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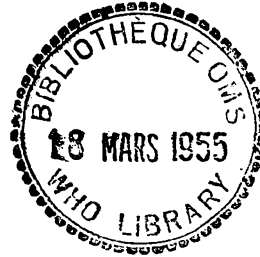
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MALARIA CONFERENCE FOR THE WESTERN  
PACIFIC AND SOUTH-EAST ASIA REGIONS



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The Secretary of the Expert Committee on Malaria  
has the honour to communicate hereunder  
the following note:

TRAINING

by

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(Item 6 of the Provisional Agenda)

Many instances are on record where spasmodic attempts at malaria control have proved to be disastrous failures. Consequently, it has now been fully recognized that all antimalaria schemes should be organized on a permanent basis. For large-scale state-wide or nation-wide malaria control programmes, funds, men and material are required in suitable proportions. Even though funds may be forthcoming, and experts and materials may be provided as aids from international agencies like the WHO, UNICEF, FOA, etc., the main responsibility for the successful conduct of such programmes will rest on the local personnel.

In order to attract suitable personnel of all categories in sufficient numbers for these programmes in countries of the South-East Asia and South-West Pacific regions, continuity of service is all-important, which can only be ensured by the provision of adequate status, salary and accommodation for all members of the staff so that they may not be on the look-out for more lucrative appointments elsewhere. It is essential that personnel employed should be trained and made fully conversant with modern methods of malaria control so that the programmes may be executed not only expeditiously but economically and in a co-ordinated fashion.

Keeping all this in view the question of training of malaria control personnel was discussed in some detail at the first Asian malaria conference held under the auspices of the World Health Organization at Bangkok in September 1953.

The first recommendation of the conference in this connexion was "that governments endeavour to provide suitable training to adequate numbers of malaria control personnel at all levels". Such personnel may include malariologists, entomologists, sanitarians (malaria engineers), malaria inspectors, malaria supervisors, laboratory technicians, spraying foremen or mates - superior field workers - and finally the spraying squads - field workers. The resolution and recommendations of the conference were as follows:

#### The Conference

Having considered the importance that should be given to training programmes necessary for the implementation of malaria control plans, and,

Having discussed possible role of WHO as regards this training

#### RECOMMENDS

- (1) that governments endeavour to provide suitable training to adequate numbers of malaria control personnel of all levels;
- (2) that WHO explore the possibility of convening periodic meetings on the organizational and technical aspects of malaria control which would provide an excellent medium for an interchange of ideas and experiences;
- (3) that WHO assist governments in training local malaria control personnel by providing fellowships, visiting lecturers or consultants, and regional malaria training centres, by supplying books and teaching equipment and materials, and by disseminating information on methods and techniques being used in various countries.

With a view to ascertaining the present-day position of the facilities for training of malaria control personnel in different countries of the two regions, the following questionnaire, based on item 6 of the provisional agenda for the WHO Malaria Conference for Western Pacific and South-East Asia regions to be held in Taipei in November 1954 was circulated:

- (1) Estimates of numbers of trained personnel of various categories required year by year in planned programmes.
- (2) How these needs can be met? The numbers and categories of personnel that can be trained in each country year by year, if it is proposed to send out some senior personnel for training abroad their numbers and categories with the arrangements for training envisaged be indicated.

(3) If facilities exist in the country for training of personnel from other member countries, the numbers and categories of personnel that can be so accommodated for training each year.

In addition, opinions and suggestions in general terms, regarding the type and extent of training necessary for the malaria control personnel of different categories, were also invited. The following observations are mainly based on the replies received:

It appears that not many countries have any regular training centre especially for the higher grade personnel like malariologist, entomologist or sanitarian except that which exists at the Malaria Institute of India, Delhi. In Ceylon, a centre was developed to train medical officers and entomologists who are given local elementary training which is more or less adequate to carry on their routine duties under guidance and supervision. Malaria inspectors, minor supervisors, laboratory technicians, mosquito collectors and spraying squads required for their nation-wide campaign, were trained at the local centres or the headquarters and Kurunegala.

Recently some other countries, notably Thailand, Burma, Philippines, Taiwan and Afghanistan, have also started centres for training of local personnel. Most of these centres have been started by the WHO malaria control demonstration teams working there, although the training facilities for higher grade personnel are mostly preliminary and trainees are required to be sent to other countries.

Details of estimates of trained personnel of various categories required year by year in planned programmes and training facilities available country-wise, are given below:

AFGHANISTAN\*

The following personnel are required during 1954 and 1955:

	<u>1954</u>	<u>1955</u>
Malaria officers	3	4
Malaria inspectors	20	25

A ten-week training course is conducted for inspectors and technicians. So far eight malaria officers have been sent to the Malaria Institute of India, Delhi,

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\* Reply to questionnaire not yet received.

for training on WHO fellowship or Government expense. It is likely that this procedure will continue. Due to acute shortage of medical officers science graduates are proposed to be trained as malaria officers. Other personnel are also expected to be trained for the rapid expansion of the programme with WHO/UNICEF assistance.

BURMA

The following personnel are required for training year by year:

	1954-55			1955-56			1956-57		
	Trg.	Apt.	Tot.	Trg.	Apt.	Tot.	Trg.	Apt.	Tot.
Chief malariologists	-	1	1	-	1	1	-	1	1
Malariologists	-	1	1	-	1	1	-	3	3
Asst. malariologists	-	7	7	2	7	9	3	7	10
Senior entomologists	2	-	2	1	1	2	-	2	2
Entomologists	-	7	7	-	7	7	-	7	7
Sanitarians	-	1	1	-	1	1	-	1	1
Malaria inspectors	14	48	62	12	62	74	-	74	74
Laboratory technicians	-	8	8	-	8	8	-	8	8

The WHO malaria control and training team at Maymyo have facilities for giving training to the following categories of personnel:

- Assistant malariologist
- Entomologist
- Malaria assistant
- Entomological assistant
- Malaria inspector
- Laboratory technician

Duration of the course is six months for all.

Assistant malariologists, entomologists, malaria inspectors and laboratory technicians have also been trained at Taunggyi and/or Lashio. Later, when international assistance is withdrawn, the training functions will be taken over by the Central Malaria Organisation. It is envisaged that assistant malariologists after four years' service will have opportunities of attending a course at the Malaria Institute of India, before being considered for promotion to the post of malariologist. So far 19 malaria officers and two malaria inspectors have received training at the Malaria Institute of India, Delhi, on WHO fellowship or Government expense.

## CEYLON

As a result of a nation-wide programme, malaria in Ceylon is now well under control. In fact there is a process of withdrawing some of the control units though there will be a need for vigilance staff all over the country.

Facilities exist for elementary training in malariology of medical officers and entomologists. Inspectors, supervisors, technicians, etc., are given training locally at the headquarters and at the training centre at Kurunegala.

Four medical officers and an entomologist from Ceylon need fellowships for study and further training abroad under the auspices of the WHO or Colombo Plan.

## FRENCH INDIA

Malaria incidence is generally very low and neither nation-wide campaign nor special training of staff are proposed.

## INDIA

### Training facilities available at the Malaria Institute of India, Delhi

Three types of courses in malariology are held at the Institute and no tuition fees are charged from the students:

1. Post-graduate course in malariology for medical officers: The very first course was conducted at Amritsar (Punjab) by Captain (now Colonel Sir Rickard) Christophers in 1910 and three more courses were held there by 1912. Four more courses were held in Delhi till 1914 when there was a hiatus during the period of the first world war. These courses were held more regularly each year since 1927 when the Malaria Survey of India (the previous designation of the Malaria Institute of India) was founded. During the second world war a large number of courses were held to meet increasing demands for antimalaria personnel with the duration of the course reduced from six to four weeks.

The scope of the course was enlarged in 1949. An annual course lasting 12 weeks is held during February, March and April. It consists of 80 or more lectures (each of one hour) and about 250 hours of practical work both in the laboratories and in the field.

The subjects taught include identification and dissection of mosquitos and their larvae; bionomics of mosquitos, especially the malaria-carrying anophelines; haematology; immunology, pathology; protozoology and epidemiology of malaria;

modern methods of investigating and measuring the extent of malaria incidence; chemotherapy and chemoprophylaxis and other principles and practices of control measures.

The programme includes at least three practical demonstrations in field work in hyperendemic areas and visits to irrigation and multipurpose river valley projects.

In recent years the material obtained from study of mammalian and bird malaria has been found most useful and special stress is laid on the various aspects of residual insecticidal operations in the laboratory, as well as in the field.

Since 1927, nearly 1,200 officers have received training. The majority of the trainees are drawn from the public-health departments of different states, from the defence services, railways, local bodies and industrial concerns in India. Others who have received training include 197 British officers attached to the Indian Armed Forces, medical officers from Afghanistan, Burma, Ceylon, China, Iraq, Nepal, Portuguese India, Thailand and the USA. In recent years a large number of trainees have been nominated by the WHO.

The number of students in relation to the space available in the laboratories is limited to 30 at a time. The course is comprehensive and students who pass through it are in a position themselves to train subordinate antimalaria personnel in practical field methods.

A practical written and viva voce examination is held at the end of the course and certificates are issued to successful candidates.

2. Malaria course for engineers: In 1937, an international conference on rural hygiene in Java, convened by the Health Organization of the League of Nations, recommended the institution of courses of instruction in the fundamental principles of antimalaria sanitation for engineers in view of the devastations caused by "man-made malaria". Two courses were held in Malaya in 1939 and 1940 and Sir Gordon Covell organized similar courses in malariology for engineers in Delhi and two courses were held in 1940 and one in 1941. None could be held during the war years. The courses were revived in 1946 and in all more than 200 engineers have been given training.

The object of this course is to give a general idea of the factors concerned in the transmission of malaria and of the principles underlying modern methods of malaria control. It is endeavoured to show how certain engineering details of trivial nature are important to the malariologists and how slight modifications in the construction of major works may make all the difference to the success or failure of a scheme from the antimalaria point of view. The duration of the course is 10 days.

3. Malaria course for inspectors: One to four courses each of four weeks' duration are held each year. Training is given in elementary principles of malaria and stress is laid on practical work. It consists of 30 or more lectures (one hour each) and about 100 hours of laboratory and field work and demonstrations. So far more than 500 inspectors have undergone training. An examination is held at the end of the course and certificates issued to successful students.

Besides the Malaria Institute of India, the States of Bombay, Madras, Mysore and West Bengal have now set up training centres and the malariologists and entomologists are usually sent for further training at the Malaria Institute of India.

Besides, training is imparted to technical subordinate personnel, such as laboratory assistants, laboratory attendants and insect collectors and a short course of lecture-demonstration to I.A.S. trainees and medical undergraduates.

Another point which must be borne in mind for the success of the scheme is the education of Government officials, employers of labour, engineers in all branches and of the general public, in the basic principles of antimalaria sanitation.

The national malaria control programme was inaugurated in India in April 1953 and 90 control units, each designed to protect one million population, were formed. Personnel required for the 90 units were as follows:

1953-54

Malaria medical officers...	90
Senior malaria inspectors..	360
Malaria inspectors.....	360
Superior field workers.....	2,070
Field workers.....	10,800

Some of the States in India participating in the Programme already had regular malaria control organizations with trained personnel.

In 1954-55, the number of control units is being increased to 125 to protect a total of 125 million people. The additional personnel required is as follows:

Malaria medical officers...	35
Senior malaria inspectors..	140
Malaria inspectors.....	140
Superior field workers.....	805
Field workers.....	4,200

It is already under consideration to expand the Programme by 11 units during 1954-55. This expansion will necessitate training arrangements being made for the following additional personnel:

Malaria medical officers...	11
Senior malaria inspectors..	44
Malaria inspectors.....	44
Superior field workers.....	253
Field workers.....	1,320

It is likely that the Programme may be further extended by 20 units in 1955. The additional personnel that would require to be trained for these twenty units will be:

Malaria medical officers...	20
Senior malaria inspectors..	80
Malaria inspectors.....	80
Superior field workers.....	460
Field workers.....	2,400

Generally speaking, the malaria medical officers and entomologists from States are trained at the Malaria Institute and also senior malaria inspectors and malaria inspectors from States that do not have any training facilities for them.

The spraying squads are or will be trained by the Unit malaria medical officer.

The entire problem of malaria control in India involving the functioning of 200 units in all will be taken up in the next five-year plan. The remaining personnel plus any reserve whose training may have to be arranged for in 1956 will be:

Malaria medical officers...	44	plus	20	reserve
Senior malaria inspectors..	176	"	18	"
Malaria inspectors.....	176	"	18	"
Superior field workers.....	1,012	"	101	"
Field workers.....	5,280	"	528	"

INDONESIA\*

Personnel required have not yet been fully estimated. Training facilities are available but there is said to be a lack of enthusiasm on the part of the members of the medical profession to come forward for public-health and malaria control work.

NEPAL

An antimalaria organization in Nepal is being set up and the following personnel need to be trained:

	<u>1955-56</u>	<u>1956-57</u>	<u>1957-58</u>
Malariologist.....	1	-	-
Entomologist.....	1	-	-
Senior malaria inspectors..	2	2	1
Junior malaria inspectors..	10	6	6
Laboratory assistants.....	2	2	2
Foremen spraying.....	30	30	30
Sprayers and mixers.....	240	240	240

Malariologist, entomologist, inspectors and laboratory assistants can be trained at the Malaria Institute of India, Delhi, as there are no facilities for the training of personnel locally other than for foremen (superior field workers) and sprayers and mixers (field workers). Two medical officers and 13 malaria inspectors received training in malariology at the Malaria Institute of India, Delhi, so far.

PORTUGUESE INDIA

There being no training facility in Portuguese India, malariologists and entomologists have to be trained abroad. Two Portuguese doctors have been

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\* Reply to questionnaire not yet received.

trained in malariology at the Malaria Institute of India. Supervisors and technicians can be trained by the malariologists locally.

#### THAILAND\*

The programme is already said to be near the top level. Adequate training facilities for assistants, foremen and spraymen are available. Some more medical officers and technical assistants will have to be trained for expansion of the programme and will be trained at Chiengmal School, which will also provide refresher courses. Fellowships and travel grants are considered necessary for some of the senior personnel like medical officers. Nine medical officers and two malaria inspectors have so far received training in malariology at the Malaria Institute of India, Delhi.

#### MALAYA

At present, about 600 in all, excluding spraying labourers, require training.

There is no central training centre in the Federation of Malaya but a proposal is under active consideration. A few inspectors and insect collectors are trained at the Institute for Medical Research by apprentice methods and short courses are held for medical officers and health inspectors in limited numbers.

#### NETHERLANDS NEW GUINEA

Population is small and scattered in jungle areas. Personnel required during 1954 and for the five-year programme are:

	<u>1954</u>	<u>5-year</u> <u>programme</u>	<u>Remarks</u>
(a) Senior malariologists...	1	1	) With university degree
Malariologists.....	1	1	
Entomologists.....	-	1	
Sanitary engineers.....	-	1	
(b) Malaria inspectors.....	2	4	
(c) Laboratory technicians..	10	15	
(d) Spraying squads.....	5	8	
Supervisors.....	6	10	
Squad labour.....	30-40	60-70	

\* Reply to questionnaire not yet received.

Personnel with a degree (category (a)) will receive training in one of the tropical diseases institutes in the Netherlands and further training with the WHO fellowships. For group (b) persons with diploma of laboratory assistants in the Netherlands with training in tropical diseases will be chosen for further training with the WHO assistance. Group (c) will be trained in New Guinea for three years and group (d) by the team leaders.

#### PHILIPPINES

Yearly estimates of personnel requirements under the Philippine-American Plan for malaria control are:

Malariologists.....	10
Malaria engineers..	10
Technicians.....	50

Although candidates for malaria engineers and technicians are forthcoming in suitable numbers, malariologists and malaria medical officers are not coming forward and even some of those already employed leave after a short time.

The training centre can accommodate the following categories of personnel every quarter:

Malariologists.....	10
Malaria engineers..	5
Technicians	
not exceeding....	30
but probably.....	20

It has been suggested that one each of the senior personnel (malariologist, entomologist, biologist and malaria engineer) be sent abroad from time to time for study and training at the following centres:

Malaria Institute of India, Delhi  
Malaria Division, Department of Health, Venezuela  
London School of Tropical Medicine and Hygiene  
Laboratory of Tropical Diseases, Columbia  
Institute for Medical Research, Kuala Lumpur  
Communicable Diseases Centre, Technical Development Laboratories,  
Savannah, USA.

The malaria training centre in the Philippines is said to be fully equipped to train candidates from other countries and may be developed into a Malaria Institute to serve other countries in the Far East.

#### TAIWAN

A four-year malaria control programme in Taiwan was started in January 1952 with the help of M.S.A. Mission to China and the WHO. The developments were as follows:

<u>Year</u>	<u>People protected or to be protected</u>
1952	150,000
1953	1,500,000
1954-55	5,400,000

Higher grade personnel have already been trained abroad under the auspices of the WHO, Rockefeller Foundation and other fellowships and more may be expected. Foremen and sprayers (operators) are trained at the Malaria Institute, Taiwan and by the WHO team there.

#### VIET-NAM

The training programme for malaria control personnel has not developed much.

Due to the war and consequent uncertainties, only brief refresher courses were held for 15-20 technicians each in Central Viet-Nam and South Viet-Nam. It is hoped that better facilities will materialize in the near future. No details of requirements are available.

#### OTHER COUNTRIES

There is as yet no information on malaria control organizations or training facilities in Cambodia, Laos, North Borneo, Brunel, Sarawak and New Guinea.

It will be seen from the foregoing paragraphs that there is an urgent need to augment training facilities where they exist and inaugurate as many training centres wherever possible. The form of assistance which the countries in both the South-East Asia and South-West Pacific regions can receive from the WHO is contained in the recommendations concerning Training of the report of the First Asian Malaria Conference held in Bangkok from 21 to 24 September 1953, on page 127 of the "WHO Chronicle", volume 8. It is hoped that all member countries will take full advantage of these facilities in developing their malaria control organizations as well as training centres.

In the meantime, training facilities available at the Malaria Institute of India, Delhi, which has been assisted with laboratory equipment by the WHO, may be utilized to the maximum.