



 VECTOR BIOLOGY & CONTROL

**Vector Biology & Control Project**

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**FIELD REPORT:**

**Assessment of unmet needs in the Pakistan  
Malaria Control Program**

by

**Lawrence A. Lacey, Ph.D.  
Barry A. Silverman, Sc.D.**

**AR-106-4**

**Restricted Distribution**

## Authors

Lawrence A. Lacey, Ph.D., is the vector biologist and Barry A. Silverman, Sc.D., is the biomedical computer specialist for the Vector Biology and Control Project.

## Acknowledgement

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## Introduction

Various operational improvements have been realized in Pakistan's malaria control efforts over the past decade, including improvement in Passive Case Detection, stratification of spraying and provision of training in malaria diagnosis and treatment for general health service staff. Continuation of effective routine training for malaria control personnel has also enhanced control efforts, but some shortcomings in the program continue to hamper operational performance. For example, the training program does not have an operational research component. Other shortcomings include deficiencies in the recruitment of senior level staff and a lack of practical knowledge of alternative control methodologies. In addition, the development of insecticide and drug resistance and other constraints have weakened malaria control efforts.

In order to address these problems and to help the Directorate of Malaria Control (DOMC) meet USAID's requirement of reducing dependence on insecticides, in addition to other requirements covered in the project paper, VBC and USAID staff have identified potential areas of technical assistance (TA) that could ameliorate some of the deficiencies mentioned above. Proposed TA activities include training in techniques for urban mosquito control; advanced training in entomological techniques; a seminar/workshop on the design of operational research in combination with a review of current operational research initiatives; supervision of the safe use and handling of insecticides; and an evaluation of surveillance and reporting systems with recommendations for more effective data management.

These activities are discussed below. The activity sheets in Annex 1 provide additional information about proposed technical assistance to Pakistan's malaria control program.

## Surveillance and Data Management

After discussions between VBC, USAID/Islamabad and DOMC, a plan of action was developed to analyze the current Malaria Information System, including surveillance, and to design a plan for a computerized system. It was agreed that the VBC Project would prepare a manual for a systems and transaction analysis of the current system. This analysis will begin prior to a follow-up TA visit by Dr. Silverman in late March-early April 1989. USAID/Islamabad plans initially to purchase one computer for DOMC in Islamabad and to supply equipment to the provinces in the future. The VBC Project will recommend specifications for the software and hardware USAID/Islamabad will supply to DOMC.

The scope of work for the March/April consultancy will include:

1. Review of systems and transactions analysis.
2. Development of a plan for computerizing the information system.
3. Development of a computer training plan.
4. Initial development of computerized database.

### Urban Vector Control

USAID is in the process of purchasing ultra low volume (ULV) and fogging insecticide application machines for municipalities in Pakistan and has requested VBC's assistance in presenting a short course on the use and maintenance of the equipment. We believe that other aspects of mosquito control, notably source reduction and larviciding, should also be covered. Apparently the company that secures the contract for this procurement will provide instruction on the use of its equipment. VBC would provide a consultant to cover the rest of subject matter. With in situ demonstration, the duration of the course would be approximately one week. If the course is conducted at the NIMRT in Lahore, vector control personnel in Karachi, the main recipients of the equipment, may need additional demonstrations.

### Operational Research Design and Review

To address the deficiencies in this area outlined in the terminal evaluation of the Pakistan Malaria Control Project (391-0472) and the new project paper, we propose a seminar/workshop on the design and evaluation of operational research followed by TA to review current operational research, assess research facilities and provide recommendations for a future research agenda. This assignment will take approximately two weeks.

### Supervision of Safe Handling and Use of Insecticide

In compliance with recommendations in the Environmental Assessment, USAID has requested TA for supervision of the safe handling and use of malathion. The exact length of the assignment will be determined at a future date.

## Advanced Course in Entomological Techniques

Although it has not been approved for immediate implementation, DOMC and USAID officials recognize the need for such a course. At least two consultants are recommended to provide instruction on various entomological techniques for use in operational research. These techniques include use of ELISA for sporozoite detection and bloodmeal identification, trapping and sampling techniques, methods used for vector incrimination and mark-release-recapture methodology.

## Constraints

DOMC's reluctance to use more than one consultant at a time, desire to minimize the absolute number of consultants and aversion to critical review of malaria control activities are major constraints to continued improvement of malaria control efforts.

## ITINERARY

### February 2

Arrival in Islamabad  
Briefing with Mr. Raymond Martin, Chief, HPN  
USAID/Islamabad and Dr. Rifaq Ahmed Ismail, Malaria  
Project Officer, HPN USAID/Islamabad  
Meeting with Dr. G. Hashim, Epidemiologist DMOC

### February 3-4

Document review

### February 5

Meetings with Mr. C.A.A. Mujahid, DMC Director, and Dr.  
Hashim  
Meeting with Mr. Martin, Dr. Rifaq, Mr. Babar Hussain and  
Mr. Mujahid

### February 6

Meeting with Dr. Nancy Limprecht, Information Systems  
Specialist, Primary Health Care Project  
Meetings with Mr. Mujahid and Dr. Hashim  
Meeting with Dr. Heather Goldman, HPN, USAID/Islamabad

### February 7

Meeting and debriefing with Mr. Mujahid and Dr. Hashim  
Demonstration of Nepal Malaria Database  
Report writing  
Debriefing with HPN, USAID/Islamabad

## Persons Contacted

### HPN USAID/Islamabad

Mr. Raymond Martin  
Mr. Rifaq Ahmed Ismail  
Dr. Heather Goldman  
Mr. Babar Hussain

### USAID/ISLAMABAD (Automation and Data Processing)

Mr. Nauman Bin Muhammad

Primary Health Care Project

Dr. Nancy S. Limprecht

Directorate of Malaria Control

Mr. C.A.A. Mujahid

Dr. G. Hashim

**ANNEX 1**

VBC FY 1989

ACTIVITY: AR-114-4

ACTIVITY SHEET

BUREAU: ANE  
COUNTRY: Pakistan  
QUARTER:  
DATE: BEGIN:  
FIELD VISIT:  
END:

ACTIVITY MANAGER: Lacey/Arata

TITLE OF ACTIVITY: Short-course on Advanced Entomological Techniques

ORIGIN OF ACTIVITY: USAID Islamabad/VBC needs assessment.

AUDIENCE: NIMRT Pakistan malaria control entomologists (Provincial and NIMRT research staff)

LOCATION: Lahore and Karachi

OBJECTIVES:

Provide instruction on techniques in medical entomology that will be used in operational research and entomological surveillance.

SCHEDULE/ACTIVITY PLAN:

1. Short-course in advanced entomological techniques.
2. Review courses and facilities on NIMRT.
3. Make recommendations for improvement of above.
4. Debrief with USAID and DOMC.
5. Write report on activities and findings.

PERSONNEL/SKILLS REQUIRED:

2-3 Medical Entomologists (with skills used for vector incrimination, alternative methods of control, sampling, etc.)

PROPOSED PERSONNEL: \*

Dr. Don Roberts or Dr. Michael Service  
Dr. Lawrence Lacey and/or Dr. Max Meisch and/or  
Dr. George Georghiou

\* Several other candidates available.

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**FOLLOW-UP ACTIVITIES:**

**S&T CONTACT:**

Dr. D. Long

**APPROVED:**

**LEVEL OF EFFORT IN DAYS: 49**

**BY WHOM:** \_\_\_\_\_ **FY 89/TOTAL: \$42,417**  
**DATE:** \_\_\_\_\_ **TOTAL COST:**

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VBC FY 1989

ACTIVITY: AR-116-4

ACTIVITY SHEET

BUREAU: ANE  
COUNTRY: Pakistan  
QUARTER: 14  
DATE: BEGIN: 14  
FIELD VISIT:  
END:

ACTIVITY MANAGER: B. Silverman/L. Lacey

TITLE OF ACTIVITY: Pakistan: Malaria Surveillance System

ORIGIN OF ACTIVITY: USAID/Islamabad

AUDIENCE: USAID/Islamabad, MOH Pakistan

LOCATION: Islamabad

OBJECTIVES:

To develop a computerized malaria information system.

SCHEDULE/ACTIVITY PLAN:

1. Review current surveillance and data management system.
2. Design computerized information system.
3. Train malaria control staff.
4. Implementation of database.

PERSONNEL/SKILLS REQUIRED:

Biomedical Computer Specialist

PROPOSED PERSONNEL:

Dr. Barry A. Silverman, VBC Biomedical Computer Specialist

**FOLLOW-UP ACTIVITIES:**

**S&T CONTACT:**

Dr. A.D. Long

**APPROVED:**

**LEVEL OF EFFORT IN DAYS:**

**BY WHOM:** \_\_\_\_\_ **FY 89/TOTAL:** 27

**DATE:** \_\_\_\_\_ **TOTAL COST:** \$15,673

VBC FY 1989

ACTIVITY: AR-117-4

ACTIVITY SHEET

BUREAU: ANE  
COUNTRY: Pakistan  
QUARTER:  
DATE: BEGIN:  
FIELD VISIT:  
END:

ACTIVITY MANAGER: Lacey/Arata

TITLE OF ACTIVITY: Short-course on Control of Urban Mosquitoes

ORIGIN OF ACTIVITY: USAID/Islamabad

AUDIENCE: Malaria and Vector Control Personnel in Lahore and Karachi

LOCATION: Lahore and Karachi

OBJECTIVES:

1. Instruct vector control personnel on safe and effective use and maintenance of ULV application equipment for control of adult mosquitoes.
2. Provide instruction on alternative methods for control of urban mosquito larvae (emphasis on source reduction).

SCHEDULE/ACTIVITY PLAN:

1. Briefing with VBC.
2. Briefing with USAID and DOMC.
3. Presentation of short-course at NIMRT (including demonstrations).
4. Review of current control strategies in Lahore and Karachi.
5. Recommendations for effective use of ULV and source reduction in Lahore and Karachi.
6. Write report on activities.
7. Debrief with USAID.
8. Debrief with VBC.

PERSONNEL/SKILLS REQUIRED:

Medical Entomologist  
Vector Control Specialist

PROPOSED PERSONNEL:

Dr. Charles Schaefer  
Mr. Alan Inman

**FOLLOW-UP ACTIVITIES:**

**S&T CONTACT:**

**APPROVED:**

**LEVEL OF EFFORT IN DAYS: 23 person  
days**

**BY WHOM:** \_\_\_\_\_ **FY 89/TOTAL: \$22,286**

**DATE:** \_\_\_\_\_ **TOTAL COST:**

VBC FY 1989

ACTIVITY: AR-118-4

ACTIVITY SHEET

BUREAU: ANE  
COUNTRY: Pakistan  
QUARTER:  
DATE: BEGIN:  
FIELD VISIT:  
END:

ACTIVITY MANAGER: Lacey/Arata

TITLE OF ACTIVITY: Technical Assistance in Operational Research Issues

ORIGIN OF ACTIVITY: Islamabad

AUDIENCE: Personnel of NIMRT and Provincial and National (DOMC) Malaria Programs.

LOCATION: NIMRT, Lahore, Pakistan

OBJECTIVES:

1. Provide guidelines on purpose, basic design and implementation of Operational Research in Malaria Control;
2. Review on going research efforts.
3. Help to develop future research agenda.

SCHEDULE/ACTIVITY PLAN:

1. Briefing with VBC.
2. Briefing with USAID and DOMC on malaria control program.
3. Presentation of seminar on design, philosophy and implementation of operational research (Lahore).
4. Review of on-going operational research at NIMRT and, if appropriate, at provincial malaria control offices.
5. At NIMRT and/or Islamabad help develop future research agenda for malaria control efforts.
6. Produce written report of activities and findings.
7. Debriefing with USAID.
8. Debriefing with VBC.

PERSONNEL/SKILLS REQUIRED:

Senior Medical Entomologist

PROPOSED PERSONNEL:

Dr. Robert Washino

**FOLLOW-UP ACTIVITIES:**

**S&T CONTACT:**

**APPROVED:**

**LEVEL OF EFFORT IN DAYS: 20**

**BY WHOM:** \_\_\_\_\_ **FY 89/TOTAL: \$15,626**

**DATE:** \_\_\_\_\_ **TOTAL COST:**

VBC FY 1989

ACTIVITY: AR-119-4

CODE:

ACTIVITY SHEET

BUREAU:  
COUNTRY: Pakistan  
QUARTER:  
DATE: BEGIN:  
FIELD VISIT:  
END:

ACTIVITY MANAGER: A. Arata/L. Lacey

TITLE OF ACTIVITY: Evaluation of Safe Handling of Malathion

ORIGIN OF ACTIVITY: USAID/Islamabad

AUDIENCE: USAID/Islamabad and MOH/GOP

LOCATION: Pakistan

OBJECTIVES: To evaluate how Directorate of Malaria Control (DOMC) handles malathion used in malaria control and compliance with recommendations of EA (1988).

SCHEDULE/ACTIVITY PLAN:

TBD - May 1989 date

Proposed to USAID/Islamabad to be within one year from date of EA.

PERSONNEL/SKILLS REQUIRED:

Experienced malaria control manager; Pakistan experience; familiarity with safe use of pesticide practices and training in same.

PROPOSED PERSONNEL:

Dr. Jesse Hobbs

FOLLOW-UP ACTIVITIES:

To be determined

15

50

S&T CONTACT:

APPROVED:

LEVEL OF EFFORT IN DAYS: 25

BY WHOM: \_\_\_\_\_ FY 89/TOTAL: \$18,010

DATE: \_\_\_\_\_ TOTAL COST:

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