



PROJECT EVALUATION SUMMARY (PES) - PART II

13. Summary: USAID's malaria control project (#367-0115) is specifically aimed at assisting the Government of Nepal in strengthening its institutional capabilities for monitoring and controlling malaria nation-wide. This current project in malaria control is one of a series of USAID-assisted projects since 1954 which has dealt with malaria and vector-borne disease control. During this period the number of malaria cases has decreased from an estimated 2,000,000 cases in the early 1950's to 13,898 for CY 1978. Given the population increase during that period the earlier case incidence represented 24% of the overall population while the latter represents less than one-tenth of 1 percent of the current population.

The specific disease containment objective of this project was to lower the nation-wide malaria case rates to 500 malaria cases per million population or an Annual Parasite Incidence (API) of 0.5. Preliminary review of epidemiological data for FY 1979 indicates that while specific Districts will reach this target the national API will exceed 1.0 or approximately twice the case rate projected in 1975. The reasons for this shortfall are (1) the impact of India's massive malaria epidemic in 1976-79 which has consistently provided 30% of Nepal's cases; (2) the increasing case rates in the Integrated Health Districts which create 25% of Nepal's malaria cases; and (3) increasing A. annularis DDT resistance in the Terai.

Related to point 1, it should be noted that during the last four years in the Indian states of Uttar Pradesh, West Bengal, Bihar, Assam, Nagaland and Meghalaya there has been a significant increase of malaria which affects the border districts of Nepal. Many of the border districts of India had API's of 2-15<sup>+</sup> in many focal areas. Due to frequent interchange of people living in India and Nepal for visiting relatives, trading, pilgrimages, malaria is taken both ways. The Integrated as well as the National Malaria Eradication Officer (NMEO) Districts are both affected by this India/Nepal border problem, and the cases are reflected in Nepal's API's.

The Government of Nepal, World Health Organization, U.N. Development Program, USAID and the British Overseas Development Association (COA, formerly ODM) have jointly worked together over the project period to control malaria. In relation to other Asian countries over the 1975-1979 period, Nepal has done extremely well in containing the disease at its present level.

It will be necessary for the Government of Nepal to consider malaria control as a long-term health program which will require staff, materials and financial support for many years.

14. Evaluation Methodology: As the project enters its final year, an AID evaluation was considered necessary for the project in order to measure progress and to determine the level of malaria control required in the forthcoming Sixth Five-Year Development Plan. The Malaria Control Program, formerly NMEO, has held yearly in-depth evaluations of its efforts, calling upon external malaria consultants to evaluate its progress, study its problems and provide recommendations for improvement.

The methodology used for the evaluations is based on the following process: (1) Clear Terms of Reference (usually six to eight important points) are developed. These Terms are prepared and agreed upon by the Nepal Malaria

Board. (2) The assessment covers only one year's operation but three year's data is provided for comparison purposes. (3) The Nepal Malaria Organization carries out its own internal evaluation and data gathering process and prepares a report and recommendations. Specifically it examines management and technical accomplishments against the targets laid down in the yearly Plan of Action. It provides recommendations on changes for the next Plan of Action, i.e. to increase spraying in one area, to add or subtract a spray cycle, to provide more laboratory supervision in one or the other area. Finally it prepares data to answer the Terms of Reference and gives recommendations. (4) The assisting agencies are then asked for participants to form the External Review Panel. Specifically the external review is composed of a joint team headed by a Senior Nepal Health Officer and composed of World Health Organization (WHO), AID, British specialists and selected GON officers who review the Internal Assessment report and documentation against the Terms of Reference. The Team divides into three or four sub-teams and visits field areas to cross-check data and observe the program. The team makes its own comments and either supports or modifies the Internal Assessment recommendations. (5) The external Team's report is presented to the Malaria Board and, where possible, the recommendations are included in the Plan of Action for the next operational year.

The comprehensive reports prepared by these external teams have formed the working basis for this Project Evaluation Summary (PES). In addition, a joint HMG/MSH "Mid-Term Review - 1978" was prepared on management aspects of the integrated districts and the findings from this study were used in this PES.

During the course of this project the WHO has provided four full-time technical advisors (Malariaologist, Entomologist, Operations Specialist and Transport) to GON's malaria program in addition to a number of short term consultants, such as bio-environmental, laboratory, and administrative. The reports and comments of this WHO advisory group has also been used in evaluating the project.

15. External Factors: Nepal has been rapidly developing over the last few years and numerous irrigation, settlement, road and forestry schemes have been activated during the life of the project. These new projects have increased the possibilities for malaria transmission and have caused several focal outbreaks of the disease. It has been estimated that approximately one and one-half million people have re-settled in the formerly malarious areas of the Terai and Inner Terai over the last five to ten years.

The technical assumption that chloroquine resistant malaria parasites would not invade Nepal during the project period proved to be in error. A number of these cases are being imported into Nepal by Nepalese returning from work activities in Assam, Megaland and Meghalaya. However, the impact of the presence of chloroquin-resistant malaria in Nepal has not caused major operational difficulties during the project period. It was also expected that DDT-resistance in An. annularis, the malaria mosquito vector on the Terai, would not prove difficult to manage and could be contained in Central Nepal. Unfortunately, the DDT-resistant strains of An. annularis have moved eastward and appear to be a prime source of the malaria difficulties in a number of Terai Districts.

The impact of India's malaria epidemic on Nepal's malaria control activity was under estimated in 1975. During 1978/79 increasing Indian activities on malaria control along the Nepal-India border appear to be improving the situation. Nevertheless, the unanticipated delay in receiving the 1979 shipment of malathion from ODA will cause an increase in cases in the Terai.

16. Inputs: The Government of Nepal has, in general, provided the appropriate levels of local support to its malaria control efforts. The NMUO has expended between 93% to 96% of the budget provided to its activity. NMEO budget requests have been reduced by financial agencies of the HMG, but this reduction is not considered a major factor in the shortfall of program targets.

The USAID has contributed all but Rs 402,742 (approximately \$38,000) of its original commitment of \$3.6 million. A full-time malaria advisor was assigned at the initial stage of the project, but the advisor's services were discontinued in the spring of 1978 as it was considered by the Mission that the Nepal Malaria Program could carry out its purpose without full-time AID technical assistance. Technical assistance has been available to the Mission on a continuous basis for its Malaria Control Project through the services of the Regional Malaria Advisor.

The UNDP has supplied all but one shipment of insecticide to the program and that shipment is in the process of being sent to Nepal.

The British Government has also assisted the program during the project period by supplying malathion and vehicles and providing short term consultants to the annual evaluation. 16 Landrovers and 450,000 Kg. of malathion have been promised by O.D.A. Due to circumstances beyond its control there has been delays in provision of these commodities.

17. Outputs:

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| A. Reduction of malaria to the 0.5 API level.                      | A. not accomplished in all Districts as planned.  |
| B. Existence of an active case detection (ACD) program.            | B. ACD mechanism in place, functioning except in integrated Districts.  |
| C. Existence of a passive case detection mechanism (PCD) in place. | C. Partial PCD in place but not operating up to expectations.   |
| D. Approximately 3400 national staff to be trained.                | D. The output has been dramatically exceeded and total trained is upwards of 10,000.                              |
| E. Annual Blood Examination Rates (ABER) are sufficient.           | E. ABER's satisfactory in areas controlled by NMEO, but are not totally satisfactory in all Integrated Districts. |
| F. Person's selected and departed for long term training.          | F. Three long term training complete (Ent., Stat., Para.) and one more due to depart for MPH.                     |

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| G. Formation of a long term plan for malaria control.   | G. Plans underway but final decision not made.   |
| H. Additional assignment of two medical officers, one fiscal officer, two health educators, one parasitologist. | H. Assigned during project period.   |
| I. Community participation in Malaria Activity.   | I. Approximately 1,000 Fever Treatment Depots have been established with village volunteers. |

18. Purpose: To assist the Government of Nepal in strengthening its institutional capacity for monitoring and controlling malaria and concurrently to create the basis for an institution which has the administrative and operational capability to monitor and control communicable diseases in Nepal as well as provide other basic health services.

The project has assisted the GON in meeting the project's purpose. While all the (MOPS) indicators have not been met the project has made noteworthy contributions to the malaria control activity.

The shortfall in meeting the API of 0.5 has been explained previously in this P&S. It is difficult for this project to meet the stated objectives pertaining to the API when 55% of its malaria cases originate in areas outside of its operation and control, i.e. Indian and Integrated Districts.

Focal outbreaks of malaria have occurred during the project period but these outbreaks have been rapidly and satisfactorily contained; i.e. Far West Region outbreak in Kanchanpur District in 1977.

The delay in receiving British ODA malathion in 1979 will cause a higher case rate in a number of Terai Districts. The delay was caused in part by the Calcutta dock strike and in part by a delay in ordering.

19. Goal: "To reduce morbidity, mortality and fertility at the National level so as to facilitate economic and social development in Nepal."

The project has made significant contributions to the process of establishing an equitable, efficiently administered and technically sound health services delivery system which is within Nepal's human and financial resources. The "Mid-Term Review - 1978" identifies a number of management areas where the Malaria Program has demonstrated that such a service can be created and operated. (See attached Issues Paper)

The program has increased its planning capabilities over the Project Period. The malaria effort is based on a Five Year Plan of Operations approved by the GON and WHO. Each year a separate Plan of Action is prepared as a working base for the year's activities. The Plan of Action is prepared through consultations with Regional and District Malaria Officers. During the project period and Chief Officer has delegated to the District Malaria Officers the authority and responsibility for planning the District's spray operations activity instead of having this planning done at the National level.

20. Beneficiaries: The beneficiaries of this project are the 7.4 million people living in the rural areas of Nepal which are under the risk of malaria. The malaria control effort is aimed at the improvement of health at the village level.

The mortality rates from malaria were estimated at approximately 10% of the total cases in early 1950's. It is presently estimated that malaria mortality rates are well below 0.1%.

The program of malaria control has opened up vast tracts of land in the inner Terai and forest fringe areas of Nepal which formerly were of limited productive value due to the presence of endemic malaria.

The control of malaria among the large labor forces engaged in the construction of dams, irrigation systems, roads, land development schemes has prevented numerous delays and cost over-runs in those projects being carried out in malarious areas. Special activities such as weekly spraying of laborer huts, distribution of anti-malaria drugs are done by the WHO in such project areas.

21. Unplanned Effects: One of the unplanned effects of the project is the rapid increase of settlers on the Terai. During this project period from 1975-1979 the far western Terai has had to absorb thousands of official and un-official settlers, resulting in a good deal of unauthorized cutting of forest land and an increase in agriculture production. It is clear at this point in time that much more inter-agency coordination should have taken place.

In August 1979 an inter-agency malaria control committee chaired by the Secretary of Health was formed with representatives from Health, Re-settlement, Agriculture, Irrigation, Forestry, Roads and Fisheries. The purpose of this Committee is to coordinate activities which concern malaria to insure proper steps are taken to avoid increasing the disease i.e. road burrow pits, irrigation canal banks which leak, interchange of information on insecticides.

22. Lessons Learned: The technical methodology for malaria control in Asian countries is far from being completed. It is essential that more effort be put into research of both a basic and operational nature. In many areas the present methodology is not providing the level of control necessary to maintain the disease at a level at which it is no longer a public health program.

The evaluation technique used in the Nepal Malaria Control Program (i.e. annual evaluations with external specialists) appears to be valid and has given an excellent in-sight into the progress of the program. The GON has been responsive to evaluating its malaria control effort and it is a part of the GON's on-going system.

Finally, it should be remembered that Nepal is part of a larger ecosystem. No matter how extensive Nepal's efforts in the area of malaria control have been, the country always reflects, to some extent, the actions taken by its malarious neighbors. Yet in spite of this, Nepal has managed to avoid the tremendous increases in malaria that have plagued other countries.

23. Issues Paper (8 pages) attached.

September, 1979

MALARIA CONTROL PROJECT  
USAID/NEPAL

ISSUES PAPER - PROJECT EVALUATION SUMMARY

I. INTRODUCTION

This Issues Paper has been developed as a working document for use in the 1979 Project Evaluation Summary (PES) activity for the Malaria Control Project.

The program issues presented in this paper have been developed through joint discussions between representatives of the Mission's Offices of Health and Family Planning and Program with technical review and comments provided by the Regional Malaria Officer.

As suggested by the Program Office this Issues Paper covers the major technical, operational and administrative issues over the 5 year life of the project (1976-1980) and is not an interim document covering the period from the last Malaria Control PES report.

II. MAJOR PROGRAM ISSUES

A. TECHNICAL

1. Over the life of the Project the Annual Parasite Incidence (API) of malaria in Nepal has not reached the 0.5 API level (500 cases/million pop.) projected as an end-of-project objective in the 1975 Project Paper for Malaria Control.

Discussion: The Malaria Control Project Paper reflected the HMG Plan of Operation 5-year target of 0.5 API which is developed in Nepal by using the total cases reported minus imported cases from abroad. The country-wide API's for 1976, 1977, and 1978 are 1.4, 0.3 and 1.3 respectively for the areas under the operational control of the Malaria Program, (5,577,630 Pop.). The API's for the population (1,650,473) served by the Integrated Districts are 0.6 (1976), 0.4 (1977), 1.5 (1978) respectively. Three years comparison API data by District are attached to this Issues Paper. It can be seen by this data that Districts have responded at different API levels due to wide variety of factors i.e. population movement, impact of the massive

malaria outbreak in India, quality and quantity of effort in Integrated Districts, rise in cases in A. annularis areas. From preliminary review of data for 1979 it appears that approximately 40% of the malaria incidence comes from nine districts. These Districts are primarily along the Terai. A graph indicating total cases of malaria from all Districts is attached to this Issues Paper.

2. The Impact of chloroquin-resistant P. falciparum (P.f.) malaria on the progress of the program.

Discussion: The issue of chloroquin-resistant P.f. malaria in the Nepal Malaria program is very important technically but appears to have been adequately controlled in the operational year of 1979. The problem is mainly concentrated in Eastern Nepal, but reported cases of this nature have been reported in all Regions. The source of chloroquin-resistant P.f. malaria for Nepal is primarily from the Assam, Nagaland and Meghalaya areas where Nepalese go to rent land and grow seasonal crops. On November 10, 1978 a specific project on P.f. chloroquin-resistant malaria was initiated in Jhapa District using in-vivo and in-vitro techniques. To date, 250 persons have been screened, but no cases of R-3 resistance has been discovered. The Indian Government has taken major measures to contain this species of malaria over the last two years and the effects of this effort are being seen in Nepal as the cases of reported P.f. are less in 1979 than in previous years. A malaria check point has been established for in-coming travelers on the Jhapa District border and this operation has proved quite effective. The total cases reported from this checkpoint are 1507 (75/76), 1192 (76/77), 1093 (77/78) and 937 (78/79). The annual India-Nepal Malaria Coordination Meetings have been extremely useful in solving this problem. In general, P.f. malaria rates have decreased over the last four years. Reported P.f. cases are as follows: 2,877 (1975), 2,249 (1976), 1,610 (1977) and 1,501 (1978).

3. The increasing resistance of An. annularis, the vector of malaria on the terai, to the insecticide DDT has important technical, operational and administrative implications to the on-going as well as the future malaria control efforts in Nepal.

Discussion: The use of malathion for control of An. annularis was projected in the 1975 Project Paper to protect a population of approximately 200,000 people in the Bhairawa area. The rapid spread of annularis resistance along the Terai requires major operational changes in the last year of the project which have significant fiscal impact. USAID has taken steps to obtain the necessary additional foreign exchange to procure malathion for the CY 1980 operation, but the question of future support of malathion procurement during the Sixth Five Year Plan has not been resolved. The Malaria Control Program has projected upwards of 500,000 population to be protected by malathion residual spraying in the 1980-85 period.

4. The level of the environmental impact of residual spraying in the malaria control program has been repeatedly raised by concerned organizations involved with environmental protection and will be an issue in future AID support for insecticide procurement.

Discussion: Recent in-depth environmental studies carried out in Sri Lanka, Pakistan and Thailand on the environmental impact of residual insecticide spraying in malaria programs concluded that such activities do not adversely harm the environment. AID's Environmental Impact Statement contains numerous references to the fact that insecticides used in malaria control efforts for residual spraying are environmentally acceptable.

## B. OPERATIONAL

1. The integration of malaria control activities into the multi-purpose community health services has broad operational and administrative implications.

Discussion: The 1975 Project Paper describes as a condition that the purpose of the project will have been achieved when a response mechanism to combat local malaria is in place and operating effectively in areas which are integrated into the General Health Services. To date, six Districts out of the 42 Districts in which the Malaria Control Program operates have been fully integrated. There are USAID plans to increase the integration process in the next Five Year Plan. The Integrated Districts of Bara, Parsa and Rautahat have not been able to maintain a

satisfactory level of malaria control and cases are increasing beyond the present operational capacity of the Districts.

A number of studies have been made on the integrated districts over the years. The latest study made by HMG/MSH (Management Sciences for Health) "Mid Term Health Review 2035" indicated that management problems play a major role in the effective operation of an integrated health service.

### C. ADMINISTRATIVE

1. The level of TA/DA for malaria staff and its effect on the execution of the malaria control program.

Discussion: The operation of an effective malaria program requires that program personnel work on schedule in field areas. It is important that field workers be adequately compensated for TA/DA costs. For some years the Malaria Control Program's flat allowance system has not been adequate and there has been a number of complaints. In July, 1976 a 50% raise in the flat allowances was approved and is now in effect for the field staff. The results of this raise are that much more supervision is taking place and work quality at field levels has improved. However, the Gazetted Officer's TA/DA levels were not raised and there has been difficulties in getting this group to carry out assigned field work. Also the MEO uses a flat rate TA/DA system while the HMG uses a daily rate plus compensation for mileage (1 Rs. for each 2 miles). Out of the 3100 Malaria employees approximately 1400 are now regular HMG employees. This HMG group desire to obtain the HMG TA/DA level of compensation.

2. Strengthening Management Capacity of the Malaria Control Program was an objective of the project and included in the Project's Purpose.

Discussion: The "Mid-Term Review - 2035" carried out by the HMG/MSH group in the mid-late 1975 indicated that Malaria Program management is of good quality and has been effective. The following examples of the management capabilities of the malaria program were described in the "Mid-Term Review - 2035" (MTR):

A. Household visits

79% of the household contacted had 5 or more visits during a six month period from a malaria field worker (NMEO). The survey reported that only 27% of the household owners had received visits from the Village Health Worker (VHW).

B. Supply

At District level it was found the malaria offices has received 100% of its supply needs in 75% or more of the District offices in comparison to the District Hospital and District Health Officers where supply needs were met from 0-15%.

C. Reporting

1. It was found that only 2% of the District malaria office's financial reports were more than a month late while in other projects this figure ranged from 30-40%.
2. The MTR reported that it found that almost 100% of the District malaria reports were sent within one week of the due date.

D. Staffing

The MTR survey showed that 86% of the sanctioned posts for the malaria program were filled while only 50% were filled in the Integrated community health project.

It is apparent from the MTR report and the annual internal and external program evaluations carried out in each year between 1976-1979 that the project has accomplished a satisfactory level of management in its program efforts.

The basis for the 5-year program is guided by an approved Five Year Plan of Operation approved and signed by the Government and the World Health Organization. In preparing for future U.S. assistance in the 1980-85 period it will be necessary for HMG to prepare a detailed Plan of Operations which meets WHO and USAID approval.

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NY 2033/34 ('77), 034/35 ('78), 035/36 ('79)

MEO Districts	Population 035/36	A. P. J.			A. P. J. (minus Imp. "A"s)		
		2033/34	2034/35	2035/36	2033/34	2034/35	2035/36
Panchthar	61,919	4.23	4.2	4.89	3.3	3.6	4.08
Ilam	81,558	3.7	2.6	1.64	2.3	1.94	1.03
Jhapa	337,037	2.59	1.73	2.24	1.74	0.63	1.10
Sankhuwasaba	44,299	3.2	1.66	2.35	2.32	0.52	1.46
Dhankuta	53,863	2.55	3.03	4.18	1.64	2.03	2.56
Sunsary	224,147	0.91	0.93	1.45	0.39	0.33	0.89
Morang	365,674	1.61	1.03	1.46	0.63	0.48	0.79
Rhojpur	47,893	2.5	3.39	4.55	1.60	1.52	2.71
Khotang	34,303	2.22	1.49	2.42	1.2	0.72	1.43
Okhaldhunga	33,407	1.03	0.62	0.68	0.59	0.35	0.42
Udayapur	100,351	1.4	1.37	1.63	0.64	0.65	0.99
Ramechhap	81,167	1.02	0.71	0.8	0.75	0.39	0.49
Sindhuli	104,587	1.0	2.1	0.35	0.72	1.63	0.53
Dhanusha	347,042	0.37	1.9	1.39	0.26	1.76	1.56
Mahottary	331,286	0.28	1.23	2.93	0.23	1.23	2.80
Sarlahi	312,092	0.36	0.95	1.77	0.29	0.90	1.60
Kabhre	101,405	1.04	1.16	1.69	0.82	1.05	1.73
Muwkot	99,903	0.71	0.31	0.32	0.37	0.27	0.23
Dhading	123,622	1.03	1.24	1.35	0.48	0.79	0.79
Makwanpur	148,613	0.99	0.99	0.53	0.50	0.67	0.4
Chitawan	248,391	0.9	1.30	1.19	0.60	0.80	0.87
Gorkha	123,897	1.67	1.94	1.56	1.24	1.47	1.03
Lamjung	70,618	1.25	1.71	1.44	0.33	0.59	0.35
Tanchun	174,411	1.29	1.26	1.20	0.59	0.55	0.53
Palpa	135,332	1.25	1.56	2.05	0.33	0.36	0.72
Nawal Parasi	239,408	1.33	1.56	1.34	0.32	0.49	0.83
Kupandehi	329,821	2.46	2.64	2.93	1.77	1.63	2.15
Kupilvasru	260,235	1.72	1.88	2.75	1.37	1.21	1.34

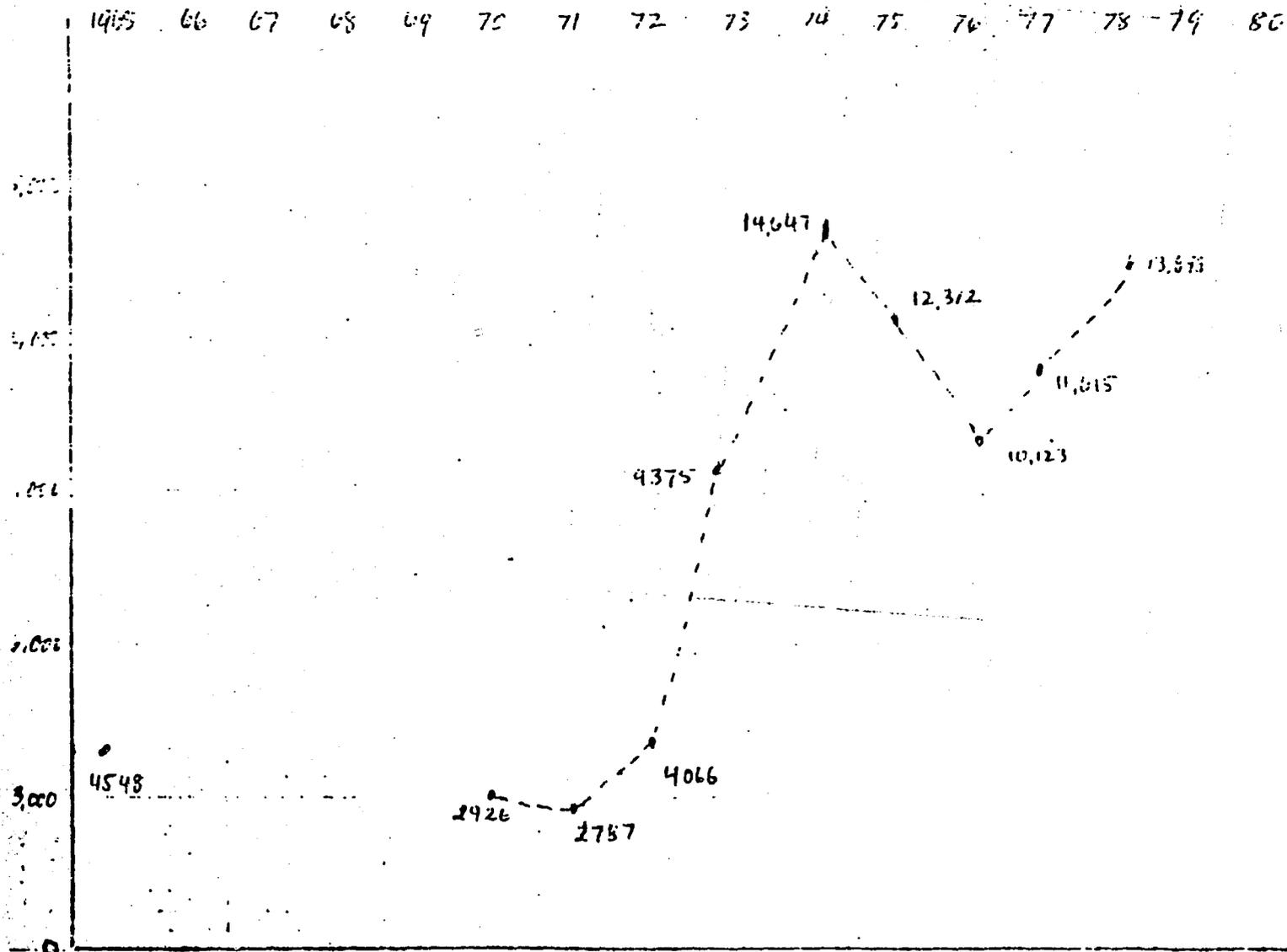
\*Imported "A" - Malaria cases imported from outside the country.

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NMSO Districts	Population 035/36	A. P. J.			A. P. J. (minus Imp. "A".*)		
		2033/34	2034/35	2035/36	2033/34	2034/35	2035/36
Dang	156,346	1.14	1.73	1.07	1.02	1.01	0.87
Deokhuri	77,000	1.01	1.39	0.95	0.66	0.71	0.58
Surkhet	109,816	2.53	4.13	1.73	2.29	3.87	1.65
Bankey	167,230	1.14	1.25	0.69	1.03	1.04	0.62
Bardiya	156,629	0.74	1.57	0.63	0.64	1.49	0.60
Kailali	189,930	1.01	1.93	0.65	0.94	1.85	0.56
Kanchanpur	144,223	2.13	9.89	2.43	1.66	9.35	2.33
Baitadi	105,925	1.35	1.82	0.97	0.94	1.01	0.67

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# NEPAL - EPIDEMIOLOGICAL SITUATION BY YEAR



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