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MALARIA ERADICATION PROGRAMMES IN THE EASTERN MEDITERRANEAN REGION

TABLE OF CONTENTS

I INTRODUCTION

The world-wide campaign aimed at eradicating malaria, the old scourge which, ever since historic times has represented one of the main handicaps to the development of countries situated in the temperate or tropical belts, is steadily progressing in the affected areas. The advances reported from all Regions of WHO, as well as the initiation of new programmes and the development of tactics and new approaches based on the experience gained during the last years, all testify that this gigantic scheme is dynamically progressing towards final success.

The benefits already gained in countries where the programmes are in advanced stages are enormous, and most certainly worth the effort and money put into the enterprise. In addition, the acceptance of the policy by countries which are now in the initial stages has given a new importance to the development of the health services, particularly in their rural sectors. This huge global effort has called not only for the mobilization of national resources, but also for close cooperation between countries regardless of political borders.

II STATUS OF MALARIA ERADICATION PROGRAMMES IN THE REGION

Out of the 212 million people inhabiting the twenty-five countries or territories of the Eastern Mediterranean Region, 171 million live in areas which were, or still are, malarious. The countries with a high proportion of this population are those where malaria eradication campaigns have only recently started, such as Pakistan which alone accounts for 52% of the total population under risk in the Region, or where pre-eradication programmes are in operation, such as in Ethiopia, Somalia and Sudan. On the other hand, the successes achieved during the last few years in the countries where programmes were initiated soon after the resolution of the Eighth World Health Assembly, are being consolidated.

It is encouraging to note that the Governments concerned now realize the danger of possible reintroduction of the disease from other countries where the infection is still present and plan for measures to forestall or counteract it. This problem requires careful planning and application of rigid measures in view of the enormous expansion of the transportation and communication facilities between countries, which consequently increases the possibility of

spread or importation of infection from areas still infected into the malaria freed areas. This danger has already been confirmed by the occurence in recent years of malaria epidemics in some countries of the Region, and is still present as high endemicity still prevails in others.

Table 1, (Annex II) shows the situation of Malaria Eradication Programmes as of the end of 1962 in the various countries of the Region grouped in four distinct categories:

1) Countries at present free from malaria, including Kuwait, from where no indigenous case of malaria has been reported in the past, and Cyprus, French Somaliland, Aden Colony and Gaza Strip, where the disease has already been eliminated. The total population involved is 1.4 million, representing 0.82% of the total population at risk in the Region.

2) Countries with Eradication Programmes, comprising Iran, Iraq, Israel, Jordan, Lebanon, Libya, Pakistan and Syria where the population actually covered by eradication measures amounts to 27.9 million, i.e. 16.3% of the Region's population at risk. Two other countries, Tunisia and the United Arab Republic with 30.2 million population, are considered to be in the preparatory phase.

3) Countries implementing or planning a pre-eradication programme include Ethiopia, Saudi Arabia, Somalia, the Sudan and Yemen. The population involved is 31.4 million, amounting to 18.4% of the Region's population at risk.

4) Countries or territories yet uncommitted to the eradication policy, but under consideration for a pre-eradication programme are: Aden Protectorate, Bahrein, Muscat, Qatar and Trucial Oman. Their total population is 1.5 million.

III ACTIVITIES CARRIED OUT DURING 1962/1963

1. Planning

Comprehensive Plans of Operation have been developed, or are being finalized, for every programme in the Region. These plans usually consist of an agreement part with annexes, including a Plan of Action. The annexes contain all the necessary background information on geographical and socio-economic conditions of the country, as well as on its health organization and

plans for development. It includes also complete information on malaria, anti-malarial measures undertaken in the past, and all relevant data required for planning. A detailed Plan of Action for the following year forms an essential part of the annex together with a forecast of activities in future years until the completion of the programme. While the first part remains practically unchanged, the second part is liable to changes and modification, and every year a new Plan of Action in respect of the coming year's programme is proposed. The Plans of Action are prepared every year on the basis of the latest assessement of the epidemiological, operational and administrative aspects of the programme. There is, therefore, a routine planning activity taking place regularly every year, (and another one undertaken at the launching of a new programme) or when special circumstances require an overhauling of the comprehensive plan.

New comprehensive plans, have, for instance, been recently developed for Iran, where changes in local conditions and programme strategy required a fundamental revision of the original plan. Also, new plans have been prepared for Ethiopia, Saudi Arabia, Somalia and the Sudan. In addition to this, a general review which began during the year will continue with the aim of including in the plans of operation provisions for development of an adequate rural health framework for the maintenance of the results, and of the merger of the Malaria Eradication Service with the Rural Health Services. These subjects are naturally already included and fully programmed in the new comprehensive plans prepared for the countries having accepted the pre-eradication policy.

A forecast has been made, in compliance with Resolution WHA15.20 of the Fifteeth World Health Assembly, of the requirements in the next ten years for the acceleration of the malaria eradication programmes. This estimation includes direct assistance to some of the existing programmes and to new pre-eradication programmes. It also includes strengthening of WHO advisory services in all pre-eradication programmes as well as in some of the eradication programmes where need is felt.

2. Financing

Table 5, (Annex II) shows the funds allocated to anti-malaria programmes in the countries of the Region during 1962, whether from the Government sources or from international and bilateral agencies, as well as the estimated sums

for the 1963 activities. According to the 1962 budget, the Government commitments amounted to US $15.6 millions, as compared with US $4.1 millions contributed by subsidizing agencies (20.8%).

From 1957 until the end of 1961 the WHO malaria eradication activities were mainly financed through the Malaria Eradication Special Account (MESA), but following the Resolution of the Fourteenth World Health Assembly (WHA14.15), the costs of the field programme have been in the process of being incorporated into the Regular Budget by stages. The total costs from 1964 onwards will come under the WHO Regular Budget.

As seen from the Programme and Budget Estimates for 1964 (Off/Rec.121), the total sum allocated during 1963 for malaria eradication activities in this Region amounts to US $910,187 representing about 20.7% of the total budget allocated under the Regular, TA and MESA funds.

The Fourteenth World Health Assembly had expressed its conviction that voluntary contributions would remain essential to the success of the Malaria Eradication programme. The Fifteenth World Health Assembly reiterated this conviction and adopted resolutions requesting the Director-General to continue his efforts towards increasing voluntary contributions and accelerating the Malaria Eradication programme.

UNICEF are continuing their assistance during 1963 to the Malaria Eradication Programmes in Iran, Iraq, Jordan, Lebanon and Syria (US $1,028,250) representing about 10% of the total UNICEF ceiling for malaria eradication.

The UNICEF Executive Board has decided to maintain the annual ceiling of US $10,000,000 for allocations to malaria programmes. On the other hand, a resolution of the WHO Executive Board at its thirty-first session calls for increased UNICEF support to malaria programmes, having taken into consideration the fact that a large portion of the allocated funds have not been spent during the last few years.

US-AID is maintaining through grants during 1963 its assistance to the malaria programmes of Ethiopia, Iran, Jordan and Libya. US-AID, apart from providing technical advisory services, is also subsidizing the local costs in Ethiopia, Jordan and Libya. In Pakistan, a loan has been granted to provide for imported supplies and equipment as well as for local costs. US-AID also provides some advisory service to the programme.

3. Staffing

Although the problem of providing an adequate number of trained personnel is particularly acute in countries with a pre-eradication programme, it is still a very important problem in advanced programmes too, where the personnel needed may be present but require further training to keep pace with the advancement of the programme in new fields, such as extended epidemiology or general health.

For this purpose, WHO is directly assisting with advisory services and financing four Malaria Eradication Training Centres in the Region. Two of these are in Pakistan, one in Ethiopia and one in the Sudan. Advisory assistance is also given to training activities in other countries, and indirect help through fellowships for study or for participation in seminars and conferences is provided. Although the training programme is on the whole progressing satisfactorily and is adequate to the immediate needs of the countries, it is felt that it will have to be further strengthened in the near future. This is due to the rapid expansion of the eradication schemes and because of the new policy of integration of services, for which malaria workers are to be trained in multi-purpose activities, and general health workers have to acquire knowledge about malaria eradication vigilance. For this purpose, the WHO staff in the field has been further strengthened during the year and provisions are made for inclusion of Public Health Advisers to help in this matter.

Two such public health advisers are being provided in 1963, one for each of the pre-eradication programmes in Ethiopia and the Sudan.

It is planned to provide more public health advisers even to eradication programmes where the maintenance phase is nearing and where the need for development of rural health services exists.

In addition, provision for four more malariologists and two sanitary engineers has also been made as from 1963.

WHO staff engaged in the field programmes of this Region during the year, are as follows: 15 malariologists; 7 entomologists; 5 sanitary engineers; 9 sanitarians; 4 administrative officers and 6 technicians. An overall of 9.5% increase over 1962.

As these activities enlarge, it is planned further to strengthen the WHO advisory staff planned under the "accelerated programme".

Besides the assignment of advisers to the new pre-eradication programmes and the filling of vacant positions in other programmes, two new posts of epidemiologists have been created, one with the Inter-Country Evaluation Team posted in Beirut and the other one in Pakistan at national level.

4. Country programmes

a) Countries with eradication programmes

The geographical block of the countries which started their eradication campaigns in 1956-57, comprising Iran, Iraq, Israel, Jordan, Lebanon and Syria, has made further advances into the consolidation phase, the completion of which is expected to be reached at the end of 1963 in the whole of Israel and Lebanon and in parts of Jordan, Iran and Iraq. In all these countries, plans have already been drawn up for the development of rural health services specially in the areas in advanced consolidation, and in Israel, these services are already available to a nearly satisfactory level. In certain areas, the consolidation phase has been prolonged beyond the normal three year period due to persisting transmission of the disease during the past years or a fear of its resuming because of inadequacy of the rural health network to ensure proper vigilance.

The active surveillance has generally attained a good degree of efficiency in the majority of these programmes and in many instances has now been adequately supported by a passive case detection system.

Among the highlights of epidemiological events during the year, in this block, it may be mentioned that the circumscribed epidemic which occured in Lebanon in October/November was caused by importation of infection. This, however, was promptly checked by the counter-measures undertaken by the malaria eradication service but showed the necessity to take precautionary measures through cooperation and coordination of activities with neighbouring countries.

In Iraq, persistence of transmission in the north-eastern part due to local causes, has also caused sporadic flare-ups and re-introduction of transmission in the areas already freed from malaria, through the considerable movement of population. Two areas, in the consolidation phase in the Central and Southern Regions (Ramadi and Basrah liwas respectively), had recrudescence of malaria. The vector A.stephensi in the South had reappeared in Basrah area in the autumn of 1961 and prevails now on a fairly high density. The overall situation at the end of 1962 revealed a slight set-back. Operational

difficulties continue in the attack phase areas in the north; threat of re-establishment of transmission in Basrah areas looms in the current year and the eradication programme, in its last stages is progressing rather haltingly with chances of temporary set-backs.

In West Jordan, it was the third year of a successful consolidation phase, with no indigenous positive case being detected and therefore the area is now gradually entering the maintenance phase. The rest of the country is in the consolidation phase. In Jordan Valley, where A.sergenti prevails, larviciding continues as a precautionary measure against any chances of re-establishment of transmission. To prevent importation of malaria through the Mecca pilgrimage, the Government has established health posts on the border with surveillance agents to check all returning pilgrims and to apply the necessary prophylactic measures.

In Syria, except for a limited number (323,000 persons) in the north, the population under risk in the country is in the consolidation phase and under constant watch of 2,014 voluntary collaborators, a feature unique to Syria. Active surveillance fills in the gaps, where the passive method has not yet been developed or where need for a double check exists.

The development of resistance in A.sacharovi in southern Turkey and the possibility of its spread into neighbouring northern regions which currently are totally in the consolidation phase, led to an inter-country meeting, which took place in Aleppo, Syria, in late April. Decisions taken concerned frequent exchanges of information and reports and coordination of entomological and epidemiological activities.

Among the countries included in the above-mentioned block, Iran is facing a number of problems in its southern zone ranging from double resistance of the vector to the nomadism and lack of operational facilities which have brought the programme almost to a stanstill. However, recovery measures have been taken to keep the situation under control and to eliminate any chances of flare-ups amongst the 2.7 million population of the area. In the meantime, research and field investigations are continued to determine the tactics and strategy to be followed.

The progress of the Pakistan programme is very encouraging, having met almost all its target dates so far and operations having been conducted satisfactorily in both wings of the country. The programme is now assisted by US-AID, a fact which relieves one of the anxieties of previous years.

Libya, where the malaria problem is a very limited one, is making progress in the implementation of the programme in the desert oases of Fezzan with some delays mainly caused by the scarcity of trained personnel and the lack of adequate authority vested in the National Malaria Eradication Service. The organization of a good passive system of case detection is therefore receiving attention in order to increase the efficiency of the service.

Tunisia and the United Arab Republic continue to be considered in the preparatory phase. The evolution of the situation is necessarily slow because of the desire of the two countries to implement the programme through their health services when the general health set-up, particularly in the rural sectors, have reached a reasonably satisfactory level.

As shown in Table II, Annex II, during 1962, out of a total population of 27.9 million protected, approximately 12.7 million were under the attack phase, 14.5 million were under the consolidation phase and about 1.4 million were in the maintenance phase. This represents noticeable progress for in the previous year, the respective figures were 21.9 million, 8.9 million, 12.7 million and 1 million.

b) Countries with pre-eradication programmes:

Ethiopia, Saudi Arabia, Somalia and the Sudan are the four countries with active pre-eradication programmes: a fifth country, Yemen, is expected to join the group, and possibly a sixth, Aden, at the end of 1963. Besides the development of an adequate rural health structure, which is the cardinal objective, and essential for the successful conduct and completion of an eradication campaign in these countries, much attention is at present being given to the training of personnel, both professional and auxiliary, for the different tasks that they will be called to perform in future years. Besides the classical training of Malaria Eradication operational personnel, new curricula have been introduced for the instruction of multi-purpose health agents who, besides malaria, may have to deal with other public health problems. In the meantime, areas previously under malaria operation in these countries, where interruption of

transmission was generally achieved during previous years, are being included in the pilot operation areas In Somalia, in the pilot operation areas, practicability of other Malaria Eradication measures are also being tested. In the four countries with operating pre-eradication programmes, 2.0 million of the population is covered by the pilot operations.

Among the various activities undertaken during 1962, the completion of the malaria survey of the Sudan must be particularly mentioned. It has shown, as expected, that hyper- and holo endemic conditions prevail in the southern regions, whereas the incidence of the disease is very low in the most northerly part of the country. It is planned to initiate, within the next two years, a malaria eradication programme in this country where the rural health network already exists at a reasonably adequate level.

5. Technical Problems and Research

Resistance to chlorinated hydro-carbon insecticides and exophagic and exophilic habits of some vector species are the technical problems of primary importance facing malaria eradication in this Region.

Among the vectors resistant to insecticides in the Region, A.stephensi continues to remain the most important one because of its wide distribution, the problem is further aggravated by other concomitant factors such as nomadism, and poor communication systems. In the southern part of Iran, the vector is resistant to both DDT and DLD in the Iranian ostans of Khuzistan, Fars and Kerman; in the Iraqi liwa of Basrah and in the Saudi Arabian Oasis of Quatif. However, this species' resistance to DDT is at an intermediate level. In Saudi Arabia and Iraq, it was observed that after discontinuation of DDT spraying in 1956 and 1958 respectively, the level of susceptibility to the insecticide began to rise to the extent that DDT spraying was resumed again in 1962. In Saudi Arabia, this spraying gave a satisfactory control of the species. The success was much less marked in Iraq. It must be mentioned, however, that increased tolerance to this insecticide has been reported to be high following the resumption of its use.

Among other vector species, A.pharoensis continues to be resistant to DLD in the Nile Delta of the United Arab Republic (where it is also highly tolerant to DDT) and in the Sennar District of the Sudan. A.fluviatilis and A.sergenti are similarly resistant to DLD in Quatif Oasis (Saudi Arabia) and in the Jordan Valley respectively.

Trials with new insecticides, namely organo-phosphorous compounds, have been conducted in Iran (Baytex) and the United Arab Republic (Malathion). Results are promising, but the general use of these products is still conditional to further studies and trials. Besides the above-mentioned two countries, trials with a new insecticide (DDVP) are going to be initiated during 1963 also in Pakistan.

The exophagy and exophily of A.fluviatilis in southern Iran have further complicated the problem created by the resistance of A.stephensi. It has been demonstrated that the spraying of premises with residual insecticides has failed to provide the desired control due to the elusive habits of this vector. A similar problem is encountered in the Sarakhs area of Khorassan province, northern Iran, caused by the exophilic habits of A.superpictus. However, in this area, residual spraying of premises and caves combined with fortnightly mass drug administration has resulted in interrupting transmission.

Other problems which are confronting the malaria eradication programmes in different countries are nomadism (Iran, Iraq, Somalia, Sudan), outdoor sleeping habits of the population (practically in all countries), difficulties in maintaining the total coverage with insecticide due to washing or re-plastering of wall surfaces and resistance of the population to spraying which in certain countries (Somalia) is due to the resistance of the bed bug. All these problems are currently under investigation.

6. Co-ordination

Close co-ordination has been maintained between country programmes by means of border meetings, conferences, study tours and exchanges of information. Thus, Iran and Iraq representatives met twice during 1962 and once already in 1963 (twice in Baghdad and once in Hamadan, Iran), so continuing the tradition of close-coordination on malaria activities between the two countries.

Pakistan acted as a host to the third Burma/India/Pakistan Malaria Eradication Co-ordination Conference, which was held in Lahore from 28 November to 1 December 1962. Pakistan also participated in the fourth Asian Malaria Conference in Manila at the end of September 1962.

Coordination Border meetings were held between Jordan and Syria during the period under review. In May, a meeting was organized between malaria personnel of Lebanon and Syria at the Syrian border.

A meeting was held in Aleppo, 29/30 April 1963, between the representatives of the Syrian and Turkish national Malaria Services when, among other subjects discussed were the problem of A.sacharovi resistance to DDT and the co-ordination of activities along the borders between the two countries.

Exchange of information between countries of the Eastern Mediterranean Region and between this Region and other Regions was maintained by the Malaria Eradication Coordination Unit of the Regional Office. Besides, the Malaria Eradication Evaluation Team (EMRO-58) stationed in Beirut, contributed much to this task and to the co-ordination of activities among countries situated in its area of operation.

Close liaison and co-ordination has been maintained with US-AID and UNICEF, both in the field as well as at the regional level.

ANNEX I

STATUS OF MALARIA ERADICATION ACTIVITIES IN THE EASTERN MEDITERRANEAN REGION - JUNE 1963

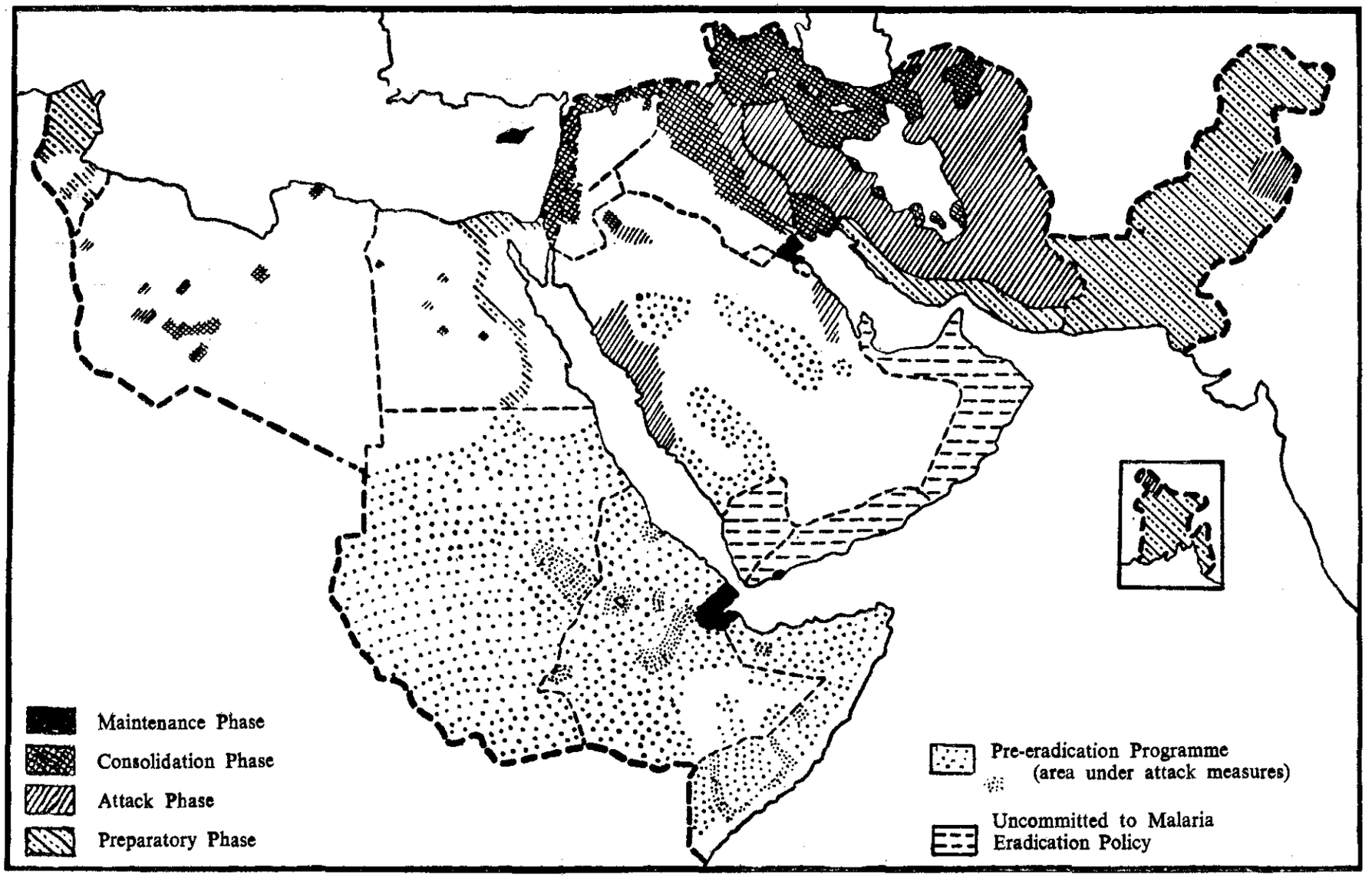

TABLE I

STATUS AND DEVELOPMENT OF MALARIA PROGRAMMES IN THE EASTERN MEDITERRANEAN COUNTRIES - 1962
(Population in thousands)

Type of Programme	Countries	Total no. of population	Population under malaria risk	Population protected by all methods	Eradication		
					Year start. attack	Year end. consolidation	Type
Malaria eradicated or originally free	Aden Colony	155	155	155	Malaria eradicated since 1950		
	Cyprus	581	581	581	Malaria eradicated since 1949		
	Fr.Somaliland	70	70	70	Malaria eradicated since 1957		
	Gaza strip	377	377	377	Malaria eradicated since 1954		
	Kuwait	219	-	-	Free from Malaria		
Total		1 402	1 183	1 183			
Eradication	Iran	21 500	15 173	13 484	1957	1971	by stages
	Iraq	7 085	4 600	4 600	1957	1964	countrywide
	Israel	2,200	2 200	2 200	1957	1963	"
	Jordan	1,700	906	906	1959	1965	"
	Lebanon	1 880	683	683	1957	1964	"
	Libya	1 250	31	31	1959	1964	"
	Pakistan	94 547	89 500	4 400	1961	1974	by stages
	Syria	4 930	1 588	1 588	1956	1964	countrywide
	Tunisia	4 168	1 914	1 914	Prepar.phase		
	U.A.R.	26 080	20,259	6 115	" "		
Total		165,340	136 854	35 921			
Pre-eradication	Ethiopia	20,000	10,000	790			
	S.Arabia	5 000	4 000	546			
	Somalia	2,030	1,776	131			
	Sudan	12 109	12 109	8 000			
Total		39 139	27 885	9 467			
Uncommitted to eradication with limited control	Aden Protect.	660	660	-			
	Bahrein	152	152	-			
	Muscat & Oman	550	550	-			
	Qatar	55	55	-			
	T.Oman	86	86	-			
	Yemen	5,000	3 500	-			
Total		6 503	5 003	-			
Grand Total		212 384	170 925	46 571			

TABLE II

PROGRESS OF MALARIA ERADICATION IN THE COUNTRIES OF EMRO
(Population in thousands)

Country	Total Population	Population under risk	1962 Activities Number of population under each phase				1963 Activities*** Number of population under each phase			
			Attack	Consol.	Maintenance	Total	Attack	Consol.	Maintenance	Total
Iran	21,500	15,173	7,484	6,000**	670*	13,484	7,671	6,063**	702*	13,734
Iraq	7,085	4,600	437	4,163	-	4,600	437	4,163	-	4,600
Israel	2,200	2,200	-	1,499	701	2,200	-	1,543	701	2,244
Jordan	1,700	906	55	851	-	906	-	700	230	930
Lebanon	1,880	683	-	683	-	683	-	697	-	697
Libya	1,250	31	6	25	-	31	6	25	-	31
Pakistan	94,547	89,500	4,400	-	-	4,400	13,903	-	-	13,903
Syria	4,930	1,588	323	1,265	-	1,588	-	1,949	-	1,949
Tunisia	4,168	1,914								
U.A.R.	26,080	20,259								
TOTAL	165,340	133,940	12,705	14,486	1,371	27,892	22,017	15,140	1,633	38,088

* Meeting epidemiological criteria for entering maintenance phase, but still kept in consolidation phase in view of deficient rural health infrastructure.

** Includes population under maintenance.

*** Estimated Figures.

TABLE III

RESIDUAL SPRAYING AND LARVICIDING IN THE COUNTRIES OF THE EASTERN MEDITERRANEAN REGION IN 1962

Country	SPRAYING						LARVICIDING			
	No. of squads	Population protected (thousands)	Insecticides				No. of squads	Population protected (thousands)	Larvicides	
			Type	Formula	Wall dosage	Amount (MT)			Name	Amount
Ethiopia	...	790	DDT	75% w.d.p.	2.0	65	-	-	-	-
Iran	400	7.484	DDT DDT	75% w.d.p. Tech.	2.0 2.0	1,300 3	-	-	-	-
Iraq	...	437	DDT	75% w.d.p.	2.0	126	-	-	-	-
Israel	...	44	DDT	5% solution in kerosene	2.0	2.3	17	2,200	Malariol Solar	170,000 Lt. 72,000 Lt.
Jordan	5	55	DDT	75% w.d.p.	2.0	12	28	255	Malariol DDT Tech.	520,000 Lt. 5,300 Kg.
Lebanon	6	24	DDT	75% w.d.p.	1.6	1	2	24	DDT 25%	670 Kg.
Libya	16	3	DDT	75% w.d.p.	2.0	0.2	-	-	-	-
West Pakistan	...	2,600	DDT DDT	75% w.d.p. 50% w.d.p.	1.0 x 2	371 3.1	-	-	-	-
East Pakistan	171	1,800	DDT	75% w.d.p.	2.0	239	...	800	...	...
Saudi Arabia	40	179	DDT	75% w.d.p.	2.3* 2.6**	26.7	31	413	Paris green DDT Susp. DDT pyr.in dies	4,821 Kg. 2,241 Kg. 1,282 Kg.

TABLE III (cont'd)

Country	SPRAYING						LARVICIDING			
	No. of squads	Population protected (thousands)	Insecticides				No. of squads	Population protected (thousands)	Larvicides	
			Type	Formula	Wall dosage	Amount (MT)			Name	Amount
Somalia	12	131	DDT	75% w.d.p.	2.0	10	-	-	-	-
Sudan	16***	8,000	DDT DDT DLD	75% w.d.p. 75% w.d.p. 50% w.d.p.	2.0 2.0 0.6	2.4*** 0.5 1.8	...	3,000	Malariol	...
Syrian Arab Republic	37	323	DDT	75% w.d.p.	2.0	59	1	3	Paris green with kerosene	100 Kg
U.A.R.	...	1,193	DDT	75% w.d.p.	2.0	127	462	4,922	Malariol Solar Malariol & DDT	407 Mt. 727 Mt 104 Mt

... Data not available

* Eastern Province Zone

** Pilgrimage Zone

*** For MEPP & MPES only

TABLE IV

Epidemiological Assessment Results in Areas under Consolidation Phase in the Eastern Mediterranean Region (1962)

Country	Population in consolidation phase (thousand)	Type of case detection	No. of slides examined	No. of slides found positive	Incidence per thousand popul.
Iran	6,000	Active Passive Total	925,504 61,441 986,945	1653 860 2513	.419
Iraq	4,163	Active Passive Total	332,146 46,143 378,289	202 184 386	.093
Israel	1,499	Active Passive Total	26,621 12,579 39,200	19 21 40	.027
Jordan*	851	Active Passive Total	69,440 13,160 82,600	136 101 237	.278
Lebanon	683	Active Passive Total	71,874 31,191 103,065	124 47 171	.250
Libya	25	Active Passive Total	5,785 402 6,187	9 9 18	.720
Saudi Arabia	12	Active Passive Total	4,530 - 4,530	5 - 5	.417
Syria	1,265	Active Passive Total	61,863 21,033 82,896	14 18 32	.025
Total	14,498		1,683,712	3402	.235

*Data up to the end of November 1962

TABLE IV (cont'd)

Epidemiological Assessment Results in Areas under Consolidation Phase in the Eastern Mediterranean Region (1962)

ountry	Species of malaria parasites				No. of cases epidem. invest.	Origin of Infection					
	P.vivax	P.falcipar.	P.mal.	Mixed		Indigenous	Import.	Relapse	Induced	Introduced	Unclassified
ran	2003	453	42	15	2513	345	147	576	-	33	1412
raq	282	47	51	6	386	284	97	4	-	-	1
srael	22	15	3	-	40	5	31	3	1	-	-
ordan*	231	1	4	1	237	183	17	34	-	-	3
ebanon	85	1	79	6	171	94	7	59	11	-	-
ibya	5	13	-	-	18	11	1	-	-	-	6
audi rabia	4	1	-	-	5	-	4	1	-	-	-
yria	32	-	-	-	32	2	19	6	-	-	5
otal	2664	531	179	28	3402	924	323	683	12	33	1427

* Data up to the end of November 1962.

TABLE V

Funds allocated to anti-malaria Programmes in US $

Country	1962					1963				
	Government	WHO	UNICEF	AID	Total	Government	WHO	UNICEF	AID	Total
Ethiopia	60,386	81,759	-	158,212	300,357	180,000	87,994	-	462,400	730,394
Iran	8,670,000	93,902	850,000	200,000	9,813,902	8,270,000	57,447	855,000	168,000	9,350,447
Iraq	560,000	58,165	185,000	-	803,165	840,000	54,571	119,000	-	1,013,571
Israel	179,700	14,800	-	-	194,500	179,700	4,800	-	-	184,500
Jordan	140,000	35,585	23,000	173,000	371,585	210,025	17,760	18,000	156,500	402,285
Lebanon	165,000	19,130	4,200	-	188,330	165,000	500	7,100	-	172,600
Libya	97,776	15,343	-	15,000	128,119	93,670	12,187	-	15,000	120,857
Pakistan	1,232,342	327,773	-	1,503,484	3,063,599	3,143,700	223,146	-	1,503,484	4,875,330
Saudi Arabia	1,444,444	51,434	-	-	1,495,878	1,500,000	52,577	-	-	1,552,577
Somalia	120,000	111,864	-	-	231,864	120,000	67,465	-	-	187,465
Sudan	1,055,000	60,506	-	15,000*	1,130,506	1,022,700	75,167	-	15,000*	1,112,867
Syria	304,438	38,352	32,000	-	374,790	304,400	32,629	29,150	-	366,179
Tunisia	17,734	7,800	-	-	25,534	17,730	4,600	-	-	22,330
U.A.R.	1,600,000	15,158	-	-	1,615,158	1,600,000	16,247	-	-	1,616,247
Yemen	-	-	-	-	-	-	20,374	-	-	20,374
Total	15,646,820	931,571	1,094,200	2,049,696 15,000	19,737,287	17,651,925	727,464	1,028,250	2,305,384 15,000	21,728,023

* German Federal Government

TABLE VI

National Malaria Personnel in the Eastern Mediterranean Countries - 1962

Country	Professional				Auxiliary								Total
	Physic.	Ent.	San. Eng.	Other Prof.	Lab. Tech.	Surv. Agents	Field Sup.	Squad Leaders	Admin.	Spraymen	Drivers	Others	
Ethiopia	1	1	-	-	8	59	45	38	72	160	52	68	504
Iran	38	8	27	63	257	1,301	467	60	465	3,700	686	432	7504
Iraq	1(7)	1	-	7	27	373	45	110	58	1,211	220	177	2237
Israel	1(16)	1	-	-	4	-	24	-	1	280	17	-	344
Jordan	1	-	-	4	18	98	13	25	38	36	50	35	318
Lebanon	-	1	1	1	8	63	4	4	10	9	13	7	121
Libya	-	-	-	1	3	-	1	-	1	5	5	-	16
Pakistan	28	-	-	69	140	33	237	722	307	1,894	171	308	3909
S.Arabia	5	4	6	1	24	12	15	24	72	217	41	567	988
Somalia	-	-	-	1	8	-	7	22	7	82	28	34	189
Sudan A	1	1	-	8	6	36	13	50	4	200	16	30	365
Sudan B	27	1	1	90	90	-	171	-	20	1,200	200	400	2200
Syria	4	1	-	13	20	61	46	37	82	260	57	20	601
Tunisia	-	-	-	13	8	17	-	-	-	-	-	-	38
U.A.R.	18	1	-	25	73	-	210	317	76	1,062	65	170	2017
Total	148	20	35	296	694	2,053	1,298	1,409	1,213	10,316	1,621	2,248	21351

A MEPP & MPES
B Government Malaria Control Programme