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FROM - USAID/Kathmandu

SUBJECT - Project History and Analysis Report

REFERENCE -

Transmitted herewith is the "Technical Assistance Project History and Analysis Report" for the Malaria Eradication (367-11-510-014) project, which was initiated in FY 1954, and was originally planned for termination in FY 1961, although as described in Sections 6 and 7 may need to be extended into FY 1973. The major part of the report (1-5) was prepared by Mr. Lawrence Couper some two or three months ago. Sections 6 and 7 were added later. Substantively the period covered by this report is June 17, 1961 - January 1, 1965.

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DRAFTED BY <i>R/S</i>	OFFICE Program	PHONE NO. 25	DATE 4/19/65	APPROVED BY: Joseph S. Tenor, Director
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## 1. The Background Situation

Until five years ago malaria was the most important public health problem in Nepal, and indeed in many parts of the country it still is. It has been considered the greatest obstacle to the economic and social development of the Terai and river valleys of Nepal, where fifty percent of Nepal's 9.5 million population are concentrated. The quantitative estimate of the disease in Nepal given in 1952 was that there were annually 3,415,000 malaria cases with 40,000 deaths country-wide. During epidemics the number would be increased by one-fourth or more. Considerable evidence was at hand to support the contention that malaria had a substantial indirect effect in increasing the general mortality due to other diseases.

Nepal has a rural economy and, as malaria is primarily a rural disease, its effects are keenly felt in the economic life of the people. The farm families suffered loss of several working days during each attack of the disease. The general weakening effect reduced their capacity for sustained hard work, which in turn affected their output of food crops, both in quantity and quality. The peaks of the malaria transmission season coincide with the planting and harvesting activities. Thus malaria has a serious effect on the production of necessary food and fiber as well as cash crops which contribute so much to better living.

In the forest and forest fringe areas which lie in the Terai and inner Terai near the foot of the Mahabharat Range are situated hundreds of square miles of undeveloped, potentially productive land. This area can and will be developed into some of Nepal's most productive cropland. However, this belt is located in the most highly malarious zone, and the disease remains an obstacle to its proper utilization and development.

What happens to such an area when the malaria scourge is removed, is exemplified by the Rapti Valley project in Central Nepal. Formerly, the area was known as "Kala Pani" (Black Water valley) and only some 36,000 people, mostly the hardy Tharu Tribe, lived there. After the malaria eradication activities markedly reduced the incidence of the disease, the population in five years has increased to an estimated 100,000. The population increase was due to the influx of hill people resettling there. In hill areas family units were bound by land availability and cultivated on the average from 2 - 4 acres in their former mountain homes. This same family unit can operate farms averaging 10 - 12 acres in the Valley resettlement schemes. The Rapti Valley is now an export area for rice, sesame and mustard seed oil. Previously, there were scattered villages with a subsistence economy, now the Rapti Valley is the showcase of Nepal for resettlement, productivity and government leadership. Other similar examples could be given for Nawalpur, Butwal, Bara, Parsa and Sinduli Garhi Districts in the central portions of Nepal.

Timber is one of the most valuable natural resources in Nepal. Extensive salwood forests are found on the estimated 8 million acres of timberland. Most of it, unfortunately, lies in the areas of highest malaria incidence which prevents the establishment of good forestry management practices, since year-round work is impossible. Nepal has the natural formations and water to develop hydroelectric power, and indeed some small projects are already underway, but at some proposed sites, i.e., the Karnali river, malaria is such a problem that it will serve as a serious detriment to the implementation of the development plan.

The behavior of the hill people who reside in the many river valleys which extend into the Himalayan mountains illustrates the deleterious effects of malaria. The best arable land is located on or near the valley floor at an elevation of usually less than 2000 feet. Because this bottomland often harbours malaria vectors which cause outbreaks under favourable conditions, the farmers locate their homes on the slopes or tops of the adjoining ridges. They spend several hours a day in travelling to their fields to work, always returning home at night. This reduces their work day as well as robbing them of needed energy by the long daily hike.

To eliminate the continual prospects of depression in these areas and to have real economic and social progress, malaria was the first widespread communicable disease to be attacked by the Government of Nepal.

Anti-malaria work started in Nepal in 1954 with the establishment of the Insect Borne Disease Control Bureau, a joint cooperative service of GON and USOM, and the Malaria Control Pilot Demonstration Project initiated by GON and World Health Organization in the Rapti Valley. These services were merged into the Nepal Malaria Eradication Organization under the Malaria Eradication Board (Order 2015 Nepal HMG Gazette, December 4, 1958). On the same date bilateral Malaria Eradication Project Agreements were signed between GON and US AID/N and between GON and WHO. To support the program US AID/N agreed to provide US technicians, dollar-source commodities, participant grants and a portion of the local costs, GON to supply a gradually rising proportion of the local costs and WHO to contribute advisory services, fellowships and some transportation.

The malaria eradication program was developed step-wise by dividing the country into four Zones, Central A, Central Zone B, East and West Zones and the program has been implemented in that order, Central Zones first and West Zone last.

## 2. Project Targets and Goal Plan Objectives

a. In order to achieve the long term objectives of malaria eradication in Nepal there are several basic short term objectives which must be achieved.

- (1) As there is a shortage of trained malaria technicians a comprehensive training program must be planned, organized and carried out at all levels. International training in malaria eradication is to be provided to medical officers, senior entomologists, senior operation and surveillance superintendents and health educators.
  - (2) The need to expand the program in a phased manner is necessary in order to build a sound administrative and technical organization. It was planned to work in Central Nepal first starting in 1958. Expansion to the East Zone in 1962 and to the West Zone in 1963 was planned and carried out successfully.
  - (3) A concept of a functional decentralized administrative pattern is to be developed and put into proper action.
  - (4) A Malaria Eradication Board which had autonomous power was created in order to expedite the work of this scheduled program.
- b. The Long Range Objectives of this project include:
- (1) To interrupt completely the transmission of malaria and thus remove malaria as an obstacle to social and economic development.
  - (2) To prevent the reintroduction of malaria into the country by establishing an effective maintenance organization as a part of Nepal's ~~Ministry~~ Ministry of Health.
  - (3) To train a cadre of Public Health workers who will remain active in the maintenance phase of malaria eradication and be absorbed into the other public health activities once malaria is eradicated.
  - (4) To develop administrative practices which can be translocated into other public health programs or other government services where good management is needed.

### 3. Project Results

- a. About 45% of Nepal is malarious and is inhabited by an estimated 4,875,000 persons. House spraying has been in progress in the Central Zones for four years. The incidence of malaria has shown a dramatic decline in that time, see Figure 1.
- b. The malaria rate is now at such a level that surveillance house visiting program is being instituted. At present a population of approximately 2,084,400 is covered by surveillance visitors in the Central Zones. The

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withdrawal of spraying is being considered for an area of the Terai with a population of 1.2 million in FY 1966.

- c. The East Zone began operations in 1962 when the preparatory phase was initiated. To date the geographical reconnaissance has prepared maps for localities having a total of 605,000 structures and population of 1,023,000. Intradomiciliary spraying started in 1964 and a population of 800,000 has been protected to date.
- d. The West Zone started the preparatory phase in 1963. Up to 90 percent of persons in index villages sampled were found to be infected with malaria parasites. 2.4 percent of all the malaria vectors dissected (*A. minimus* and *A. fluviatilis*) have been found malaria infected. Geographical reconnaissance is now 25 percent completed. Spraying operations are expected to commence in late 1965. An estimated population of 800,000 are at malaria risk.

#### 4. Resources Employed.

##### A. U.S. resources employed

##### 1. U.S. Funds (net obligations)

	<u>Dollars</u>	<u>Counterpart and U.S. Owned local Currency</u>
Total from FY 1954 to FY 1964	\$3,331,000	\$1,814,000
Programmed for FY 1965	\$ 678,000	\$ 509,700

##### 2. Resources by Type

##### a. U.S. Technicians

Following is a table showing the arrival and departure of all U.S. technicians since the beginning of the Malaria Control/Eradication Programs;

<u>Position No.</u>	<u>Position Title</u>	<u>Name of Incumbent</u>	<u>Arrival</u>	<u>Departure</u>
NEP-24	Sanitarian	Raymond R. Sheppard	1/24/54	11/18/58
NEP-116	Malaria Control Adv.	George J. Burton	10/6/55	10/6 /57
NEP-57	Entomology Advisor	Arthur V. Regnier	5/ 2/58	4/ 14/61

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<u>Position No.</u>	<u>Position Title</u>	<u>Name of Incumbent</u>	<u>Arrival</u>	<u>Departure</u>
NEP-69	Malaria Spec. Entgy.	Jenaro Maldonado Copriles	9/2/58	4/30/59
NEP-23	Malaria Spec. Entgy.	Harold W. Brydon	1/28/59	2/28/61
NEP-69	Malaria Spec. Entgy.	Stephen M.K. Hu	7/10/60	7/ 9/62
NEP-65	Malaria Advisor	Lawrence T. Cowper	7/ 9/59	-
NEP-23	Malaria Spec. Entgy.	Richard F. Darsie	1/14/63	-
NEP-324	Malaria Spec. Mal.	Roger G. Grenier	4/ 3/63	-
NEP-272	Malaria Specialist	Robert E. Taylor	2/ 5/64	-

All have been direct-hire employees. Four technicians are presently assigned to the project. Briefly their functions are as follows:

NEP-65 Malaria Advisor supervises the USAID/N advisory services, plans and evaluates the annual project targets in conjunction with GON and WHO counterparts.

NEP-23 Malaria Specialist (Entomology) evaluates the malaria transmission pattern as evidenced by the mosquito vectors. Advises and works with counterpart in the operation of the Entomology Section as a part of the Epidemiological service.

NEP-324 Malaria Specialist (Malariologist) works with the Epidemiology Section in planning, implementing and evaluating the surveillance and malarimetric activities.

NEP-272 Malaria Specialist assigned to the Operations Section. Advises and assists in the planning, operation, administration and evaluation of a nation-wide spraying operation.

#### b. Participants

The table which follows lists the participant categories which have been trained under US AID grants. All but one is still working in the area for which he was trained.

<u>Type of Training</u>	<u>Country</u>	<u>Number</u>		<u>Man Months</u>
		<u>Returned</u>	<u>In Service</u>	<u>of Training</u>
Senior Officials Malaria Eradication Training Courses	T/C	6	6	26

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<u>type of Training</u>	<u>Country</u>	<u>Number</u>		<u>Man Months</u>
		<u>Returned</u>	<u>In Service</u>	<u>of Training</u>
Junior Officials Malaria Eradication Training Course	T/C	2	2	6
Malaria Field Operations	T/C	5	4	22
Malaria Control Course	U.S.	2	2	16
Health Education Materials	T/C	1	1	6
Health Education EPH	U.S.	(1 now in training)		21
Malariology EPH	U.S.	1	1	12

c. Commodities

The types of commodities needed for the Malaria Eradication Project are insecticides, compression sprayers, cartographic supplies, microscopes, laboratory and entomological supplies, drugs, office equipment, including typewriters and adding machines, vehicles, tools and spare parts. Through FY 1964 a total of \$2,637,000 have been obligated to purchase commodities. Problems have been encountered in the maintenance of microscopes and vehicles. Fungus growth on microscope lenses has been a serious problem. Corrective measures have been instituted by GON for both of the above items.

d. U.S.-owned Local Currency

U.S.-owned local currency in the amount of \$1,336,000 has been apportioned to the project through FY 1964. This amount has been used on a 75% USAID/N - 25% GON proportion to pay salaries and allowances, purchase local supplies, pay office rents and transportation and maintenance costs.

B. Cooperating Country Resources

1. GON has contributed \$477,302 in dollar equivalents (Rs. 36,27,495 NC) to Malaria Eradication. These funds have been used to defray local costs and represent a contribution rate of 25% to the Project for FY 1965.

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C. Resources Employed by Other Contributors

Contributions have been made by the World Health Organization (WHO) to the Malaria Eradication Program. Through FY 1964, WHO has allocated 941,000 in dollar equivalents primarily for advisory services, but also for vehicles and some equipment.

5. Major Factors Affecting ProgressA. Cooperating Country Performance

The cooperative country has sustained continued technical, administrative and financial interest in the malaria eradication program from the beginning. The rate of financial contributions to the project from the cooperating country has increased gradually and the country now provides 25% of all local costs plus providing some government offices and storage areas to the project at no cost. Approximately 50% of the total HMG/N budget for all health activities is provided to the malaria eradication project. <sup>developmental</sup>

The ME Board has been created by regulation and meets in regular monthly meetings. The Secretary of Health serves as Chairman with the Secretary of Finance, Director of Health, Under Secretary of Health and the Chief Officer, NMEO as members. There has been a lack of understanding in some cases of the technical requirements of the program and the need for direct and positive action to meet these program requirements.

Legislation for the malaria eradication program in regards to notification of the disease, house entry, and compulsory treatment of known malaria cases has been drafted and approved by the ME Board and is with the Ministry of Home for review and issuance. It is not expected that such legislation will be particularly useful in out lying areas in the present stage of national development in Nepal.

The malaria eradication program is well-known in Nepal and is considered by the people living in out-lying districts to be one of the best efforts of the government. Indeed, malaria eradication is often the only government service ever provided in some areas which meets a felt health need which has obvious political considerations.

The level of administrative efficiency within the project is low and procedures for obtaining action are many times complicated and slow. Discipline and supervision are weak, resulting in delays and in some cases poor quality work. However, <sup>considering</sup> the size of the job to build such an organization from the available man-power at hand, it can be realized that the organization has made considerable progress. Most of the staff was recruited from the 20 - 24 age bracket, with the

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equivalent of a high school education or less and they were given responsibility over activities much larger than they had ever handled before.

There has been a large turnover in the lower categories of staff due to low salaries and that recruitment has been made from Kathmandu rather than the local areas as no educated persons were available in local areas.

#### B. U.S. Performance

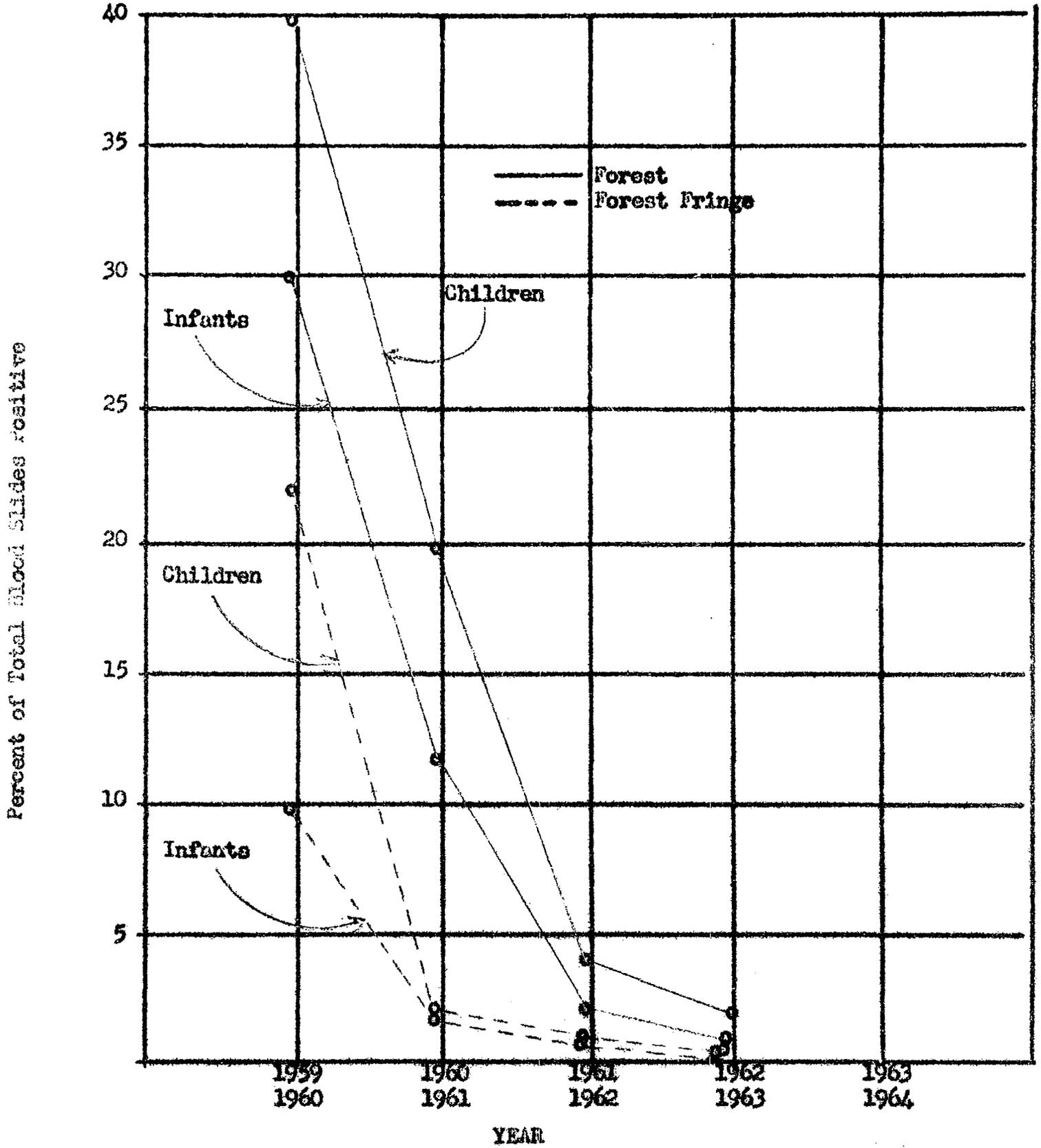
The U.S. performance in connection with this project has been one of active participation in planning, financing and providing the commodities, advisory services and participant grants necessary to carry out the work of the project. It has been necessary to establish and maintain effective working relationships not only with IMEO and GON Health Ministry officials but with WHO malaria technicians to provide a coordinated national and international effort toward malaria eradication.

The U.S. supports 75% of the local costs of the program and provides all the DDT, sprayers and drugs used in the program. Adequate dollar commodities such as DDT and sprayers have been delivered to the project on time and at the proper place. Local cost support has been contributed in accord with AID procedures and the project has not suffered a program lag due to lack of AID financial support.

The technicians who are assigned to the project have been effective and have demonstrated high standards of technical abilities, work production and interest. The active daily side-by-side working relationships and training programs with Nepalese co-workers have provided the malaria eradication program with numerous effective malaria workers.

The rate of implementation of the various phased specific activities as projected in the various yearly Plans of Action has been somewhat slower than expected. Program lags have occurred but in no instance has the lack of U.S. support, interest or advisory services been the cause. Suggestion for U.S. performance improvement would be the shortening of the time lag in providing to the project approved malaria technicians in cases where a U.S. technician had been transferred from Nepal. It would also be useful for the project to have more frequent visits from AID/Regional and AID/Washington malaria consultants and advisors.

FIGURE 1



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BALANCE SHEET

## MALARIA ERADICATION (367-014)

COMPONENTS	1952 STATUS	1964 STATUS
BASIC DEVELOPMENT SUMMARY	<p>Fifty percent of the population of Nepal (4.5 million) lived in malarious area where the infection rates, as judged by the later surveys from 1954 to 1963, were between twenty and ninety percent. Three malaria surveys had been carried out prior to 1952 in the Chitwan and Anlekhgunj areas starting in 1925 with a survey by a Major J.A.S. Phillips, I.M.S. This survey was followed in 1948 by a survey by Dr. I.M. Puri of the Indian Malaria Institute and in 1950 with work being carried out by Dr. N.G.S. Raghawan and Dr. B.R. Baidya. Some treatment of malaria was being carried out by the few dispensaries and clinics in the country. In November, 1952 USOM and GON did a spot survey of malaria in Kathmandu Valley and did some house spraying in the Balaju area covering 797 houses.</p>	<p>By 1964 there has been developed a progressive and productive government anti-malaria structure known as the Nepal Malaria Eradication Organization (NMEO) and the outlook for the interruption of malaria transmission by FY 1971 is encouraging. In the 1954-58 period US AID and WHO had separate projects in malaria control, i.e., Insect Borne Disease Control and Rapti Valley Malaria Control Demonstration Area. The success of these projects led to the signing of coordinated, bilateral AID and WHO agreements with GON to establish the organization for malaria eradication. Over 3.4 million people are now receiving the benefits of this effort and the expansion of the activities in FY 65 will cover the remaining population at malaria risk.</p>
AREA AND POPULATION COVERAGE	<p>Only very small area and population were provided any protection. High malaria index in the Terai and foothill area. Transmission of malaria was occurring. In Nov. 1952 the town of Balaju with a population of 3,000 and covering a square mile in area was provided malaria protection by DDT spraying.</p>	<p><u>Central Zone</u> - An area of about 10,200 square miles with a population of 2.6 million has received 5 complete DDT spray cycles and 3 partial cycles, covering the former hyperendemic portions, in the eradication program to date.  <u>East Zone</u> - An area estimated to cover 7,500 square miles and a population of 1.3 million has received one partial DDT spray cycle, protecting 0.8 million.  <u>West Zone</u> - An area of nearly 9000 square miles and a population of 0.8 million is now in the preparatory phase.</p>

COMPONENTS	1952 STATUS	1964 STATUS
ADMINIS- TRATION	The GON Ministry of Health and private medical practitioners consisted of some 60 doctors doing only clinical coverage of the population of 8.5 million. Limited malaria control work was performed by two trained malaria inspectors, who began in 1949 and were subsequently engaged by the USOM in 1952, when their antimalaria program began.	A functioning organization of 1820 permanent staff is headed by a chief office and has 9 doctors, 9 entomologists, 13 key spray operations personnel, 11 principal administrators carrying on the technical and administrative responsibilities over activities deployed to all malarious areas of the country. Line item local cost with 83% for salary and allowances of both permanent and temporary personnel. An autonomous National Malaria Eradication Board with powers of policy and direction meets regularly to guide the operation. Training at all technical levels is carried out periodically. Discipline and supervision are weak resulting in delays and in some cases poor quality work. The level of administrative efficiency is low and procedures for obtaining action are complicated and slow. Main program activities to be administered are spraying operations, evaluation, entomology and surveillance.
MALARIA HEADQUARTERS AND FIELD PHYSIO- LOGICAL PLANTS	None as specific malaria working centers. Scattered and poorly equipped health dispensaries did provide some drug relief for malaria cases in certain areas of the Nepal. USOM in November, 1952 had created an office for malaria control with one part-time advisor and two Nepali malaria technicians.	The National Headquarters has been established in Kathmandu and a decentralized program has major Zonal Headquarters in Kathmandu, Birgunj, Biratnagar and Nepalgunj. In addition there are 19 Operational Area Offices and 56 unit offices carrying on the field work.
PERSONNEL TURNOVER	NA	There is an estimated 25% turnover, due in part to the low salaries offered to all categories of staff, to the dislike for field assignments outside major urban areas, and to disciplinary action.
OPERATIONAL PRODUCTION SPRAYING	Limited spraying operation in Balaju covering a population of 3000 in a square mile covering 797 houses using 417 gallons	1,296,640 houses were sprayed with about 900 short tons of DDT and 3.4 million population protected from malaria in 1964 in the Central and East Zones in

COMPONENTS	1952 STATUS	1964 STATUS
RATIONAL DUCTION RAYING	of 3% DDT.	the two spray cycles. Mapping of the East Zone is 75% completed and updating of Central Zone maps is indicated. Decentralized operations procedures are in effect. Settlement of formerly malarious lowland areas by hill people is occurring in many parts of the Central Zone. Land in Chitwan, Butwal, Nawalpur, Bara, Parsa and Sarlahi Districts has undergone new development due to elimination or dramatic reduction of malaria.
ZOOLOGY	NA	Malaria vectors have been determined for all Zones. Susceptibility tests have been and continue to be carried out periodically. A problem of DDT-resistance in the suspected vector, <i>A. culicifacies</i> is spreading in the Terai of the Central Zone. Seasonal density patterns and vector infection rates are being studied.
SERIOME- IC EVALUA E	NA	Continued malaria parasite evaluation surveys have been made in the Central Zone in order to judge the efficacy of DDT spraying in interrupting transmission. The incidence of malaria has been drastically reduced in the last four years in most of the Central Zone. Preliminary estimation of malaria cases in the East Zone has been completed. This activity is continuing in the West Zone.
SURVEILLANCE	NA	Surveillance was established in the following Operation Areas of the Central Zone in FY 64: 1,2,3,8,9,10 and part of 4. Stabilization has been difficult in the absence of up-to-date locality maps, and with ineffective supervision.

COMPONENTS	1952 STATUS	1964 STATUS
PRIORITY IN GOVT. HEALTH AND TOTAL PROGRAM CONSIDERATION	No priority given to malaria	GON support of this activity has been substantive and continual. It carries high priority in relation to other developmental activities. In FY 64, 25% of total local costs were borne by GON. The establishment of the local health service infrastructure has received attention by GON in view of the malaria eradication maintenance phase. Priority is needed in this program if the gains from malaria eradication program are to persist.
INTERNATIONAL IMPLICATION	No world malaria eradication program.	The Nepal Malaria Eradication Program is a vital part of the worldwide effort to eradicate malaria. The success of the India and Pakistan programs depend to a large measure on the achievements in Nepal (and vice versa).
FINANCING  Operation Costs  GON contributions  Commodity Costs	100.00 dollar equivalent  0% of total  600.00 (U.S. \$) (38 sprayers and DDT)	FY 64 853,017.00 dollar equiv.  FY 64 216,447.00 dollar equiv.  FY 64 527,589.00 (U.S. \$)

## 6. Appraisal of Results

USAID/N believes that the preceding report covers the facts of the project both fully and honestly within the immediate context. It is the Mission's judgment that this project represents one of the most successful U.S. efforts in Nepal. The known benefits that many parts of the country, most prominently in Central Nepal, have gained to date as a result of this project have been described both above and in many other documents and do not need repetition here. More important even but more difficult to quantify is what has happened in the country as a whole, as a result of the near elimination of this disease from major areas. The benefit to the people and through them to efficiency, increased production and general well-being is immeasurable though obviously very considerable.

The project also represents the most effective example of coordination between a U.S. activity and the World Health Organization both of whom are helping IMG/N in the three-way malaria activity. A degree of advisory and technical effectiveness has been achieved which can well serve as an example for other projects in Nepal.

Not discussed except tangentially are two problems that loom ahead, one of which indeed is already with us. It has become increasingly evident in recent months that the target date for foreign assistance phase-out to this activity by FY 1971 might not be realistic. This suspicion has now become a definite fact of life. Since the preceding paragraphs of this Project History and Analysis Report were written a number of discussions and project planning sessions have been held within USAID. The results of these discussions, which will of course be reported to AID/W in the normal manner, are in general that the project will need to be continued into FY 1973 and that the overall cost both in dollars and local currency will be considerably greater than anticipated although individual year costs will decrease slightly. The causes for this prolongation of the project are various and interconnected: despite the best laid plans, much of the original planning had of necessity to be based on guesswork. We were operating in one of the most difficult terrains on earth where the manpower pool of trained and semi-trained administrative and technical people was pitifully small in absolute terms and even smaller in relation to the physical problems to be faced. Further, the area of the country which was chosen for the later eradication program was the most difficult area; that is why it was chosen to give the various technicians their experience in relatively easier country. Difficult as we knew the last area to be, it is proving even more difficult. Complicated as the whole malaria operation was known to be, it is proving even more complicated. As much cushion as was formerly provided, both of time and funds, it has not proved enough. As stated the whole matter will be argued further in other communications; it is brought up here merely because failure to deal with it might be thought evasive and misleading and because there might seem to be a contradiction between saying, on the one hand, that the project is a success, and on the other, that it needs to be prolonged. USAID does not see this as a contradiction: the project is proceeding successfully and all that has happened, however serious the implications may be, merely represents a technical re-appraisal of a program being pioneered in Nepal where every program aspect is being carried out in a developing administrative, technical and economic environment with a minimum of trained man power and logistical facilities.

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The other major question that faces the project, and the entire health program in Nepal, is the organizational one of merging the functioning and efficient malaria organization with the more primitive health organization. The merger must be a fusion which retains the efficiency of the malaria organization without subordinating the more generalized health organization into a more specialized, and therefore organizationally subordinate, malaria organization. In a way the extra two years of life of the project will have the advantage of giving more time for the necessary fusion and seeing to it that it takes place when disinterested advice is still available.

#### The Mission Director's Comments and Evaluation of the Project

Allocated, a key portion of a Mission-wide review for the future of this project was undertaken this week when senior USAID staff met with the Chairman of the Council of Ministers, the Minister of Health, and the director of NMEO to review the basis for program extension. One by-product of this meeting has been the development of recommendations for administrative improvements in the program. Assuming that these recommendations will be implemented by the GON, it is my judgment that the continuation of USAID investment is warranted. The total of our investment to date in malaria eradication is in excess of \$6,000,000.

I believe that the malaria eradication project has made a number of useful technical and administrative advances which are worthy of note for other projects in Nepal and elsewhere in the world. It has demonstrated a decentralized approach to administration which has proven workable under very difficult field conditions. Also the project has organized and carried out successfully large scale in-country training programs for its personnel. Through this program we have witnessed the largest supply movements ever attempted by a small government agency which pioneered the way into areas of Nepal which formerly had never been exposed to any type of grass-roots government service. I believe the chief general lesson to be learned is the obvious one that in a country with limited resources of trained personnel together with the physical problems of terrain and transportation, a full measure of safeguards is warranted against delays in implementation of the programs.

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