directing council

PAN AMERICAN SANITARY ORGANIZATION
VIII Meeting

regional committee

WORLD HEALTH ORGANIZATION
VII Meeting

Washington, D.C.
9-21 September 1955

CD8/4 (Eng.)
12 July 1955
ORIGINAL: ENGLISH

Topic 14: UTILIZATION OF AVAILABLE FUNDS

The Executive Committee, at its 25th Meeting, after considering the report presented by the Director on the utilization of available funds, adopted Resolution V, which reads:

"THE EXECUTIVE COMMITTEE,

Having studied the report of the Director regarding the total available funds of the Bureau as of 31 December 1954, amounting to $273,593.75, an unusual surplus that cannot be expected in the future, owing to the low amount of outstanding quota arrearages;

Taking into account the proposals of the Director to the effect that, of the aforesaid amount, $173,593.75 be utilized for the establishment of the Building Reserve Fund, for the installation of a new elevator at Headquarters, and for an increase in the allocation for the antimalaria campaign; and

Bearing in mind Resolution XLIII of the XIV Pan American Sanitary Conference, which authorized the Director to apply $100,000 of the existing surplus to antimalaria activities; and the fact that the malaria problem, whose definitive solution demands concerted action on the part of all agencies and organizations interested in the welfare of the Hemisphere, merits prior attention over the other public health problems,

RESOLVES:

1. To concur in the recommendations of the Director regarding: the establishment of a Building Reserve Fund in an initial amount of $100,000; the installation of a new elevator in one of the Headquarters buildings at a

cost of $19,000; and an increase in the allocation for the antimalaria campaign in the amount of $54,593.75, plus any savings that may be realized from the installation of the elevator.

2. To recommend that the Directing Council authorize the Director to utilize as much of the Building Reserve Fund referred to in the foregoing paragraph as may be required in the event that additional funds should be necessary for the intensification of the malaria eradication program.

3. To transmit to the VIII Meeting of the Directing Council the report of the Director on this matter, with the request that the Director's recommendations, together with the recommendation presented in the preceding paragraph, be approved."

In accordance with the above resolution, the Director has the honor to transmit the aforesaid report (Document CE25/12 and Addendum) to the Directing Council for consideration.

In view of the foregoing, the Directing Council may wish to consider the following proposed resolution:

Proposed Resolution

THE DIRECTING COUNCIL,

Having studied the report of the Director regarding the total available funds of the Bureau as of 31 December 1954, amounting to $273,593.75, an unusual surplus that cannot be expected in the future, owing to the low amount of outstanding quota arrearages;

Taking into account the proposals of the Director to the effect that, of the aforesaid amount, $173,593.75 be utilized for the establishment of a Building Reserve Fund, for the installation of a new elevator at Headquarters, and for an increase in the allocation for the antimalaria campaign;

Bearing in mind Resolution XLIII of the XIV Pan American Sanitary Conference, which authorized the Director to apply $100,000 of the existing surplus to antimalaria activities; and the fact that the malaria problem, whose definitive solution demands concerted action on the part of all agencies and organizations interested in the welfare of the Hemisphere, merits prior attention over the other public health problems; and

Noting the recommendations contained in Resolution V adopted by the Executive Committee at its 25th Meeting,

RESOLVES:

1. To approve the recommendations of the Director, concurred in by the Executive Committee at its 25th Meeting, regarding: the establishment of a Building Reserve Fund in an initial amount of $100,000; the installation of a new elevator in one of the Headquarters buildings at a cost of $19,000; and an increase in the allocation for the anti-malaria campaign in the amount of $54,593.75, plus any savings that may be realized from the installation of the elevator.

2. To authorize the Director to utilize as much of the Building Reserve Fund referred to in the foregoing paragraph as may be required in the event that additional funds should be necessary for the intensification of the malaria eradication program.

Attachments: Document CE25/12 and Addendum

executive committee of the directing council

PAN AMERICAN SANITARY ORGANIZATION

working party of the regional committee

WORLD HEALTH ORGANIZATION

25th Meeting
Mexico, D.F.
25 April - 3 May 1955

CE25/12 (Eng.)
23 April 1955
ORIGINAL: ENGLISH

Topic 7: UTILIZATION OF AVAILABLE FUNDS

The XIV Pan American Sanitary Conference authorized the Director to obligate $100,000 of the surplus funds expected to be available as of 31 December 1954, for the intensification of the antimalaria campaing aimed at eradicating this disease in the Western Hemisphere (Resolution XLIII).

The total of available funds as of 31 December 1954 was $273,593.75, of which $100,000 has been allocated for the antimalaria campaign. The Director wishes to submit the following proposals for the consideration of the governing bodies with regard to utilization of the balance of these funds, amounting to $173,593.75:

1. That an amount of $100,000 be allocated for the establishment of a Building Reserve Fund.

2. That an amount of $19,000 be allocated for the installation of a new automatic elevator in the headquarters building located at 1515 New Hampshire Ave., N.W., Washington, D. C.

3. That the amount of $100,000 previously allocated for the antimalaria campaign be increased by the balance of the funds available, which amounts to $54,593.75.

There is provided below detailed information on these proposals.

Proposal 1

The Directing Council, at its VI Meeting, defined the term "interim headquarters" as meaning a period of at least ten years. The Bureau is now entering its fifth year of occupancy in the present two buildings. As the Director stated during a discussion on the buildings at the XIV Pan American Sanitary Conference, the existing buildings are being utilized to their maximun capacity.

There is no space available for holding general staff meetings or meetings of the governing bodies, and from an administrative point of view there are deficiencies arising from the physical distribution of the offices, divided as they are between two buildings.

Therefore, in view of the unusual amount of funds available from 1954, the Director feels that this is an opportune time to begin planning for the eventual acquisition of a permanet headquarters for the Bureau by establishing a Building Reserve Fund.

With the approval of the Directing Council, additional funds could be added as they become available, so that when the appropiate time arrives for the acquisition of a permanent building, income from the sale of the present property plus the Building Reserve Fund would be available.

Proposal 2

At an earlier meeting of the Permanent Subcommittee on Buildings and Installations, the Committee Suggested that a new elevator be installed in the building located at 1515 New Hampshire Ave., N. W. However, sufficient funds to cover the expense involved were not available at that time and a repair project was aproved for the old elevator which has been in use since 1912. The situation improved somewhat after the repairs were made, but due to the age and condition of the present equipment, frequent breakdowns occur and no amount of repairs seem to have any permanent effect.

In view of the nature of the above two proposals, the Director consulted with the Chairman of the Permanent Subcommittee on Buildings and Installations (Annexes I and II). As a result of this exchange of letters, the Subcommittee met on 18 April at the headquarters office.

After serious consideration of the two proposals regarding the headquarters buildings, the Committee concurred in the recomendations of the Director and requested that they be referred to the appropriate meetings of the governing bodies with the recommendation that they be given favorable consideration (Annex III).

Proposal 3.

The XIV Pan American Sanitary Conference instructed the Bureau to carry out the terms of Resolution XVIII of the XIII Pan American Sanitary Conference, regarding the intensification and coordination of antimalaria work with a view to achieving the eradication of this disease in the Werstern Hemisphere. In addition to this mandate,

the Conference authorized the Director to obligate up to $100,000 of the surplus funds to be available as of 31 December 1954 for the antimalaria campaign.

In view of the utmost urgency of this campaign, and the interest shown by the Member Governments in carrying out the resolutions of the XIII and XIV Conferences, the Director recommends that the original allocation of $100,000 be increased by $54,593.75, the balance remaining from 1954 available funds, plus any savings that may be realized from the $19,000 to be allocated for the installation of the new elevator.

In view of the above, the Director has the honor to present the following:

Proposed Resolution

THE EXECUTIVE COMMITTEE,

HAVING STUDIED the report and proposals of the Director regarding the total available funds of the Bureau as at 31 December 1954, amounting to $273,593.75, and noting Resolution XLIII of the XIV Pan American Sanitary Conference authorizing the Director to apply $100,000 of this surplus to antimalaria activities; and

RECOGNIZING that this unusual amount of surplus cannot be expected in the future owing to the low amount of outstanding quota arrearages,

RESOLVES:

1. To concur in the recommendations of the Director regarding the establishment of a Building Reserve Fund in an initial amount of $100,000; the installation of a new elevator in one of the headquarters buildings at a cost of $19,000; and an increase in the allocation for the antimalaria campaign in the amount of $54,593.75 plus any savings that may be realized from the installation of the elevator.

2. To transmit the report of the Director on this matter to the VIII Meeting of the Directing Council with the request that the recommendations of the Director be approved.

CE25/12 (Eng.)
ANNEX I

AOC 1 April 1955

Dr. Frederick J. Brady
Chairman, Permanent Subcommittee on
Buildings and Installations
Pan American Sanitary Organization
c/o Dept. of Health, Education and Welfare
Washington 25, D.C.

Dear Dr. Brady:

I wish to inform the Permanent Subcommittee that the unexpended funds available from the financial year 1954 amount to $173,593.75. This surplus became available due to the receipt of large quota arrearage payments late in 1954 which increased the income of the Bureau far in excess of the amount authorized for expenditure by the Directing Council.

This surplus will be placed in a special fund to be utilized in accordance with the wishes of the Directing Council, and since such a large surplus cannot be expected in the future, because of the low amount of outstanding quota arrearages, I feel that the following two proposals concerning the buildings housing the headquarters staff would be most timely.

The first proposal is for the installation of a new elevator in the building located at 1515 New Hampshire Avenue, N.W.

At an earlier meeting, the Subcommittee suggested the installation of a new elevator for this building. However, sufficient funds to cover the expense involved were not available at that time and a repair project was approved for the old unit which has been in use since 1912. The situation improved somewhat after the repairs were made, but due to the age and condition of the present equipment, frequent breakdowns occur and no amount of repairs seem to have any permanent effect.

The installation of the proposed new automatic elevator will cost approximately $19,000. Since the Bureau will be occupying this building for some years to come, it is felt that this expenditure is a justifiable one.

The second proposal is for the establishment of a Building Reserve Fund.

As you will recall, the Directing Council at its VI Meeting defined the term "interim headquarters" as meaning a period of at

least ten years. The Bureau is now entering its fifth year of occupancy in the present two buildings and as I stated during a discussion on the buildings at the XIV Pan American Sanitary Conference, the existing buildings are being utilized to their maximum capacity; there is no space available for holding full staff meetings or meetings of the Governing Bodies and, from an administrative point of view, there are deficiencies arising from the physical distribution of the offices, divided as they are between two buildings.

While this is in no way an emergency situation, I feel that this year is an opportune time to begin planning for the eventual construction of a permanent headquarters for the Bureau and the Regional Office of the World Health Organization.

Therefore, in view of the unusual amount of surplus available from 1954, I propose the establishment of a Building Reserve Fund in an initial amount of $100,000 from this surplus. If this fund is established, the money would be invested in U.S. Government securities so that interest will accrue.

With the approval of the Directing Council, additional funds could be added as they become available, so that when the appropriate time arrives for the construction of a permanent building, income from the sale of the present property plus the Building Reserve Fund will be available.

I therefore request the advice and recommendations of the Permanent Subcommittee on these proposals so that a document may be presented to the forthcoming meetings of the governing bodies of the Organization.

The assistance of the Subcommittee in this matter will be sincerely appreciated.

Respectfully yours,

(signed)
Fred L. Soper
Director

CE25/12 (Eng.)
ANNEX II

Department of
HEALTH, EDUCATION, AND WELFARE
Public Health Service
Washington 25, D. C.

Refer to: DIH

April 5, 1955

Dear Dr. Soper:

I have your letter of April 1, 1955, requesting the consideration of the Permanent Subcommittee on Buildings and Installations regarding the two proposals that you have put forward.

I would suggest that copies of your letter and this letter be forwarded to the other members of the Subcommittee. I shall then call upon the members to meet and propose recommendations for the governing bodies.

Sincerely yours,

(signed)
Frederick J. Brady, M. D.
Chairman, Permanent Subcommittee
on Buildings and Installations

Dr. Fred L. Soper
Director
Pan American Sanitary Bureau
1501 New Hampshire Avenue, N. W.
Washington, D. C.

CE25/12 (Eng.)
ANNEX III

REPORT OF THE MEETING OF THE PERMANENT SUBCOMMITTEE ON BUILDINGS AND INSTALLATIONS

The IV Resolution of the XIV Pan American Sanitary Conference asked the Permanent Subcommittee on Buildings and Installations to continue to give collaboration to the Director of the Pan American Sanitary Bureau.

In accordance with this resolution, the Director submitted two proposals to the Chairman of the Committee under date of 1 April, for the Committee's consideration.

The Subcommittee, composed of Mr. Marco de Peña (Dominican Republic), Mr. Francisco Anguiano (Guatemala), and Dr. Frederick J. Brady (United States), met on 18 April to discuss these proposals.

The Subcommittee believes that its recommendations, which will be forwarded to the Executive Committee for comment and transmittal to the Directing Council, may not necessarily express the views of the governments appointing members to the Subcommittee.

The first proposal of the Director would allow $19,000 to be spent for installing a new elevator in the headquarters building at 1515 New Hampshire Avenue, N. W., Washington, D. C. The Committee determined that the cost estimated was a reasonable one, that the new installation will adequately serve the Bureau, and that its installation would increase the value of the property. The Committee approved this recommendation.

The second proposal concerned the establishment of a special fund of $100,000 to be put aside for future use in the acquisition of a permanent headquarters for the Bureau.

The representative of the Director indicated that the present properties probably are worth over half a million dollars and that a headquarters that would appropriately serve the Bureau would probably cost at least twice this amount.

The Subcommittee endorsed the Director's recommendation that this amount be set aside in a special account.

The Subcommittee pointed out that the establishment of such a fund did not require that a certain sum be set aside each year, but each new recommendation would be examined in light of that year's account.

18 April 1955

executive committee of the directing council

PAN AMERICAN SANITARY ORGANIZATION

working party of the regional committee

WORLD HEALTH ORGANIZATION

25th Meeting
Mexico, D. F.
25 April - 3 May 1955

CE25/12 (Eng.)
ADDENDUM
27 April 1955
ORIGINAL: ENGLISH-SPANISH

Topic 7: UTILIZATION OF AVAILABLE FUNDS

The Director of the Pan American Sanitary Bureau has the honor to submit the following documents to the Executive Committee, as additional information relating to Proposal No. 3 in Document CE25/12:

A. ANNEX IV - Hemisphere-Wide Malaria Eradication (Statement by Dr. Fred L. Soper)

B. ANNEX V - Notes on Malaria Control in the Americas (1954), with Estimates on Cost of Eradication

PAN AMERICAN SANITARY BUREAU

REGIONAL OFFICE OF WORLD HEALTH ORGANIZATION

Washington, D.C.
14 February 1955

HEMISPHERE-WIDE MALARIA ERADICATION

Statement by Dr. Fred L. Soper, Director

The XIV Pan American Sanitary Conference (Santiago, October 1954) issued an urgent mandate (Resolution XLII) to the Pan American Sanitary Bureau to take all possible measures to eradicate malaria in the Americas as rapidly as possible.

The mandate followed the presentation of information on

1) the spontaneous disappearance of malaria from geographical areas within three years after complete interruption of transmission.

2) the reinfection of previously malarious areas by persons from uncontrolled districts, and

3) the development of resistance to DDT by certain Anopheles mosquitoes following its prolonged use for the partial control of malaria.

The action was based on the conclusion that -

1) malaria can be eradicated from a given area in a few years,

2) the full benefits of eradication require that all malarious areas in all countries of the region be covered by the program,

3) the potential development of resistance to DDT by the Anopheles mosquitoes of the Americas is a threat to the efficacy of present control programs, as well as to future attempts at eradication, and

4) relief from the great economic burden of malaria to afflicted populations, and from the annual cost of present partial control measures would more than justify the increased cost of eradication.

The Conference recognized the inadequacy of the Bureau's financial resources and called upon the Bureau to secure the participation of other organizations. The definite solution of the malaria problem, in the opinion of the XIV Pan American Sanitary

Conference, has a priority over all other health programs and requires the urgent concerted action of all organizations interested in the welfare of the hemisphere. Here, the opportunity to derive permanent benefits from the investment of capital funds over a relatively short period of time is unique.

During a full half century after the discovery that malaria is a mosquito-borne disease, and until only a short decade ago, malaria was the most difficult problem facing public health workers in the tropics and sub-tropics, and in many parts of the temperate zones. Previous to the introduction of DDT as a residual insecticide, economically feasible measures for the control of rural malaria were not known. The initial results of this new measure have been so dramatic that many health workers and many fiscal authorities have come to disregard malaria as a continuing problem, and fail to recognize the promise and the threat for the future implicit in the developments of recent years.

Before considering these implications, it may be well to restate the salient points regarding malaria as a health problem.

Economic Importance of Malaria

Devastating epidemics of malaria have at one time or another occurred in practically every country of the Western Hemisphere. In its malignant form, malaria is highly fatal, particulary among the young, and is still one of the world's great killers of children. Although other diseases may decimate, only malaria depopulates. In the past, malaria has caused large areas to be abandoned to the jungle and the development of enormous fertile tracts has been prevented. Survivors of severe malaria, and of repeated mild infections, may suffer the lifelong debilitating effects of chronic infection. Malarious populations tend to live on a bare subsistence basis, contributing nothing to the common good. Even where the incidence of infection is relatively low, there is a surprising inhibition of both mental and physical effort.

Malaria is a serious burden on the economy of every malarious country. It has been well said that where malaria fails to kill, it enslaves. It is an economic disease. No infected area may hope to meet the economic competition of non-malarious regions. In agriculture and industry, labor is inefficient and the output is often reduced by one-third to one-half and even more.

Less than thirty years ago, the annual cost of malaria to the south-eastern United States was estimated to be over $500,000.000.

Today, industry is expanding in each of these states, now that malaria is gone. After World War II, malaria control in Greece in a single year augmented the labor effort by 30,000,000 man days. Rice production increased by 15% per acre in the first year after malaria was controlled in Burma and in Pakistan. After malaria was controlled in Iran, the rice crop was harvested by 4 laborers per hectare, whereas formerly 10 were needed.

As a primary basis of economic development, malaria must be suppressed. It represents the outstanding opportunity to improve economic conditions through disease eradication, since even where malaria has been partially controlled the annual cost of continuing control is a considerable financial drain on national budgets.

Impact of DDT on Malaria Control; Eradication proposed 1950

Malaria may be transmitted by various species of Anopheles mosquitoes, but the species most dangerous as vectors of malaria are those which enter human habitations to feed. Since Anopheles usually roost on inside walls before and after sucking blood, DDT on these walls is effective in killing those mosquitoes, which become infected, before the end of the incubation period required for them to become infective. The transmission of malaria is stopped by the chemical attack on those mosquitoes which enter human habitations rather than on Anopheles in general.

The introduction of DDT has halted the extension of expensive drainage works and costly larviciding operations and has led to the control of malaria in many agricultural areas, where the isolation of dwellings one from another makes other methods of control impractical. Thus was the door open to the development of nation-wide control programs. These in turn led to the most promising observation that malaria, as a mosquito borne disease, disappears from an infected population within a few years after transmission ceases. The further observation has been made that malaria reappears in cleared areas only when reintroduced by an infected person from an endemic zone. The United States, for example, parts of which were previously highly malarious, has been free of epidemics of malaria for a decade except for a small outbreak of 35 cases infected in 1952 by mosquitoes which had fed on a returned veteran from Korea.

By 1950 nearly all countries in this hemisphere with a malaria problem were engaged in serious efforts to control it. It was absent from Chile and Uruguay, eradicated in British Guiana, nearly gone from the United States and Argentina and was greatly reduced in Brazil and Venezuela. Control programs were well advanced in most of the others. So rapidly had programs expanded that approximately 75% of the total homes in the malarious zones of the Americas were sprayed that year. It was hoped that the

remaining 25% (four and one-half million homes) would soon be brought into the program. In order to stimulate further program extension, and envisaging the possibility of eradicating the disease from the Western Hemisphere, the XIII Pan American Conference (1950) recommended that the Pan American Sanitary Bureau stimulate and coordinate anti-malaria programs and arrange economic assistance where possible to individual countries, with a view to achieving the continental eradication of malaria.

Campaigns were expanded by Governments, trained technicians were provided by PASB/WHO and equipment and materials were supplied by UNICEF to the Caribbean and Central American area and to four South American countries. Malaria control campaigns were initiated in every malarious country of the hemisphere. The disease toppled from its position as the leading public health program in the Americas. Hopes were high and the householders' enthusiasm for the method appeared to ensure success of the eradication program.

Difficulties and Danger: DDT Resistant Anopheles

But success was not to come so easily. Unfortunately the house fly, which was the householder's visible measure of the value of any insecticide, developed a marked resistance to DDT and the residual spray program lost much of its initial prestige. The publicity given to the rapid reduction in malaria following the introduction of residual spraying resulted in the general conviction that malaria is no longer an important problem and can safely be disregarded.

Instead of rapidly increasing appropriations, a lag set in and four years later, 1954, 22% of homes in malaria areas still were not included in control programs. Authorities reacted to other fiscal pressures and reluctantly appropriated funds for controlling a disease which seemed to cause but little damage. This situation, disappointing as it was, might have been accepted for the time and gradually improved from year to year in individual countries as opportunity appeared, had it not been for the threat inherent in the recent development of resistance to DDT by certain Anopheles. In Greece, the three local vectors have developed resistance and DDT is no longer effective in controlling malaria in some villages. Another important malaria vector, Anopheles sundaicus, has become resistant in Indonesia.

In the U.S. the malaria mosquito in one heavily infested area has developed an increased tolerance to DDT and more than

twice the normal quantity is now needed to kill it. The same is true for two other species in Africa, making eight species in all. In Central America one of the principal mosquito vectors is exhibiting a changed behavior to the insecticide, a change which may presage the development of resistance.

Urgency of Eradication

It is most unfortunate that resistance is developing before malaria has been eradicated, since the pre-DDT control methods are too expensive for general use in rural areas and are limited because of cost to urban and village application. It is obvious that malaria must be eradicated from the Americas before the threat of anopheline resistance to insecticide materializes here.

Government representatives at the XIV Pan American Sanitary Conference (October 1954) recognized the danger of prolonged control programs, and the consequent hazard of the development of DDT resistant strains of Anopheles resulting in the return of epidemic malaria, and approved a program of continental eradication to meet the threat. The Conference recognized the need, as the eradication program progresses, to consider measures to prevent the importation of infected persons into areas already free from infection. The Conference bespoke the utmost urgency in achieving the continental eradication of malaria and urged the Member Governments to immediately convert all control programs into eradication programs.

Extra effort applied now makes the difference between success and failure. A few years of all-out drive can so reduce the amount of malaria that residual pockets may thereafter be eradicated economically with drugs, if necessary. When malaria has disappeared, surveillance or vigilance squads can ensure continued freedom from the disease at a low and entirely feasible cost.

The full promise of eradication for the continent depends obviously on the simultaneous wiping out of malaria infection from all countries in the Americas. Once this is done, expenditures can be greatly reduced and vigilance relaxed except against reinfection through immigrants or travellers from other parts of the world.

If one State "drags its feet" in the program or if, in order to reduce expenditure, it fails to destroy all of its pockets of malaria, that State becomes a menace to its neighbors. Control may be good for a year or two; but if it then becomes

slack, hidden sparks may start new fires. Complete control for at least three years is necessary, because certain malaria parasites may persist in the infected person for this period in the absence of reinfection.

Conversion from Control to Eradication

Realizing the urgency of the situation and the need for quick action, the XIV Conference (1954) authorized an immediate annual increase of $100,000 in expenditure to enable the Bureau to implement the Resolution of the XIII Conference (1950) "...to provide for greatest intensification and coordination of anti-malaria work in the hemisphere, stimulating existing programs, facilitating interchange of information and furnishing technical and, whenever possible, economic assistance to the various countries with a view to achieving the eradication of malaria from the Western Hemisphere." Considering the obvious inadequacy of this sum for financing active collaboration with governments in the extension of national programs, the Conference called upon the Director of the Bureau to secure the financial participation of organizations, public and private, national and international, in order to achieve eradication.

Having established the technical, economic and health bases for an eradication program, and having received a mandate from the Pan American Sanitary Conference, action is now required to establish-

a) adequate technical guidance and coordination,

b) country-by-country arrangements to convert control into eradication, and

c) mobilization of international assistance of all agencies which may be able to participate in the program.

PASB/WHO as the international agency charged with responsibility for technical guidance and coordination of inter-American health programs and specifically the hemisphere-wide malaria eradication program, has already taken action to assure regional technical guidance on an adequate basis. The Bureau is developing a competent professional group directly responsible for technical advice wherever needed, to assist Governments to intensify their malaria control programs and convert them into eradication programs. This group is responsible for the coordination of country programs, so that concerted progress

shall be achieved within overall regional plans and schedules. Technical and administrative standards for the organization and administration of the eradication programs are being established; operating manuals are being prepared, including a uniform system for reporting activity and continuously evaluating progress.

Eradication depends on action at the national level. Each nation, as a member of PASB/WHO automatically has undertaken an obligation to all the other countries, as well as to its own population, for execution of an eradication program. Action in all countries should proceed simultaneously. Inasmuch as conditions and the extent of existing control measures vary from country to country, a new plan is being made in each case covering the details of an eradication program. This plan provides for a unified country-wide service, operated according to international technical standards with uniform reporting procedures to facilitate international coordination and analysis.

The chief problem in each country is to provide adequate materials and finances for large scale operations without interruption until eradication has occurred. It is important that the eradication program commence on as large a scale as possible and progressively expand until the entire malarious zone of the country is covered. Temporary, inadequate and intermittent effort is costly and ineffective. Emphasis on careful training of eradication staffs and on tight administration can assure such thorough results that malaria will disappear in three or four years after complete coverage of the area has occurred. Taking into consideration the recruitment and training period and the progressive nature of the organization of control measures, it is probable that the manpower, transportation and supply requirements will be spread over a somewhat longer period.

Continuing evaluation of the distribution of malaria is an essential part of any eradication program, as a check on the efficacy of the method and the efficiency of its application and as an indication of eradication itself and of the possibility of discontinuing costly control operations. The application of DDT should be discontinued as soon as possible in an area, not only to reduce costs, but also to avoid the threat of DDT resistance of vector Anopheles, due to prolonged exposure. When discontinued in any area, surveillance must be continued and intensive local house spraying initiated in and about any focus of reinfection which may be found.

Cooperation of International Agencies Needed

In many countries the cost of malaria control is felt to be a heavy burden, and substantial international assistance is needed to stimulate the expansion of the program to cover the additional areas necessary for nation-wide eradication. In promoting national **eradication programs**, it is important to know the approximate amount of outside assistance available from all sources. Under the Conference mandate to secure the financial participation of all organizations which may be in a position to assist, the Director of the Bureau is reviewing the problem with agencies already active in this field, as well as others which may desire to participate. The principal active agencies are UNICEF, FOA and PASB/WHO. Of the 36 countries (nations and territories) infected with malaria, PASB/WHO is providing technical advice and other assistance to 21. UNICEF, for its part, has provided assistance with supplies and equipment to 19 of these. Of other agencies, FOA has given the most assistance, having aided the control program in several countries, and still does in four. Malaria eradication is expensive and might well absorb all money available to international agencies, and more. Two past mistakes must be avoided; eradication should not be planned as a cheap current program but one for short-term capital investment for permanent dividends; governments should be given adequate technical and material aid, not only during the initial period but until eradication is achieved.

Each agency is urged to carefully consider this problem and determine as early as possible, in broad outline, the basis on which it can cooperate and assist in the hemisphere-wide malaria eradication program. In addition to the financial aspects of assistance, it is important to establish an overall plan providing for organizational and administrative action by each agency to assure cooperation and coordination at both international and country operating levels.

Ciudad Trujillo
October 1950

RESOLUTION XVIII

MALARIA CONTROL

WHEREAS:

Efforts towards the solution of the malaria problem have been undertaken to a greater or lesser extent by all countries in the Western Hemisphere, some having solved the problem completely while others have made remarkable progress in the control of the disease; and

It is certain that, due to the adoption of new techniques of malaria control and to sufficiently intensive and coordinated efforts on the part of Member Countries and territories, total eradication of the disease from the Americas can be achieved,

THE XIII PAN AMERICAN SANITARY CONFERENCE

RESOLVES:

To recommend to the Pan American Sanitary Bureau to include henceforth in its operating programs the development of such activities as are necessary to provide for greatest intensification and coordination of anti-malaria work in the Hemisphere, stimulating existing programs, facilitating interchange of information and furnishing technical and, whenever possible, economic assistance to the various countries with a view to achieving the eradication of malaria from the Western Hemisphere.

Santiago, October 1954

RESOLUTION XLII

ERADICATION OF MALARIA IN THE AMERICAS

THE XIV PAN AMERICAN SANITARY CONFERENCE,

CONSIDERING that in the course of the technical discussions on the topic "Eradication of Malaria in the Americas" it was made evident that:

(a) The experience of those countries that have achieved eradication of malaria shows that, once transmission is intercepted, the infection in human beings disappears within few years, as the result of the natural death of the parasite;

(b) Recent observations indicate the development of resistance by some anopheline species to certain insecticides, a phenomenon that, in time, may cause serious difficulties and even failures in antimalaria campaigns; and

(c) The eradication of malaria in some countries calls attention to the international problem of preventing the importation of new cases into areas already free from infection.

RESOLVES:

1. To declare that it is of the utmost urgency to carry out the terms of Resolution XVIII of the XIII Pan American Sanitary Conference, which recommends that the Pan American Sanitary Bureau promote the intensification and coordination of antimalaria work, with a view to achieving the eradication of this disease in the Western Hemisphere; and that the Member Governments should convert all control programs into eradication campaigns within the shortest possible time, so as to achieve eradication before the appearance of anopheline resistance to insecticides.

2. To instruct the Pan American Sanitary Bureau to take steps to implement the aforesaid resolution and to study international measures to ensure the protection of those countries or territories that have achieved eradication of the disease.

3. To authorize the Director of the Pan American Sanitary Bureau to secure the financial participation of public or private organizations, national or international, in order to further the aims set forth in this resolution.

CE25/12 (Eng.)
ANNEX V

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NOTES ON MALARIA CONTROL IN THE AMERICAS (1954) WITH ESTIMATES ON COST OF ERADICATION

A reconnaissance in 1950 of the progress made by the American nations in the control of malaria (1) revealed a dramatic improvement following the introduction of DDT as a residual insecticide and led to the conviction that malaria eradication for the hemisphere is feasible.

A similar reconnaissance in 1954 (2) indicated that anticipated progress toward eradication had not occurred in a number of countries.

The XIV Pan American Sanitary Conference (October 1954), considering the repeated observation that malaria dies out spontaneously within a few years, once transmission has been suppressed, and the reports of resistance to DDT of certain Anopheles mosquito vectors after several years of exposure, recommended that all control programs be transformed into national eradication programs to get continental eradication before American anophelines become DDT resistant.

The Conference considered the situation urgent and instructed the Pan American Sanitary Bureau to coordinate national efforts in a hemispheral program.

The attempt is made in these notes to present the malaria situation as it was in 1954 and give estimates of costs of a continental eradication program. The estimates are admittedly based on incomplete data but are believed adequate for a rough estimate of the general proportions of the problem.

The residual insecticidal action of DDT has pinpointed the attack on malaria transmission to the home, where both mosquito and man are usually infected.

The number of houses in a malarious area has become the most important factor in planning a malaria eradication program, rather than the number and type of mosquito breeding areas or the number and severity of malaria cases.

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(1) Fourth Report on Malaria by Dr. Carlos A. Alvarado; PASB publication No. 261 - Annex B - August 1951. English translation not published.
(2) Fifth Report on Malaria by Dr. Carlos A. Alvarado; PASB document CSP14/36 - Annex 1 - 5 October 1954.

In the eradication program, the same consideration must be given to sparsely populated regions with low grade malaria endemicity as is given to densely populated highly endemic zones, since these would otherwise remain as sources of reinfection for the cleared zones. Eradication requires complete coverage for a long period - at least three years - to let the organism die out in the human host.

Reduction in malaria occurs immediately after transmission is interrupted, even from partial control measures. However, the true measure of success of an eradication program is the complete disappearance of the infecting organism, the plasmodium of malaria, from man and from the mosquito. Once eradication is undertaken, measures must not be relaxed until the task is completed. When the objective of eradication is reached, costly control measures may be discontinued with impunity except for the threat of reintroduction of the plasmodium in infected persons.

The importance of carrying a control program to the point of eradication is emphasized by the present situation in Argentina where malaria has been effectively controlled for a number of years. At present, malaria is held at a low level in the most seriously infected states by spraying only 148,000 houses at a cost of $276,000 a year, and is no longer a serious health problem. Before control measures can be discontinued, however, an additional 42,000 houses must be sprayed for several years at an annual added cost of $119,000, to remove the residuum of malaria, which constitutes a continuing hazard of reinfection of cleared areas should the control program be discontinued. When this has been done and when continental eradication is achieved, Argentina, no longer fearing auto-reinfection nor reimportation of the malaria parasite from Brazil, Paraguay and Bolivia, will be free to almost eliminate budgeting for malaria except for a small surveillance and emergency service.

In the following summary "Status of Malaria Control Programs" countries are grouped, not in the order of the severity of malaria, but rather in the order of the completeness with which control programs approach eradication. Two tables showing various eradication estimates by country are attached.

Table I gives the estimated number of homes in the malarious zones of each country, and the number in the present control program. The columns listing unit cost and the additional houses to be sprayed in country-wide programs indicate the anticipated annual cost for each country. The estimate of the speed with which each country's program may be expanded is adjusted to the need of training large numbers of new workers and of developing vastly increased budgets. The final four columns of Table I give the estimates of total annual costs from 1955 through 1958.

Table II is concerned solely with finance. The first column lists available information on expenditures by each country during its 1954 anti-malaria program. The next four columns list by years the estimated additional funds required in each country from 1955 to 1958. What part of the required sum each country may appropriate for each of these years remains to be seen. The table indicates the requirements, without establishing the source of funds.

Many American countries now recognize the possibility of malaria eradication and either have already developed or may be expected to develop, effective eradication programs. Means must be found to promote equally effective programs in the others because continental eradication can be achieved only through prosecution of a full program in the entire malarious area of the continent. This objective should be achieved as soon as possible to avoid the hazard of insect resistance to insecticides and to permit the early reduction of present malaria control costs.

The cost estimates are based on programs using DDT. Any change in choice of insecticides may alter the relative cost of insecticide and labor but should not greatly affect the total cost.

As programs approach peak activity, malariometric services must be developed to determine the specific areas where transmission continues in spite of control measures so that correction can be made. After full coverage has been effected, programs may be reduced on the basis of malaria eradication, fully checked by field investigations, until all programs are finally discontinued.

Status of Malaria Control Programs in the Americas by Countries - December 1954

With the exception of Mexico and Haiti, where eradication programs are planned to begin in 1955, malaria has steadily declined during the past eight years in every malarious country of the Western Hemisphere. The degree and speed of reduction has varied among nations commensurately with difficulties encountered and effort expended. Countries are grouped below in decreasing order of program completeness.

I. MALARIA ERADICATION ACHIEVED.

Uruguay: Essentially a non-malarious country. The opportunity for transmission is so slight that introduction of the disease can be ignored.

Chile: Malaria transmission, always limited to the northern coastal valleys, has disappeared since the introduction of the DDT spraying program.

United States: The U.S. Public Health Service followed up its World War II anti-malaria activities (MCWA) with the National Malaria Eradication Program, inaugurated in 1947, with the cooperation of certain state and local health agencies. Control operations reached their peak in 1948 when 1,365,000 homes in 13 States were sprayed at a cost of $5,000,000, following which operations were curtailed each year until 1952, when less than 100,000 houses were sprayed. For several years the cases of indigenous malaria occurring in the U.S.A. have been secondary to imported malaria from Mexico or from the Pacific. Only 62 such cases were found in the U.S.A. during the two year period, 1952 and 1953.

French Guiana: Malaria has been eradicated, but the 6000 homes at risk must still be DDT sprayed at an annual cost of $21,000.

Puerto Rico: Everyone is under DDT protection. Malaria eradication is so nearly achieved that Puerto Rico should be included in this classification.

Bahama Islands:
Barbados:
Bermuda: Free of malaria; not subject to reinfection.
Netherlands Antilles:
Virgin Islands:

II. MALARIA NEARLY ERADICATED.

Argentina: Malaria has been eradicated from large areas but a small amount of infection remains scattered over an extensive zone which must be cleared up before control measures can be effectively reduced. The movement of seasonal labor into northern Argentina from Bolivia gives Argentina a vested interest in malaria eradication in the latter country.

Brazil: Malaria has been eradicated from some areas and control programs are well advanced in others. However, approximately 6% of the malaria yet to be found in the continent is in Brazil. Beginning in 1955 operations in a number of States in the South and in Northeast Brazil are being reoriented for eradication. In the regular DDT spraying

program there are now 2,416,000 houses at an annual cost of $4,103,000. To achieve eradication an additional 804,000 houses at $1,371,000 per annum must be included.

Dominican Republic: Malaria is no longer a serious health problem. There are 160,000 houses in the regular DDT spraying program, now costing $162,000 a year, which program protects the entire population at risk. Continuance, requiring only $62,000 additional each year, should soon achieve eradication.

III. MALARIA ERADICATION PROGRAM WELL ADVANCED.

Panama: The DDT spraying program covering 44,000 houses, costing $151,000 last year, controls most of the traditionally severe malaria which previously plagued the country. The little that remains is so scattered, however, that conversion to eradication requires spraying of another 33,000 houses at an additional annual cost of $125,000.

Trinidad: Although only 78,000 of the 101,000 houses in the malaria zone need DDT treatment ($195,000 last year), local conditions have prevented eradication. Unusual non-domiciliary transmission of malaria, due to the out-door biting habits of Anopheles bellator, a local vector, forces consideration of control measures other than DDT spraying.

Venezuela: Venezuela has been a leader in planning a national eradication program and has already eradicated malaria from an extensive area of some 80,000 square miles through DDT spraying of 548,000 houses at a yearly cost of $2,168,000. The inclusion of another 83,000 houses at an annual cost of $369,000 should lead to eradication, except for certain areas where unusual vectors may present special problems.

IV. GOOD CONTROL PROGRAM - READY FOR CONVERSION TO ERADICATION.

British Honduras: Malaria has been practically eradicated on the coast where 9,000 houses are sprayed once for about $9,000 a year. However, eradication requires two annual sprayings at an additional $9,000 per annum.

Costa Rica: The present program covers 76,000 houses at an annual cost of $152,000. Eradication can be achieved by including 5,000 more houses at an additional annual cost of only $10,000.

Cuba: Some malaria is still found in two sectors of the island where drainage and larvicidal measures ($53,000 per annum) are giving good general control. Inauguration of a DDT spraying campaign comprising 120,000 houses, at about $480,000 a year, would soon achieve eradication.

Honduras: Severe malaria, previously crippling much of the country, has been controlled by a regular DDT spraying program including 50,000 homes which last year cost $110,000. Conversion to an eradication campaign requires the spraying of 21,000 more houses at an additional cost of $94,000 a year.

Windward Islands: Malaria is kept under good control by spraying 18,000 houses at $72,000 a year. An additional 41,000 houses at $168,000 a year would have to be sprayed to achieve eradication.

V. GOOD CONTROL PROGRAM.

Bolivia: The malaria of a formerly heavily infected area is now controlled by spraying 32,000 houses at an annual cost of $72,000. Eradication would require the addition of 130,000 houses at an increased annual cost of $288,000.

Guadeloupe: At least 75% of the formerly severe malaria is under control by DDT spraying of 24,000 houses at an annual cost of $72,000. An eradication program would require addition of 29,000 houses at an extra annual cost of $87,000.

British Guiana: On the coast malaria eradication has come about through years of DDT house spraying, which no longer need be applied even so frequently as once each year. There are 30,000 houses in the program which cost $88,000 during 1954. In the hinterland, near the Brazilian border, however, there are 1000 houses which will require an additional annual expenditure of only a few thousand dollars before colony-wide eradication will be achieved.

Martinique: The control program has reduced the serious malaria problem by at least three-quarters. DDT spraying covers 24,000 houses at an annual cost of $72,000. Eradication can be achieved by adding 29,000 houses at an estimated annual cost of $87,000.

VI. INCOMPLETE MALARIA CONTROL.

Colombia: The malaria problem of Colombia is the second largest on the continent. The severe infection in unprotected portions of the country constitutes 13% of the malaria remaining in the Americas. Although $1,217,000 was spent during 1954 to spray, either once or twice, 390,000 of the 1,400,000 houses in the malaria zone, the program was spotty and inadequate. Conversion to eradication requires the spraying of 887,000 additional houses at an estimated annual cost of $3,508,000.

Ecuador: Last year 188,000 houses were DDT-sprayed at a cost of $251,000. Malaria, however, is still a serious problem, and an additional 124,000 houses at $304,000 a year must be included to achieve eradication.

El Salvador: The malaria control program last year cost El Salvador $263,000 and covered 128,000 houses. Eradication would require the inclusion of approximately 100,000 more homes at an estimated cost of an additional $252,000.

Guatemala: Internal political troubles were reflected in the administration of the malaria program in 1953. Considerable improvement occurred in 1954, but at best the program now covers not more than one-third of the country. Guatemala spent $50,000 to spray, once each, 47,000 of the 198,000 homes in the malaria zone, which program indirectly protects so many more homes (111,000) that the eradication campaign would require the inclusion of only 40,000 additional homes at an estimated extra annual cost of $124,000.

Paraguay: The amount and the severity of malaria in Paraguay are subject to conflicting reports. It is planned to survey the situation at an early date to determine the number of additional houses where spraying is

necessary. Should all of the 85,000 homes in the malaria zone need spraying, an estimated $136,000 per year would be required for eradication.

Peru: Peru has the fifth most serious malaria problem on the continent, comprising 4% of the existing malaria. The control program is incomplete and covers only part of the malarious area. There are 755,000 homes in the infected zone and only 270,000 are being sprayed at a cost of $578,000. Eradication would require the spraying of an additional 229,000 at an extra annual cost of $480,000.

Leeward Islands: Moderately severe malaria is found in only three of these islands (Antigua, Montserrat and St. Kitts-Nevis). The disease is held at a low level by DDT spraying 8,000 homes at an annual cost of $15,000. Eradication requires spraying an additional 21,000 homes at an extra annual cost of $72,000.

Surinam: Surinam maintains reasonably good malaria control on the coast by spraying 10,000 of the 33,000 homes at an annual cost of $30,000. To achieve eradication on the coast there must be added to this program another 15,000 homes at an annual cost of $45,000. Country-wide eradication necessitates an expensive spraying program in the hinterland, where there is much malaria. Such a program would include 8,000 homes at an annual spraying cost of $96,000. With a full program, the annual cost is estimated at $171,000.

Haiti: Haiti, containing 6% of the malaria residuum, represents the fourth most severe malaria problem on the continent. In 1953 a small demonstration program covering 26,000 homes in the malaria zone was initiated at an estimated cost of $21,000, of which Haiti contributed $8,000. An eradication program is quite difficult financially for Haiti. There are approximately 414,000 homes in the malaria zone, of which 390,000 must be sprayed at an estimated cost of $624,000 per annum.

Mexico: Mexico has the most severe and the largest malaria problem in the hemisphere. Probably 64% of the total malaria remaining in the Western Hemisphere is to be found in this country. The malaria control program has covered 126,000 homes at an annual cost of $222,000. Converting this program to one of eradication requires steady expansion until, at most, 3,098,000 homes in the malaria zone are brought into the DDT spraying program. The maximum annual cost (1957) is estimated at $6,773,000.

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TABLE I - MALARIA ERADICATION ESTIMATES - (COSTS IN U.S. DOLLARS)

Countries	Total Number Houses Malaria Zone (1)	No. Houses DDT-Sprayed 1953 (2)	No. Houses Indirectly Protected 1953 (3)	Cost of Program 1953 (4)	Cost per House, One Spraying (5)	Additional Houses for Eradication (6)	Total Houses to be Sprayed 1955-1958 (7)	Estimated Annual Cost Eradication Program (Based on Two* Sprayings per Year) 1955 (8)	1956 (9)	1957 (10)	1958 (11)	Remarks
Argentina	371,000	148,000	181,000	$219,000	$1.04	42,000	190,000	$274,000	$395,000	$395,000	$395,000	
Bolivia	210,000	32,000	48,000	18,000	1.11	130,000	162,000	100,000	200,000	360,000	360,000	These estimates are derived from incomplete data, and are subject to correction after detailed country programs have been finally approved.
Brazil	5,360,000	2,416,000	2,140,000	5,037,000	0.85	804,000	3,220,000	5,474,000	5,474,000	5,474,000	5,474,000	
Colombia	1,400,000	390,000	123,000	755,000	1.85	887,000	1,277,000	944,000	1,888,000	3,776,000	4,725,000	
Costa Rica	81,000	76,000	0	152,000	1.00	5,000	81,000	162,000	162,000	162,000	162,000	
Cuba	120,000	0	0	53,000	2.00	120,000	120,000	66,000	132,000	264,000	480,000	
Dominican Repub.	208,000	160,000	48,000	118,000	0.70	0	160,000	148,000	224,000	224,000	224,000	* Puerto Rico to be sprayed only once each year.
Ecuador	353,000	188,000	41,000	181,000	0.89	124,000	312,000	226,000	452,000	555,000	555,000	
El Salvador	257,000	128,000	29,000	243,000	1.13	100,000	228,000	304,000	515,000	515,000	515,000	
Guatemala	198,000	47,000	111,000	100,000	1.00	40,000	87,000	125,000	174,000	174,000	174,000	
Haiti	414,000	26,000	24,000	8,000	0.80	364,000	390,000	78,000	156,000	312,000	624,000	** Mexico estimates 1955-1958 taken from January 1955 calculations by Government of Mexico.
Honduras	83,000	50,000	12,000	75,000	1.44	21,000	71,000	94,000	188,000	284,000	284,000	
Mexico	3,140,000	126,000	42,000	106,000	0.84	2,972,000	3,098,000	2,047,000	4,868,000	6,773,000	6,090,000**	
Nicaragua	225,000	32,000	1,000	125,000	0.99	192,000	224,000	156,000	312,000	444,000	444,000	
Panama	100,000	44,000	23,000	158,000	1.79	33,000	77,000	198,000	276,000	276,000	276,000	*** Surinam: 25,000 coastal houses at $1.50 each, 8,000 inland at $6 each.
Paraguay	85,000	2,000	0	12,000	0.80	83,000	85,000	15,000	30,000	60,000	136,000	
Peru	755,000	270,000	256,000	588,000	1.06	229,000	499,000	735,000	1,058,000	1,058,000	1,058,000	
Venezuela	631,000	548,000	0	1,096,000	2.01	83,000	631,000	1,370,000	2,537,000	2,537,000	2,537,000	
British Guiana	93,000	30,000	62,000	79,000	2.31	1,000	31,000	99,000	143,000	143,000	143,000	
British Honduras	15,000	9,000	6,000	4,000	1.00	0	9,000	5,000	10,000	18,000	18,000	
French Guiana	6,000	6,000	0	18,000	1.50	0	6,000	18,000	18,000	18,000	18,000	
Guadeloupe	53,000	24,000	0	72,000	1.50	29,000	53,000	90,000	159,000	159,000	159,000	
Jamaica	42,000	42,000	0	53,000	0.65	0	42,000	55,000	55,000	55,000	55,000	
Leeward Islands	29,000	8,000	0	24,000	1.50	21,000	29,000	30,000	60,000	87,000	87,000	
Martinique	53,000	24,000	0	72,000	1.50	29,000	53,000	90,000	159,000	159,000	159,000	
Puerto Rico	256,000	129,000	127,000	315,000	2.44	0	129,000	315,000	315,000	315,000	315,000	
Surinam	33,000	10,000	0	30,000	***	23,000	33,000	40,000	80,000	171,000	171,000	
Trinidad	101,000	77,000	23,000	111,000	1.10	1,000	78,000	139,000	172,000	172,000	172,000	
Windward Islands	59,000	18,000	0	72,000	2.00	41,000	59,000	90,000	180,000	236,000	236,000	Revised 24.III.55
TOTAL	14,731,000	5,060,000	3,297,000	$9,894,000		6,374,000	11,434,000	$13,487,000	$20,392,000	$25,096,000	$25,966,000	

TABLE II - MALARIA ERADICATION ESTIMATES - TWO SPRAYINGS PER YEAR - (COSTS IN U. S. DOLLARS)

Countries	Country Contribution 1954 (1)	Estimated Additional Annual Funds for Eradication Program 1955 (2)	1956 (3)	1957 (4)	1958 (5)
Argentina	276,000	0	119,000	119,000	119,000
Bolivia	13,000	87,000	187,000	347,000	347,000
Brazil	4,103,000	1,371,000	1,371,000	1,371,000	1,371,000
Colombia	1,217,000	0	671,000	2,559,000	3,508,000
Costa Rica	24,000	138,000	138,000	138,000	138,000
Cuba	53,000	13,000	79,000	211,000	427,000
Dominican Republic	162,000	0	62,000	62,000	62,000
Ecuador	251,000	0	201,000	304,000	304,000
El Salvador	263,000	41,000	252,000	252,000	252,000
Guatemala	50,000	75,000	124,000	124,000	124,000
Haiti	16,000	62,000	140,000	296,000	608,000
Honduras	110,000	0	78,000	94,000	94,000
Mexico	222,000	1,825,000	4,646,000	6,551,000	5,868,000
Nicaragua	190,000	0	122,000	254,000	254,000
Panama	151,000	47,000	125,000	125,000	125,000
Paraguay	15,000	0	15,000	45,000	121,000
Peru	578,000	157,000	480,000	480,000	480,000
Venezuela	2,168,000*	0	369,000	369,000	369,000
British Guiana	88,000	11,000	55,000	55,000	55,000
British Honduras	8,000	0	2,000	10,000	10,000
French Guiana	21,000*	0	0	0	0
Guadeloupe	72,000*	18,000	87,000	87,000	87,000
Jamaica	55,000*	0	0	0	0
Leeward Islands	15,000*	15,000	45,000	72,000	72,000
Martinique	72,000*	18,000	87,000	87,000	87,000
Puerto Rico	300,000	15,000	15,000	15,000	15,000
Surinam	0*	40,000	80,000	171,000	171,000
Trinidad	195,000	0	0	0	0
Windward Islands	59,000*	31,000	121,000	177,000	177,000
TOTAL	$10,747,000	$3,964,000	$9,671,000	$14,375,000	$15,245,000

Remarks

Country Contributions, Column (1), are taken from V Report on Malaria, Table 5, as submitted to the XIV Pan American Sanitary Conference held in Santiago, Chile, CSP14/36 Annex I, 7 October 1954, calculated to the nearest thousand, excepting those starred (*), which were calculated from unpublished reports.

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