TRIP REPORT: CLM WORKSHOP

OCTOBER 28-29, 1993

Paul Auxila
Thom Graziano
Barbara Sydney

FAMILY PLANNING MANAGEMENT DEVELOPMENT

Project No.: 936-3055
Contract No.: DPE-3055-Q-00-0052-00
Task Order No.: A1721 AFCLM

CONTENTS

I. EXECUTIVE SUMMARY

On October 28 and 29, 1993, The Family Planning Management Development Project (FPMD) and The Management Information Systems Program of Management Sciences for Health, in collaboration with the Health and Human Resources Analysis for Africa (HHRAA) Project, the AFR/ARTS/HHR and the R&D/POP/CMT conducted a workshop in Rosslyn, VA on the Commodities and Logistics Management (CLM) software.

This workshop was the initial step in the implementation of a sub-project whose objective is to further enhance the Commodities and Logistics (CLM) software developed by Management Sciences for Health. This sub-project is financially supported by A.I.D.'s HHRAA Project which provided funds to the R & D/Office of Population's FPMD Project.

The objectives of this workshop were:

- To review CLM Version 1;
- To identify field specific information needs for commodity and logistics management;
- To suggest specifications to be considered for the further development of the software;
- To suggest training needs for appropriate personnel at the country level.

At the core of the workshop was the Top Workshop Method. After the introductions, the CLM presentation, and the review of objectives and schedules, the rest of the day and a half was dedicated to first selecting the key issues to discuss and then forming small groups to brainstorm specific recommendations around these issues. At the end of the workshop, each small group presented its recommendations. Additional ideas and input were then contributed by the larger group.

Based on the input from the workshop and the outcome of additional sessions held at MSH, there is strong consensus that CLM should be, as it was originally planned, a flexible, low-cost, simple, easy-to-install, easy-to-use, low-maintenance, computerized application designed to support the basic functions associated with warehouse management. The functions referred to here represent "common denominators" processes that are usually found in any warehouse, independently of its location or the Health Program it supports. For design and programming purposes, these functions are grouped into four main categories:

- Maintaining key data on commodities, suppliers, and clients.
- Preparing, processing and following up on purchase orders to suppliers.
- Maintaining and controlling stocks in the warehouse: identification, quantities, location, cost, etc.

- Receiving, processing and satisfying requisitions received from clients.

The proposed specifications outlined in this report are grouped into seven categories:

CLM functions
Interface issues
Reporting requirement
Database structure
Software implementation issues
Software development issues
Documentation

II. BACKGROUND AND OBJECTIVES OF THE CLM PROJECT

In 1986, in collaboration with the Eastern Caribbean Drug Service, MSH developed a sophisticated computerized application to support all procedures and functions associated with the management of pharmaceutical: forecasting, tendering, adjudication, procurement, warehousing and distribution. This application, INVEC, is now available in several languages and it has been implemented in close to 15 sites.

Although INVEC is an excellent comprehensive tool for logistics management, we found, especially through the MIS Program work with the FPMD Project in Africa, that there was an unmet need for a less comprehensive "nuts and bolts" system that would address the most basic information needs of stocks and logistics management. This was especially true at levels other than at the national level; in situations where personnel had relatively little training; and, finally, where limited resources were available to implement and maintain a full-blown computerized system.

Subsequently, in 1992, MSH responded to a request from the Africa Child Survival Initiative - Combatting Childhood Communicable Diseases (ACSI-CCCD) for the development of a Vaccines Computerized Logistics Management System for Nigeria. The key objective of that system was to assist EPI staff in managing logistics information including: purchasing, stock controls, monitoring expiration dates, and the outflow of commodities to the state level.

At that time, MSH was already working in Nigeria with the Family Health Services Project, developing a software application to manage Family Planning and other Primary Health Care Program service delivery data. Building on this platform and on MSH's Healthware Series development tools, the first version of CLM was completed in a little more than three weeks.

This first version of CLM, the result of a collaborative effort between the ACSI-CCCD Project in Nigeria, the Nigeria EPI Program and the MIS Program at Management Sciences for Health, was presented informally to conference participants to the Third International Meeting for Disease Surveillance and Software Applications held in Paris, France in December 1992. At that time, staff from USAID and WHO/Geneva became familiar with the CLM and determined that, in addition to vaccine commodities management, CLM could be further developed to address the basic stock management information needs of most health and family planning programs.

The goal of this project is, therefore, to refine and adapt CLM's first version to expand its usefulness for family planning and health programs. CLM's specific objectives are to:

- assist and facilitate the management of commodities in health and family planning programs.

- be generic and useful in many different settings and environments without the need for additional computer programming.

- be simple, user-friendly and maintainable with local resources and a reasonable amount of training.
- be compatible with other software relevant to this field.
- serve as a tool in training programs designed to strengthen managers skills in commodities and logistics planning and management.

III. OBJECTIVES OF THIS WORKSHOP:

The objectives of this workshop were:

- To review CLM Version 1;
- To identify field specific information needs for commodity and logistics management;
- To suggest specifications to be considered for the further development of the software;
- To suggest training needs for appropriate personnel at the country level.

IV. ACTIVITIES:

1. Summary of Activities and Methodology:

After the introductions, the CLM presentation, and the review of objectives and schedules, the rest of the day and a half was dedicated to first selecting the key issues to discuss and then forming small groups to brainstorm specific recommendations. At the end of the workshop, each small group presented its recommendations. Additional ideas and input were then contributed by the larger group.

In this workshop, the key challenge regarding software development was to focus the discussions in order to identify the KEY areas or issues that needed to be addressed or discussed. When planning the workshop, we had decided that given the wealth of expertise and experience to be found in the expected group, we would let them decide what issues needed to be discussed. To do this, we used a methodology known as the "Top Workshop Method". This method was very successful. It brought structure and focus to the process by harnessing the diverse creativity of the participants. This methodology also helped us ensure that only the key, fundamental issues (not the peripheral ones) would be part of the final list to be considered.

2. Brief description of the methodology:

a) Context:

- Paul Auxila explained that the purpose of the workshop was to garner the participants specific recommendations on key areas of CLM that needed improvement.

- He explained to the group what the objective of the workshop was, and that by the next day at 1 P.M. they would have to present their specific recommendations.

- But, first, key areas for improvement needed to be identified as part of the process to arrive at specific recommendations. The question to be answered was:

  "What are the five key topics that must be discussed/addressed in order for CLM's development to reach its objectives?"

- Next, he handed out 5 white note cards to each participant and asked them to write 5 key topics or issues which they, as individuals, had identified. Each idea was to be expressed in 5 words or less.

- A specific time limit was given of **15 minutes.**

b) Brainstorming

- Each participant provided 5 answers to the question in 5 words or less on an index card. As there were 13 participants, 65 index cards were filled out.

- After participants completed their cards, they gathered in small groups of 3-4 people, and quickly reviewed one another's cards. Their mandate was to compile their individual responses into 5 cards that summed up the group's priorities. As there were 4 small groups, 20 cards were filled out.

- Next, each group representative presented one card. The card was read, clarified and taped to the wall.

- As this process continued, groups were asked to eliminate any card that they had not presented yet, and whose content had been expressed by a card already on the wall.

- The process continued until the groups had no more cards to present.

c) Ordering:

- At this point, an exercise involving all the participants took place. The purpose of the exercise was to order the cards on the wall into similar groupings. This resulted in 5 groups.

d) Naming:

- The next step was to name the five different categories that had been discerned. This step was very important since it allowed the group to arrive at a consensus about the significance of those categories, the meaning of the information gathered and the relationships between them. The five key areas arrived at by the end of this exercise were:
    - Scope, development criteria, and compatibility
    - System support and implementation
    - Reporting requirements
    - System Design: Database structure
      User interface/system design
    - Budget, forecasting, and different methodologies

e) Brainstorming:

This next step occupied the better part of the workshop. Participants gathered in small groups to discuss the key areas assigned to them. Their goal was to return the next afternoon with specific recommendations.

Three subgroups were formed around the above-mentioned five key areas, because there were not enough participants to break into five groups.

f) Suggestions and recommendations:

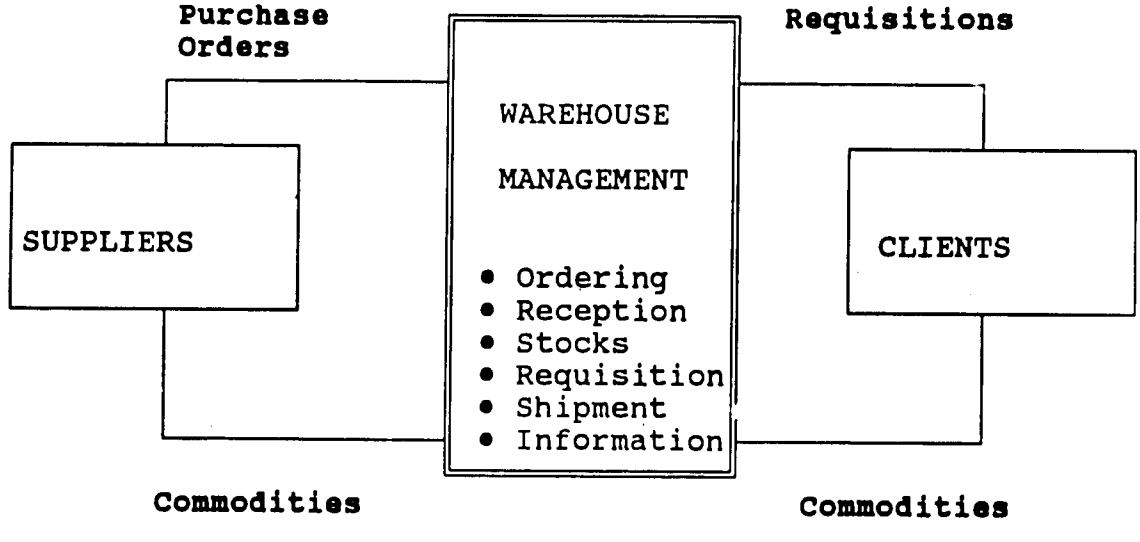
The next day, a rapporteur from each group presented the group's findings and recommendations.

V. CONCLUSION

A. Basic Functions to be supported by CLM:

Based on the input from the workshop and the outcome of additional sessions held at MSH, there is a strong consensus that CLM should be, as it was originally planned, a flexible, low-cost, simple, easy-to-install, easy-to-use, low-maintenance, computerized application designed to support the basic functions associated with warehouse management. The functions referred to here represent "common denominator" processes that are usually found in any warehouse, independent of its location or the Health Program it supports. For design and programming purposes, these functions are grouped into four main categories:

- Maintaining key basic data on commodities, suppliers, and clients.
- Preparing, processing and following up on purchase orders to suppliers.
- Maintaining and controlling stocks in the warehouse: identification, quantities, location, cost, etc.
- Receiving, processing and satisfying requisitions received from clients.



B. Additional functions:

The CLM should be applicable to all commodities for health programs and to all goods in the warehouse. It should provide the flexibility to categorize items for reporting purposes. Initially, CLM should not attempt to gather lower level "dispensed-to-users" data.

For simplicity, backorder processing should not be included in CLM and although CLM should not, at this stage, include forecasting and distribution modules, its design should be modular to allow for future expansion. Its database design must be structured to be as compatible as possible with other software that include forecasting or distribution such as INVEC (MSH), CCMIS (CDC) and CEIS (REACH/WHO). In any case, the CLM data dictionary will be made available to users to facilitate the use of its data with other systems.

It was recognized that, especially in light of the decentralization process, financial information on commodities is important. However, given the resources and time available, it was agreed that this version of CLM would not provide a complete cost accounting system for commodities. It would include basic cost information on goods received, stocked, and shipped. In addition, CLM would keep a running balance of the total commodities budget for each location served by the warehouse as well as the total cash receipts at the warehouse.

Finally, CLM should provide information and reports to satisfy: warehouse management needs, program (family planning, EPI, CDD, etc.) management needs, and donors' requirements. A users manual, including a glossary of terms, a complete description of the processes and algorithm used, and general guidelines for using CLM, should be part of the final package.

Some areas were discussed as key processes to be included in later versions. These include: a more comprehensive module on finance and accounting for commodities, a module to address information needs related to tracking of commodities distribution at lower levels, and a module for tracking non-expendable and capital costs. The next version would also include context-sensitive help at the data field level. Finally, it was discussed that Spanish and Russian versions would be desirable.

C. Proposed specifications:

This list of recommendations was compiled using input from the CLM workshop, feedback from other colleagues in the logistics field and additional technical sessions held at MSH. A separate technical specifications document is being used internally to guide the CLM computer programming process.

The proposed specifications from the small groups discussion are regrouped here into seven categories:

CLM functions
Interface issues
Reporting requirement
Database structure
Software implementation issues
Software development issues
Documentation

1. CLM Functions:

Ordering from suppliers: preparing and approving purchase orders, modifying purchase orders, monitoring status of outstanding orders, historical record of purchase orders, printing and viewing purchase order information.

Stocks Management: Receiving and processing shipments from suppliers, updating stocks information, adjusting stock levels, tracking location and expiration dates of stocks in the warehouse, updating cost information, and printing and viewing stocks information.

Clients Requisitions: Receiving and processing clients requisitions, modifying and approving requisitions, preparing and executing shipments, and printing and viewing requisitions and shipments information.

Reporting: printing and viewing (pre-programmed) standard reports, developing additional reports, performing ad-hoc queries, and performing basic statistical analysis.

System maintenance: setting up and updating the CLM databases, setting up and updating general hardware and software (colors, printers, etc.), performing file back ups and data transfer, running programs attached to CLM, and re-organizing and cleaning CLM data files.

Costs: keeping basic cost information on commodities received or stocked by the warehouse, and commodities supplied to clients. Running balance of commodities budgets for each client served by the warehouse and total cash receipts at the warehouse.

2. Interface issues:

- A "mouseable" interface required.
- A user-friendly menu structure that follows the logical order of transactions in the manual system.
- Cascading menus with pop-up help must always be available.
- A full description (instead of field names) should be used as a heading for browse screens.
- Context-sensitive help should be available and the user should be able to edit the help screens (at least) when the system is being implemented.
- Menu titles should be more intuitive -- giving the user a clearer idea of what menu options are offered.
- Menu options must be grouped around transactions.

- The ADD and the EDIT options in data entry should be together. While editing, the user should be able to add new records, thereby allowing users to build a local data dictionary.
- Screen location of messages to users should be consistent.
- An automatic re-indexing function that would be activated when the CLM program is started was recommended. However, this function would significantly increase the time necessary to load the program at the beginning of each work day. Re-indexing functions will be provided as part of the utilities and maintenance menus.
- Field where the cursor is located must be highlighted and made more visible.
- The ESC key must be used to always bring the user back to the previous option (not to the main menu).
- All numbers should have a "picture" statement associated with them.
- Users should be able to set up the date and the format in which numbers should be displayed (with points or commas) when implementing CLM.
- Options to confirm or cancel data entry should be provided.
- The interface in add/edit must be exactly the same as in the set up option.
- All item codes should be provided by the user (no codes generated automatically).

3. Reporting requirements:

CLM should provide a list of standard reports that can be obtained for each one of CLM functions. In addition, the user should be provided with the tools and the flexibility to develop additional reports as the need arises. The query builder is also necessary for users to ask ad-hoc questions.

The CLM standard reports should be user-friendly, available for any time period, client, item or supplier (as appropriate). These reports should have standard heading (name of report, date, time, etc.). The users should have the option to print the report, to view it on screen or to save it in a file for later use. Wherever possible, reports should be linked to a graphing function which allows quick understanding of the information provided. The list of standard reports is:

- Outstanding purchase orders (where some items have been received)
- Delinquent purchase orders (where no items have been received)
- Closed purchase orders
- Stock information (level, costs, overstocked, under-stocked, etc.)
- Stock to be expired by x date
- Receipt history (by item, by supplier or by program)
- Distribution history (by item, by client or by program
- Adjustments: by item, type and received
- Outstanding requisitions
- Requested vs. shipped quantities

- Outstanding confirmation by recipient
- Historical summary by item, supplier, client
- "Low-stock" items
- "Zero-stock" items
- Printing of all data bases (structure and/or content)
- Stock status by item
- Summary of requests/orders by client with information such as: date requested, date shipped, quantities requested, quantities shipped, values (individual and cumulative)
- Summary of orders/receipts by suppliers: date requested, date shipped, quantities requested, quantities shipped, values (individual and cumulative
- Balance sheet of commodities in the warehouse: beginning balance, quantities received, quantities issues, quantities lost, ending balance, quantities required (Maximum stock - stock on hand)
- Maximum stock = Safety stock + (number of months between orders x average monthly consumption).

These reports will be grouped by category in the CLM menus.

4. Database Structure:

- CLM's database architecture should be designed to ensure greatest possible compatibility with CEIS, INVEC, CCMIS and QUIPUS. Although some other software was identified (Tecapro, Swedis), it will not be possible to review those during this phase.
- The following fields should be deleted from the Clients data file: MAXMONTHS, MINMONTHS, POPFACTOR, STATUS.
- The following fields should be added to the Clients data file: facility or client type (C/2), total budget (N/16/2), budget balance (N/16/2), fax number (C/10), Phone number (C/10) and a memo field for remarks.
- The following fields should be added to the suppliers file: suppliers type (C/2), suppliers fax number (C/10) and a memo filed for remarks.
- The contributors file should be eliminated and its data merge with the suppliers file.
- The following fields should be added to the Item description file: one or two fields to indicate Programs or Projects interested in this item, route of administration, dosage (form), strength, a memo field for remarks.
- A single-record database should be created to store all information related to the warehouse where the system is implemented: identification, location, mailing address, phone, fax, person in charge, shipping address, type of facility.

5. Software implementation issues:

- The manual management system must be reviewed and necessary improvements in the process be implemented. The objective of implementing CLM is not to eliminate the bin cards. CLM does not replace the manual system.
- Adequate infrastructure must be available: computer equipment, electricity, maintenance, etc.
- Range of items in stock and the volume of transactions warrants computerization.
- Adequate hardware maintenance is available locally.
- There is an adequate level of staff training interest and motivation.
- Appropriate technical assistance is available for proper implementation and training.
- Technical and users' documentation should always be part of the implementation process.

6. Software development issues:

- CLM should be written in a well-known computer language.
- At appropriate points, versions should be sent to U.S. reviewers (volunteers from workshop).
- Full field test will be organized in 2 African countries (English and French).
- Workshop participants interested in having their project be an additional test site should contact FPMD as soon as possible.
- It should be a modular design - allowing for quick adaptations.

7. Documentation:

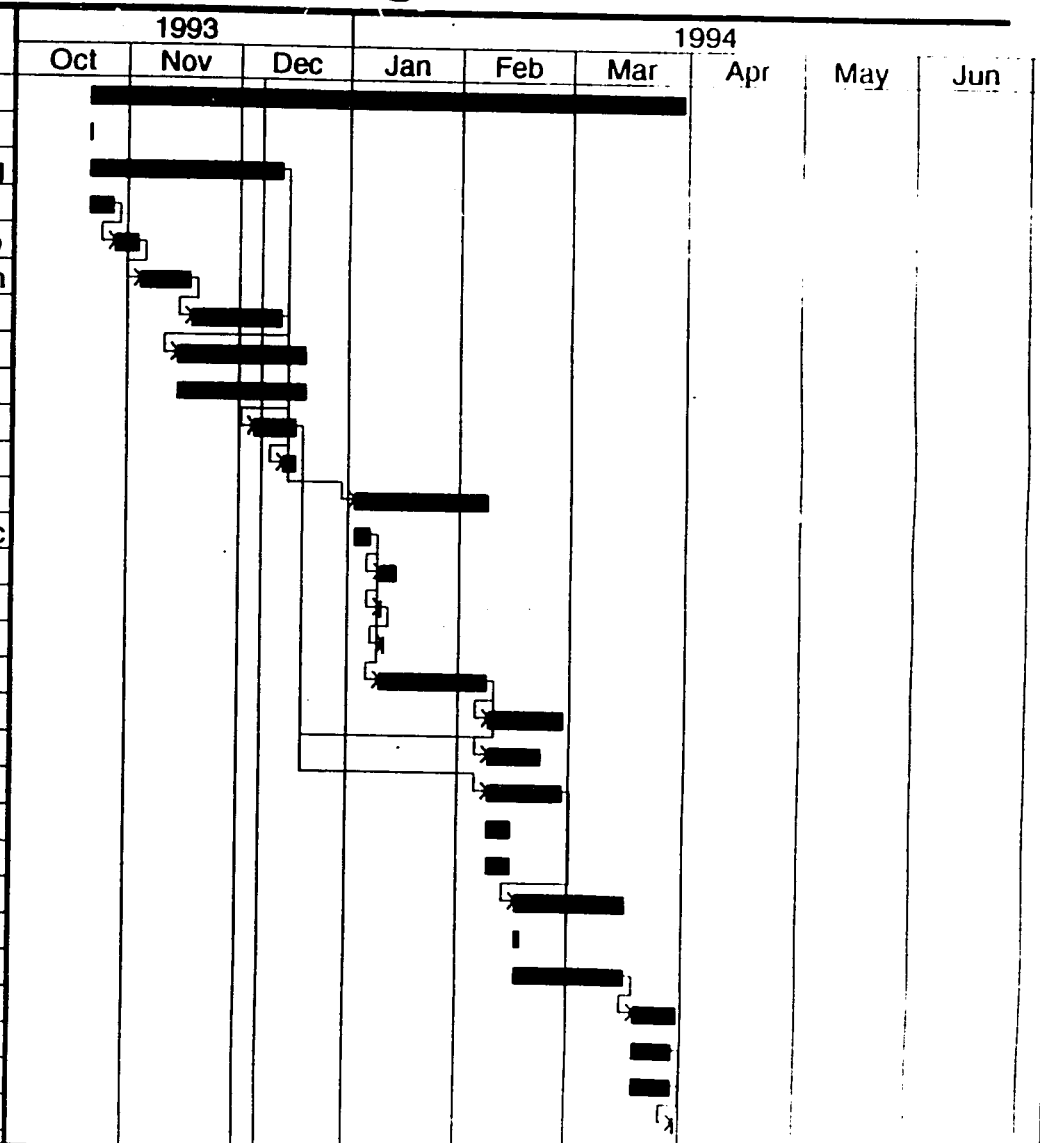
The CLM documentation should include both the technical and the users' documentation necessary for appropriate use and maintenance of the system. The FPMD sub-project includes translation of the system and its documentation into French. It was strongly recommended that resources be identified for translating the system, and its documentation, to Spanish and Russian (as soon as possible) as well.

The documentation should include:

- A general overview of CLM and its use in the warehouse
- Minimum requirements for using the computer package
- Installation procedures
- General guidance on how to use the system: menus, screens, help, etc.
- Detailed step-by-step procedures for using the options offered by the menus
- A glossary of the terms and definitions used
- A schematic representation of the CLM menu tree
- Sample standard reports
- Sample user designed reports.

Commodities and Logistics

Task List	Tasks before...	Tasks after...
CLM		
get contract		
Programming Round 1		Manual Writting
File Compatibility		import/export
import/export	File Compatibilit	Equipment Rep
Equipment Reports	import/export	SetUP Program
SetUP Programs	Equipment Rep	Nigerian Test,
Manual Writting	Programming R	
first Draft		
First Revisions	Programming R	Manul - Revise
Modify for Program C	SetUP Program	
Nigerian Test	SetUP Program	
Arrange for Workshop		Get Concurranc
Arrange with ColdSto	Arrange for Wo	
Get Concurrance	Arrange for Wo	Get Visa
Get Visa	Get Concurranc	
In Counry	Arrange for Wo	Manul - Revise
End Phase One	In Counry	
Manul - Revised	First Revisions,	
translate manual	First Revisions	Frankaphone T
Final Program Revisit		
Final Manual Revisio		
Frankaphone Test	translate manu	
Pre trip arrangements		
In Country		Final Revisions
Final Revisions	In Country	
Edit Software		Closing Meetin
Edit Manuals		Closing Meetin
Closing Meeting	Edit Software,	



VII. ANNEXES

ANNEX A

CLM WORKSHOP AGENDA

TIME	SESSION	FACILITATOR
THURS, October 28, 1993 8:30-9:00 AM	Participant arrival - coffee - materials distribution	
9:00-9:15 AM	Introduction to workshop - participant introduc- tions. - background of CLM - workshop objectives	Hope Sukin Catherine Crone Coburn
9:15-9:30 AM	Rational for CLM Devlopment - information and software needs for logistics management.	Maria Busquets-Moura
9:30-10:00 AM	Introduction to CLM - goals and parameters of CLM software development. - broad design considerations/specifications.	Paul Auxila
10:00-10:15 AM	Break	
10:15-11:30 AM	Presentation of Prototype CLM software. - existing capabilities for data management and report generation.	Thom Graziano
11:30-12:30 PM	Small Group Work: - Discussion of additional CLM specifications: Data management, report capabilities, interface with other software, hardware and software needs.	Paul Auxila, Thom Graziano
12:30-1:30 PM	Lunch	
1:30-3:45 PM	Small group work continues.	Paul Auxila Thom Graziano
3:45-4:00 PM	Break	
4:00-5:00 PM	Reports from small groups on additional specifications for CLM development. - Summary of Day's discussions.	Group Presenter

TIME	SESSION	FACILITATOR
Friday, October 29, 1993 9:00-10:00 AM	Small Group Discussion of additional specifications to be included in CLM: - prioritizing additional specifications. - options and solutions for addressing additional specifications.	Paul Auxila, Thom Graziano
10:00-10:15 AM	Break	
10:15-11:00 AM	Reports from small groups.	Group
11:00-11:30 AM	Suggested CLM specifications.	Paul Auxila, Thom Graziano
11:30-1:00 PM	Closing remarks: - next steps. - suggestions for field tests. - support for logistics management training. - software maintenance.	Mary Harvey, Maria Busquets-Moura

ANNEX B

Workshop Participants

Diego Berrio	CDC
David Boyd	A.I.D./AFR/ARTS/HHR
Maria Busquets-Moura	FPMD Project Manager, R&D/POP/CMT
Peter Carrasco	PAHO
Catherine Crone-Coburn	MSH/FPMD
John Crowley	A.I.D.-RD/POP/CPSD
Jack Graves	CDC/DRH
Mary Harvey	A.I.D./AFR/ARTS/HHR
Carl Hemmer	A.I.D.-RD/POP/CPSD
Teri Hoffman	PSI
Richard Owens	JSI
Peter Patterson	FHI
Jean-Pierre Sallet	MSH/RPM
Bill Selling	JSI
Richard Spiegel	CDC
Hope Suken	HHRAA-AFR/ARTS/HHR
Murray Trostle	USAID
Ralph Vaughn	CDC-IHPO
Robert Weierbach	BASICS
Greg Widmyer	PSI

Edward Wilson	JSI

Facilitators:

Paul Auxila	MSH
Thom Graziano	MSH
Barbara Sydney	MSH

ANNEX C
Invitation to Participants

Dear

The A.I.D. Bureau for Africa/Office of Analysis, Research and Technical Support (AFR/ARTS) in conjunction with the A.I.D. Bureau for Research and Development/Office of Population (R&D/POP) invite representatives from your organization to participate in a technical review of the current status of the Commodities and Logistics Management (CLM) Software. The one and one-half day meeting is scheduled for October 28 and the morning of October 29, 1993. The meeting venue is 1111 19th Street, Suite 300, Rosslyn Virginia.

The AFR/ARTS Health and Human Resources for Africa (HHRAA) Project is supporting the further development of this software package through the R&D/Population Family Planning Management Development Project. The purpose of the HHRAA Project is to increase the utilization of research, analysis and information in support of improved health, nutrition, education and family planning strategies, policies, and programs in Africa. The mandate of the project is to respond to the needs of policy makers and program managers in African countries, as well as A.I.D. and other development agencies, for improved technical information to address critical constraints that inhibit the improvement in African quality of life. One of the issues identified under this project is improved management of commodities and logistics.

The current software package has undergone a series of development stages and has been extensively revised by the Management Information Systems Program at Management Sciences for Health in collaboration with the A.I.D. funded Combatting Childhood Communicable Diseases (CCCD) and Family Planning Projects in Nigeria. The goal of the sponsoring organizations is to refine and adapt CLM to expand its usefulness for family planning and health projects. This technical meeting of interested parties will serve the following purposes: review the current software; identify the needs in the field for stocks and logistics management; finalize the specifications for the software, and; discuss and identify mechanisms to supply the necessary support needed to disseminate and train appropriate personnel at the country level in the use of this software.

The meeting agenda is attached to this letter. Demonstration disks and background information will be sent in advance to confirmed attendees so they may preview the current software program.

Please confirm your participation to Barbara Sydney by October 21st, if at all possible. This will enable her to provide you with the demonstration disks and background information by Monday, October 25, 1993. Ms. Sydney can be reached at the following address:

Barbara Sydney
MSH
Telephone: 617-527-9202
FAX: 617-965-2208

We look forward to your participation.

Sincerely,

Hope Sukin
HHRAA Project Director
AFR/ARTS/HHR

and

Maria Busquets-Moura
FPMD Project Manager
R&D/Pop/CMT

ANNEX D

Thank you letter to Participants

FAMILY PLANNING MANAGEMENT DEVELOPMENT

FPMD
Management Sciences for Health
400 Centre Street
Newton, MA 02158, U.S.A.

November 3, 1993

On behalf of FPMD Project and the MIS Program of MSH, we wish to thank you for your recent participation in the CLM Workshop held in Rosslyn, VA.

We appreciate how valuable your time is. We intend to incorporate many of your suggestions for enhancements to the CLM application, and to prove to you that your time was well spent.

Our staff will keep you informed about future developments. In the meantime, should you wish to send more suggestions or have additional comments, please fax or write to Paul Auxila directly.

We look forward to hearing from you.

Very truly yours,

Paul Auxila
for the MIS Program, MSH

and

Catherine Crone Coburn
for the FPMD Project, MSH

Phone: 617-527-9202 Fax 617 965-2208 Telex: 4990154 MSHUI