



UNITED NATIONS
ECONOMIC
AND
SOCIAL COUNCIL



DISTR.
LIMITED

E/ICEF/L.1215/REV.1
12 February 1958

ORIGINAL: ENGLISH

UNITED NATIONS CHILDREN'S FUND

Programme Committee

Recommendation of the Executive Director for an Allocation
IRAN
Malaria Eradication

1. The Executive Director recommends an allocation to Iran of \$466,000 to provide 126 additional vehicles, equipment for an additional eight sub-regional laboratories and Dieldrin for the second year (1958) of the UNICEF-assisted malaria eradication campaign. An allocation of \$286,000 was approved by the Board in September 1957 (E/ICEF/L.1102) to meet 1958 operational requirements as then estimated, based on the expectation of 7,385,000 persons to be protected. The Board was advised at that time that additional information would be needed in order to define more clearly the plans and requirements for the second year of the campaign. The additional requests contained in the present recommendation arise from an assessment of the campaign which was carried out with the co-operation of WHO during the latter part of 1957.
2. It is now foreseen that a total of 8,262,000 persons must be protected during the 1958 operations: 6,049,500 by residual spraying and 2,212,800 by surveillance operations. The increase over the earlier estimate of numbers to be protected arises from the proposed expansion of surveillance operations (See paragraph 8 below) which will entail an increase in the number of surveillance agents from 561 in 1957 to 1,000 in 1958.
3. An unforeseen situation has arisen due to the development of anophelene resistance to DDT in the coastal region adjacent to the Persian Gulf. (See 58-03191

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paragraph 9 below.) Following the joint assessment referred to above, WHO recommended that residual spraying in this area be carried out with Dieldrin in 1958 and succeeding years. An estimated 1,350,000 persons living in this area would require protection in 1958. The increase in the total cost of insecticides for 1958, due to the change from DDT to Dieldrin in this particular area, would be shared by the Government and UNICEF. (See paragraphs 11-13 below.)

4. The Board has previously approved allocations for this eradication programme totalling \$1,940,000 (exclusive of freight) and has in principle approved UNICEF assistance for the programme for a five-year period (1957-1961). An allocation of \$350,000 (exclusive of freight) was approved earlier for a malaria control campaign, in March 1954. As previously reported (E/ICEF/L.1102) the estimated total cost to the Government for the 1958 operations is Rials 250,000,000, equivalent to US\$3,333,000. In addition the Government would spend US\$125,000 for its share of the Dieldrin required in 1958 and for anti-malarial drugs.

The general plan

5. The malaria problem in Iran, the organizational pattern established for the eradication campaign, and a report on the progress of field operations in 1957 have been reported to the Board at earlier sessions (E/ICEF/L.580, L.877 and L.1102). As laid down in a tripartite plan of operations signed in December 1957 by the Government, WHO and UNICEF, this programme involves a basic plan of phased attack for which the country has been divided into four main operational zones. All structures in a zone are given a residual spraying each year, starting in 1957 with the first zone comprising the southern shore of the Caspian Sea and Western Azerbaijan. In the past the so-called "compact sectors" (i.e. those areas limited by natural barriers) in the other three zones have been subjected to total coverage over three years; these sectors were also included in the eradication campaign in 1957. A surveillance system is being

set up in areas where it is determined that transmission of malaria has been effectively interrupted for a sufficient period and where therefore residual spraying can be stopped.

6. The general plan for future years includes the following targets of protection:

Year	<u>No. of persons directly protected</u>		
	<u>By residual spraying</u>	<u>By surveillance after spraying is discontinued</u>	<u>By routine guard (vigilance)</u>
1957	5,771,100	817,400	-
1958	6,049,500	2,212,800	-
1959	6,134,400	2,962,100	-
1960	5,822,700	3,056,400	817,400
1961	4,250,900	3,232,800	2,212,800
1962	1,726,940	5,007,460	2,962,100
1963	519,440	5,303,260	3,873,800
1964	-	4,250,100	5,445,300
1965	-	1,726,940	7,969,560
1966	-	519,440	9,177,060
1967	-	-	9,696,500

Field operations and assessment in 1957

7. The spraying campaign in 1957, covering the areas described in paragraph 5 above, was completed in the early autumn, extending total protection to 5,771,100 persons living in 23,800 villages. Meanwhile, surveillance procedures had been put into effect in 12,953 villages. In the Rezaieh area in the North-west, surveillance in 956 villages has shown that residual spraying was no longer required, and spraying in that region was therefore interrupted in

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1957. Adding to this the Teheran region, spraying was thus discontinued in 1957 in areas inhabited by a total of 817,400 persons, where continued year-around surveillance is now in progress.

Additional transport requirements

8. As a result of the joint field assessment undertaken by the Government with the co-operation of WHO and UNICEF representatives, it was determined that the successful continuation of the campaign would require an additional allocation of 126 vehicles from UNICEF to help the Government in carrying out an expanded and intensified campaign. The following are the major factors justifying the additional transport request:

- a) extension of spraying operations: spraying will be extended in Zone II from control of "compact sectors" to eradication. This will entail an increase in the number of spraying teams from 330 to 400;
- b) the natural development of surveillance operations: 2,212,800 people are under surveillance in 1958 as against 817,400 in 1957, involving an increase in the number of surveillance agents from 561 in 1957 to 1,000 in 1958;
- c) intensification of surveillance operations: monthly visits are to be made to each village throughout the year rather than the four or five visits made in 1957;
- d) the necessity for an intensive action in zones inhabited by A. stephensi of which a great part was not included in the eradication programme for 1958.

On the basis of these factors the programme will require one sedan, 15 station wagons and 110 jeeps. It is proposed that future vehicular requirements now be re-evaluated to take into account the possible increased use of scooter-type cycles, motor-bicycles or bicycles for surveillance in the more highly developed and level areas of the country.

Vector resistance to DDT

9. It was discovered during the field assessment that one of the malaria vectors, A. stephensi, had developed resistance to DDT. This vector is predominant in the

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Persian Gulf area of Southern Iran and Iraq and along the coast of the Arabian Peninsula. In some parts of this area this fact is said to have led to malaria epidemics last year. This problem, also encountered in Iraq (See E/ICEF/L.1215 before the present session of the Board), was discussed in December 1957 at a regional technical meeting on malaria eradication held in Baghdad under the auspices of WHO. The conclusion was that this situation represents an extremely serious threat to the entire eradication effort in the Persian Gulf area, and that the problem should be met by substituting Dieldrin for DDT in the spraying of these areas. The areas affected in Iran have an estimated population of 1,350,000. The problem requires further and urgent study, and a special WHO team of experts will be sent to Iran for this purpose in 1958.

Plan of action for 1958

10. The continuation and expansion of spraying and surveillance operations in 1958 will be undertaken as reported to the Board last September (E/ICEF/L.1102), although targets have been readjusted to meet new circumstances. The increase in the surveillance work-load will require that provincial laboratory facilities be further strengthened. A total of twenty sub-regional (shahrestan) laboratories are planned, twelve of which have so far received equipment from UNICEF. The Fund is now asked to provide equipment for the remaining eight laboratories.

11. Due to the appearance of the DDT-resistant vector in the coastal region of the Persian Gulf, it is proposed to effect residual spraying with Dieldrin in the areas affected, to protect an estimated 1,350,000 persons in 1958. The calculation of requirements for two sprayings is based on an application of 0.9 grammes of Dieldrin, technical grade, per square metre, with seventy-five square metres superficial area to be sprayed per person protected. For the first cycle a seven per cent allowance is added to cover the spraying of summer huts and similar temporary structures. The first spraying would begin 1 March, and if WHO experts so advise, a second spraying would follow beginning approximately 1 July. If a second spraying is not required, the balance of Dieldrin would be held for use in 1959 in this same area.

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12. The Dieldrin requirement for 1958 operations is calculated at a total of 189 metric tons. Since this requirement was not foreseen in either the global or the regional forecasts of UNICEF commitments, the Executive Director is requesting the Government to assume approximately one half of the net increase in insecticide costs for 1958 and for subsequent years. Thus, from the revised total cost of insecticides for 1958, UNICEF would deduct its "savings" on 289 metric tons of DDT for which the Board allocated funds in September 1957 (E/ICEF/L.1102), this amount of DDT being no longer required. The resulting net increase would be shared, the Government providing approximately 57 metric tons of Dieldrin at a cost of approximately \$123,000, including freight and insurance charges.

13. UNICEF would provide the following supplies and equipment for the eradication programme in 1958, to supplement the aid previously authorized for this year:

	<u>US\$</u>	<u>US\$</u>
a) <u>Insecticides</u> (paras.11-12)		135,000
i) Dieldrin, 50% wettable, 132 metric tons	256,000	
ii) less previous unexpended allocation for DDT, 289 metric tons (para.10)	<u>121,000</u>	
iii) net additional funds required for insecticides	135,000	
b) <u>Transport</u> (para.8)		281,400
i) utility vehicles 110	220,000	
ii) station wagons 15	34,200	
iii) sedan 1	2,200	
iv) spare parts for above	25,000	
c) <u>Laboratory equipment</u> (para.10) for eight shahrestan units		5,000
d) <u>Contingencies</u>		<u>2,600</u>
Total supplies and equipment		424,000
e) <u>Freight</u>		<u>42,000</u>
Total recommended allocation		466,000

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WHO approval and participation

14. This project, including the proposed methods of spraying in areas affected by vector resistance to DDT, has the technical approval of WHO. The Government last December requested WHO to provide the services of a senior malariologist to advise on the campaign for at least six months each year during the remaining active phase of the project, and also the full-time services of an administrative officer for the same period. This assistance will be provided in addition to the technical advice and general guidance which WHO will continue to make available to the project. WHO will also send to the country a special team to study the problems relating to the spraying of Dieldrin. WHO will also continue to help stimulate co-ordination of malaria eradication activities with those of neighbouring countries.

Government commitments

15. In addition to operational expenses previously estimated for 1958 (E/ICEF/L.1102), totalling the equivalent of US\$3,333,000, the Government is now expected to expend a further US\$125,000 for procurement of a portion of the Dieldrin needed for the initial cycle of spraying, and to supplement the stock of anti-malarial drugs at present available in the country.

