensionists. Also thanks to promotoras. Credit is due to project personnel who had already undertaken a series of internal evaluations identifying many of the problems themselves and coming up with recommendations similar to many of those appearing in this report. These recommendations are now being integrated into revised project strategies for each of the project components.

3. INTRODUCTION

The Rural Water and Health Project (PN45) was started in November, 1991 and was expected to be completed by the end of June, 1993. By the end of its funding period it was expected that "22 rural communities located in the North-Western region of Guatemala, would appropriately and correctly maintain a water system and a health education component with positive impact in these communities". The project included the following five intermediate goals:

- 80% of the population would learn basic knowledge and adopt practices to prevent diarrheal disease;
- 80% of the project participants would appropriately use and maintain latrines;
- 60% of the families would use oral rehydration therapy to manage diarrhea cases;
- the construction of 10 water systems and latrine construction;
- training and follow up for extensionists, promotors, water committees and maintenance workers in 22 communities.

The total project funding level was US$ 960,400. This amount was contributed by the United States Agency for International Development in Guatemala (US$ 500,000), CARE/USA (US$ 36,900), the Government of Guatemala, UNEPAR (US$ 50,600, in-kind US$ 155,000), STARBUCKS (US$ 61,900) and the participating communities (in-kind US$ 156,000).

In addition to its core components related to community participation, construction, operation/administration/maintenance and health education, the project included four pilot activities: cost recovery, micro watershed management, monitoring of behavioral practices and extended follow-up of 12 communities from a previous project.

Since previous evaluations of PN45 have been very positive in terms of project accomplishments, it was decided that the final evaluation would concentrate efforts on assessment of the four pilot activities and not on project impact.

This evaluation was conducted by Ian Myles from the Water and Sanitation Sector/CARE-Canada as the principal evaluator with assistance from Salvador Baldizon who is acting as the Water and Sanitation Sector Coordinator at CARE-Guatemala on a part-time basis. Field work was conducted during September 1-10 and data analysis and the first draft report were completed September 27 to October 1; with the final report to be presented on October 27.

4. METHODOLOGY

According to the scope of work, this was a formative evaluation with primary emphasis on cost recovery and the health behavior monitoring activities, and secondary emphasis on the micro watershed and follow-up. After initial discussion with donor representatives and mission/project staff it was decided that all activities were equally important and no distinction was made in terms of time and efforts to assess each one of them. The primary focus was to concentrate on learning and improving the processes for each activity. To collect data and information about the project experience a combination of several approaches were followed: informal discussions, non-structured interviews, participation in a project workshop, field observations and review of project documents. A mixture of qualitative and quantitative information was collected in order to be able to identify strengths and weaknesses of the activities under evaluation.

The following activities were carried out during this evaluation:

Visits to: AID Offices
CARE-Guatemala central offices
CARE-Guatemala Quetzaltenango offices
Four communities from the previous project
Four communities from current project

Interviews with:

Alfredo Szarata, Project Officer, AID/Guat
Ana Lucia Obiols, Project Manager
Julio Xocol, Cost recovery promotor
Osmar Maldonado, Project coordinator
Elio Palacios, Regional coordinator for Agroforestry Sector
Oscar P. Gómez, Micro watershed promotor
Alejandro Cali, Health Education assistant
Eight project externsionists
Ten community health promotors (during the workshop)
Approximately 32 project participants (4 in each community)
Louis Alexander, Small Economic Activity Development (SEAD) Sector Coordinator
Ron Savage, Agroforestry and Natural Resource (AMA) Sector Coordinator
Justin Jackson, CARE-Guatemala Country Director

Review of:

WASH Field Report # 364 (July, 1992)
WASH Field Report # 385 (February, 1993)
Monitoring Forms for the Health Education Component
Data from the three monitoring activities conducted during the project
Draft of the Cost Recovery Strategy
Financial data on construction cost and amount actually recovered by the project
Follow-up strategy document
Data from Baseline Surveys 1992 and 1993.

5. RESULTS AND RECOMMENDATIONS

5.1 Health Monitoring

5.1.1 Description of the Monitoring System

The monitoring system is a monthly survey conducted by the health promotors to track the prevalence of diarrhea and the status of 21 hygiene practice indicators ranging from protection of food and water from contamination to use and maintenance of latrines to appropriate hand washing. The monitoring instrument is a check list used by the volunteers during each monthly home visit. Results from this survey are used by the health promotor to identify those hygiene practices that need more promotion and support in the community.

An independent sample survey (tracking the same indicators) is conducted by the project extensionists every three months. This survey, based on the Lot Quality

Assurance Sample (LQAS) technique, is conducted in 19 households of each community every quarter. The main use of this survey is to identify "problem areas ... applying the following simple decision rule...:

"If there are more than five houses in which the desired practice was not observed, the practice must constitute a priority for the following cycle of improvement"

Although the how and when was not clearly stated, data generated from the monitoring activity was expected to be computerized and analyzed at the project level but the process was cumbersome.

5.1.2 Frequency of Monitoring

Promotors currently monitor 10-20 houses every month. On the average, most promotors said that the monitoring visits take them about one day per month. They did not complain about the time required, except in cases where houses were disperse and they had to return several times when people were not at home. Extensionists found that their visits could take up to three days, usually because they would combine it with other objectives, such as re-enforcing educational messages. This time requirement was not perceived as unreasonable, although it may become difficult as they cover more communities with up-coming projects.

In a large group discussion the health promotors all said they preferred to monitor every month so that "people don't forget the health messages". The extensionists, however, felt that promotors would be more likely to properly complete their monitoring visits if such visits were every two months instead.

Comments and Recommendations: The village health promotors should monitor every month for the first year or until the project health targets are met, then reduce frequency to every two months. Eventually, the targeting of non-compliant houses should be adequate.

5.1.3 Tabulation and Analysis of Monitoring Data

Efforts were made by program staff to tabulate both the monthly promotor survey data and the tri-monthly extensionist survey data. No tabulation and analysis was ever completed at the Headquarters level. Since most of the tabulation was done by hand, it was found to be quite time consuming for the Extensionist Assistant. In addition, the project was unable to get the computer statistical program (provided by the company which analyzed the baseline survey data) to work, and have so far been unable to obtain another working copy of the software. Instead,

some rough graphs were made using the EXCEL spreadsheet program. Also, a statistical program for epidemiology (EPI-INFO) has recently been acquired which may help. No changes to the project approach or messages have been made as a result of the monitoring system.

Comments and Recommendations: The original monitoring system called for program-level tabulation of the quarterly monitoring carried out by the extensionists, and only local (immediate) tabulation of the data collected by the health promotors. This seems to be adequate and would be less of a burden on the Extensionist Assistant (supervisor). Presumably, the data collected by the extensionists will also be of higher quality. It is also recommended that fewer indicators (approximately 10) should be monitored at the program level, rather than all 22. Assistance or training should be provided to the Extensionist Assistant in identifying the key information that should be monitored and how to generate the appropriate tables and graphs for analysis (see examples in Figures and Tables Section).

5.1.4. Extensionist and Promotor Comprehension of the Monitoring System

Promotors appeared to understand the purpose of their monitoring sheets, and could point out the more problematic indicators of their sector as identified by the completed monitoring sheet. They indicated satisfaction with the sheets since they helped them remember what to look for during home visits, and it helped them to see how their community is doing regarding health practices. When asked what they would do when a problem was noticed, the usual response was that they repeated the appropriate health message to the person at the time of the monitoring visit. There is no way to be sure if this was done, however. In a few cases promotors indicated that they believed the principle reason for filling out the monitoring sheet was to give it to the extensionist (rather than seeing it as a tool for themselves). This needs to be clarified to the promotors.

Extensionists clearly understood the purpose of the forms and were able to identify the problematic health indicators in each of their communities. It is not clear if any specific remedial actions were taken, other than review of the findings directly with the health promotors under their supervision. There do not appear to have been any attempts to compare survey results over time at either the community, extensionist, or headquarters level.

Comments and Recommendations: Since only data collected by the extensionists will be tabulated at the program level, promotors should be allowed to keep their monitoring forms rather than submitting them to the extensionists. The extensionist should do any analysis together with the health promotors when

visiting the communities. Both extensionists and promotors should compare survey results from month to month to see if any improvements have been made.

5.1.5 Accuracy of Monitoring Information

The accuracy of the monitoring carried out by the promotors seems to vary considerably from promotor to promotor. Some, particularly illiterate promotors, tend to become confused by the more similar-looking pictograms (eg. patio free of excrement and patio free of garbage, covered food vs. covered plates, latrines with a door or latrines with door closed, etc.).

Other promotors (both literate and illiterate) are not sure whether to make a mark on the monitoring form to indicate a negative response, or a positive response. Some were inconsistent even between pictograms on the same form. Part of the problem seems to have resulted from different instructions given to the promotors by extensionists at different times.

Another concern about the accuracy of the approach is that a number of the criteria are subjective (eg., how clean is "clean"). Interpretation will almost certainly vary between promotors.

A potential source of error is that all pictograms illustrate desirable images (clean hands, covered latrines, etc.) except one, which illustrates a child with diarrhea. This could produce confusion, since a positive mark next to the latter would actually represent a negative situation.

Finally, several extensionists mentioned that a few promotors were suspected of filling out the forms according to their general impressions or memories, without actually making all the house visits each month. Similarly, there is some incentive for promotors to falsify information since they may feel that negative results will reflect badly on themselves.

Comments and Recommendations: It would be worthwhile to have the pictograms re-drawn more clearly by a professional illustrator. The captions should continue to be included since they have been very helpful to literate promotors. There should be fewer indicators focusing on the most important, least ambiguous, and least repetitive indicators. This would also permit larger, clearer pictograms and writing.

To avoid confusion, the program should indicate both positive and negative responses using culturally meaningful symbols such as a check mark ($\surd$) for positive and an (X) for negative, or happy or sad faces. Also, the indicator for the presence of diarrhea should be reversed to indicate the absence of or

protection against diarrhea among children (rather than the presence of diarrhea) in order to be consistent with the positive indicators on the rest of the form.

It is hoped that if the frequency of promotor monitoring visits is gradually decreased, and if the monitoring forms are clearer, fewer health promotors will be tempted to falsify the information. It should also be emphasized that it is preferable to not fill in the form at all, rather than to provide inaccurate information.

5.1.6 Sustainability of Health Promotors

For the most part, promotors said they were well received when making their home visits, although often there were one or two houses which rejected them. In more than one community, both the promotor and water committee admitted that the promotors were sometimes spoken of badly. Comments were sometimes made inferring that they were either nosy, judgmental, or had nothing better to do than to mind other people's business. Some also accused promotors of being paid by the extensionist to do the visits. This has a demoralizing effect on the health promotors, who are not remunerated. Another problem mentioned by the extensionists is resentment by men that women are taking active leadership roles in the community. In addition, promotors sometimes resent having to take the time to do the monitoring and having to leave their houses and animals alone, since the animals might be stolen or lost.

Another factor which could affect the promotors' willingness to continue monitoring after the project ends is that the visits and the messages may become boring for both the promotor and the person being visited if they do not change month after month.

Comments and Recommendations: Because of the difficulties described above, it is crucial that promotors receive as much support as possible from the village water committee, family members, and neighbors. Without this support, it is doubtful that health promotors will continue monitoring activities after extensionists stop visiting them. It should be noted, however, that the monitoring system was not originally intended to be a permanent activity in the community, but a rather a tool for assessing the progress during the course of the project, and for helping the program to make adjustments to the approach as necessary. If promotors are willing to continue follow-up visits after the project, and if they find the monitoring system to be a helpful tool in reminding them of the things they have learned, then continued monitoring activities after the project ends is certainly a goal worth aiming for. Monitoring visits, however, could be much less frequent.

Probably the best incentive for health promotors to continue activities in their communities would be to identify some source of ongoing training for promotors (perhaps through the Ministry of Health). Also, remuneration (or exoneration from water fees) could be an effective means of recognizing the promotors contribution to the community, and encouraging them to continue. One last option would be to expand the overall scope of the promotors' health activities in the community in order to include more concrete services which are visible and valued by the community (eg. vaccinations, growth monitoring, pre-natal controls, etc.). This would increase the level of prestige for promotors and may increase the willingness of communities to remunerate them for their services.

5.2 Cost Recovery

5.2.1 Development of Strategy

Before implementing any strategy, CARE Guatemala looked at the cost recovery approaches currently being used by the Carrol Berhost Foundation (Chimaltenango) and Agua del Pueblo (Quetzaltenango) as potential models. The project manager also looked at CARE Guatemala's experience with communal banks through their SEAD sector. The current strategy was eventually established through internal discussions involving the Country Director, the Water Sector Coordinator, the Administrative Coordinator, the Program Manager, the Program Coordinator (assistant manager), and the Health Extensionist Assistant. CARE's Regional Technical Advisor (RTA) for SEAD in Latin America also reviewed the strategy and provided her comments. The original draft strategy paper was prepared in November 1992. The strategy was not implemented, however, until April 1993. No formal policy had yet been approved at that time and new drafts were prepared in May and September, 1993.

In essence, a decision was made to attempt to recover 30% of the construction cost of the water system. Based on this decision a contribution of 300 quetzales to be paid in a period of 20 months was requested from each project participant for each household stand pipe.

5.2.2 Willingness of communities to pay

In August, 1992, CARE Guatemala carried out a survey to see if project communities were willing to pay part of the cost of their systems. The study indicated they were prepared to pay, although no specific amount had yet been specified. One community, San Cristobal in San Marcos, was not prepared to pay anything (or was unwilling to agree to paying without knowing the exact amount) and the community was dropped from the project roster.

At the beginning of the project, not only was the cost for communities not defined, but program managers were uncertain about when to begin collecting the funds from the communities. The result was that community contributions only began being collected near the end of the project after most systems had already been completed.

When visited during this evaluation, communities seemed to have the intention of paying their contribution, and 6 out of the 10 new communities have already made contributions ranging from 2% to 58% of the amount they owe. There have been some problematic communities, however. For instance, currently 30 households in Tohamán are refusing to pay based on comments made to them by their congressmen (diputado) indicating that they would not be obliged to pay.

In the communities visited, all individuals questioned believed that it was fair to expect the community to pay for part of the system, since it was for the community's own benefit and because they would be more likely to take care of it. Beneficiaries also showed a good understanding of the purpose of the revolving fund (ie. to help more communities to benefit from the program). Several comments were made, however, pointing out that in Guatemala many people are used to receiving things for free and that some pressuring will likely be necessary.

5.2.3 Level of community contribution

The current price being "charged" to communities as their contribution is Q300 (approximately US $50) per connection. This amount was based on 30% of the average cost/connection of previous water and sanitation projects in the same region. Comparable rates for municipal connections are 800Q in Quetzaltenango and 3000Q in Guatemala City. In reality, the current charges work out to a program average of 33% of total materials and transport costs for the new systems. While the charge of 300Q is fixed, the actual proportion of material and transport costs for specific systems varies from community to community, according to the size and complexity of the systems. Thus, the required contribution for individual communities varies between about 15% and 48% of the total materials and transportation costs for their specific system (see cost data). In general, the larger communities were the ones paying the highest percentages of their total system costs. This is to be expected since each household must pay the same amount, regardless of how many people are sharing the common system elements such as reservoir tanks, distribution lines, etc. In effect, larger communities end up subsidizing the systems of smaller communities whose systems would normally be more expensive on a cost/beneficiary basis.

An alternative approach that has received some consideration has been the idea of charging a fixed percentage of materials and transport costs budgeted for each individual community, rather than having the same fixed rate for all communities. Thus, the cost per household would reflect the actual costs of their community's water system. Larger communities would thus benefit from economies of scale while smaller communities would normally pay higher fees. Since smaller communities are normally poorer communities, the program staff tend to prefer maintaining the current system where all households, regardless of their community size, are treated equally.

In the communities visited, everyone interviewed felt that the current charge of Q300/connection was fair, but some pointed out it would be difficult for the poorer families in their community to come up with the money. The CARE health extensionists shared this point of view. If this is true, it may be necessary to find ways of reducing the charge for poorer households. Similarly, there is some concern that adjustments be made for poorer communities who may not be able to pay the same amount as other communities. A strategy has recently been proposed that would have a committee at CARE make decisions about exceptions, for instance, in the case of poorer communities. Some objective criteria would then need to be developed in order to categorize the economic level of communities.

Comments and Recommendations: The fact that some communities are currently agreeing to pay up to 48% of their system costs (albeit without knowing what the percentage is) is a positive sign, showing that the overall goal of 30% is reasonable, if not too low. For this reason, and given the difficulty of establishing objective criteria for establishing who should receive special treatment, it would be preferable to plan on maintaining the same level of contribution for all communities without making exceptions. As indicated above, the larger, wealthier communities are in effect already subsidizing the costs of systems in poorer communities. If the program discovers that a disproportionate number of poorer communities are refusing to agree to paying the going rate per household connection (eg., Q300) then it may be necessary to reconsider the idea of making exceptions.

As for reducing the cost recovery charge for individual households within a community (eg. widows, disabled people, single mother, etc.), this decision should be left to the community who can choose to subsidize these families by making up the difference elsewhere. For example, the community can decide to pay a slightly higher amount per household in order to subsidize the 10 poorest families. This will require that the project promote a spirit of solidarity among community members rather than leaving it to be solved according to their personal perspective on what a community is.

Given the positive indications that communities are able to pay an average of 30% of material and transport costs, consideration should be given to raising the amounts charged to attain a higher level of cost recovery. Different rates could be charged to different regions as an experiment, to get a better sense of the community's capacity and willingness to pay a higher percentage of their system's costs. It should be emphasized that the objective of raising the charge is not to produce revenues for either CARE Canada or the donors, but rather to provide assistance to more communities with the existing limited resources. Needless to say, there are other means of striving for this objective, such as seeking to become more efficient in the project's implementation techniques. Finally, it should be noted that some increases in the amount of the charge should be planned for to take into account the regular devaluations of local currency.

5.2.4 Legal base

Prior to implementing the cost recovery strategy, program staff researched the legal situation to identify any restrictions that might affect the strategy. No such obstacles were identified. At present two contracts form the legal base for cost recovery: an agreement between each household and the village water committee, and an agreement between the village water committee, CARE, and the local municipality. Water committees are recognized as legitimate authorities at the municipal and department levels, and must have their financial records verified by the departmental official every three months. The water committee is currently accountable for the whole community's contribution, since they sign the agreement on behalf of their community. There is some interest at the community level in forming community associations which would spread liability evenly over the whole community.

Comments and Recommendations: Careful consideration should be taken before signing agreements with community associations, since it may produce problems of accountability and complicate relations between CARE and the community.

5.2.5 Political support

UNEPAR has traditionally looked unfavorably at requiring community financial contributions, but has not complained officially. A bigger problem in implementing the cost recovery strategy is "competition" from other water programs which do not require community contribution. At one extreme is the BID/UNEPAR project which even pays community members for their labor, as well as all materials. The KFW/UNEPAR (German funded) project does not pay for labor, but does not require any contribution. The Ministry of Development

projects pay community workers with food. There have been two incidents (Tierra Blanca and Tohamán) where elected officials visiting communities have made public statements saying that the communities should not pay for their systems. In Tierra Blanca, this was subsequently confirmed to the community by UNEPAR. CARE eventually approached both the official and UNEPAR to explain the situation, pointing out that community contributions are a key element mentioned in the CARE-UNEPAR agreement. In general municipalities have been supportive of the concept of community financial contributions to the project. In several cases (Tzumajhuí and Paraje Leon), municipalities have actually contributed funds towards paying the community contribution. Municipal contributions have been as high as 9000Q. CARE staff have generally supported the initiative of approaching the municipalities for contributions.

Not all community members questioned believed that the system belonged to their community. Instead they believed it was the property of CARE or UNEPAR and that they would need to consult one of these institutions if a problem arose, such as someone refusing to pay their monthly water tariff. This seems to arise from the fact that UNEPAR, although not the owner of the systems, still maintain tight regulatory control over them. For example, communities are currently unable to raise their monthly water fee or change members of their water committee without the written approval of UNEPAR. Already two of the communities visited stated their frustration in trying to replace their water committee members since UNEPAR had not yet responded to their requests.

Comments and Recommendations: One of the underlying assumptions behind the concept of cost-recovery is that communities will have an increased sense of ownership over the system and will thus take better care of it. The fact that UNEPAR still exerts a high level of control over the administration of the water systems could be an obstacle in the sustainability of both the physical system and the administrative systems set up to keep it going, where a strong sense of ownership is considered essential. The community's ownership AND responsibility for the water systems built must be emphasized from beginning to end of the project. This being said, it should be noted that communities should be advised to consult with CARE or UNEPAR before considering any significant alterations or expansions to the water system. This is simply to provide technical advice on the feasibility of the proposals, but should not be misinterpreted as implying CARE or UNEPAR ownership. At an organizational level, CARE should be sure that the program strategy regarding cost recovery approach is very clear with its government counterparts.

Another assumption behind the cost-recovery approach is that through saving and paying for the system themselves, the community will gain the confidence to save for and undertake future projects. When questioned if they had other projects they were now considering, many interviewed people said yes. When asked how

they would do it, they either replied that they would look at it more closely once they finished paying off the water system, or that they would hopefully come across some other institution like CARE that would help them. While it is far too early to evaluate the long-term impact of the project in terms of promoting future self-help initiatives, this should still be a central concern in the minds of the project staff. One question that should be asked is: does the project encourage people to undertake projects themselves or does it just convince them that the only way progress is made is if they are lucky enough for an institution to come and give them something? This may call into question the wisdom of encouraging communities to get their municipality to pay their contribution rather than insisting that the community come up with the money themselves.

Other approaches for utilizing municipal support are the following:

- CARE can try to obtain direct support from the municipalities;
- CARE can encourage municipalities to use the money to support follow-up projects in the communities;
- CARE can encourage municipalities to lend the money for the community contribution (rather than give it);
- CARE can encourage municipalities to at least try to spread any municipal contribution over several communities;

In whatever arrangement, a significant contribution should still be expected from the community.

5.2.6 Means of payment and payment schedules

Generally the community raises money themselves but as mentioned above, some access municipal funds. At present, communities can pay their contribution at any time for a period of 15 months from the date materials arrive in the community. Even then, no specific dates have been set for full payment and there is no schedule of payments. Consequently, follow-up monitoring is required for up to a year or more after system completion in order to ensure that payments are made.

Comments and Recommendations: Given that there is much less incentive to pay once the water systems are already completed, the project should aim to collect as much money as possible prior to the completion of construction. One suggestion proposed by the cost recovery coordinator is to split payments: eg., 40% in advance, 30% during construction, and 30% after construction. There is a precedent for this approach in the "PER 3" electrification program in which communities have to pay 700Q in advance at the beginning of the project and another 700Q before construction ends. It is also imperative that the project and

communities come to agreement on a specific schedule of payments, to avoid the tendency to push payments to the last minute. One approach might be to fix specific payment dates according to crop harvests, in order to achieve full payment prior to system completion.

5.2.7 Payment Monitoring system

The current system used by the cost recovery component coordinator involves keeping track of the total amount of money received each month, and total amounts pending per community.

Comments and Recommendations: The system seems to be well designed and easy to use. It would be important, however, to add a column indicating the total amount paid by each community to-date and to indicate if the payments are up-to-date according to the agreed upon schedule (currently there are no schedules).

5.2.8 Payment collection at community level

There have been some problems of individuals refusing to pay for their connection after it has already been installed. In this case, water committees generally show them copies of the signed minutes and may threaten to cut-off their connection. It should be noted that there is a distinction made between funds collected for repayment to CARE (fondo revolvente) and funds collected for the operations and maintenance of the system (fondo privativo). The latter is sanctioned officially by the Government official at the department level, who provides official receipts to the collectors. These officials also verify the water collector's books every 3 months and allow the collector to keep 10% of the funds collected. The collector does not receive any funds from those collected to repay the revolving fund to CARE.

A potential problem is that several of the communities visited stated that they have not begun collecting a fund for operations and maintenance since they are focussing their efforts on first paying off the revolving fund owed to CARE. In two of the three PN45 communities visited, they already had to make repairs to their systems without the benefit of an Operations and Maintenance fund. In Valentón Cantinil, for example, a valve was broken at the time the evaluators visited. The treasurer assured us that it could be fixed, except that they had not collected any maintenance funds yet.

Finally, it was noted that the communities visited are currently paying, or will be paying, 1.5Q to 2Q per household per month. On initial consideration, this

appears to be quite low, especially if the Quetzal continues to be devalued. Apparently the community is not allowed to raise its water tariff without permission from UNEPAR.

Comments and Recommendations: The water committee treasurer should begin collecting a fee for operations and maintenance as soon as construction begins, since there is a chance that the community will need it soon after inaugurating the system. Careful consideration should be put into how the monthly water tariff is calculated, making sure that the community water committees know how to adjust it if necessary. If necessary, discussions should be held with the UNEPAR to ensure that communities have control over the rate of their water fees.

5.2.9 Use of funds

The current strategy is to deposit recovered funds in an interest bearing account or term deposit. Once sufficient money has been collected to build a new system, it will then be applied towards new systems.

Comments and Recommendations: In establishing the budgets and cash-flow plans for the project, funds expected to be recovered from the communities should be taken into account (ie., the money should be tracked and reported on together with donor funds).

5.2.10 Other credit sources

CARE has had success in Indonesia having communities arrange their own credit directly from banks or vendors/suppliers of materials in order to cover 100% of material costs. This may be an option in Guatemala and would significantly reduce risk to CARE, although it would increase risk for communities. This approach is more realistic in terms of market conditions and would help community members to gain experience obtaining credit directly and would start them building a credit record. Senior program staff spoken to felt that vendors would require immediate payment. In fact, vendor credit was attempted, but vendors were not interested. There was also concern that the economy of bulk purchases would be lost.

Comments and Recommendations: If vendor credit is not possible, one option might be for CARE to act as a guarantor for direct credit applications to banks made by communities. As mentioned above, another option is for municipalities to pay part or lend money to the communities. Future projects should consider trying one or more of these alternatives. Attention would have to be paid to

make sure there is consistency within geographical groups and between groups attending the same training sessions in order to prevent conflicts

5.3 Microwatershed Management

5.3.1 Introduction

The microwatershed activities of the project suffered from a late start in the project, and from the lack of any specific objectives. This seems to stem from the fact that watershed activities did not appear as an actual component of the original project description, but rather as a consideration that would be taken into account while implementing the other components of the project. The current Agroforestry Technician was not hired until July, 1992.

Of the 22 systems making up the project, 10 were to receive watershed management training from CARE's AMA sector, and the remaining 12 were to receive similar training from PN45's "Microcuenca" coordinator. Not all of these 12 communities were interested in the training, and less than half are active in watershed protection/ improvement activities. Again, this appears to be at least partly a result of the delays in developing the program strategy for watershed management activities, lack of clear roles and, ultimately, a shortage of time and personnel in putting the activities into action.

What was observed during the field visits was mainly an increased awareness of the need to care for the trees in general and for protecting the water source in particular. Several nurseries, many of them using local seeds that the participants learned to collect and plant, were also observed. In some cases it was reported that trees have already been transplanted from nurseries to private yards but not necessarily to the area around the water source.

General Comments and Recommendations: The sustainability of any water system built in Guatemala today is contingent on stopping and reversing the existing patterns of deforestation and destructive agricultural practices. The importance of integrating watershed management training into the project can not be overstated. Currently there is some consideration being put into making watershed management a separate project goal with specific, measurable objectives. The evaluators believe this to be an essential first step in giving serious attention to the threat of watershed degradation. Indeed, it is recommended that this be taken a step further with environmental protection/improvement being an underlying theme in all aspects of the project, from construction through health education. This is the best way to ensure that the project beneficiaries truly understand the relationship between a healthy, tree-covered watershed and a reliable supply of potable water for the future.

5.3.2 Monitoring

Watershed activities were never systematically monitored since no objectives were ever formally set. This makes it difficult to evaluate the success of the activities now that the project is over. The monitoring forms currently used by CARE's agroforestry and watershed project were considered, but it was felt that they were too detailed for practical use in conjunction with the water and health projects.

Comments and recommendations: Systematically monitoring watershed management education and activities is the best way to ensure that the component is given adequate attention. In order to be successfully monitored there will have to first be a clear strategy for the component prioritizing the messages to be conveyed, the means for conveying the messages, and the actual practical activities to be carried out. A way of tracking the progress of the component will need to be developed. A monitoring system similar to that currently being used for health education activities, would be very good. The goal would be to track project beneficiaries' levels of understanding of the importance of watershed management, as well as to report the actual activity goals accomplished (eg., number of trees planted in watershed area, number of trees interplanted with private crops, purchase and protection of key watershed areas, etc.).

5.3.3 Nurseries

The main activity promoted under the rubric of watershed management has been the establishment of tree nurseries of local, fast-growing species. Nurseries, however, are not normally compulsory for participation in the program. Training has been provided to one to two "watershed promotors" in some of the communities, and several nurseries are currently in operation. The nurseries visited appeared to be functioning quite well and ranged from about 500 trees to 5000. To date all materials have been provided by CARE, but virtually all of the promotors the evaluators spoke to seemed confident that the activities were worthwhile and would continue on their own after CARE ceased to be involved. At least one, however, expressed considerable frustration at the low numbers of people turning out to work on the nursery. In one community (Chepito- PN45) the nursery promotor had turned the nursery into a private one, since no one had ever come to help him work on it. In general, however, the communities visited appeared to have adopted the
approach that, when ready to be planted, the trees would be divided up among those who had worked to raise them.
In all nurseries visited, it was planned to plant the trees on private lots or fields rather than in the area surrounding or above the water source. The underlying assumption is that the community members who plant trees will set an example that may eventually be followed by other individuals or communities, particularly

those higher up in the watershed. It was explained that in many cases (though definitely not all), the land surrounding the catchment area and above it is owned by private individuals or even other municipalities and that, in order to protect the watershed, efforts would have to be directed towards these other parties. This is part of the proposed new strategy. In a few cases, communities have apparently obtained permission to plant trees on privately owned land with the promise of wood to the owner. Nevertheless, at least 2 of the 5 communities visited confirmed that the cutting of trees near their water catchment area for wood or agriculture is already a problem.

Comments and Recommendations: The planting of any trees in the community is positive for the larger watershed and, when combined with agriculture through agroforestry, can combat soil erosion, desiccation, and fertility problems, while contributing to higher crop yields. However, in the short term, it would seem important to focus much more attention on protecting and improving the actual water catchment areas since it is the health of these areas that will directly determine the viability of the water systems. It is therefore important to emphasize to community members their common need to protect these water recharge areas in addition to introducing agroforestry and other improved practices on their own properties. Understandably, this process becomes considerably more complicated when the water recharge zones are either owned by private individuals, the municipality, or other communities. In these cases, the project should consider the following measures:

- Disqualifying communities from the selection process if it does not appear likely that their micro-watershed can be adequately protected from both deforestation and/or agricultural contamination.

- Encouraging (or requiring) that the communities purchase or be given the key areas of watershed which will need to be protected, so it is within their control to protect them.

- Encouraging innovative arrangements such as the one mentioned above where land owners are offered wood in exchange for allowing the section of the watershed in their possession to be reforested by the community.

- Enacting legislation to protect watershed areas which are needed to provide potable water.

- Pressuring, at an organizational level, for increased government enforcement of laws protecting municipally-owned wooded areas.

The newly proposed strategy of working directly with communities further up the watershed is very good, since they will often have a large impact on the water

systems of lower communities. However, it may be unwise to invest all hopes in convincing uphill communities to change their ways. Ultimately the people who will be most motivated to protect the watershed are those who are benefitting from the water it produces. Therefore every effort should be made to put as much control directly into the hands of the water project beneficiaries through the five measures outlined above.

5.3.4 Other training

Other than instruction on the establishment of nurseries, little additional training is provided to communities or staff in watershed management. There has been one training workshop (for watershed promotors and 2 members of the water committee) aimed at teaching agroforestry techniques and soil management (organic fertilizer, live fences, etc). This was poorly attended. Two workshops were also held for water system operators (one for each region) with one afternoon devoted to the theory and practice of watershed management. More recently, training on the hydrologic cycle was provided at a workshop for village health promotors but it is the impression of the evaluators that there was an excessive use of technical terms.

Comments and recommendations: As mentioned above, agroforestry has been the main focus of the project's watershed management training. The project should consider putting more of an emphasis on explaining the relationship between their water supply and the health of the watershed, and on undertaking reforestation actions (such as tree planting) or protection activities (such as fencing or purchasing key areas). Also, specific objectives and targets should be set (within specific time frames) outlining the number of workshops to be held, the number of participants, the messages to be taught, the level of understanding to be attained, etc. These objectives should, of course, be monitored.

A very simple but effective promotional technique used in Honduras has involved working with women's groups or school children to make hundreds of small painted wooden signs with environmental messages warning against the consequences of cutting down trees. The signs are then posted throughout the community and the watershed to provide constant reminders about the messages they have learned through educational talks. This may be quite easily adapted to the new projects scheduled to begin. The evaluators would encourage CARE Guatemala to consider arranging cross-visits with the CARE Honduras' Rural Water Supply and Sanitation project which has a very prominent watershed management/environmental component. The exchange would likely be very useful for both projects.

Finally, another area of training that might be considered is the construction and use of low-cost improved stoves in order to reduce the demand for firewood.

5.3.5 Indications of Increased Awareness

There have been several indications that the "watershed management" messages are getting through to the project beneficiaries:

- Several communities have apparently requested follow-up support from CARE for agroforestry activities, which may or may not be possible.

- When questioned by the evaluators on how they can be sure that their water systems would not dry up in the future, community members often responded that it would be necessary to plant trees.

- In Villa Alicia (PN28), the community purchased approximately 100 sq. meters immediately surrounding the water source in order to protect it.

- In Tzumajhuí (PN45), the owner of the land where the nursery is located purposefully positioned it next to a school and near the main road so that it would be visible and people could observe and learn from the work being carried out.

Although these do not provide a basis for measuring the actual impact of watershed education activities, they are encouraging signs and worthy of mention.

5.3.6 Coordination with AMA

Currently some coordination takes place with the AMA sector (who are working with the Dirección General de Bosques - DIGEBOS), mainly at the level of the regional office in Quetzaltenango. Discussions have apparently revolved around technical issues. Unfortunately, the lack of clear goals, strategies, and divisions of responsibilities may have complicated this coordination. The AMA agroforestry and watershed project has its own objectives which, although complementary to those of the water project, may not have given sufficient emphasis to the specific issues of protecting the micro-watershed which the new water systems depends upon.

Recently a workshop was held to internally evaluate the watershed management component of the project. Participants included staff from both the AMA Agroforestry and Microwatershed project and the water sector Rural Water and Health project. A new strategy proposal is currently being developed.

Comments and Recommendations: The only recommendation here would be that the coordination between the AMA and Water sector [illegible] entirely in the hand of the regional office. If the watershed management component of the project is to be given equal importance with the water and health activities, coordination should be given special attention up to the highest levels of the two sectors, involving both project managers and sector coordinators directly. Moreover, if the coordination is to be real, both the AMA and the Water Sector heads should be committed to ensuring that the watershed management strategies related to all Water and Health projects are sound, and that they are implemented and monitored adequately.

5.3.7 Staffing

Currently the CARE Agroforestry Technician is responsible for all aspects of the component, from planning to community extension work (in cooperation with the AMA sector Agroforestry and Watershed Project). In giving a higher profile to the Watershed Management component of the project, it may prove necessary to either add staff dedicated to this component or provide additional technical training to the existing health extensionists and explicitly add watershed management promotion to their job descriptions. Alternatively, if AMA sector staff are going to be relied on extensively to implement the watershed component, lines of accountability and supervision should be made very clear.

5.4 Follow-up Component

5.4.1 Description

In the two years previous to the current project (July, 1989 to June, 1991) CARE-Guatemala implemented water and sanitation services in twelve rural communities. Aware of the long timespan required for the adoption of hygiene behaviors, CARE proposed to the funding Agency (AID/Guatemala) the implementation of a health education follow-up component for the 12 old communities while the current project was being implemented in the 10 new communities.

As per the short document that describes the project follow-up strategy the aim was to implement practical, innovative and appealing activities to promote the adoption of hygiene behaviors. One of this activities was, for example, cooking demonstrations which would encourage the practice of hand washing before manipulating and eating food, washing of vegetables, protection of food after it is cooked, dish washing and cleaning, cleaning of the house and its surroundings, appropriate use and maintenance of latrines, appropriate disposal of garbage,

keeping animals outside the house and adequate management of diarrheal episodes with oral rehydration therapy. The document explains that these practical activities are essential given that in the past emphasis was placed on theoretical messages and participants were beginning to complain of boredom with the same messages. Another key activity implemented was handcrafts which was instrumental in producing implements such as doors for latrines (made out of dried corn cane) needed to comply with certain practices.

5.4.2 Implementation

For several reasons ranging from not enough staff to lacking of a strategy, this component was implemented late in the project. Instead of a two-year follow-up the actual follow-up period took place only in the last nine months of the project.

Rather than a follow-up this was complementary to what had previously been implemented. So it served more to test a new practical and appealing training approach rather than to reinforce the previous one.

Unfortunately this component concentrated on the health education component and did not address other important elements like the functioning of the water committees and system operators.

A user-friendly system to keep track of trends of the indicators tracked by the monitoring system for both old and new communities was not developed during the life of the project.

5.4.3 Results

As can be seen in figures 1-11, when comparing outcome levels between the follow-up and the new communities there are no striking differences among the ten indicators selected to make this comparison. This can be explained by the fact that except for figures 2, 4 and 9, both groups start at very similar levels of achievement. Figure 3, for example, shows that during the first baseline survey (May/92) the percentage of homes that already had a latrine was 82% in the new communities and 93% in the old ones. Similarly, in Figure 10 the percentage of families that use a latrine is 80% for one group and 85% for the other; at the final baseline (July/93) both groups finish at similar levels too. For some practices that already have a high percentage of accomplishment then the follow-up component did not have a significant effect.

Figure 7 shows a different case with the same results: for this indicator both groups of communities began at similar levels and ended up at similar ones too

without reaching the impressive levels of accomplishment of most of the other indicators. It seems that for practices that are harder to implement the follow-up component did not have a significant effect.

Figure 9 is an example of a practice that is hard to implement but where the follow-up component made a tremendous difference. It is worth noting that this indicator is an example of the kind of filtering that the information should go through when it moves from bottom up. This indicator encompasses several other ones such as: having a latrine, keeping it covered, having a house for the latrine, having a door for the latrine and keeping it closed.

Another interesting finding during this analysis was to realize that for those indicators that depend on the repetition of a practice [such as keeping the stored drinking water protected (Figure 5), yards kept clean (Figure 6) and mothers with clean hands (Figure 8)], results from the monitoring system can be misleading. In these three cases results from the final baseline consistently show lower percentages of accomplishments than the third monitoring exercise even though both happen during similar periods of time. One possible explanation is that the monitoring exercise in each community took an average of three days to be completed and during this time mothers would become aware of the presence of the project extensionist and would put into practice the behavior promoted by the project. This, in a way, shows the need to conduct the monitoring activities on a long term basis in order to make these practices part of daily life.

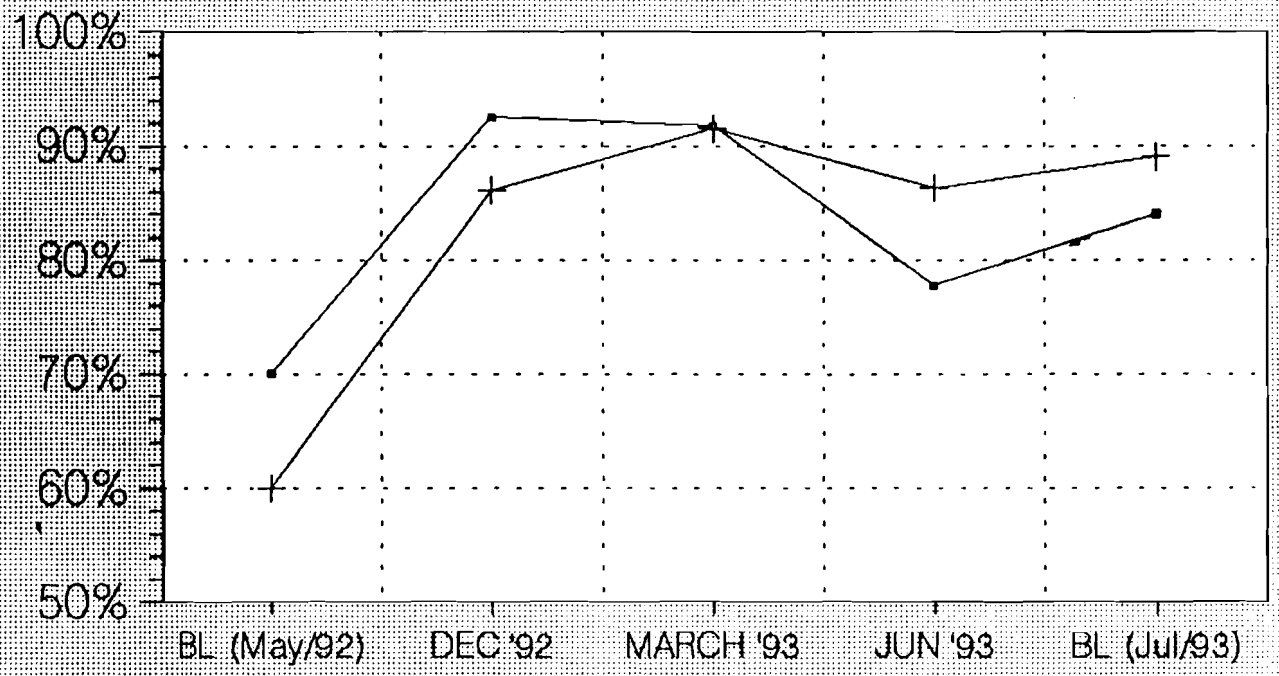
Comments and recommendations: The evaluators heartily agree with the idea that an extended follow-up period would increase project chances for sustainability of its benefits and practices. In order to make this component more effective it should include the following criteria:

- To be conducted with fewer project staff in order to make it more cost-effective,
- To involve local resources (other than the promotors) such as health committees, school teachers, school children, and local authorities,
- To switch project staff roles from implementors to facilitators and supporters of the process,
- To include all project components rather than only the educational one,
- To keep track of trends in order to concentrate efforts on those hard-to-adopt practices, and

- To phase out the follow-up phase in a gradual manner including transfer of the follow-up process to local/ regional organizations.

6. FIGURES AND TABLES

PROTECTION AGAINST DIARRHEA

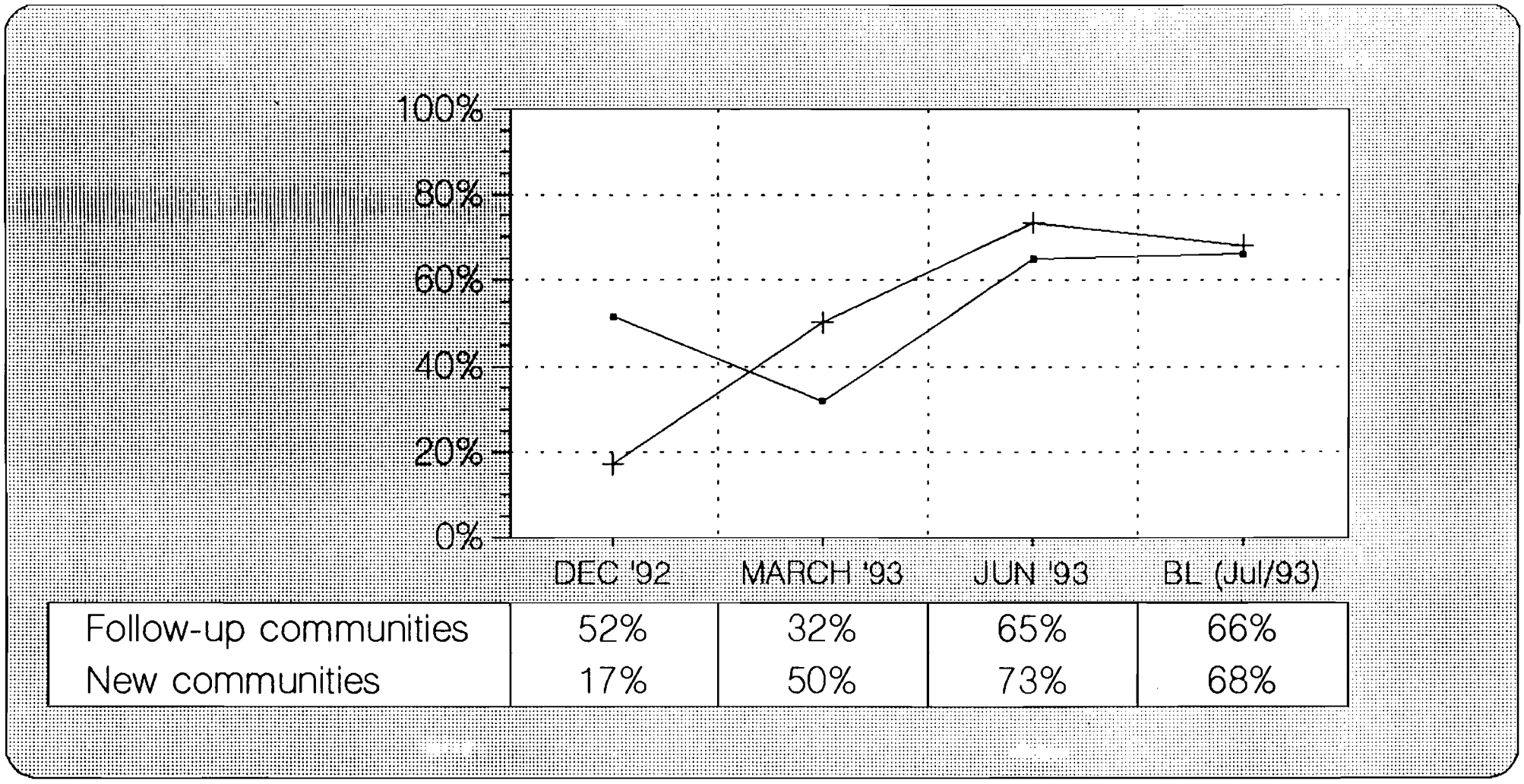


	BL (May/92)	DEC '92	MARCH '93	JUN '93	BL (Jul/93)
Follow-up communities	70%	93%	92%	78%	84%
New communities	60%	86%	92%	86%	89%

Follow-up communities New communities

Figure 1

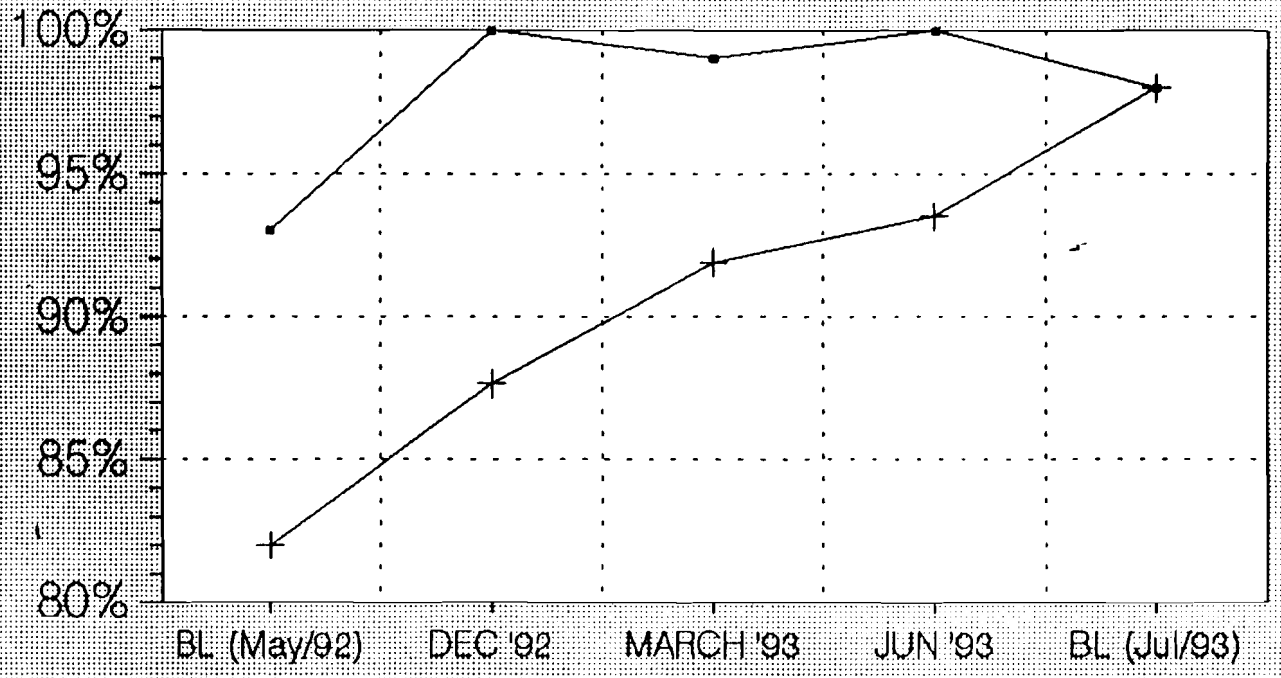
HOME MADE ORAL SOLUTION



Follow-up communities	52%	32%	65%	66%
New communities	17%	50%	73%	68%

Figure 2

HOMES THAT HAVE A LATRINE

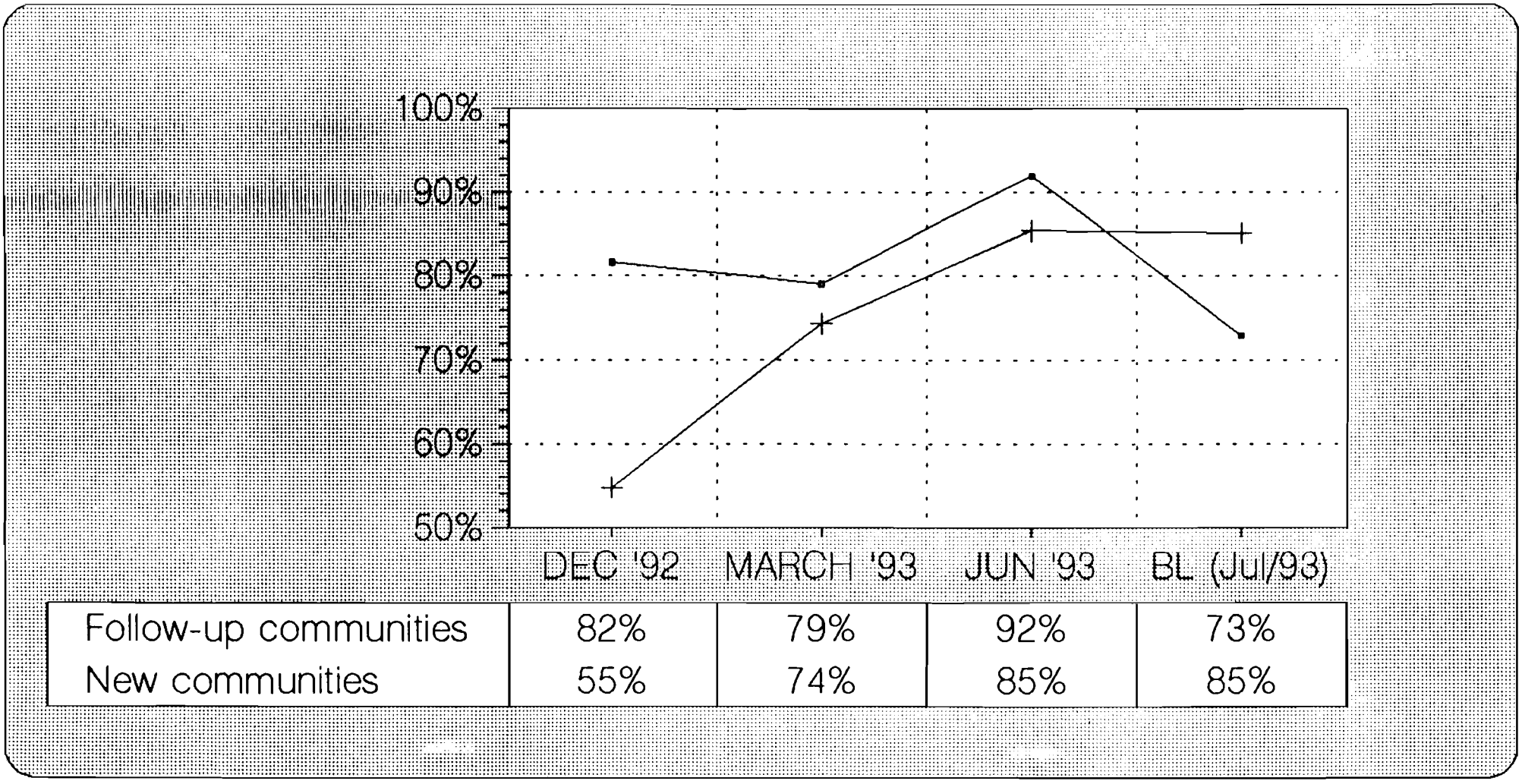


Follow-up communities	93%	100%	99%	100%	98%
New communities	82%	88%	92%	94%	98%

Follow-up communities New communities

Figure 3

HAND WASHING WITH RUNNING WATER

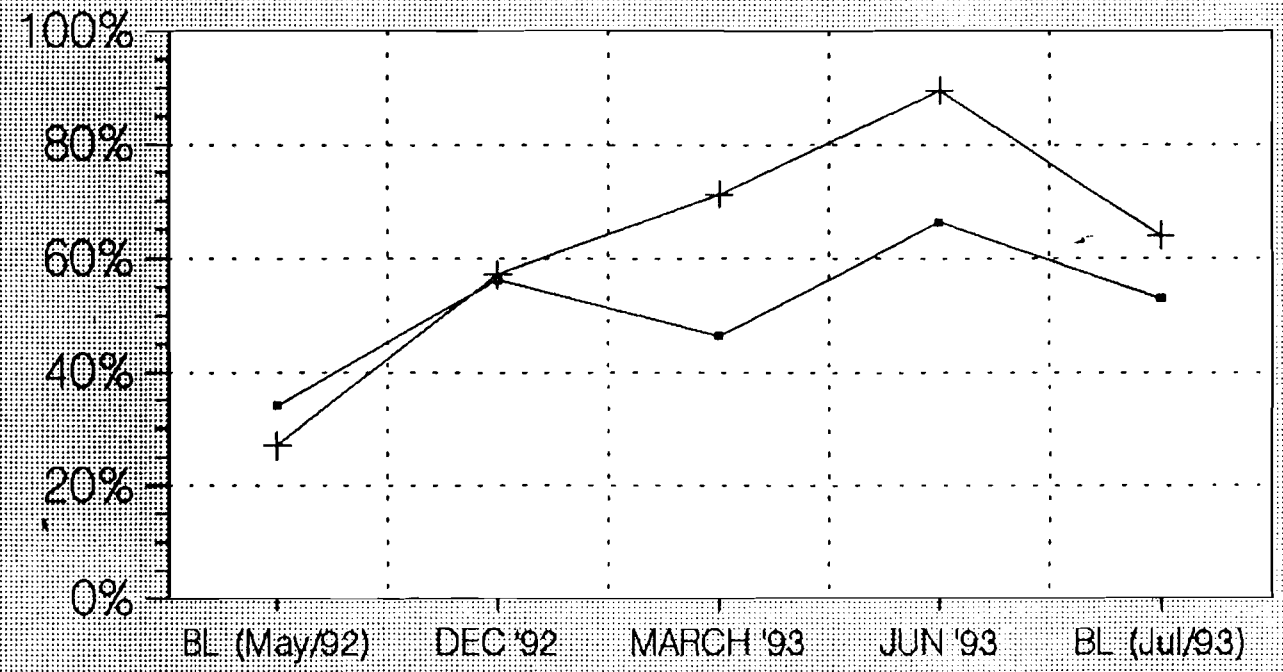


Follow-up communities	82%	79%	92%	73%
New communities	55%	74%	85%	85%

Follow-up communities New communities

Figure 4

STORED DRINKING WATER PROTECTED

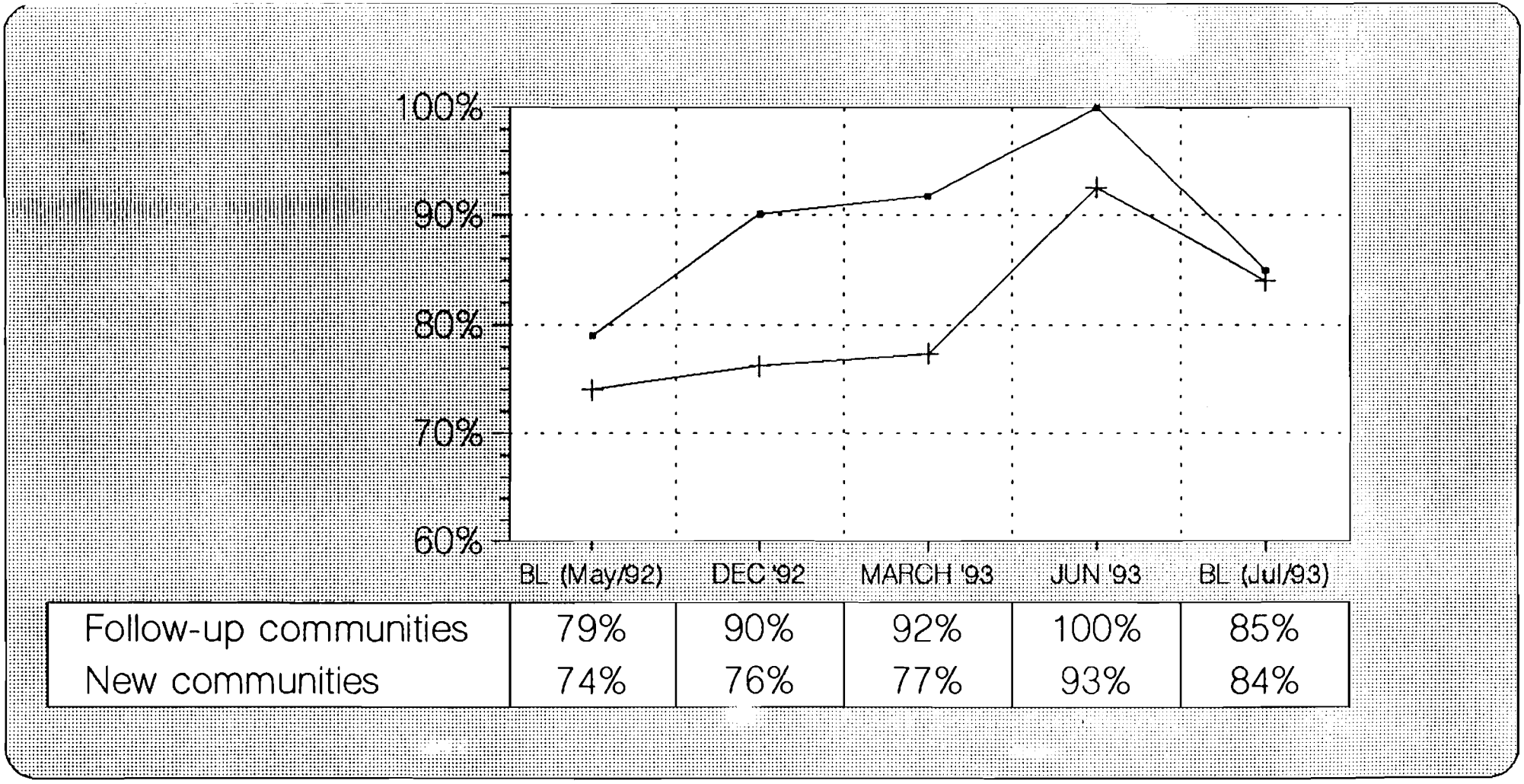


Follow-up communities	34%	56%	46%	66%	53%
New communities	27%	57%	71%	90%	64%

Follow-up communities New communities

Figure 5

YARDS KEPT CLEAN (NO HUMAN/ANIMAL WASTE)

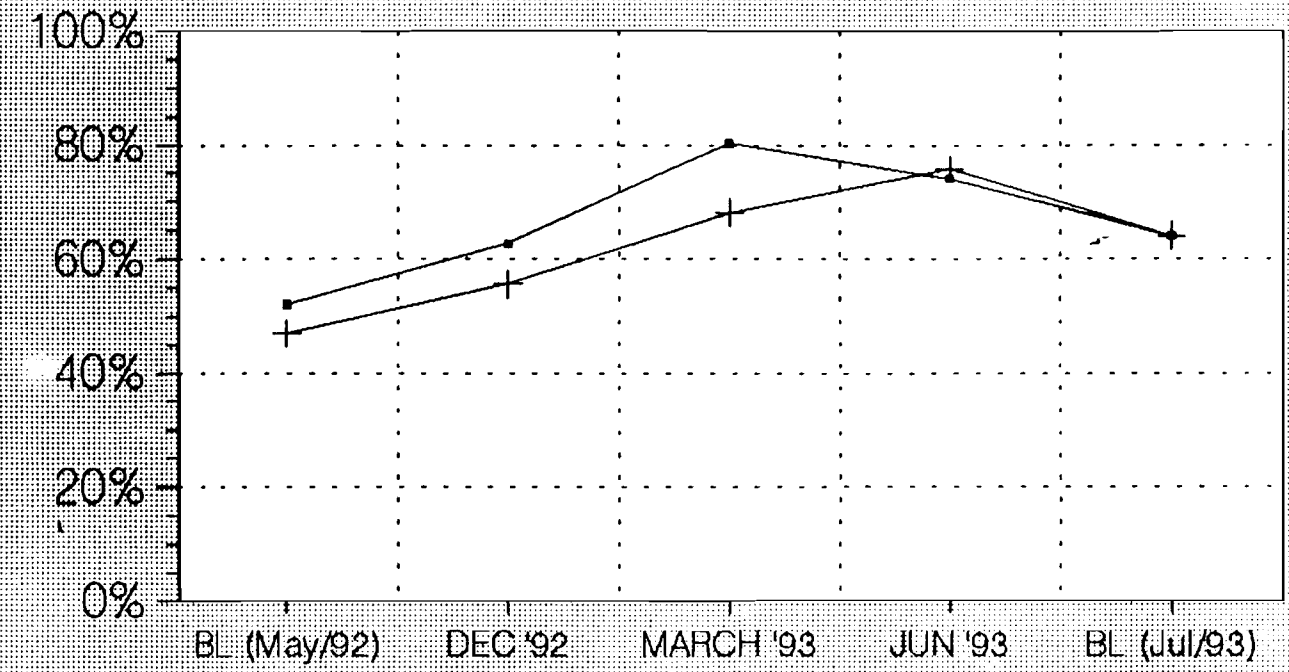


Follow-up communities	79%	90%	92%	100%	85%
New communities	74%	76%	77%	93%	84%

Follow-up communities New communities

Figure 6

ANIMALS KEPT OUT OF THE HOUSE

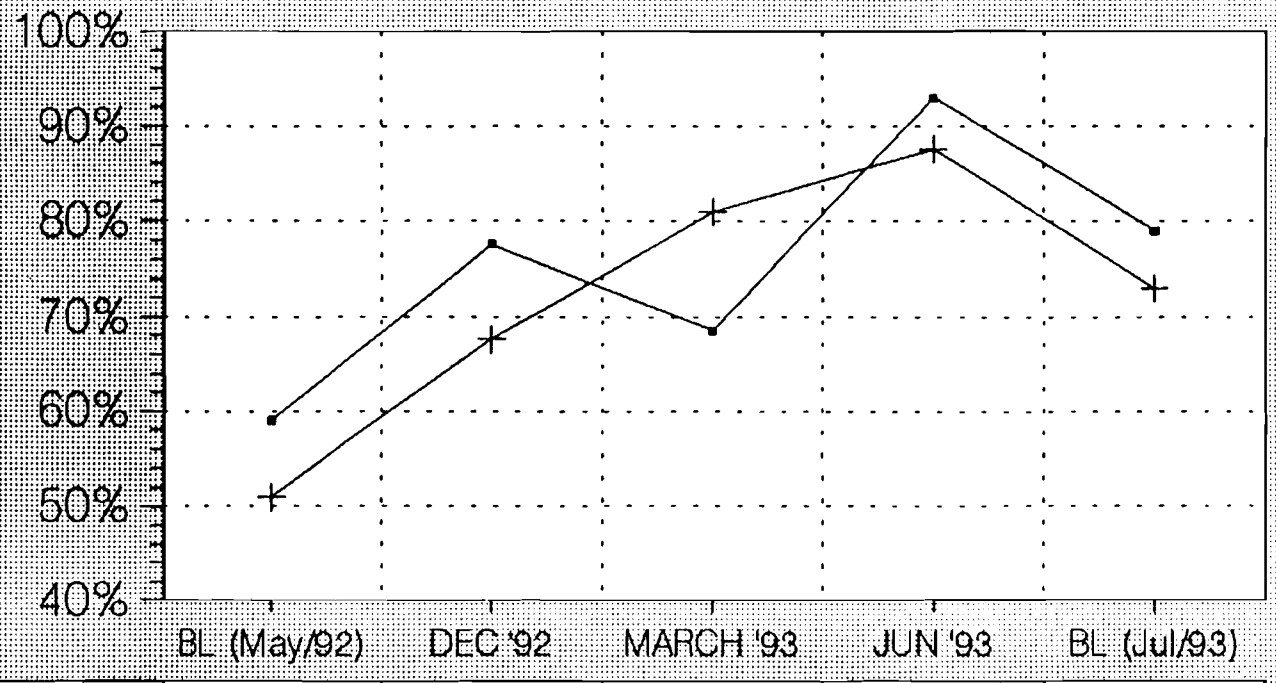


Follow-up communities	52%	63%	80%	74%	64%
New communities	47%	56%	68%	76%	64%

Follow-up communities New communities

Figure 7

MOTHERS WITH CLEAN HANDS

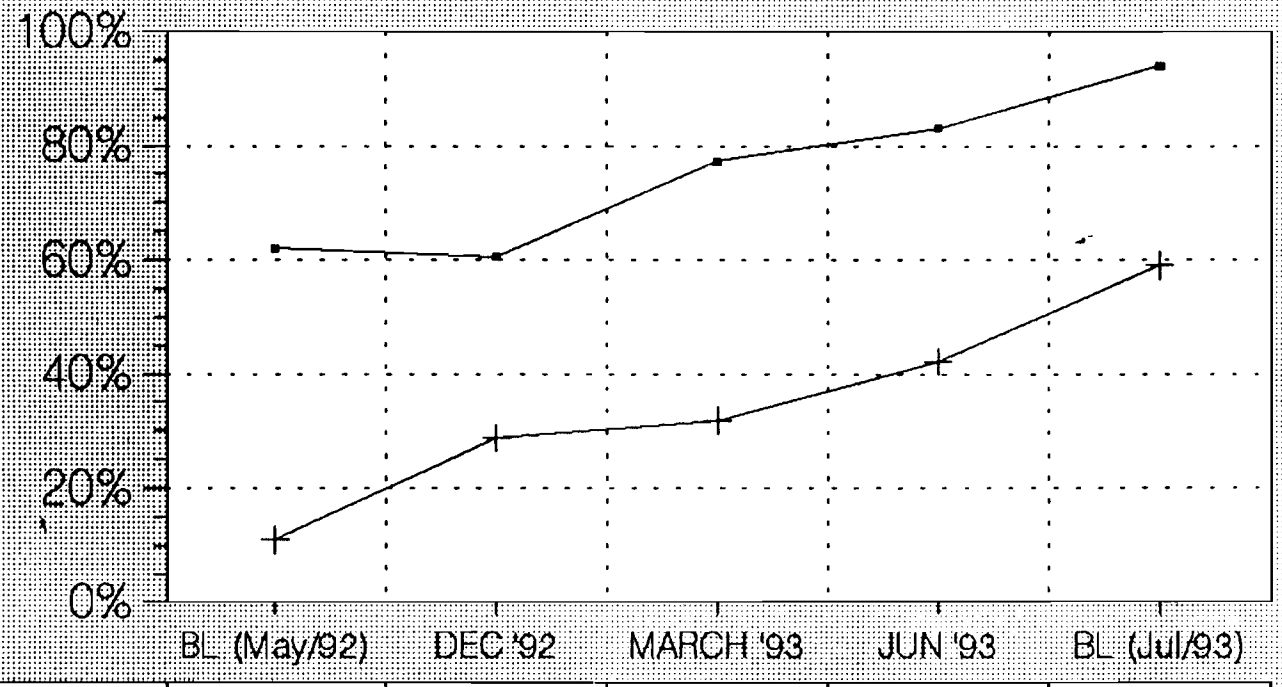


Follow-up communities	59%	78%	69%	93%	79%
New communities	51%	68%	81%	88%	73%

Follow-up communities New communities

Figure 8

LATRINE DOOR IS CLOSED

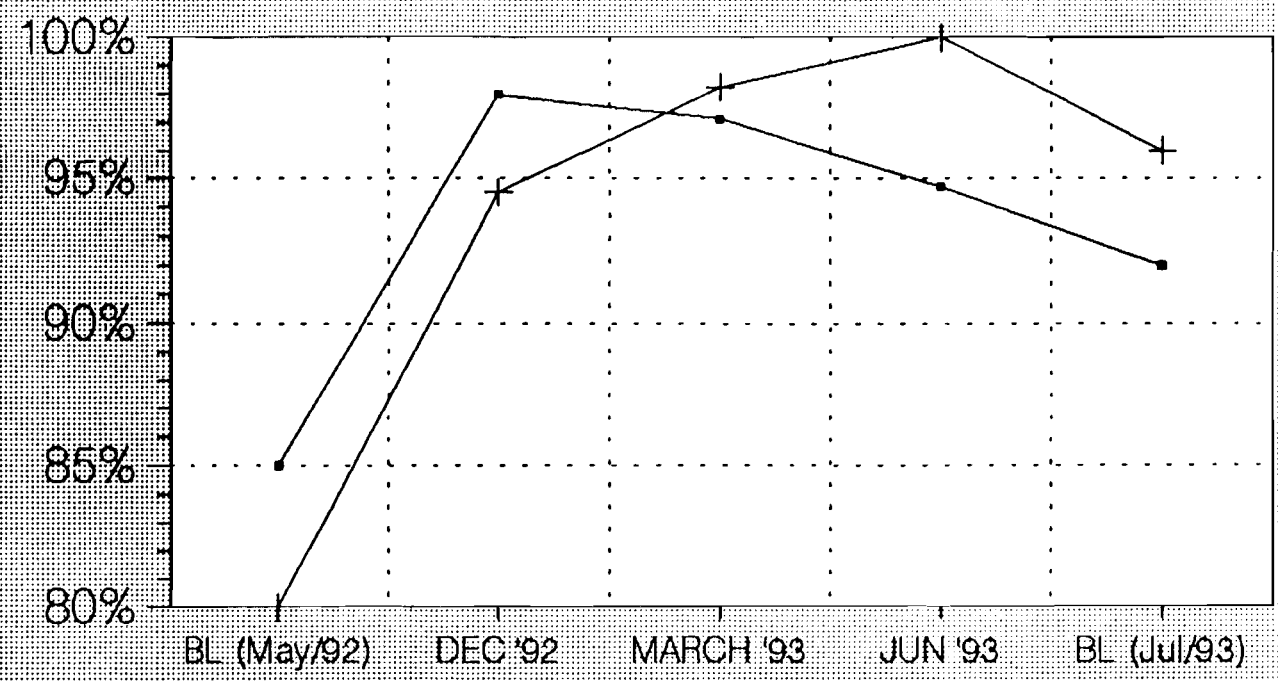


Follow-up communities	62%	61%	77%	83%	94%
New communities	11%	29%	32%	42%	59%

Follow-up communities New communities

Figure 9

FAMILIES THAT USE A LATRINE

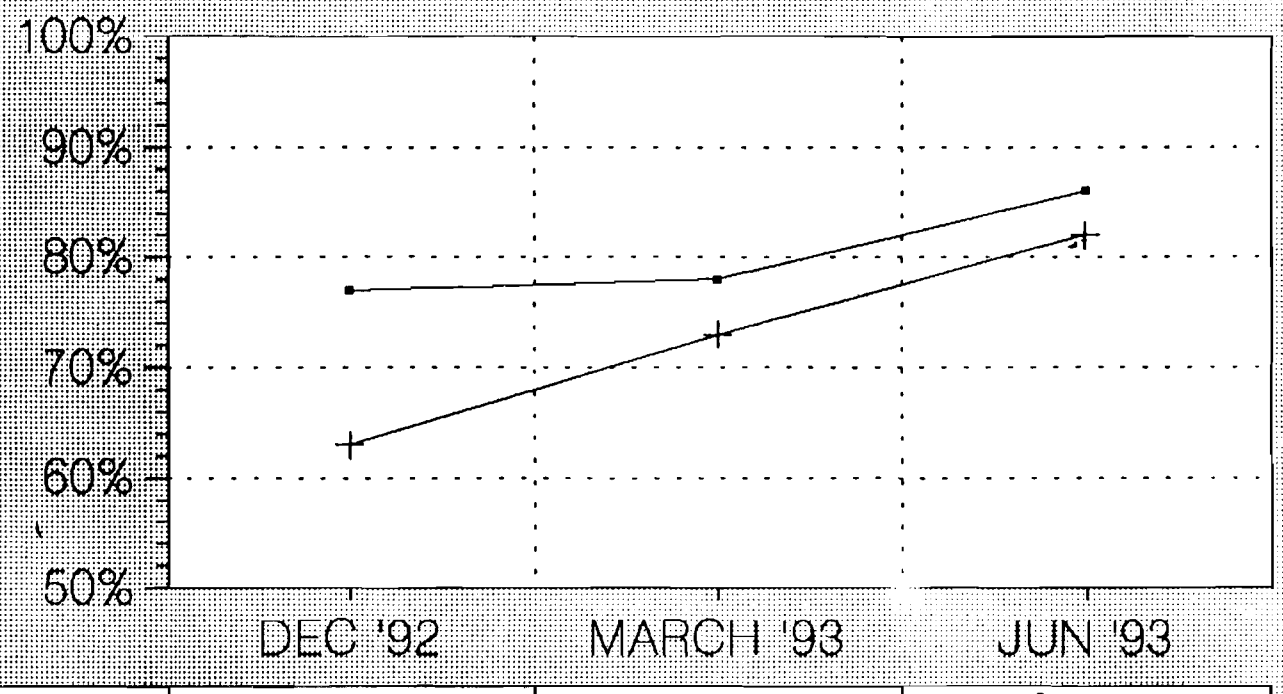


Follow-up communities	85%	98%	97%	95%	92%
New communities	80%	95%	98%	100%	96%

Follow-up communities New communities

Figure 10

ALL INDICATORS TRACKED BY MONITORING SYSTEM



Follow-up communities	77%	78%	86%
New communities	63%	73%	82%

Follow-up communities New communities

Figure 11

TABLE 1

QUARTERLY MONITORING SUMMARY

FOLLOW–UP COMMUNITIES

PN 28

MONITORING DATE: NOVEMBER '92

TABULATION DATE: DECEMBER '92

INDICATORS/COMMUNITIES	EL TRAPI.		SAN A CHEOJ		STA ROSA		FALDA VOLCAN		AGUA TIBIA		NVA. INDPND		LAS POZAS		RUINAS TOJOJ		VILLA ALICIA		VALEN–TON T S.		SANTA ISABEL		CHA–CAYA		TOTALS		TOTALS S + N	% OF S
	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N		
Protection against diarrhea			16	2	14	2	16	0	14	2			19	0	15	0			14	4			16	0	124	10	134	92.54%
Stored drinking water protected			6	2	4	3	1	4	4	4			19	0	7	2			7	9			1	14	49	38	87	56.32%
Yards kept clean (no h/a waste)			18	1	16	3	15	4	13	6			19	0	18	1			19	0			19	0	137	15	152	90.13%
Animals kept out of the house			18	1	15	4	14	5	16	3			2	17	17	2			7	10			5	14	94	56	150	62.67%
Mothers with clean hands			16	0	12	6	4	14	9	10			19	0	19	0			16	3			19	0	114	33	147	77.55%
Homes that have a latrine			19	0	19	0	18	0	19	0			19	0	19	0			16	0			18	0	147	0	147	100.00%
Latrine door is closed			16	3	19	0	14	5	19	9			14	5	10	9			0	16			3	15	95	62	157	60.51%
Families that use a latrine			19	0	19	0	19	0	16	3			19	0	19	0			16	0			17	0	144	3	147	97.96%
Hands washing w/ running water			19	0	14	5	11	8	8	11			16	3	19	0			18	1			19	0	124	28	152	81.58%
Home made oral solution			9	10	8	11	5	14	0	19			19	0	16	3			2	16			19	0	78	73	151	51.66%
TOTALS	0	0	156	19	140	34	117	54	118	67	0	0	165	25	159	17	0	0	115	59	0	0	136	43	1106	318	1424	77.67%

S = Yes, the indicator was observed / demonstrated

N = No, the indicator was not observed / demonstrated

TABLE 1.A

QUARTERLY MONITORING SUMMARY

NEW COMMUNITIES

PN 45

MONITORING DATE: NOVEMBER '92

TABULATION DATE: DECEMBER '92

INDICATORS/COMMUNITIES	LAS BARRAN		TOHAMAN		SAN ANTONI		SANTA MARIA		NUEVA INDPDN		VALENTON CANTINIL		CHE-PITO		TIERRA BLANCA		PARAJE LEON		TZUMAJ-HUI		TOTALS		TOTALS S + N	% OF S
	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N		
Protection against diarrhea	12	7	16	1	8	1	15	3	16	3	0	0	18	1	18	0	11	2	10	2	124	20	144	86.11%
Stored drinking water protected	17	2	13	4	15	4	12	6	13	6	0	0	7	12	1	11	5	12	8	11	91	68	159	57.23%
Yards kept clean (no h/a waste)	17	2	16	0	13	6	14	3	11	8	0	0	16	3	14	5	9	10	16	3	128	40	168	76.19%
Animals kept out of the house	12	7	8	11	12	7	16	3	10	9	0	0	4	15	12	7	9	10	12	7	95	76	171	55.56%
Mothers with clean hands	10	9	8	10	9	2	10	1	6	5	0	0	15	4	11	8	13	6	16	2	98	47	145	67.59%
Homes that have a latrine	16	1	17	2	16	3	17	0	16	0	0	0	11	4	15	4	14	5	16	1	142	20	162	87.65%
Latrine door is closed	3	16	0	17	10	6	10	7	4	12	0	0	6	5	4	11	4	10	0	18	41	102	143	28.67%
Families that use a latrine	16	1	16	1	14	2	16	1	16	0	0	0	11	3	15	0	14	0	16	0	138	8	146	94.52%
Hands washing w/ running water	17	3	15	1	13	6	0	0	15	4	0	0	13	6	2	15	3	15	2	16	80	66	146	54.79%
Home made oral solution	1	16	2	16	0	19	0	0	0	19	0	0	17	2	2	17	2	17	2	17	26	125	151	17.22%
TOTALS	125	66	113	63	110	56	110	24	107	66	0	0	118	55	94	78	84	87	102	77	963	572	1535	62.74%

S = Yes, the indicator was observed / demonstrated

N = No, the indicator was not observed / demonstrated

TABLE 2

QUARTERLY MONITORING SUMMARY

FOLLOW–UP COMMUNITIES

PN 28

MONITORING DATE: FEBRUARY '93

TABULATION DATE: MARCH '93

INDICATORS/COMMUNITIES	EL TRAPI.		SAN A CHEOJ		STA ROSA		FALDA VOLCAN		AGUA TIBIA		NVA. INDPND		LAS POZAS		RUINAS TOJOJ		VILLA ALICIA		VALEN–TON T S		SANTA ISABEL		CHA–CAYA		TOTALS		TOTALS S + N	% OF S
	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N		
Protection against diarrhea			13	2	18	1	19	0	14	1	15	0	13	3	11	2	17	0	19	0	11	5	17	1	167	15	182	91.76%
Stored drinking water protected			3	5	1	5	3	4	4	10	5	2	12	3	9	2	3	12	7	9	2	10	8	4	57	66	123	46.34%
Yards kept clean (no h/a waste)			18	0	16	3	16	3	15	4	19	0	19	0	18	1	19	0	19	0	15	4	17	2	191	17	208	91.83%
Animals kept out of the house			15	4	16	3	17	2	16	3	16	3	19	0	17	2	12	7	13	6	8	11	19	0	168	41	209	80.38%
Mothers with clean hands			14	5	14	5	9	8	1	8	11	8	18	1	19	0	13	6	14	5	5	14	17	2	135	62	197	68.53%
Homes that have a latrine			19	0	19	0	19	0	19	0	19	0	18	1	19	0	18	1	19	0	19	0	19	0	207	2	209	99.04%
Latrine door is closed			14	5	18	1	12	7	16	3	17	2	12	6	14	5	18	0	18	1	5	14	16	3	160	47	207	77.29%
Families that use a latrine			19	0	19	0	19	0	17	2	19	0	18	0	19	0	18	1	19	0	16	3	19	0	202	6	208	97.12%
Hands washing w/ running water			17	0	15	4	11	7	6	12	19	0	19	0	19	0	17	0	18	0	15	3	3	16	159	42	201	79.10%
Home made oral solution			9	10	14	5	1	18	7	12	2	17	8	9	14	5	3	16	1	18	1	18	6	13	66	141	207	31.88%
TOTALS	0	0	141	31	150	27	126	49	115	55	142	32	156	23	159	17	138	43	147	39	97	82	141	41	1512	439	1951	77.50%

S = Yes, the indicator was observed / demonstrated

N = No, the indicator was not observed / demonstrated

TABLE 2.A

QUARTERLY MONITORING SUMMARY

NEW COMMUNITIES

PN 45

MONITORING DATE: FEBRUARY '93

TABULATION DATE: MARCH '93

INDICATORS/COMMUNITIES	LAS BARRAN		TOHAMAN		SAN ANTONI		SANTA MARIA		NUEVA INDPDN		VALENTON CANTINIL		CHE-PITO		TIERRA BLANCA		PARAJE LEON		TZUMAJ-HUI		TOTALS		TOTALS S + N	% OF S
	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N		
Protection against diarrhea	15	3	14	1	16	3	17	2	16	3	10	1	16	0	14	0	13	0	9	0	140	13	153	91.50%
Stored drinking water protected	18	1	11	3	14	4	14	5	15	3	14	1	8	8	3	4	7	8	10	9	114	46	160	71.25%
Yards kept clean (no h/a waste)	16	3	17	2	11	8	13	6	8	11	17	2	14	5	16	3	18	1	17	2	147	43	190	77.37%
Animals kept out of the house	13	6	14	5	14	5	15	4	9	10	12	7	8	9	11	8	17	2	15	4	128	60	188	68.09%
Mothers with clean hands	7	12	17	1	9	2	12	1	10	2	18	1	16	3	18	1	13	6	16	3	136	32	168	80.95%
Homes that have a latrine	18	1	19	0	17	1	19	0	15	2	18	0	19	0	17	2	16	3	12	6	170	15	185	91.89%
Latrine door is closed	16	2	1	18	5	12	8	11	5	10	0	18	5	14	7	10	6	10	1	11	54	116	170	31.76%
Families that use a latrine	17	1	19	0	16	1	19	0	15	0	18	0	19	0	16	1	16	0	12	0	167	3	170	98.24%
Hands washing w/ running water	16	1	17	1	17	1	16	0	15	1	18	1	7	12	11	6	11	8	4	15	134	46	180	74.44%
Home made oral solution	17	2	10	9	14	5	13	12	7	19	16	3	6	13	8	11	5	14	6	13	102	101	203	50.25%
TOTALS	155	32	139	40	133	42	146	41	115	61	141	34	118	64	121	46	122	52	102	63	1292	475	1767	73.12%

S = Yes, the indicator was observed / demonstrated

N = No, the indicator was not observed / demonstrated

TABLE 3

QUARTERLY MONITORING SUMMARY

FOLLOW–UP COMMUNITIES

PN 28

MONITORING DATE: APRIL – JUNE '93

TABULATION DATE: JULY '93

INDICATORS/COMMUNITIES	EL TRAPI.		SAN A CHEOJ		STA ROSA		FALDA VOLCAN		AGUA TIBIA		NVA. INDPND		LAS POZAS		RUINAS TOJOJ		VILLA ALICIA		VALEN–TON T S.		SANTA ISABEL		CHA–CAYA		TOTALS		TOTALS S + N	% OF S
	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N		
Protection against diarrhea			14	1	14	5	16	3	9	0	18	1	15	4	3	10	15	3	4	11	14	2	18	0	140	40	180	77.78%
Stored drinking water protected			4	0	1	0	2	0	2	1	0	0	19	0	12	0	6	11	0	9	5	12	16	1	67	34	101	66.34%
Yards kept clean (no h/a waste)			19	0	19	0	19	0	19	0	19	0	19	0	19	0	19	0	19	0	19	0	19	0	209	0	209	100.00%
Animals kept out of the house			15	4	16	2	15	4	18	1	16	3	1	18	18	1	18	1	19	0	18	1	0	19	154	54	208	74.04%
Mothers with clean hands			18	1	14	2	14	2	17	1	15	4	19	0	19	0	19	0	16	1	17	2	18	1	186	14	200	93.00%
Homes that have a latrine			19	0	19	0	19	0	19	0	19	0	19	0	19	0	18	0	19	0	19	0	19	0	208	0	208	100.00%
Latrine door is closed			17	2	18	1	19	0	18	1	19	0	19	0	17	2	17	1	8	11	3	16	18	1	173	35	208	83.17%
Families that use a latrine			19	0	19	0	19	0	17	2	19	0	19	0	19	0	18	0	18	1	11	8	19	0	197	11	208	94.71%
Hands washing w/ running water			18	1	16	3	14	4	16	3	19	0	18	1	17	2	14	0	16	0	16	2	19	0	183	16	199	91.96%
Home made oral solution			12	7	17	2	14	5	16	3	6	13	18	1	16	3	6	13	7	11	5	14	18	1	135	73	208	64.90%
TOTALS	0	0	155	16	153	15	151	18	151	12	150	21	166	24	159	18	150	29	126	44	127	57	164	23	1652	277	1929	85.64%

S = Yes, the indicator was observed / demonstrated

N = No, the indicator was not observed / demonstrated

TABLE 3.A

QUARTERLY MONITORING SUMMARY

NEW COMMUNITIES

PN 45

MONITORING DATE: APRIL – JUNE '93

TABULATION DATE: JULY '93

INDICATORS/COMMUNITIES	LAS BARRAN		TOHAMAN		SAN ANTONI		SANTA MARIA		NUEVA INDPDN		VALENTON CANTINIL		CHE–PITO		TIERRA BLANCA		PARAJE LEON		TZUMAJ–HUI		TOTALS		TOTALS S + N	% OF S
	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N	S	N		
Protection against diarrhea	19	0	14	2	16	3	12	7	15	3	12	2	18	1	16	3	13	1	10	1	145	23	168	86.31%
Stored drinking water protected	19	0	16	1	18	1	16	3	16	2	13	2	17	0	7	1	11	3	14	4	147	17	164	89.63%
Yards kept clean (no h/a waste)	17	2	19	0	12	7	18	1	15	4	19	0	19	0	19	0	19	0	19	0	176	14	190	92.63%
Animals kept out of the house	14	5	10	9	13	6	17	2	13	6	19	0	3	16	19	0	17	2	19	0	144	46	190	75.79%
Mothers with clean hands	14	5	16	3	9	10	14	0	16	3	19	0	19	0	18	1	18	1	19	0	162	23	185	87.57%
Homes that have a latrine	18	1	17	0	18	0	19	0	17	2	18	0	15	4	18	1	17	2	16	2	173	12	185	93.51%
Latrine door is closed	16	2	0	17	7	11	8	11	7	10	2	16	10	5	8	10	7	10	8	8	73	100	173	42.20%
Families that use a latrine	18	0	17	0	18	0	19	0	17	0	18	0	15	0	18	0	17	0	16	0	173	0	173	100.00%
Hands washing w/ running water	19	0	18	0	16	0	15	0	15	3	17	2	19	0	12	5	12	6	8	10	151	26	177	85.31%
Home made oral solution	16	3	16	3	13	3	14	5	14	5	16	3	19	0	8	11	11	8	10	9	137	50	187	73.26%
TOTALS	170	18	143	35	140	41	152	29	145	38	153	25	154	26	143	32	142	33	139	34	1481	311	1792	82.65%

S = Yes, the indicator was observed / demonstrated

N = No, the indicator was not observed / demonstrated