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WORLD HEALTH ORGANIZATION

ORGANISATION MONDIALE DE LA SANTÉ

INTER-REGIONAL CONFERENCE ON MALARIA FOR THE EASTERN MEDITERRANEAN AND EUROPEAN REGIONS .



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TRANSLATION

INFORMATION ON THE MALARIA CONTROL PROGRAMME IN GREECE<sup>1</sup>

1. Present status of malaria control in the country

- 1.1 Recently estimated population of the country: approx. 8 000 000 (1955).
- 1.2 Number of inhabitants living in malarious regions: 4 500 000 (i.e. 6000 communities out of a total of 11 000).
- 1.3 Malaria morbidity and mortality statistics:

A. 1930-1948

Year	Mortality	Mortality per 100 000 population	Estimated number of malaria cases, taking mortality = 0.5% of cases
1930	5 642	88.2	1 128 400
1931	6 600	101.8	1 320 000
1932	7 042	107.5	1 408 400
1933	4 118	62.1	823 800
1934	2 984	44.2	589 600
1935	3 508	51.3	701 600
1936	5 181	74.7	1 036 200
1937	3 365	48.0	673 000
1938	2 825	40.0	565 000
1939-1948: no data on mortality available			

<sup>1</sup> From the report submitted by the Malaria Division of the Ministry of Social Welfare, Athens, to the Regional Office for Europe of WHO, in February 1956

B. 1949-1955

Year	Mortality (towns of over 5000 inhabitants)	Mortality per 100 000 popu- lation	Morbidity	
			Cases con- firmed by laboratory examination	Estimated total number of cases
1949	36	0.50	534 <sup>+</sup>	7-10 000 <sup>a</sup>
1950	15	0.20	426 <sup>+</sup>	3- 5 000 <sup>a</sup>
1951	9	0.12		3- 5 000 <sup>a</sup>
1952	4	0.05	408 <sup>++</sup>	3- 5 000 <sup>b</sup>
1953	2	0.02	1 403 <sup>++</sup>	10-15 000 <sup>b</sup>
1954	2	0.02	2 350 <sup>++</sup>	16-23 000 <sup>b</sup>
1955			1 642 <sup>++</sup>	11-16 000 <sup>b</sup>

- + Cases given by health centres
- ++ Ascertained during epidemiological surveys
- <sup>a</sup> Based on deaths and cases
- <sup>b</sup> Based on cases (7-10 undetected cases for every laboratory-confirmed case)

Remarks

Malaria mortality: on the basis of the data given above, malaria mortality during these last years can be estimated to be 1/200 of the pre-war rate.

Malaria morbidity: to estimate morbidity in pre-war years, a factor 200 times mortality was taken. Thus the number of cases before the war (1930-1938) was between 565 000 and 1 408 400 per year (an average of 917 000 cases annually).

Since the war (1949-1955) it can be estimated with reasonable safety that the average annual number of malaria cases was 10 000 to 15 000 for the whole country, that is, about 1/60 of the pre-war rate.

In 1950 malaria became compulsorily notifiable by law.

1.4 Total population directly protected against malaria, by any method of control, in 1953:

(a) by house spraying	459 348
(b) by larval control from the ground	1 625 955
(c) by epidemiological survey and chemotherapy	<u>1 506 869</u>
Total:	<u>3 592 172</u>

- 1.5 Areas where the population was directly protected in 1953: see table and map.
- 1.6 Data detailed in Annex I.
- 1.7 Information on the evaluation of the results of the campaign.

Parasite rates

Year	Parasite rate of schoolchildren			Infant parasite rate		
	Number examined	Number positive	Parasite rate	Number examined	Number positive	Parasite rate
1933-40	65 508	11 287	17.23 <sup>+</sup>	2 030	204	10.00
1946	14 340	253	1.70	682	2	0.29
1947	19 958	41	0.21	831	0	0.00
1948	17 013	35	0.21	1 131	4	0.35
1949	17 502	27	0.15	1 045	4	0.38
1950	20 375	33	0.16	708	3	0.42
1951	12 765	4	0.03	2 825	1	0.04
1952	23 242	7	0.03	4 071	2	0.05
1953	12 274	5	0.04	1 003	1	0.10
1954	11 596	10	0.09	887	1	0.11

<sup>+</sup> The average parasite rate of schoolchildren during pre-war years was 17.2%. This figure refers to 300 regions which were followed up periodically during the years 1933-1940.

During the occupation such data were not collected, but from a survey carried out after the exceptional epidemic of 1942 it emerged that the severity and incidence of malaria during that year were equal to if not greater than in pre-war years. Since the start of the overall malaria control programme (1946) parasite rates for schoolchildren and infants have fallen rapidly as is shown in the above table. (About 300 regions were examined per year.)

Malaria incidence, based on parasite rates, seems to have dropped during these last years to 1/200 of the pre-war figure.

- 1.8 Information available, if any, on general improvements that may have followed malaria control (a) in the field of public health, (b) in the social and economic fields.

Malaria control measures had a very good influence on other public health problems; in particular there was a considerable reduction of the following diseases:

- (a) Enteric infections
- (b) Leishmaniasis and Kala-azar
- (c) Trachoma.

Without doubt the decrease in malaria has been responsible for the general decrease of mortality which fell from 13.1% in 1938 to 7.02% in 1953. This is also proved by the fall in pneumonia mortality. The relationship between malaria and pneumonia is well known, and, as in all countries afflicted with malaria, Greece also had a very high pneumonia mortality rate, this disease having been the major cause of death before the war, whereas in 1953, it was sixth in the list of causes of death. The use of antibiotics undoubtedly contributed to that decrease, but, as physicians have pointed out, it was mainly due to the decrease in pneumonia morbidity.

The influence of malaria control on the economic and social level has been incalculable.

Cost of malaria control

Year	Approximate cost in US \$	Population protected	Average cost/year	Average cost/capita/year
1939	799 300 <sup>+</sup>	) approx.	) US \$	) US \$
1940	811 360 <sup>+</sup>	) 500 000	) 805 330	) 1.60
.....				
1946	1 136 000	4 434 000	)	)
1947	1 440 000	4 873 000	)	)
1948	1 495 800	4 771 250	)	)
1949	1 176 700	5 577 330	)	)
1950	1 066 700	4 644 620	) 923 230	) 0.20
1951	766 700	2 824 180	)	)
1952	633 400	3 420 320	)	)
1953	350 000	3 592 172	)	)
1954	550 000	3 827 360	)	)
1955	617 000	4 043 040	)	)

<sup>+</sup> Expenditure for the pre-war years includes the cost of 30 tons of quinine, imported yearly, and which amounted to Dr. 75 420 000 (pre-war) i.e. US \$685 400 at the 1939 rate of Dr. 110 to US \$1.

The average annual cost in post-war years to protect practically the total population (urban and rural) in malarious regions (approx. 4 500 000 people), is only 14% higher than the average yearly expenditure for 1939 and 1940, when the protected population was almost exclusively urban and did not exceed 500 000.

2. Organization and methods of the present programme, and training facilities of personnel

2.1 Organization

The framework of the Malaria Control Service is as follows:

(a) Central Service: Division of Malaria and Tropical Diseases of the Directorate of Hygiene in the Ministry of Social Welfare.

Personnel (February 1956):

1 director, 1 deputy director, 2 administrative officers, 15 malaria inspectors; clerical staff - 4 permanent, 7 non-permanent.

The Division of Malaria has a parasitological laboratory with a medical microbiologist, one permanent and four non-permanent laboratory assistants.

The Division of Malaria collaborates also with the Section of Malariology of the Athens School of Hygiene.

(b) Regional Services

1. Responsibility for carrying out the malaria control programme lies with the 52 health centres of the country. A number of qualified malaria inspectors are appointed by each health centre, and it is these malaria inspectors who in fact carry out the antimalaria campaign. During the epidemic seasons teams are organized by each health centre. These teams comprise daily workers and a foreman, and are engaged on practical work.

2. Supervision of malaria control work in the regions is carried out by the two Inspectorates of Malaria - one for Salonika and the other for continental Greece - and by the central service.

3. During 1955, 11 parasitological laboratories for malaria were improvised in the field. Of these, only two - at Ionnina and Salonika - worked successfully.

Categories of personnel engaged in malaria control (February 1956)

Director	1	permanent
Assistant Director	1	"
Inspectors of malaria	4	"
Laboratory physicians	2	"
Laboratory assistants	1	"
Foremen	1	"
Draughtsmen	2	"
Administrative personnel	2	"
Typists	7	"
Malaria inspectors	176	"
Malaria inspectors	56	non-permanent
Laboratory assistants	11	" "
Drivers	33	" "
Motor cyclists	12	" "
Clerks	105	" "

2.2 Methods of malaria control

2.2.1 Methods currently applied for malaria control are as follows:

- (a) spraying of homes with residual insecticides;
- (b) larval control from the ground in certain rural areas (144 programmes in 1955);
- (c) epidemiological surveillance. (Case finding and treatment and entomological checking in the villages);
- (d) air-spraying of extensive marshlands and rice fields to abate the nuisance caused by mosquitos to the working population. (Air-spraying is not in itself a malaria control method; it is a supplementary measure employed for the above-mentioned purpose)

2.2.2 Antimalaria drugs are not used for prophylaxis but only for treatment.

It is considered that timely diagnosis and treatment of malaria cases is one of the two most important factors in securing good results from malaria control (the other being the different methods used for mosquito control) and that with the present-day therapeutic potentialities of antimalaria drugs, 50% of malaria control can be carried out by efficient distribution of drugs.

Drugs used:

Quinine two or three times daily for five days is given to all persons suspected of having malaria. Simultaneously with the first dose of quinine (which is taken by the patient in front of the responsible employee) a single dose of proguanil or pyrimethamine is administered.

For treatment of confirmed cases chloroquine, pyrimethamine, proguanil and primaquine are used.

The drugs are distributed free of charge through the local health centre and its mobile personnel.

(See Annex II for details of dosage)

2.3 Training facilities

Training is given to all permanent personnel engaged in the malaria control programme. This training is carried out by the School of Hygiene of Athens, together with the three experimental malaria control stations in the country.

### 3. Plans for the future

If resistance to insecticides is observed in other parts of Greece besides those in which it has already been confirmed, the spraying of houses will be reduced or stopped. It is understood that this will be done with great caution and only if it can be proved that complete protection is possible with drugs. In different parts of the country where cases of malaria occur each year, a number of gametocyte carriers, especially of the benign tertian type, still exist. These are known to the Malaria Services and steadily followed up.

On the other hand, there are areas where for years there have been no cases of malaria, but where resistance of anophelines to insecticides has been proved: there are anophelines but no malaria. Such areas are, for instance, Laconia, Attica and Boetia, Phthiotis and Phokis and others.

In some areas, as for instance Crete, spraying was interrupted in 1951 and until 1954 there was no autochthonous case of malaria. In 1955, however, some sporadic cases occurred. It can therefore be assumed that when spraying is reduced or stopped, or if it is ineffective, small foci of malaria will appear in different parts of the country. In such cases, mobile clinics will undertake epidemiological surveys. Blood samples will be taken not only from suspected persons, but from as large a proportion of the population as possible, and treatment will be given to positive cases.

These mobile clinics will be under the supervision of a malariologist and, according to local conditions and the extent of the disease, will consist of various trained persons who will for some time periodically control the administration of drugs, for it has been found that rural people do not readily follow the prescriptions for effective therapy.

As the areas where malaria occurs are known and are not at present very extensive, it is believed that this method will be successful in checking the spread of such foci and the incidence of new ones.

It is understood that air-spraying of marshlands and rice fields will also be diminished. Attempts are being made to maintain gambusiae in the ditches of rice fields,

as their destructive effect on larvae has been proven in consecutive surveys carried out in rice-growing areas.

In addition, until such time as anopheline larvae become resistant to insecticides, larval control from the ground can be continued and extended wherever necessary. This will be done after a careful survey by the Service.

Future schemes for land reclamation included in the agricultural programme will be supported by the Malaria Service because such projects help considerably in malaria control.

Year: 1953

1. Area of operations: not given.  
Treated villages: 615
2. Number of houses and all other structures sprayed: 77 460
3. Population directly protected (i.e. living in sprayed structures): 459 348
4. Population protected by other methods of control:
  - (a) by larval control: 1 625 955
  - (b) by epidemiological surveillance and treatment: 1 506 869
5. Number of sprayings per year: 1  
Re-spraying percentage: 1.4%
6. Insecticides and formulations used: total annual consumption:

DDT (in terms of technical grade):	29 145 kg
BHC ( " " " " " ):	183 "
Chlordane ( " " " " ):	467 "
Final solution or emulsion	588 070 litres

Percentages of standard commercial products used:

Solution 4-5% DDT in oil .....	0.30%
DDT 25%, 26%, 33% .....	97.86%
BHC 10% .....	1.73%
Chlordane 74% .....	0.03%
Velsicon 20% .....	0.08%
7. Average dose of insecticide per square metre for each spraying:  
DDT (technical grade): 2.10 g per sq.m
8. Types of sprayers used: (a) continuous pressure  
(b) intermittent pressure  
(c) mechanical
9. Are all structures sprayed? All structures except public buildings are sprayed.
10. Average area sprayed during each spraying per inhabitant directly protected: 38.5 sq.m

Annex I

11. Cost of residual spraying operations:
12. Cost of operations by other methods of anopheles control:
13. Cost of control operations by drug prophylaxis:

No separate data are available for the cost of control operations by the different methods.

The total cost of malaria control for 1953 (including all methods) amounted to: Dr. 10.500 000 (US\$ 350 000)

Average annual cost per capita of population protected (by any method of control): Dr. 3.00 (US\$ 0.10)

Year: 1954

1.	Area of operations:	(not given)	
	Treated villages:	1st cycle . . . . .	2 003
		2nd " . . . . .	267
		3rd " . . . . .	22
2.	Number of houses and all other structures sprayed:		
		1st cycle . . . . .	244 885
		2nd " . . . . .	30 208
		3rd " . . . . .	1 859
3.	Population directly protected (i.e. living in sprayed structures)	. . . . .	1 335 344
4.	Population protected by other methods of control:		
	(a) by larval control . . . . .		1 694 802
	(b) by epidemiological surveillance and treatment . . . . .		797 218
5.	Number of sprayings per year: 1-3		
	First respraying percentage . . . . .	13.3%	
	Second " " . . . . .	1.1%	

Annex I

6. Insecticides and formulations used: total annual consumption:

DDT (in terms of technical grade)	27 419 kg
BHC ( " " " " " )	2 303 "
Chlordane (in terms of technical grade)	12 640 "
Lindane . . . . .	978 "
Dieldrin . . . . .	744 "
Final solution or emulsion	2 232 478 litres

## Percentage of standard commercial products used:

Solution 4-5% DDT in oil . . . . .	2.6%
DDT 25%, 33% emulsion . . . . .	8.8%
Chlordane 74% emulsion . . . . .	68.5%
Lindane 20% emulsion . . . . .	2.4%
Dieldrin 20% emulsion . . . . .	0.8%
BHC 10-12% emulsion . . . . .	16.9%

7. Average dose of insecticide per sq. metre for each spraying:  
DDT (technical grade): 1.90 g per sq. m.

8. Type of sprayers used: with continuous pressure.

9. Are all structures sprayed? All structures except public buildings are sprayed.

10. Average area sprayed during each spraying per inhabitant directly protected: 37.0 sq. m.

11.) Cost of control operations:

12.)

13.) No separate data are available for the cost of control operations by the different methods.

Total cost for 1954 (including all methods): Dr. 16 500 000  
(US\$ 550 000)

Average annual cost per capita of population protected  
(by any method of control): Dr. 4.30 (US\$ 0.14).

Year: 1955

1. Area of operations (not given)

Treated villages: 1st cycle . . . . .	2 039
2nd " . . . . .	405
3rd " . . . . .	10

2. Number of houses and all other structures sprayed:
- |                     |         |
|---------------------|---------|
| 1st cycle . . . . . | 249 904 |
| 2nd " . . . . .     | 45 415  |
| 3rd " . . . . .     | 834     |
3. Population directly protected (i.e. living in sprayed structures) . . . . . 1 337 976
4. Population protected by other methods of control:
- |   |           |
|---|-----------|
| (a) by larval control . . . . .                             | 1 823 432 |
| (b) by epidemiological surveillance and treatment . . . . . | 881 635   |
5. Number of sprayings per year: 1-3
- |                             |      |
|-----------------------------|------|
| First respraying percentage | 20%  |
| Second " "                  | 0.5% |
6. Insecticides and formulations used: total annual consumption:
- |   |                  |
|---|------------------|
| DDT (in terms of technical grade) . . . . .       | 3 114 kg         |
| BHC ( " " " " " ) . . . . .                       | 23 "             |
| Chlordane (in terms of technical grade) . . . . . | 20 134 "         |
| Lindane . . . . .                                 | 1.7 kg           |
| Dieldrin . . . . .                                | 27 003 kg        |
| Final solution or emulsion . . . . .              | 2 746 165 litres |
- Percentage of standard commercial products used:
- |                                    |        |
|------------------------------------|--------|
| Solution 4-5% DDT in oil . . . . . | 9.20%  |
| DDT 25%, 33% emulsion . . . . .    | 0.23%  |
| Chlordane 74% emulsion . . . . .   | 44.11% |
| Lindane 20% emulsion . . . . .     | -      |
| Dieldrin 20% emulsion . . . . .    | 46.31% |
| BHC 12% emulsion . . . . .         | 0.15%  |
7. Average dose of insecticide per sq. metre for each spraying:  
DDT (technical grade): 1.90 g per sq. m.
8. Types of sprayers used: with continuous pressure.
9. Are all structures sprayed? All structures except public buildings are sprayed.
10. Average area sprayed during each spraying per inhabitant directly protected: 42.3 sq. m.
- 11.) Cost of control operations
- 12.)
- 13.) No separate data are available for the cost of control operations by the different methods.
- Total cost for 1954 (including all methods): Dr. 18 500 000 (US \$617 000)
- Average annual cost per capita of population protected (by any method of control): Dr. 4.6 (US \$0.15).

DRUGS USED - AMOUNTS AND METHODS

A salt of quinine twice or three times a day (at intervals of 12 or 8 hours) for five days is given to all persons suspected of having malaria.

Infants - under 1 year	0.1 g or 1/2 pill of 0.2 g
Children 1-2 years	0.2 g " 1 " " "
" 3-5 "	0.4 g " 2 " " "
" 6-9 "	0.8 g " 4 " " "
" 10-13 "	1.0 g " 5 " " "
Adults	1.2 g " 6 " " "

Simultaneously with the first dose of quinine (which is taken by the patient in front of the responsible employee) proguanil is administered in one sole dose, as follows:

Infants - under 1 year	0.025 g i.e. 1/4 pill of 0.1 g
Children 1-2 years	0.05 g " 1/2 " " "
" 3-5 "	0.1 g " 1 " " "
" 6-9 "	0.15 g " 1-1/2 " " "
" 10-13 "	0.2 g " 2 " " "
Adults	0.3 g " 3 " " "

Instead of proguanil, pyrimethamine may be given in the same way, as follows:

Infants - under 1 year	0.002 g i.e. 1/12 pill of 0.025 g
Children 1-2 years	0.004 g " 1/6 " " "
" 3-5 "	0.008 g " 1/3 " " "
" 6-9 "	0.012 g " 1/2 " " "
" 10-13 "	0.018 g " 3/4 " " "
Adults	0.025 g " 1 " " "

Treatment of confirmed cases.

The basic schizontocide for the usual forms of malaria (i.e. benign tertian, quartan and malignant tertian malaria) is chloroquine. This drug is given for five days in two or three doses daily (i.e. every 12 or 8 hours) after meals, the daily quantities being as follows (quantities quoted are for chloroquine salt):

Annex II

(a) For the first two days:

Infants - under 1 year	0.08 g	i.e.	1/3	pill	of	0.25 g
Children 1-2 years	0.17 g	"	2/3	"	"	"
" 3-5 "	0.25 g	"	1	"	"	"
" 6-9 "	0.5 g	"	2	"	"	"
" 10-13 "	0.75 g	"	3	"	"	"
Adults	1.00 g	"	4	"	"	"

(b) For the following three days:

(These quantities again are given in two or three equal doses, i.e. every 12 or 8 hours)

Infants - under 1 year	0.04 g	i.e.	1/6	pill	of	0.25 g
Children 1-2 years	0.08 g	"	1/3	"	"	"
" 3-5 "	0.125 g	"	1/2	"	"	"
" 6-9 "	0.25 g	"	1	"	"	"
" 10-13 "	0.375 g	"	1-1/2	"	"	"
Adults	0.5 g	"	2	"	"	"

In the absence of chloroquine, mepacrine can be administered for all three forms of the disease. This drug is given for seven days in two or three daily doses (i.e. every 12 or 8 hours) after meals, in the following quantities per 24 hours:

(a) For the first 24 hours:

Infants - under 1 year	0.05 g	i.e.	1/2	pill	of	0.1 g
Children 1-2 years	0.067 g	"	2/3	"	"	"
" 3-5 "	0.15 g	"	1-1/2	"	"	"
" 6-9 "	0.3 g	"	3	"	"	"
" 10-13 "	0.4 g	"	4	"	"	"
Adults	0.6 g	"	6	"	"	"

(b) For the following 6 days (as usual, in two or three doses every 12 or 8 hours)

Infants - under 1 year	0.025 g	i.e.	1/4	pill	of	0.1 g
Children 1-2 years	0.033 g	"	1/3	"	"	"
" 3-5 "	0.067 g	"	2/3	"	"	"
" 6-9 "	0.15 g	"	1-1/2	"	"	"
" 10-13 "	0.20 g	"	2	"	"	"
Adults	0.30 g	"	3	"	"	"

Annex II

Further, chemo-therapeutic treatment ("suppressive" treatment) is given to confirmed cases.

The treatment varies according to whether the patient can be followed up or not.

(a) Cases where follow-up by a physician is assured

After the afore-mentioned treatment, the following is applied:

(i) Cases of benign tertian and quartan malaria are given primaquine for 14 days, the following doses being taken once every 24 hours (doses quoted are for primaquine salt):

Infants - under 1 year	0.002 g	i.e.	1/12	pill	of	0.025 g
Children 1-2 years	0.003 g	"	1/8	"	"	"
" 3-5 "	0.006 g	"	1/4	"	"	"
" 6-9 "	0.013 g	"	1/2	"	"	"
" 10-13 "	0.017 g	"	2/3	"	"	"
Adults	0.025 g	"	1	"	"	"

(ii) For cases of malignant tertian malaria, primaquine is given but for two days only, the dosage being double that quoted above.

(b) Cases where follow-up by a physician cannot be assured

In cases where the follow-up of the patient cannot be guaranteed, and no matter what is the form of the disease, or if primaquine is not available, proguanil is given for "suppressive" treatment twice a week during 4-6 weeks, in the following doses:

Infants - under 1 year	0.017 g	i.e.	1/6	pill	of	0.1 g
Children 1-2 years	0.033 g	"	1/3	"	"	"
" 3-5 "	0.067 g	"	2/3	"	"	"
" 6-9 "	0.1 g	"	1	"	"	"
" 10-13 "	0.15 g	"	1-1/2	"	"	"
Adults	0.2 g	"	2	"	"	"

Instead of proguanil, pyrimethamine may be given once a week in a dose equal to that given for suspected cases, and over the same period (4-6 weeks).

Annex II

General

1. The drugs are distributed free of charge through the local health centre and its mobile personnel. Treatment is given by this technical personnel whenever possible.
2. For suspected cases, the 5-day treatment with quinine together with the dose of proguanil or pyrimethamine is given not only by the malaria control personnel but also by general practitioners. To this end, the health centres in communities where it is anticipated that cases of malaria will occur provide the president of the community with a quantity of these antimalarial drugs. These drugs are administered to the patients on the orders of a physician and in accordance with the prescribed posology and duration of treatment. The president of the community keeps the prescriptions and records of delivery in duplicate; one copy is sent every month to the responsible health centre for further control. Drugs are distributed in the same way by communal dispensaries, health centres, hospitals and mobile clinics of the Greek Red Cross.

Annex II

Table 1.5

Areas which have been protected through the health centres by the malaria control methods used in 1953

Health Centres	Protected Areas		
	Larval control	Spraying of homes	Epidemiological surveillance
<u>Crete</u>			
1. Chania	-	2	20
2. Heraklion	-	-	21
3. Rethymmon	-	-	15
4. Lassithion	-	-	10
	-	2	66
<u>Peloponnisos</u>			
5. Achaia	3	8	45
6. Helia	5	68	40
7. Messinia	2	9	78
8. Laconia	2	10	53
9. Arcadia	2	25	1
10. Argolis	2	2	16
11. Corinthia	3	1	20
	19	123	253
<u>Dodecanese</u>			
12. Rhodes	1	1	34
13. Ko	1	14	-
	2	15	34
<u>Aegean Islands</u>			
14. Lesbos	5	19	46
15. Samos	3	1	15
16. Chios	2	2	9
17. Cyclades	-	17	-
	10	39	70

Annex II

Health Centres	Protected Areas		
	Larval Control	Spraying of homes	Epidemiological surveillance
<u>Stereia Hellas-Evboia</u>			
18: Attiki	1	-	35
19: Peiraius	3	1	29
20: Phokis	1	-	32
21: Boetia	2	-	50
22: Phthiotis	5	9	76
23: Evritania	-	11	15
24: Evboia	4	4	32
	16	25	269
<u>Ionioi Nisoi</u>			
25: Zakynthos	1	-	16
26: Cephallinia	2	1	18
27: Kerkira	2	37	11
28: Levkas	1	12	-
	6	50	45
<u>Ipiros-Aitolokarnania</u>			
29: Aitolokarnania	3	51	50
30: Artis	1	37	24
31: Prebeza	2	28	33
32: Ioannina	1	9	63
33: Thesprotia	1	24	36
	8	149	206
<u>Thessalia</u>			
34: Magnisia	3	6	39
35: Larissa	4	8	65
36: Trikala	1	7	74
37: Karditsa	1	6	17
	9	27	195

Annex II

Health Centres	Protected Areas		
	Larval control	Spraying of homes	Epidemiological surveillance
<u>Deteke Macedonia</u>			
38. Florinia	2	-	40
39. Kozani	4	-	121
40. Kastoria	1	-	30
41. Pellis	4	21	49
	11	21	240
<u>Kentriki Macedonia</u>			
42. Thessaloniki	2	30	88
43. Pieria	1	5	32
44. Imathia	2	27	24
45. Chalkidiki	-	35	25
46. Kilkis	3	6	37
47. Serrai	4	19	67
	12	122	273
<u>Anat. Macedonia</u>			
<u>Dit. Thraki</u>			
48. Drama	2	-	50
49. Kavala	2	25	52
50. Xanthi	1	12	52
51. Rodopi	1	5	72
52. Evros	2	-	69
	8	42	295
TOTAL	101	615	1946

GREECE  
ANTIMALARIA CAMPAIGN 1953

