

UNITED NATIONS
ECONOMIC
AND
SOCIAL COUNCIL



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UNITED NATIONS CHILDREN'S FUND
Programme Committee

Recommendation of the Executive Director for an Allocation
IRAN
Malaria Eradication

1. The Administration recommends an apportionment of \$1,848,000 for the provision of insecticides, vehicles, spray-pumps and other equipment as a first apportionment to a five-year campaign to eradicate malaria in Iran (1957-61), thus directly protecting 12,000,000 people. The Administration also recommends the approval in principle of the entire project, for which further allocations would be requested, mainly for insecticides. The additional amounts required would probably be between \$1,500,000 and \$2,500,000, making a total UNICEF contribution to the campaign of approximately \$3,300,000 to \$4,300,000. The Government of Iran would spend over the same period the equivalent of approximately \$11,000,000 for local expenses.

2. A malaria control programme has been in operation since 1950, and now covers the more malarious areas of the country, protecting 4,000,000 people directly. During 1956 this will be continued and eradication will be commenced in two northern regions of the country (Zone I). Recruitment and training of personnel and detailed organization will also be completed in 1956 for the full-scale campaign to begin in 1957.

Malaria in Iran

3. The population of Iran is approximately 21,000,000. In the rural areas are approximately 45,000 villages of which, according to the findings of the Institute of Malariology, 40,000 villages, with a total population of about 12,000,000, are potentially malarious. A malarimetric study was started in Iran in 1949 with the help of a WHO advisory team. The following progress has been made:

/Year.....

<u>Year</u>	<u>Villages Surveyed</u>	<u>Persons Examined</u>
1950	112	8,000
1951	108	5,719
1952	177	14,297
1954	631	47,558
1955 (first half)	1,996	110,829

4. In 1952 the Institute of Malariology was established with the co-operation of the Teheran University School of Medicine and the Ministry of Health, and with assistance from a WHO advisory team. In that year also malaria work was placed under the Public Health Co-operative Organization (PHCO) of the Ministry of Health, which received bilateral aid from the United States. The PHCO is now becoming more closely integrated into the Ministry of Health as its regular Public Health Department, and an allocation from the Seven Year Plan Organization is replacing bilateral aid.

5. Since malaria has been considered as the number one health problem in Iran, the Ministry of Health with the assistance of various international agencies has organized since 1950 a national malaria control programme, developed in all ten Ostans (provinces) of the country. A summary of past operations is as follows:

<u>Year</u>	<u>Villages Sprayed</u>	<u>Population Protected</u>
1950	7,862	2,428,000
1951	6,248	1,781,000
1952	12,459	3,556,000
1953	14,542	4,243,000
1954	15,405	3,915,000
1955	16,106	3,885,000

The decrease in the number of population protected is due to the fact that in 1954 all main cities (about 52) were excluded from the programme. Another factor in the decrease is that in 1955 the operation was extended in the mountainous areas in which there is less population per village than on the plain. Meanwhile, in the cities, more than 1,000,000 people have continued to be protected indirectly.

/6. During.....

6. During the last three years the square metrage of surface sprayed per caput and the per caput use of insecticides have been as follows:

<u>Year</u>	<u>Square Metrage per caput</u>	<u>DDT (100% equivalent) grammes per caput</u>
1953	127	256
1954	144	260
1955	102	201

7. The length of time necessary for completion of operations in an Ostan has been as follows:

<u>Year</u>	<u>Average Days of Operation per Ostan</u>
1953	207
1954	183
1955	105

8. With increased supervision, availability of more vehicles and continual improvement of equipment (especially nozzle-tips for compression sprayers), it has been possible to expand the operation by 10.7 per cent (to reach an additional 1,564 villages) to reduce the consumption of insecticides per caput by 21 per cent or 55 grammes, and to reduce the time necessary for completion of operations by 20.2 per cent or 42 days. It is hoped that, with the maintenance and improvement of present efficiency, further savings can be obtained and in 1956 an increase of 1,000 villages is expected over 1955, with the same amount of insecticides as procured in 1954.

Financing

9. The very extensive control of malaria effected since 1952 has been achieved with considerable outside aid. During 1952 and 1953, U.S. bilateral aid for this purpose amounted to \$3,000,000 annually. In 1954, aid from this source fell to \$1,000,000, while UNICEF allocated insecticides and vehicles costing \$350,000, and the Government increased its participation to 35,000,000 rials (U.S. \$466,000). In 1955 U.S. aid totalled \$710,000 and the Government again increased its participation to 65,000,000 rials (U.S. \$866,000), drawing on the budget of the Seven Year Plan Organization. During this year there was a shortage of insecticides, so that in some areas only every alternate village would be sprayed. It is understood that the Government will budget

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130,000,000 rials (U.S. \$1,700,000) for this programme in 1956 and that there will be no further funds from U.S. bilateral aid.

10. When UNICEF assistance was allocated for 1954 (E/ICEF/260/Rev.1, para. 126) it was thought that this would probably be a single request. The scale of operations was expected to decrease after 1955, and when 130,000,000 rials annually were proposed to be set aside from the Plan Organization it was supposed that this would be sufficient to carry on malaria control.

11. Now it is considered necessary to do a much more lengthy and thorough operation. The number of villages to be covered has been raised from 16,000 to 40,000 and blanket coverage has to be maintained effectively enough to halt transmission for three consecutive years. Hence the request to UNICEF to supply insecticides and transport. Even with the proposed UNICEF assistance the Plan Organization allocation would have to be increased to 170,000,000 rials (U.S. \$2,270,000) annually. The Plan Organization's total resources, coming from oil royalties, are expected to be of the order of \$75,000,000 annually (or about \$3.50 per inhabitant) over the period of malaria eradication. The whole of Iran's seven year plan of development is competing for the use of these resources.

PROPOSED PLAN OF OPERATIONS

12. According to the findings of the Institute of Malariology there are about 40,000 villages situated in endemic areas where control operations should be applied.

13. One of the important vectors in Iran is A. sacharovi, a species of which some strains, - in Greece and Lebanon, - have developed some resistance to DDT. Hence it is important to complete eradication in Iran before resistance appears there. Eradication operations will be concentrated in the first years in the areas where this vector is important (Azerbaijan, Kermanshah, Caspian and Khuzistan).

/Organization.....

Organization of malaria eradication programme

14. Scientific Council of the Institute of Malariology: This body, composed of technical authorities of the Ministry of Health, Institute of Malariology, Medical School, Plan Organization, Ministry of Agriculture, WHO and ICA Missions (U.S.A.), will, as in the past, be responsible for the approval of the plan of operations and also the scientific and technical procedures concerned with malaria eradication.

15. The Institute of Malariology: This organization, as in the past, will be responsible for conducting the needed malariometric and entomological surveys, preparing the plan of eradication operations, training of personnel and evaluation of results of the campaign. The Institute of Malariology will reorganize its headquarters, expand the number of field survey units and establish ten Ostan branches, each with the necessary personnel and laboratory facilities.

16. The Malaria Eradication Branch: This organization as a permanent branch within the Public Health Department of the Ministry of Health will, as in the past, be responsible for executing the operational plan prepared by the Institute and approved by the Council. The Malaria Eradication Branch will increase the number of field personnel in accordance with the expanded programme. Particular emphasis will be placed on increasing the number of trained field supervisors and inspectors. Branch personnel will be further decentralized from an Ostan basis to a sharistan basis. (An Ostan is composed of from seven to thirteen sharistans.) This will be done in order to ensure spraying of all areas during the pre-transmission season by commencing operations simultaneously in approximately 82 localities. Teams will pass again through operational areas during the transmission season to spray new structures or any left unsprayed for agricultural or other reasons.

Plan of action

17. The Ministry of Health has prepared a plan of operations for malaria eradication in Iran giving to the Institute of Malariology full responsibility for the general planning of the campaign, preparation and organization of malariometric surveys, training of necessary personnel for survey, control and surveillance, and evaluation of the results.

/18. The Malaria.....

18. The Malaria Eradication Branch of the Public Health Department has been given the responsibility for the eradication field operations inclusive of organization of eradication activities on the central, regional and sub-regional levels, inspection and supervision of field activities and establishment of surveillance after discontinuation of spraying operations, according to the criteria established by the Scientific Council of the Institute of Malariology.

19. The surveillance programme will expand in accordance with the needs of the programme:

<u>Year</u>	<u>Number of Villages to be placed under Surveillance</u>
1955	1,950
1956	6,500
1957	7,540
1958	9,840
1959	18,050
1960	23,640
1961	29,760
1962	33,260
1963	40,700

20. In 1956 the programme will include consolidation and maintenance of operations in 11,512 villages under control since 1955 and commencement of eradication procedures of the north-western part of Azerbaidjan and Caspian area by adding 5,594 villages to the programme (see table and map annexed).

21. In 1956 a total of 17,106 villages will be sprayed and 6,500 kept under surveillance.

22. In 1957, 1,000 villages of the first group will be discontinued and put under surveillance and operations in the rest of the villages maintained with the extension of the eradication programme in Zone II by addition of 6,123 villages to the programme. This will bring the total number of villages to be sprayed in 1957 to 22,229 and the total number of villages to be put under surveillance to 7,540.

23. In 1958, 2,300 villages of group one will be discontinued and operations will be maintained in the rest of the villages with commencement of the eradication programme in Zone III, by addition to the programme of 3,500 villages, so that in 1958 a total of 23,458 villages will be sprayed and 9,840 kept under surveillance.

24. In 1959, 8,212 villages will be discontinued, operations will be maintained in the rest of the villages and eradication will extend to Zones IV and V, by addition to the programme of 7,442 villages in these two Zones. In this year a total of 22,659 villages will be sprayed and 18,050 villages kept under surveillance.

/25. In 1960.....

25. In 1960, spraying in 5,594 villages of Zone II will be discontinued and they will be put under surveillance. Operations will be maintained in 17,065 villages, and 23,640 villages will be kept under surveillance.

26. In 1961 spraying will be discontinued in 6,123 villages and operations maintained in 10,942 and surveillance in 29,760.

27. By 1962, every village in Zones IV and V will have received spraying three times and it is hoped that transmission will have been terminated in those areas. In 1962 operations will be repeated in the last group (7,442 villages) which will be discontinued in 1963.

28. In 1962, a total of 33,260 villages will be placed under surveillance. The peak of surveillance will be in 1963, when 40,700 villages will be under surveillance.

29. Surveillance will be applied with full supervision during three consecutive years after discontinuation. Subsequent to surveillance all areas will be regularly checked and put under observation.

30. The Institute's programme of epidemiological survey (which is in addition to surveillance (vigilance system) carried out by the Malaria Eradication Branch) will be as follows: (See table in Annex I.)

- a) Pre-operational: 20 per cent of new villages to be sprayed will be surveyed one year before spraying to determine the rate of malaria infection.
- b) Control of operations (or post-operational): 5 per cent of villages currently being sprayed will be surveyed after the transmission season to evaluate the work.
- c) Before discontinuation: 50 per cent of villages of the area proposed for discontinuation of spraying, for planning.
- d) Control of surveillance: 10 per cent of villages under surveillance, for control.

31. The plan of action may be revised in future years in the light of experience and technical findings. In particular a district can pass from spraying to surveillance after transmission has been interrupted during three years. The above plan counts on an increasing number of villages being ready

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to pass under surveillance in 1956, 1957 and 1958 as a result, wholly or partially of preceding control activities. Some of these hopes may not be realized. On the other hand the plan of spraying the new villages for four years is conservative, and if transmission is interrupted in the first year of spraying only three years will be necessary.

UNICEF commitments

32. UNICEF would provide the following as a first allocation for this programme at a total cost of approximately \$1,848,000:

a) Transport, including spare parts		\$750,000
b) DDT 75%	1,580 metric tons	767,000
c) Spray pumps, with spares	5,500	137,000
d) Equipment for regional laboratory and for epidemiological teams		16,000
e) Contingencies		<u>10,000</u>
Total supplies and equipment		\$1,680,000
f) Freight		<u>168,000</u>
Total recommended allocation		\$1,848,000

33. The transport includes all-purpose vehicles for survey, surveillance and supervision, and heavier vehicles for spraying squads, numbering altogether 370. This is the requirement calculated in accordance with an initial plan for bringing the existing vehicles up to the strength required for the peak load of 1957, 1958 and 1959. It is hoped that a revised deployment of vehicles may reduce the requirements for this purpose, and that the above sum will serve also for replacements after 1957 of vehicles already partially worn out in the control campaign. Other equipment would last for the duration of the campaign, with some replacement of spray-pumps. The insecticides would be sufficient for between one and two years, depending on scientific investigations into the possibility of reducing substantially the area sprayed in each house.

34. UNICEF would provide further quantities of similar supplies for the completion of the campaign, i.e., for use through 1961, in quantities according to technical requirements as agreed with WHO, provided the campaign is being carried out according to the plan of operations. Insecticides would be the main item required. The UNICEF contribution for the next four years would

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be of the order of \$1,500,000 to \$2,500,000, to be covered in further recommendations as the campaign progresses.

WHO commitments

35. A special WHO Malaria Consultant and the WHO Regional Malaria Adviser visited Iran during September 1955 and recommended to the Government to organize a malaria eradication programme according to the new resolutions of the WHO General Assembly of May 1955.

36. WHO will give such technical advice and general guidance as may be useful to the project. This will include the visit, during a few months, of a consultant group to aid in the assessment of the degree of remaining endemicity, if any, in areas proposed to be put under surveillance.

37. In addition WHO will provide five fellowships to five specially trained personnel of the Malaria Institute of Teheran.

38. WHO will also co-ordinate the malaria eradication programmes in the neighbouring countries (border areas).

39. WHO's formal technical approval of this programme is expected.

Government commitments

40. The Government will provide all personnel, materials, supplies (including necessary quantities of insecticides not given by UNICEF but required for the spraying operations in 1956), equipment (including all the sprayers for the spraying operations for 1956) and local expenses necessary for the project.

41. The following personnel will be available for the programme:

- a) Staff of the Malaria Institute of Teheran;
- b) 40 survey teams, each composed of 1 epidemiologist and 1 aid collector;
- c) 10 entomological teams, each composed of 1 entomologist and necessary number of aid collectors;
- d) 10 regional malaria laboratory technicians with the necessary assistant personnel;

/e) Public....

- e) Public Health Department Malaria Eradication Branch personnel.
This includes:

Headquarters operational inspection teams		
Inspectors	20	
Provincial leaders and assistants, 10 provinces		
Sanitary Engineers	}	50
Assistant Sanitary Engineers		
Surveillance, behdars (health assistants)		100
Junior surveillance aids		300
Sharistan (sub-province) organizations		
Sanitary aids		82
Dasteh (team) leaders		147
Gruh (squad) leaders		440
Labourers (seasonal)		4,400

Administrative personnel and drivers are in addition to the above.

42. The offices of the Malaria Institute and the central and provincial premises of the Public Health Department Malaria Eradication Branch will be available for the malaria programme.

43. The Government will also provide:

- a) Local supplies or equipment necessary for the project;
- b) Storage place for the vehicles and insecticides;
- c) The cost of necessary telephone, telegraph and postal communications;
- d) The cost of transportation of materials related to the programme and the equipment and supplies within the territory of Iran;
- e) The cost of fuel, maintenance and spare parts for all the vehicles provided by UNICEF;
- f) The cost of incidental expenses necessary for the successful carrying out of the project;
- g) The cost of health education in connexion with the programme.

44. "Matching" costs: The estimated cost to the Government of carrying out its commitments to this project 1957-61 is Rials 850,000,000 (U.S. \$11,000,000). The 1957 commitments of the Government are estimated at Rials 170,000,000 (U.S. \$2,270,000).

PROGRAMME OF SPRAY AND SURVEY FOR MALARIA ERADICATION IN IRAN

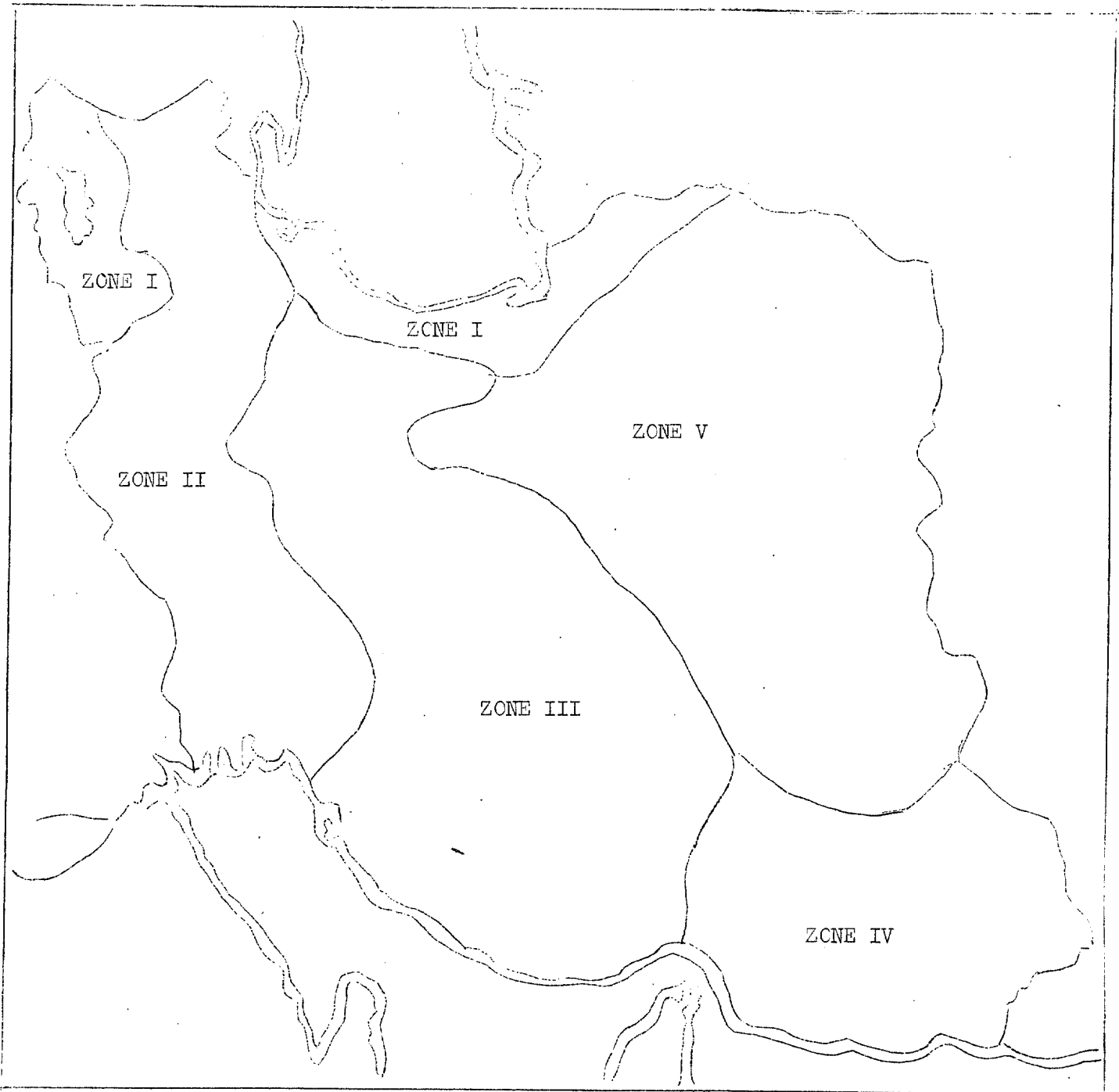
Year	Villages to be Sprayed					Villages to be Surveyed by Institute								
	Present Work-load	Additions in				Total to be Sprayed	Before Discontinuation	Pre-operational, 20% (1 year in advance)				Control of Operations, 5%	Control of Surveillance, 10%	Total to be Surveyed
		Zone I	Zone II	Zone III	Zones IV & V			Zone I	Zone II	Zone III	Zones IV & V			
1955	16,106*					16,106		602				572	195	1,369**
1956	11,512	5,594				17,106	500		1,224			805	654	3,183
1957	10,512	5,594	6,123			22,229	1,150			700		996	754	3,600
1958	8,212	5,594	6,123	3,500		23,458	4,106				1,488	762	984	7,140
1959	-	5,594	6,123	3,500	7,442	22,659	-	2,797				853	1,805	5,455
1960	-	-	6,123	3,500	7,442	17,065						517	2,364	2,911
1961	-	-	-	3,500	7,442	10,942				1,750		377	2,976	5,103
1962	-	-	-	-	7,442	7,742					3,221	-	3,326	6,547
1963	-	-	-	-	-	-							4,070	4,070

*Already completed.

**Programme of the Institute for the rest of 1955. In the first part of 1955, 1,953 villages have already been surveyed.

ANNEX II

IRAN: PLAN OF MALARIA ERADICATION CAMPAIGN
1956 - 1962



ZONE I	1956-59
ZONE II	1957-60
ZONE III	1958-61
ZONE IV)	1959-62
ZONE V)	