



INTER-REGIONAL SEMINAR ON
ANTI-LARVAL OPERATIONS

Alexandria/Cairo/Asswan/Abu Simbel
3 - 21 July 1972

IR/SEM.ANT.LARV.OPR/38.2

ORIGINAL: ENGLISH

19 June 1972

PRESENT STATUS OF LARVICIDING OPERATION
IN KABUL CITY
AFGHANISTAN

by

M.A. Karimzad
Assistant Regional Director
Central Eastern Region
Afghanistan

Introduction

The antimalarial operation, especially anti-larval activities, in Afghanistan dates back to 1947-48, in the northern region in Pulikhumri town, where industrialization was first attempted on a large scale, the morbidity and mortality caused by malaria were indeed stumbling blocks. The epidemics of malaria among labourers very seriously affected the advancement of industrialization. It was in this context that malaria control began to be adopted in the country for the first time. Based on the result of malariometric surveys conducted by a nucleus of staff, the hyper-meso endemic areas were brought under control and the programme was expanded. From 1947 - 1951 our larviciding activities were concentrated on canalization, drainage and dried-up drainage systems only in Pulikhumri. After 1951, larviciding expanded to Kabul and Kandahar cities where it is still continuing using the same system. In this statement I will present only the larviciding operation in Kabul, the capital of Afghanistan.

Geography

Kabul city is situated in Kabul valley at the altitude of 1 850 metres, and is surrounded by relatively high ground in the north, south and west, with lower ground on the east. It covers a total area of about 120 sq. kms.

Climate

Four well defined seasons are observed in Kabul city. These are: Spring, from March to May; Summer, from June to August; Autumn, from September to November; and Winter from December to February.

Temperature

<u>season</u>	<u>Av. Max. C°</u>	<u>Av. Min. C°</u>
Spring	21.0	7.0
Summer	35.0	15
Autumn	17.1	5
Winter	8.7	-5

Rainfall

Normally observed during the months of March, April and May with the total precipitation of 250 - 300 mm/annum.

Humidity

<u>season</u>	<u>Av. Max.</u>	<u>Av. Min.</u>
Spring	95%	75%
Summer	60%	40%
Autumn	70%	50%
Winter	95%	80%

Population

The estimated population, Kabul, is about 650 000, about 80 per cent of whom live in urban areas and 20 per cent in suburban areas included in Kabul city. The occupation of 90 per cent of population is government employee, private employee, shopkeepers etc. the remaining 10 per cent being agriculture workers of farmers.

Water sources

Kabul is intercepted by the Kabul river and the Chamchamast river which join each other inside the city. Drinking water comes from the Paghman natural springs, from drilled deep wells inside Kabul city and from dug shallow wells inside the houses.

Brief history of malaria

Before the control programme, Kabul city was meso-endemic with the predominant parasite species P.vivax. Spleen index was 21.0 per cent and parasite rate was 13.47 per cent.

Vector species

A.superpictus and A.culicifacies.

Transmission period

In Kabul city the transmission period is from mid-June till October.

Present status of larviciding operation

The total area under larviciding is 120 sq.km. The total maximum area of breeding places about 120 h.a. of which about 70 per cent are permanent and 30 per cent intermittent. Normally maximum breeding places appear during the rainy season from April - June, the minimum extent of breeding places around September. During the transmission season the extent of breeding places is around 100 h.a.

Larvicide (Formulation and dosage)

100 litres diesel oil + 1 1/2 kg. of soap.

Soap is first dissolved in five litres of water by heating and shaking, then this soapy water is added to 100 litres of diesel oil (emulsifiable concentrate).

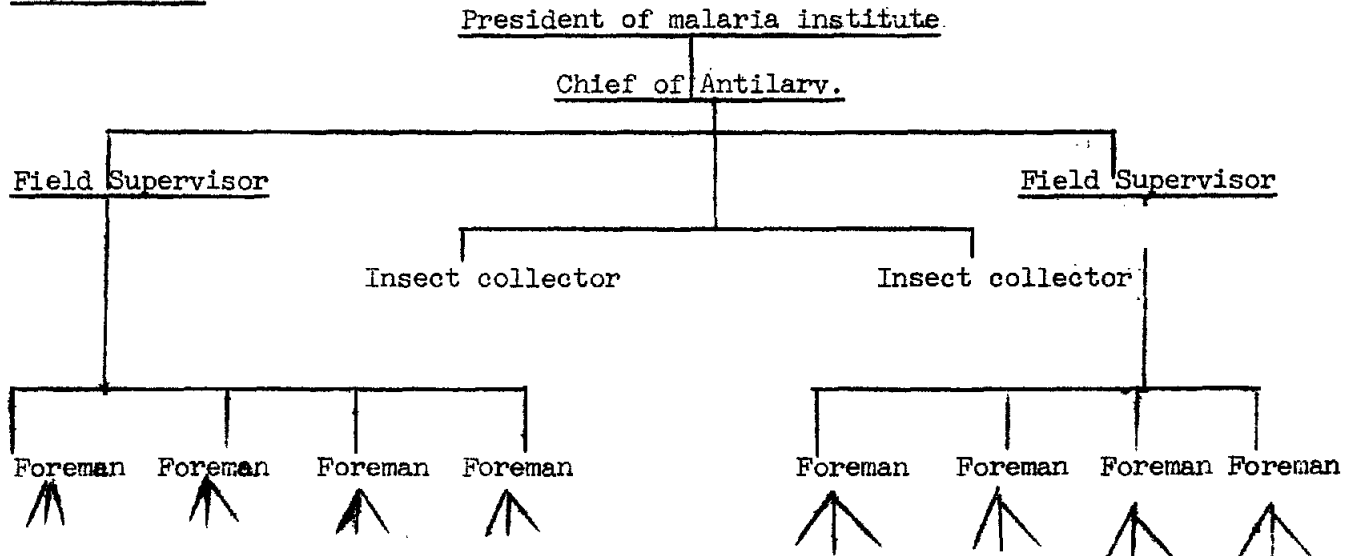
This mother solution being mixed in the field as follows:

One part emulsifiable concentrate + 2 1/2 part of water and applied at the dosage of 14 cc/3 sq.m. of water surface (4 cc oil/sq.m.). For this purpose Hudson sprayers, 2 gallons capacity with the nozzle tips of Hss-8002 are used.

Larviciding interval

The larviciding operation is repeated every week in Kabul city and one larvicider can treat an area of 4 500 - 5 000 sq.m. per working day (one working day is six hours).

Organization



Each foreman has three larviciders.

Kabul has been divided into six sections. Each group of three sections is headed by one field supervisor and each section is under responsibility of one foreman. Each foreman has three larviciders, two foremen are responsible for Kabul river and inside houses.

Transport

One pickup for transportation of personnel and emulsifiable concentrate to the field every day, which is also used by the chief of anti-larval operation for supervision, two motorcycles for each field supervisor and two bicycles for each insect collector.

Finance

There is no separate budget for anti-larval operation, the cost of larvicidal operation is paid through the budget of the malaria institute.

Operational cost

Diesel oil	4000 litres/week	22 000 Afs.
Soap	60 kg.	1 020 Afs.
Salary		5 000 Afs.
Per diem for larvicider		216 Afs.
Petrol		500 Afs.
Stationery		200 Afs.
Total weekly (Total working week is 25/year)		28 936 Afs.
Total amount/year		723 400 Afs. (9 042.5 US \$)
<u>Per capita</u>		1.1 Afs. (0.13 US \$)

Geographical Reconnaissance

A city map of 1/50 000 and smaller scale is used as operational map showing the approximate location of breeding places in general and showing areas within which breeding places exist.

Reporting system

There are special forms used in the larvicidal operation (attached to this statement) daily report forms used by the larvicider which are filled by the foreman and submitted to the supervisor, and weekly reports which are filled by field supervisors and submitted to the chief of anti-larval operations.

The third are monthly reports which are prepared by the chief of anti-larval operations. There is a permanent weekly itinerary for the larvicider and a weekly itinerary for the supervisors and foremen and also a special weekly and monthly report form for mosquito larva collection.

Evaluation

- (a) Epidemiological evaluation carried out through Passive Case Detection.
- (b) Entomological evaluation carried out through pre-treatment dipping immediately before treatment and post-treatment dipping at a regular interval, mostly 24 hours after treatment.

Remarks

At the end of this statement, it is necessary to mention that in 1971 a trial of Abate one per cent S.G. was done by Mr A Mamser (World Health Organization consultant sanitarian)* in Kunduz province from 14 June - 17 September.

This trial was for the purpose of:

- a) Studying the effectivity of Abate 1 per cent sand core granules against mosquito larva of A.hyrceanus and A.pulcherrimus in rice fields.
- b) To determine the duration of residual action of different dosages of Abate tested.
- c) To study the efficiency of Abate as a larviciding tool in the National Malaria Eradication Programme. The dosages of Abate one per cent tested were:
 - 1. 0.05 kg. a.i. (Abate 1% S.G.)/h.a.
 - 2. 0.11 kg. a.i. /h.a.
 - 3. 0.22 kg. a.i. /h.a.

Results of the trial were:

- a) 0.05 kg. a.i./h.a. gave a residual action against larva of the two species for 7.13 days average.
- b) 0.11 kg. a.i./h.a. gave a residual action for 9.72 days.
- c) 0.22 kg. a.i./h.a. gave a residual action for 10.4 days.

* EM/MAL/109, Afghanistan-2001/R, April 1972.

According to Mr Mamser, Abate 1 per cent S.G. can be introduced as an effective attack measure in a Malaria Eradication Programme and he suggests a 100 grms. a.i. of Abate 1 per cent S.G./h.a./week used in rice-growing fields to obtain the required results.

Also in 1971 for the first time Gambusia fish were introduced in Kunduz province by Russians and in the beginning of 1972 Gambusia fish were distributed from Kunduz to Nangarhar and Khost provinces but the result of this trial is still under study.

IR/SEM.ANT.LARV.OPR/39.2

Name:
Zone No.

Daily Report of the Larvioider

Date-From:

H.M.E.P
Afghanistan
To:

Days	gallon of emulsion consumed	liters of solar oil consumed	sq. met. of water surfaces treated	Remarks
Saturday				
Sunday				
Monday				
Tuesday				
Wednesday				
Thursday				
Total				

To be prepared by the forman

IN/MDI-INT-IAW-007/79.2

R.M.B.P

Weekly Report of the Mosquito Larvae Collection for Supv./ Foreman Afghanistan

Date	Name of mosquito breeding places checked	No. of dips of water surfaces examined	No. of dips		No. of an. larvae collected	No. of an. larvae 1.2 3.4 pupae
			Round	positive		
Saturday						
Sunday						
Monday						
Tuesday						
Wednesday						
Thursday						
Total						

IR/SEN.ANT.LAW.OPR/39.2

N.M.E.P

Afghanistan

A Permanent Weekly Itinerary for the Larvicider

Name :

Zone No. :

	From 8 to 10 a.m.	From 10 to 12 a.m.	12 + 1 lunch	From 1 to 3 p.m.	Remarks
Saturday					
Sunday					
Monday					
Tuesday					
Wednesday					
Thursday					

This itinerary must be prepared by the forman

Weekly Itinerary of the Supervisor/Foreman

N.M.E.P
Afghanistan

Name:

DATE	Before noon		After noon		REMARKS
	Breeding places to be checked	Larviciders to be supervised	Breeding places to be checked	Larviciders to be supervised	
Saturday					
Sunday					
Monday					
Tuesday					
Wednesday					
Thursday					

* to be prepared by the Supervisor/Foreman

