HUNDRED AND SIXTY-FIRST REPORT

PUBLIC ACCOUNTS COMMITTEE (1983-84)

(SEVENTH LOK SABHA)

NATIONAL MALARIA ERADICATION PROGRAMME

MINISTRY OF HEALTH & FAMILY WELFARE

[Para 7 of the Advance Report of the C & A G of India for the year 1980—81, Union Govt. (Civil)]

Presented in Lok Sabha on. . .

Laid in Rajya Sabha on. . . . . .

LOK SABHA SECRETARIAT
NEW DELHI

June, 1983/Jyaistha, 1905 (Saka)

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CORRIGENDA TO 161ST REPORT(7TH L.S.) COMMITTEE PRESENT TO LOK SABHA ON 26.8.1983.

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(i)		5	Below appendices read	
(i)			I - Incidence of Malaria from 1977 to 1981	
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1983-84

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INTRODUCTION

I, the Chairman of the Public Accounts Committee, as authorised by the Committee, present on their behalf this Hundred and Sixty-First Report on Para 7 of the Advance Report of C&AG of India for the year 1980-81 Union Government (Civil) relating to National Malaria Eradication Programme (NMEP).

2. The Advance Report of the Comptroller and Auditor General of India for the year 1980-81, Union Government (Civil) was laid on the Table of the House on 21 April, 1982. The Committee (1982-83) examined the above paragraph (reproduced at Appendix II) at their sitting held on 8 February, 1983 (AN). The Public Accounts Committee considered and finalised this Report at their sitting held on 15 June, 1983. Minutes of the sittings form Part II* of the Report.

3. Malaria is one of the most malacious maladies afflicting our country and one of the major factors retarding the socio-economic development of the country. As a result of various measures taken under the National Malaria Eradication Programme (NMEP) the incidence of malaria came down from 75 million cases with 0.8 million deaths a year at the time of Independence to 0.1 million cases with no deaths in 1965. However, because of complacency the number of malaria cases had started rising again and was reported to be as high as 6.5 million in 1976. The incidence of Malaria continued to be fairly high even under the Modified Plan of Operations introduced in 1977. Although the number of malaria cases had decreased gradually thereafter, it was still high (2.7 million in 1981). What was particularly concerned the Committee was that mosquitoes are developing greater resistance to the traditional insecticides like DDT and cases of cerebral malaria, which in many cases proves fatal, are on the increase. The Report also highlights substantial *inter-se* variations in the stock position of insecticides and anti-malarials as reflected in periodical returns and stock accounts of the States inadequacy of spray operations and use of sub-standard insecticides and anti-malarials. The Committee have desired that Government should immediately formulate concrete programme on the basis of the findings of the two in-depth Evaluation Committees as well as this Committee and make concerted efforts with the object of totally eradicating this disease from the country.

4. For reference facility and convenience, the observations and recommendations of the Committee have been printed in thick type in the body

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of the Report, and have also been reproduced in a consolidated form in Appendix III to the Report.

5. The Committee place on record their appreciation of the commendable work done by the Public Accounts Committee (1982-83) in taking evidence and obtaining information for this Report.

6. The Committee also place on record their appreciation of the assistance rendered to them in the matter by the office of the Comptroller and Auditor General of India.

7. The Committee would also like to express their thanks to the Officers of the Ministry of Health and Family Welfare for the cooperation extended by them in giving information to the Committee.

NEW DELHI;

July 18, 1983.

Asadha 27, 1905 (*Saka*).

SUNIL MAITRA,

Chairman,

Public Accounts Committee.

REPORT

(Para 7* of the Report of the C&AG of India for the year 1980-81 (Civil) relating to National Malaria Eradication Programme)

I. Introductory

1.1 The problem of existence in very many parts of India is problem of Malaria. There is no aspect of life in this country which is not affected either directly or indirectly by this disease. Malaria endangers not only the Health of the people but also their socio-economic development. In this country where malnutrition is a problem, malaria infection may further aggrevate it because with each febrile attack of malaria, the patient loses about 500 K. Calth equivalent to some 3 days food for an adult. At the time of Independence of India, the incidence of malaria was about 75 million with 0.8 million deaths annually, apart from the large number of malaria cases and deaths, many more people used to be incapacitated. resulting in low output in agricultural and industrial areas. The economic loss at the time was estimated to be Rs. 7500 milion per year.

1.2 In April. 1953 Government of India launched a comprehensive indoor residual spray programme in collaboration with the bilateral and international agencies The programme was known as *National Malaria Control Programme* (NMCP). The objective of the NMCP was to reduce malaria morbidity in highly malarious areas of the country to such low level that the disease would cease to be a major public health problem.

1.3 Encouraged by the success achieved under the NMCP, Government switched over to National Malaria Eradication Programme from April 1958 with the objective of reducing parasite reservoir in human population to such a negligible degree that there would be no danger of resumption of local transmission. The Programme was started to protect the total pupulation of the country residing in malarious areas irrespective of the degree of malariousness and finally to eradicate the disease from the country in 6-7 years or by 1965. The time schedules for the programme were revised in 1964 and 1967 with termination dates of 1970 and 1975 respectively.

II. *Malaria Eradication Programme—Achievements*

1.4. The Committee pointed out that when the programme was introduced in 1958 it was envisaged that malaria would be eradicated totally

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* Appendix II

within a period of 5-7 years. When asked about the lacunae in the implementation of the programme which necessitated the revision of target dates of terminatin of the programme to 1970 and 1975—the Secretary, Ministry of Health and Family Welfare stated during evidence.

> "I have already submitted that from 75 million cases and 0.8 million deaths when India got independence we brought it to 0.1 million cases and in terms of death, there were no deaths in 1965. But then the position deteriorated for various reasons—not only here it was there throughout the tropical countries. And the reasons were, for instance short-supply of imported DDT due to unavoidable reasons, inadequate transport, inadequate laboratory services, due to shortage of staff resulting in late remedial measures, low morale of staff due to their being temporary—the maintenance phase has become the responsibility of the States and they did not discharge their functions as effectively as they should and so there was a recurrence or resurgence of malaria. But at that point of time we thought we would be able to get over the situation."

1.5 In a note, the Ministry have stated:

> "The first revision of the target date of termination of the NMEP to 1970 was caused by the increasing curve of malaria incidence from 1966 onwards. The specific reasons were identified by the First In-Depth Evaluation Committee consisting of Multi-disciplinary experts both from within the country and international field, in the year 1970, as under:
>
> (a) Short supply and late arrival of imported DDT due to unavoidable reasons.
>
> (b) Inadequate transport.
>
> (c) Inadequate laboratory services due to the shortage of staff resulting in delayed remedial measures.
>
> (d) Low morale of the staff due to temporary and time limited nature of the Programme and the drastic retrenchment of staff on entry of malaria units into maintenance phase.
>
> (e) The development of Basic Health Services in many areas did not keep pace with the progress of the NMEP. This not only delayed the entry of NMEP units into maintenance phase

but inadequate vigilance machinery under the existing maintenance phase areas resulted in the set-back to the programme.

(f) As per the pattern, the maintenance phase areas became the responsibility of the States. The States had financial and logistics constraints to meet the requirements of the programme and the small scale focal out-break could not be contained due to the paucity of men, material and money. This resulted in flare up of the malaria incidence in several areas which had been made free.

In the second revision for extension of date of termination beyond 1975 was similarly caused by the further sharp increase in the incidence of malaria beyond 1970. The causes were looked into by the Second In-depth Evaluation Committee of 1974, which found that the lacunae identified by the First In-depth Evaluation Committee had continued to operate after 1970 also and in addition, the price hike of petroleum based insecticides and cost of petrol and other lubricants from 1974 onwards had accentuated the problem considerably, due to limitation of available financial resources."

1.6 Elucidating the point, the Secretary, Ministry of Health and Family Welfare stated during evidence:

".....the programme was first started as control programme in 1953 and by the success achieved, it was converted into an eradication programme in 1958. The success had been tremendous and spectacular. From 75 million cases. it came down to 0.1 milion cases. Then the number of deaths were very high. But at that point of time, there were to deaths. At that time, the three basic ingredients of the programme were the attack phase, consolidation phase and the maintenance phase.

Unfortunately, the adequate care which was due at the maintenance stage-most of the areas had fallen into the consolidation phase also at that point of time—was not taken. There were various reasons for that setback. The number of cases tion phase also at that point of time—was not taken. Thesre again went up to 6.5 million in 1976. The increase has been cinsiderable first from 1967 to 1970 and then from 1970 to 1974 and the Government appointed various expert committees also to look into the whole affair. The number of deaths also went up."

1.7 Malaria is one of the malicious maladies affecting our country. In endangering the health of the people on a massive scale, it is one of the major factors retarding the socio-economic development of the country.

1.8 At the time of Independence, the incidence of malaria in the country was about 75 million with 0.8 million death annually. With the objective of containing malaria morbidity in highly malarious areas of the country, the Government of India launched in 1953 a National Malaria Control Programme (NMCP). Encouraged by the success achieved under NMCP, Government switched over to National Malaria Eradication programme (NMEP) from April, 1958 the programme was initially a Centrally aided Scheme to be implemented by the State Governments to protect the population in malarious areas irrespective of the degree of malariousness and finally to eradicate malaria from the country in 6-7 years or by 1965.

1.9 As a result of various measures taken, the number of malaria cases came down to 0.1 million in 1965 with no deaths. However, subsequently, the number of malaria cases again started rising and were as high as 6.5 million in 1976. Government reviewed the position and from April 1977 by which time Rs. 352 crores had been spent on the Programme, a Modified Plan of Operation is being implemented with the objective of effectively controlling malaria and ultimately eradicating the disease. Although the number of malaria cases has decreased gradually, the number is still high (2.7 million in 1981).

1.10 The Committee note with concern that after a steep fall in the incidence of Malaria from 75 million cases to 0.1 million cases and number of deaths from 0.8 milion to nil, there should again have been a phenomenal increase in the incidence of malaria and of deaths because of it. It is apparent that after attaining initial success the authorities became complacent. The Committee cannot but express their deep anguish over this state of affairs, which compelled the nation to pay dearly both in financial as well as in physical terms. The reasons for shortcomings for recurrence of malaria given by Government *viz* short supply and the late arrival of DDT, inadequate transport, inadequate laboratory services, inadequate development of basic health services in many States are such that could have been removed if only there was proper planning and monitoring as well as prompt efforts. It is a matter of great concern that as pointed out subsequently in the eport, mosquoitoes are developing greater resistance to the traditional insecticides like DDT and cases of cerebal malaria which in many cases prove fatal are on the increase. The Committee fee that this poses a national challenge which has to be met by the concerned efforts of the Government of India, States as well as

researchers in the medical field. Already two Committees appointed by the Government had cadrier on in-depth studies and pin-pointed the lacunae (in the programme in its implementation phase. The Government therefore, cannot take the plea that they are unware of the reasons for re-emergence of malaria in this country in a vicious form. The Committee feel that the Government should immediately formulate concrete action programmes on the basis of the findings of the two In-Depth Evaluation Committees as well as this Report and take concerned efforts with the object of totally eradicating this disease from the country. The Committee would like to be apprised of the concrete action programme that Government may adopt in the light of the above observations.

B. Phasing of the programme

1.11 The programme was divided into 3 main phases namely 'attack' 'consolidation' and 'maintenance'. In the 'attack' phase which was launched from 1958, attention was focussed on insecticidal spray operations and for this purpose the field of operations was divided into 393.25 units (1965-66). After 3 years of spray operations, the areas entered into the 'Consolidation' phase on satisfying the criteria laid down by WHO and assessed by the Independent Appraisal Teams. In the 'consolidation' phase the surveillance operations were carried out through 'active' and 'passive' case detection services. The microscopically confirmed cases were given radical treatment to sterlise malaria infection. On completion of 2 years of 'consolidation' phase the units entered into ' maintenance' phase after assessment and satisfying the criteria. In the 'maintenance' phase, the responsibility for maintaining the achieved malaria free status lay with the Public Health Department of the States.

C. Modified Plan of Operation

1.12 The number of malaria cases recorded during 1970 to 1981 was as follows:

Year	Number of malaria cases	Year	Number of malaria cases
1970	6,94,647	1978	41,44,385
1971	13,22,398	1979	30,64,697
1972	14,28,649	1980	28,96,000
1973	19,30,272	1981	26,66,244
1974	31,67,658		
1975	51,66,142		
1976	64,67,215		
1977	47,00,000		

Statewise position of malaria cases reported and deaths occurred during the period 1977—1981 are given in Annexure I.

Concerned with the reappearance of malaria in large tracts in the Country. Government of India constituted Committees to study the problem and report from time to time. The Government reviewed the position at the level of the Cabinet itself and in October, 1976 decided upon the adoption of a new strategy to control the incidence of malaria under the Modified Plan of Operation, which was implemented from April, 1977 onwards. The immediate objective of the Modified Plan of Operation has been effective control of malaria and the ultimate goal continued to be the eradication of the disease. The other objectives of the Modified Plan included prevention of deaths due to malaria and reduction in the period of sickness, maintenance of the status of industrial development and green revolution due to freedom from malaria deaths and reduction of morbidity and to consolidate the acheievements.

1.13 Under the Modified Plan of Operation, a population of 250 million had to undergo regular spray operations each year from 1977 onwards against only 97.5 million being sprayed earlier during 1973—76 The Committee enquired about the reasons for the abrupt escalation of sprayable population under Modified Plan of Operation in 1977 over the sprayable population under NMEP in 1976 and asked if 250 million population was having API 2 and above and if so why this entire population was not kept in 'attack' phase under NMEP and sprayed regularly as per norms that all population having APL 0.5 and above was to be kept in attack phase. In reply, the Ministry of Health and Family Welafre have stated in a note:

"The introduction o the Modified Plan o Operation was necessitated by highly increasing malaria incidence from 1966 to 1976 which could not be controlled under the previous strategy.

Under the arangements previously in force, one an area moves from attack to consolidation and from consolidation to maintenance phase, there was no reversion to the original status, except in the year 1968-69 when 71.385 NMEP units were reverted from consolidation and maintenance phases to attack phase. This pattern was, however, not repeated in the subsequent years with the result that by 1976, large areas were being held in consolidation and maintenance phases but were having actual incidence of more than 2 API. This reversion was not considered feasible as this would have entailed enormous administrative, logistics and financial inputs.

As a corrective measure, in the modified plan of operation, selective spray operations on the basis of API 2 and above has been adhered to irrespective of the erstwhile phasing of units. This led to increase of the sprayable population."

1.14 The Committee wanted to know the number of appraisal teams constituted each year (with staff strength) and how many units were subjected to such appraisal each year from 1969-70 to 1973-74 and how many units in different phases were never visited by Independent Appraisal Teams during 1969-70 to 1976-77. In reply, the Ministry of Health and Family Welfare have stated in a note:

"The number of appraisal teams consitituted during the years 1969-70 to 1973-74 alongwith the number of members in the teams is given below:

Year	No. of Appraisal Teams	No. of members
1969-70	3	12 (4 each per team)
1970-71	3	12 (Do.)
1971-72	1	4
1972-73	2	7
1973-74	3	12

The number of units subjected to appraisal each year from 1969-70 to 1973-74 are given below:

Year	No. of units projected for with drawal	No. of units recommended by IAT for withdrawal	No. of Units projected for entry into maintenance	No. of Units recommended by IAT for entry into maintenance
1969-70	1·334	0·764	8·18	5·11
1970-71	8·005	32·205	3·91	2·72
1971-72	1·47	1·18	3·28	2·03
1972-73	..	..	4·79	1·59
1973-74	1·94	0·72	4·485	2·775

The criteria laid down for change of phasing was as under:

From Attack phase to Consolidation phase

(i) There should be complete interruption of transmission and if there is any, it shopld be limited to some restricted places and remedical measures should have been taken as prescribed.

(ii) The number of residual cases should not exceed 0.1 per thousand per year (100 per million).

(iii) The efficiency of the surveillance machinery as judged by the collection of blood smears from the community which should be 10 per cent of the total population of the area concerned.

From Consoiidation to Maintenance Phase

(i) It should be proved that despite careful search no case of indigenous origin has been detected during a period of three Years of which two years must be in consolidation phase.

(ii) Steps have been taken to register all positive cases with accurate epidemiological classification.

(iii) The case detection machinery is adequate so as to cover at least 10 per cent of the population of the area concerned. Case detection through institutions and voluntary agencies (passive surveillance) must be given top priority and coverage should be of high order.

(iv) Total coverage of population is to be ensured.

(v) Laboratory services should be adequate.

The number of units which were not visited by Independent Appraisal Teams during 1969-70 to 1976-77 is given below:

Year	No. of Units in attack phase	No. projected for withdrawal of spraying	Units not visited by I.A.T.	Units in consolidation phase	No. projected for entry into maintenance	Units not visited by IATS
1969-70 . . .	107.464	1·334	106·13	68·74	8·18	60·56
1970-71 . . .	105·259	8·005	97·254	68·225	3·91	64·315
1971-72 . . .	104·029	1·47	102·559	67·425	3·28	64·145
1972-73 . . .	98·429	..	98·429	68·365	4·79	63·575
1973-74 . . .	97·409	1·94	95·469	66·31	4·485	61·825

Only the units satisfying criteria for advancement to consolidation or maintenance phase were projeced for appraisal."

Finding of the programme

1.15 Prior to 1969, the expenditure on the programme was shared by the Centre and the States for some years. From the year 1969, the programme was made centrally sponsored with cent per cent grants to the state governments. Again from 1979-80, pursuant to a decision taken by the National Development Council, the pattern of central assistance was changed to make the programme a 50:50 cost sharing scheme between the Centre and the State Governments.

1.16 In a note submitted to the Committee, the Ministry of Health & Family Welfare have stated:

"The National Malaria Eradication Programme was Category I Centrally sponsored programme, where 100 per cent Central assistance was available, till and including the year 1978-79 From April, 1979, it was converted into a Category II Centrally Sponsored Programme, with 50:50 cost sharing between the Central Government and the State Governments. Experience subsequent to the conversion of the Programme into a 50:50 one shows that the State Government have been unable to provide their share of the annual outlays required for the effective implementation of the Programme. In the result there has been failure to secure adequate quantities of insecticides. Survellance personnel as well as staff for undertaking spray operations have not been sanctioned by the State Governments in adequate strength and on time. There has been failure in obtaining of adequate number of sprayers. Mobility of supervisory staff has suffered adversely both on account of non-replacement of the large number of vehicles belonging to the Programme, which have outlived their useful life and on account of the inadequate provision for petrol, oil and lubricants. Importantly, the 50:50 funding pattern has led to un-even performance by States with common boundaries, with the result that effective NMEP implementation by one State is, often-times, frustrated by inadequate performance by neighbouring States with pronounced adverse consequences, particularly in the border areas.

Not only at the successive meetings of the Central Councils of Health and Family Welfare but also at the National Development Council, it has been emphasised that communicable disease like Malaria does not respect State boundaries; and that effective implementation of containment measures throughout the country is necessary in order to reduce incidence.

For effective NMEP implementation, therefore, the Prime need is to convert the Programme into a category-I 100 per cent Centrally-assisted Programme, as it was prior to April, 1979."

1.17 It has been stated in the Status Paper* on National Malaria Eradication Programme published in June, 1982 that "All the major difficulties can be smoothly resolved if the programme is made Category-I 100 per cent Centrally sponsored scheme. The various impanding factors were discussed in the Joint Central Councils of Health and Family Welfare and it was resolved that this vital National Health Programme may be made 100 per cent centrally sponsored. In Regional Health Ministers' Conferences also, the issue has been raised by several Chief Ministers/ Health Ministers again and again. No material improvement in the implementation of NMEP is considered feasible until adequate availability of trained manpower, insecticides and vehicles/POL can be ensured."

III A Expenditure on Programme

1.18 Under the programme an expenditure of Rs. 526.74 crores (excluding expenditure on operational cost for 1979-80 and 1980-81, figures for which were not available) had been incurred by the Central Government upto 1980-81 as detailed below:

Year Upto	Material and equipment	Operational cost (Rupees in crores)	Total
1976-77	149.36	202.51	351.87
1977-78	36.40	21.17	57.57
1978-79	30.77	23.40	54.17
1979-80	31.19	Not available	31.19
1980-81.	31.94	Not available	31.94

1.19 The Audit have pointed out that an amount of Rs. 85.69 lakhs, representing the cost of insecticides used in the units under 'maintenance' phase in different States, was not paid to the Centre.

1.20 Besides, incidental charges aggregating Rs. 124.66 lakh at 2 per cent of the cost of material and equipment supplied to the States were outstanding for recovery from them. When asked about the steps taken to recover the dues from State Governments, the Ministry of Health and Family Welfare in a note have stated as follows:

> "The Directorate of NMEP makes continuous efforts for recovery of dues from the States on account of 2 per cent incidental

*Not vetted in Audit.

charges in respect of anti-malarials, insecticides and other material supplied to the States. The response from some of the States is prompt and from others the dues are received late. The details of the amount due and recovered for 2 per cent incidental charges from the five States referred to in sub-para 5.2 of Paragraph 7 are given below:

State	Period	Amount due for recovery	Amount recovered	Amount under recovery	Amount yet to be recovered
		(Figures in Lakhs of Rupees)			
Maharashtra . . .	1974-75 to 1980-81	109 62	12.90	96.72 (Bank Draft being sent by the State Govt.	..
Gujarat	1976-77 to 1979-80	10.47	12.76	..	..
Assam	1975-76 to 1979-80	2.32	Nil	Nil	2.32
Punjab	1978-79	1.45	3.89	..	..
Himachal Pradesh . . .	1973-74 to 1979-80	0.80	Nil	Under Realisation	0.80
		124.66	29.55	96.72	3.12

An amount of Rs. 13.05 lakhs as detailed* below has been recovered from other states.

1. Haryana . Rs. 7.38 lakhs
2. Karnataka Rs. 2.13 lakhs
3. Tamil Nadu Rs. 3.52 lakhs

All out efforts are being made to effect the recovery of the balance amount from the concerned States. The defaulting State Govt. are continuously being reminded by NMEP Directorate as well as by the Ministry of Health and F.W. demi-officially at the highest level to expedite the outstanding recoveries. The last reminder at Additional Secretary's level was issued by the Ministry of Health & F.W. vide letter No. T.14019/2/89-MAL

*Not vetted in Audit.

dated 21-7-82. Some of the State Govts. have assured that payment will be made shortly. The actual amount recoverable from the States of Gujarat and Punjab upto 1980-81 was Rs. 17.23 lakhs and Rs. 6.66 lakhs respectively, instead of Rs. 10.47 lakhs and Rs. 1.45 lakhs respectively. The sum of Rs. 12.76 lakhs and Rs. 3.89 lakhs have already been recovered so far from Gujarat and Punjab States respectively. The States have already been remidned for expenditing the remittance of the balance amounts."

1.21 Asked if the bank draft for Rs. 96.72 lakhs has been received from Maharashtra Government. In reply the Ministry have stated:

"The bank draft for Rs. 96.72 lakhs has not been received from Maharashtra till now."

1.22 The Committee desired to know the reasons for the slow recovery of outstanding dues from States. In reply they were informed as under:

"The slow process of recoveries from the State and Union Territory Governments can mainly be attributed to the following reasons:

(a) It seems that States need sometime to co-relate the quantities of material and equipment supplied to them as shown in the adjustment sanctions issued by the Government of India, *vis-a-vis* received by the consignees in different parts of States like Maharashtra, Himachal Pradesh, Nagaland, Rajasthan and Orissa. They have sent interim replies that matter was being examined by them/under consideration with them and that further communications would follow.

(b) In some cases though the formal orders authorising the payment of the amount payable to the Central Government are issued by the State Health Department, but three is a considerable time-lag till the amount is actually remitted to the Central Government. To quote an example is the case of Maharashtra where the order for payment of Rs. 96.72 lakhs payable to the Central Government was issued by the Joint Director, Health services (Malaria &Filaria) Pune in April, 1982 but, th actual amount is yet to be received from the State Government.

(c) Another reason for the slow process of recovery could be the non-receipt of the copies of the adjustment sanction by the concerned departments. In some States like Jammu & Kashmir, Uttar Pradesh, Gujarat, West Bengal, Arunachal

Pradesh and Goa which on being reminded for the remittance of the amounts due from them have asked for the copies of the adjustment sanctions issued by the Govt. of India/details of the supplies made to them during the previous years.

(d) Some delay in the recovery of the amounts due from the State/U.T. Governments is also due to the fact that the State/U.T. Govts. like Andhra Pradesh, Assam, Bihar, Manipur, Karnataka, Kerala, Meghalaya, Haryana and Mizoram did not send any replies inspite of repeated reminders asking for the remittance of the amount due from them."

1.23 As per the norms prescribed under the NMEP, the population of units having API 0.5 per cent and above (i.e. one case and above per 2000 population) had to be kept in 'attack' phase where attention was focussed on insecticidal spray operations. Phasing arrangements envisaged that area units would be shifted from 'attack' to 'consolidation' and then to 'maintenance' phases on the basis of independent appraisals of progress achieved in the implementation of the programme. The Committee are unhappy to note that large areas were maintained under 'consolidation' and 'maintenance' phases in spite of the fact that these were having incidence of more than 2 API (i.e. more than 2 cases per 1000 population). Consequently, when the modified plan of Operation was introduced in 1977, areas covering population of 25 crores had to be sprayed each year regularly against the area covering 9.75 crores sprayed earlier. The explanation of the Ministry is that the reversion to earlier status was not considered feasible because of enormous administrative and financial inputs involved. The Committee are not convinced by this reasoning as a realistic rephasing was evidently necessary in order to avoid serious setback in implementation. It is therefore surprising that when incidence of malaria had been increasing during the period 1969—74, more and more units were recommended for entry into 'consolidation' and 'maintenance' phases. This is indicative of negligence and casual attitude on the part of those entrusted with the task of protecting the health of the people. The Committee expect a detailed explanation from the concerned authorities for this.

1.24. The National Malaria Eradication Programme was implemented as a Centrally sponsored Health scheme with cent percent Central assistance from 1969 till 1979. Subsequently, in pursuance of the decision taken by the National Development Council, the cost of the scheme was equally shared between the Central and State Governments. However, on the basis of subsequent experience, th Ministry have found that this decision has adversely affected the programme because while adequate allocations covering 50 per cent share of expenditure from the Central Government have

been made, some of the State Governments have not been able to provide matching funds to finance the scheme with the result that even the Central share has not been utilised. The Committee note the Ministry's view that for effective NMEP implementation, the prime need is to convert the Programme into a category 1—100 per cent centrally assisted programme, the Committee recommend that the financing aspect of the entire programme should be on the earlier basis when the Central Government took upon itself the responsibility to defray the entire cost of the programme. It should be so, specially in view of the fact that malaria eradication programme is basically a national health problem involving crores of people mainly coming from hte weaker sections of our population.

1.25. The Committee note that large amounts are due for recovery from States for the period 1974-75 to 1980-81 on account of incidental charges in respect of insecticides, anti-malarials and other material supplied to them. Only a sum of Rs. 29.55 lakhs could be recovered so far out of the amount of Rs. 124.66 lakhs on this account. Again, only Rs. 13 lakhs could be realised out of the outstanding amount of Rs. 85.69 lakhs representing the cost of insecticides from various States. In view of what has been stated in the foregoing paragraph, the Committee feel that the amounts representing their share of expenditure from 1979-80 and 1980-81 due from the States should be reconciled and adjusted and the amounts representing their liability otherwise, should be utilised in conjunction with the Centre as and when a hundred per cent centrally sponsored scheme, as was in vogue upto 1979, comes in for implementation as recommended by the Committee.

IV. *Logisics*

1.26. The Audit para points out that till 1978-79, all insecticides, anti-malarials and other equipment required for the implementation of the programme (both imported and purchased in India) were being procured centrally by the Directorate of NMEP for supply to the States. From 1979-80 onwards, the States were advised to make their own arrangements for procurement of all material and equipment except the material which the NMEP Directorate could procure through imports or from Hindustan Insecticides Ltd. (HIL) or other sources.

1.27. Information in regard to the availability of stocks was vital for initiating further procurement of material and equipment and for this purpose the Directorate of NMEP obtained annually the stock position from the States. The Directorate of NMEP was, however, not maintaining a Statewise inventory of stock based on supplies made by it to the States and the consumption reported by them through periodical reports. Instead, the Directorate depended entirely on the figures of stock balance reported by the States for procurement of further supplies asked

for by them. Audit have mentioned several instances wherein the opening balances of stocks with the States as per figures made available by the Directorate of NMEP, differed largely from the corresponding figures of consumption of material as per records maintained in the States. The Government have stated (November 1981) that the NMEP Directorate did not have separte staff for reconciliation of the position of insecticides as reported in various returns.

1.28. In this context, the Committee enquired if the Directorate had ever asked for additional staff for this purpose. The Ministry in a note have stated:

> "The Directorate of NMEP did not ask for additional staff specifically for monitoring physical location and availability of insecticidal supplies at the peripheral points as the NMEP is a National health programme implemented through the State Government and physical cross checking and factual position as indicated by the State Health authorities was not possible and would have required enormous amount of staff and expenditure on TA/DA etc.
>
> Since NMEP Directorate did not come across any instance of major variation on the reporting of stock figures by the States the information supplied by the States was accepted."

1.29. The Audit para has pointed out that the quantities of stores isssued by the Directorate of NMEP each year did not agree with the quantities received by the consignee States and some of the States namely Bihar, Gujarat, Haryana, Karnataka and Madhya Pradesh were taking on stock, quantities of antimalarials and insecticides less than the supplies made. Asked how the quantities received by the States differed from the quantities supplied by the NMEP Directorate, a representative of the Ministry of Health and Family Welfare stated during evidence:

> "We verified each of the cases subsequently ..... In these cases, the receipts were in subsequent years. This has been explained in the detailed reports that we have given in regard to each State. This discrepancy which you have mentioned has been reconciled over a period of four to five years."

1.30. The Witness further stated —

> "Only after the Audit para was recived by us in the Ministry, the verification was taken up. We went into each case reported by the Audit."

1.31. The Committee pointed out that Audit have drawn certain conclusions on the basis of information to it. furnishesd to them, and asked for Ministries reaction to it. The Secretary, Ministry of Health and Family Welfare replied:

> "That is quite correct. We went into the whole thing subsequently and each and every case was reconciled over a period of years."

1.32. According to Audit there have been a number of cases wherein opening balance s of stocks of anti-malarials with the States varied considerably from the stock position maintained by the Directorate of NMEP. However, the Committee regret to observe that no steps were taken by the NMEP Directorate to monitor and reconcile the opening stosk balances of antimalarials held by the States with the supplies made by the Directorate till Audit pointed out glaring discrepancies in the stock position whereafter verification was taken up and each case reconciled over a period of years. The Committee are not convinced by the reply of the Ministry that monitoring and reconciliation was not considered necessary as the NMEP was implemented through the State Governments. The statement that the work involved in reconciliation would have entailed enormous staff and expenditure on TA/DA etc. does not also hold good in view of the subsequent statement that all the discrepencies pointed out by the audit were reconciled. The Committee feel that as huge quantities of insecticides involving large amounts of money are bei ng supplied by Central Government it is their duty to ensure that these are properly accounted for by the concerned State Governments as in ts absence, the chances of the same being not properly used cannot be ruled out. The Committee recommend that proper monitoring and reconciliation arrangement in this regard should be evolved expeditiously.

B. *Supply and use of insecticides*

1.33. Technical directions issued by the Directorate of NMEP as early as 1966 envisaged that there would be no fresh malaria cases after 2 to 3 years if the spray operations were conducted thoroughly in the given areas with the right type of insecticide. As effectiveness of the spray operations would depend upon the susceptibility of the vector mosquito o the insecticide sprayed, entomological surveys are basic requirements in the selection of right type of insecticide. However, it has been pointed out in the Audit para that a number of instances noticed in test-check in Andhra Pradesh, Himachal Pradesh, Karnataka, Madhya Pradesh, Bihar, Tamil Nadu, J & K and Mizoram indicated that entomological surveys were either not at all carried out even under the Modified Plan of Operation or were conducted partially. The Committee asked how the Directorate considered it proper to continue use of insecticides of different types for years together without ascertaing periodically in a systematic manner

vector susceptibility of their effectiveness. In reply, the Ministry of Health and Family Welfare in a note have stated:

"Prior to the introduction of the Modified Plan of Operation entomological studies were being made by the six Regional Co-ordinating Organisations (now known as Regional Offices for Health and Family Welfare), supplemented by the State Entomologists appointed by the few States. This was considered to be inadequate at the time of framing the strategy for the Modified Plan of Operation. Accordingly 72 Entomological Zones have been established under Modified Plan of Operations throughout the country with considerable increase in the entomological set-up at the regional coordinating organisations' level of the Ministry of Health."

In addition to DDT, BHC, and Malathion were introduced in the control programme from the year 1959-60 and 1969-70 respectively. These changes were made after systematic studies had confirmed that the vector in certain areas have become resistant to DDT or DDT and BHC."

1.34. The Committee desired to know the specific reasons why entomological work had been neglected even under MPO. The Ministry of Health and Family Welfare have replied in a note:

"Under the M.P.O. there has been a major step-up of the entomological coverage throughout the country, even though some of these teams have yet to be established by the State Governments particularly from 1979-80 onwards when the programme became 50:50 sharing one. Some States have not sanctioned the necessary posts or appointed proper personnel. The Officers from NMEP Directorate and the Regional Officers during their visits to the States and Districts have brought to the notice of the State Authorities through various reports to fill up the vacant posts of personnel in the malaria programme.

The Ministry of Health has also brought these observations about the vacant posts to the notice of the State Government for their early filling.

However, every effort is being made to persuade the State Governments to fill up these vacancies. Further measures have been undertaken in the last one year to increase the mobility of the entomological teams which is an important requirement for greater effectiveness.

As an advance measure, 20, vehicles, one for each entomological team at the zonal level have been sanctioned and are being procured as inital measures."

1.35. In a subsequent note, furnished to the Committee the Ministry have stated:

"Initially under M.P.O. 72 zonal Entomological Teams/Cells were sanctioned and all the States have set up the cells. Subsequently some of the smaller States/UTs requested for provision of entomological cell. Government of India, Ministry of Health Meghalaya, Nagaland and Andaman & Nicobar Islands. The filling up of posts in Meghalaya and Andaman & Nicobar Islands is in progress.

The position of the vacant posts of the different categories of staff in the following States is as under:

S.No.	States	Astt. Entomologist	Lab. Technician	Insect Collector
1	Andhra Pradesh	1	—	—
2	Bihar	2	6	—
3	Himachal Pradesh	—	2	1
4	Haryana		1	—
5	Madhya Pradesh	2	—	5
6	Maharashtra	1	—	—
7	Karnataka	—	2	2
8	Orissa	2	—	—
9	Rajasthan	2	—	—
10	Uttar Pradesh	1	2	2
11	West Bengal	1	6	—

1.36. The Audit para brings out the fact that for spray operations during 1978, Haryana had not asked for DDT; nevertheless, 143.95 tonnes of DDT 50 per cent were supplied to the State, of which 101.36 tonnes were consumed. Again, in 1980 this State had asked for 105 tonnes of BHC 50 per cent, but received 910.56 tonnes. On the other hand, this State had been asking for Malathion since 1978 to 1980 (1978: 4,854 tonnes; 1979: 8,364 tonnes and 1980: 9,607 tonnes) but the request could not be complied with. However, the epidemiological situation in the State indicated a rise in malaria cases to 7.08 lakhs in 1978 from 6.39 lakhs

in 1977. In this context the Committee desired to know whether the demands of the States for specific types of insecticides are not in conformity with the results of entomological investigations conducted in the States and scrutinised by the Regional Coordinating Organisation|Regional Office which is a Central Agency. The Committee further enquired about the independent yard-stick available and applied by the NMEP Directorate for supplying the insecticides. In reply, the Ministry of Health & Family Welfare have stated in a note:

> "In the original N.M.E.P. strategy, the insecticide being used was DDT alone. Later, when it became necessary, more effective insectides like BHC and Malathion were introduced. We are also experimenting whcrever necessary with even more effective insecticides to meet the specific situation.
>
> There are 3 specific considerations which have to be kept in mind for dealing with any conclusions for a change in the type of insecticides in use in any given area (1) Status of vector susceptibility to the insecticide of choice starting from DDT and going on to BHC and Malathion in preferred order. This is determined in laboratory conditions in accordance with the W.H.O. test methods. (2) The epidemiological consideration taking into account the fact that it has been proved that where the insecticidal spray with good coverage is provided, despite laboratory investigations, showing resistance in vector reduction of incidence to vector density were noted. (3) There are only a few limited insecticides available for control purposes and hasty change over would result in large areas becoming unsuitable for any insecticidal control. Further in terms of cost of DDT applied in effective doses as compared to BHC and Malathion is much cheaper. The proportion of expenditure on insecticides alone being of the order of 1:2 and 12 for DDT, BHC and Malathion respectively. The decision to change over the type of insecticides has, therefore, considerable financial and administrative implications.
>
> The Malaria Research Centre of the I.C.M.R. has carried out studies which have corroborated that effective reduction in vector density and in incidence can be achieved, where the vector is technically resistant to given insecticide, provided good coverage is achieved. This has been actually outbreaks in the field also in several specific instances where outbreaks of malaria had to be controlled by use of DDT (because of non-availability of right type of insecticide at the specific time)

and where it was found that effective application of DDT spray brought down the incidence of malaria.

Since, 1981, the Technical Advisory Committee has been constituted which includes Directors of NMEP, NICD, ICMR (Malaria Research Centre and Vector Control Research Centre) and selected State Malariogists and the W.H.O. representatives which considered each such specific case and on whose recommendations change in type of insecticides is to be decided upon."

Use of wrong type of insecticides

1.37. The Audit para has pointed out that at several places the supply and consumption of insecticides had not been regulated in accordance with the results of entomological surveys. In Uttar Pradesh, 260 lakh population required to be sprayed with BHC was sprayed with DDT and 32 lakh population required to be sprayed with Malathion was sprayed with less effective insecticides as DDT and BHC during 1977-79. In Gujarat BHC was used for pray in spite of vector resistant to BHC during 1977, 1978 and 1979 to cover a population of 198 lakh out of a total population of 290.62 lakhs requiring spray. Similarly in Karnataka though susceptibility tests showed vector resistance to DDT/BHC predominantly, yet these two insecticides were continued to be used. In this context, the Committee asked if epidemiological consideration can override the entomological findings in determining the vector susceptibility of insecticides. The Ministry have replied:

"..... both entomological and epidemiological factors are taken into consideration alongwith administrative and financial factors and considered view is taken in each case."

1.38. The Committee are not happy over the manner in which the NMEP authorities had acted in the matter of supply and use of insecticides. The technical directions envisaged that there would be no fresh malaria cases after 2-3 years if spray operations were conducted thoroughly with the right type of insecticide. As effectiveness of spray operations depended on susceptibility of vector mosquito to the insecticide sprayed, entomological surveys were a basic requirement in the selection of right type of insecticide. However, in a number of cases in Andhra Pradesh, Karnataka, Madhya Pradesh, Bihar, Tamil Nadu, J & K, Himachal Pradesh and Mizoram entomological surveys had not been carried out at all even under the Modified Plan of Operation or were conducted only partially. Though inadequacy of entomological studies was realised at the time of framing the strategy for the Modified Plan of Operation (1976-77) and subsequently 72 Entomological Zones had been established, many of the States have yet to appoint proper personnel to man these entomological Cells. This is evident from

the fact that as many as 12 posts of Assistant Entomologists, 19 posts of Lab. Technicians and 10 posts of Insect Collectors are vacant in 72 Entomological Cells sanctioned. The Committee need hardly emphasise that immediate steps should be taken to fill up these posts and ensure that entomological coverage is not allowed to fall in arrears.

1.39 The Committee are distressed to find that in a number of States like Haryana, Uttar Pradesh, Gujarat and Karnataka in large areas covering lakhs of population supply and consumption of insecticides had not been regulated in accordance with the results of entomological surveys. These areas were sprayed with DDT and BHC though susceptibility tests had shown vector resistance to these insecticides. That this had to be done on financial and administrative considerations does not carry conviction with the Committee as no positive results can be expected by spraying a particular type of insecticide in an area where there was vector resistance to that insecticide. It is, therefore, no surprise that in some of these areas there was a rise in malaria cases. Moreover, the use of wrong insecticides results not only in wastage of resources but is also likely to lead to avoidable environmental pollution entailing serious adverse repercussions. The Committee need hardly stress that supply and consumption of insecticides should be regulated strictly in accordance with the results of entomological surveys.

Use of Sub-standard insecticides

1.40 In the audit para, a number of cases of supply of sub-standard insecticides have been given. In this connection, the Committee desired to be apprised of the procedure laid down by the NMEP Directorate to ensure that the insecticides in use with the organisation had not deteriorated in quality whe nused. In reply, the Ministry have stated:

> "The Dte. of NMEP issued directive to the State Malariologists for proper storage of the insecticides in well-ventilated covered godown protected from direct sun and rain. Further instructions were issued to get the left over material after spray season to be tested before being used in the subsequent year's spray. Some of the States did get the material tested as per relevant specifications.
>
> The insecticide is consigned to the district by the supplier on receipt of despatch instructions from the State. The material is distributed in defferent villages at the spray sites for storage, so that the spray team can utilise this material, very often the villages are reached on foot/bullock cart and the material is carried on head load. Very often the quantity for two to three rounds is dumped well in advance when the villages are approachable in fair weather. Very often the quantity left

over ranges from a few Kilo gram to a full drum. Recollection of the left over from different places will entail considerable expenditure on transportation.

The procurement of insecticides used in NMEP was the responsibility of NMEP Dte., who used to place indent/ATs with DGS&D with required specifications and accordingly the insecticides were supplied by DGS&D to consignee after inspecition and testing by DGS&D. Only standard material was supplied to the State. The quality was ensured under the Warranty/Guarantee clause of A/Ts as per Insecticide Act and States are to use the insecticides accordingly. Any complaint or any adverse reports, if received from the consignees by NMEP Dte., was taken up with DGS&D."

1.41 The Malaria Manual enjoined upon NMEP Directorate to look into the studies of insecticides, their formulations, deterioration in transit or under local climatic conditions. Under the Insecticides Act 1968, the Insecticides Inspectors were empowered *inter alia* to stop the use of an insecticide which they had reasons to believe was being used in contravention of the provisions of the Act. However, Paragraph 5 of the Advance Report of the C&AG of India for the year 1979-80 (Civil), refers to some cases of procurement and supply of sub-standard insecticides costing Rs. 534.98 lakhs. A few more such cases of supply of sub-standard insecticides costing Rs. 53.36 lakh approximately are menioned in the Audit para under consideration. The Committee enquired about the checks being exercised by the NMEP Directorate to ensure quality of insecticides/ anti-malarials supplied by private firms for the programme. The Ministry of Health and Family Welfare have stated in a note* furnished to the Committee:

"The State Government purchase the material directly from the private manufactureres/formulators in accordance with their own purchase procedures. The States have been advised to inspcet the material and get it tested from the approved testing laboratories which have been indentified to them.

In order to ensure procurement of insecticides of right specifications and standards for NMEP by the States, a proposal for the establishment of Insecticide Testing Laboratory one each at the headquarters of the nine major States *Viz.*, Karnataka, Haryana, Punjab, Madhya Pradesh, Uttar Pradesh, Orissa, Gujarat, Rajasthan and Maharashtra, is under active consideration of the Ministry of Health & Family Welfare. The establishment of these laboratories will facilitate timely

*Not vetted in Audit.

availability of Test reports *vis-a-vis* approved material, procurement of standard quality of insecticides/larvicides by the States, as also testing of left over material.

State Health authorities have been advised for proper storage of insecticides in well-ventilated covered godowns protected from the direct sun and rain.

Procurement of anti-malaria drugs is done through the DGS&D and the Government Medical Store Depot. The supplies are inspected and tested as per relevant specifications by the Inspection Wing of both the Organisations and only approved material meeting the requirements of specifications is released for despatch to the NMEP consignees."

1.42 The Committee enquired if there were adequate facilities for testing insecticides when these are supplied to the States. In reply, the representative of the Ministry of Health stated before the Committee:

"As for as Central supply of insecticides are concerned, the facilities are sufficient. As regards supplies to the States or procurement in States, the facilities for testing are not adequate. We brought this to the notice of the Planning Commission and the Directorate concerned. The Planning Commission has agreed that nine regional testing laboratories can be established in the country at various levels. This will be funded 50:50.... We shall take very energetic steps to see that nine regional laboratories are set up."

1.43 The Committee asked why the insecticide (36.55 tonnes) was used in Haryana after it had been declared sub-standard. The Ministry in a note have replied:—

"State authorities of Haryana are the ultimate consumers of the material referred to. They do not appear to have made any complaints regarding the material. The material was used in the normal spray operation. As soon as the defece was noticed, further use of the material was stopped and the firm was asked to replace the material, and the firm replaced the material.

The defect was reported by the Malaria Officer, Sonepat, *vide* his letter No. 4202 dated 19-12-77 addressed to Director of Helath Services, Haryana, Epidemiology Branch, Chandigarh, and copy endorsed to Director, NMEP, Delhi which was received in this Dte. on 22-12-77.

The matter was immediately referred to Director General of Supplies and Disposals, Parliament St. New Delhi.

The Director of Inspection, N.I., Circle, DGS&D, New Delhi informed the Chief Medical officer, Malaria Section, Sonepat (Haryana) advision him to get the sample tested in respect of Gamma Isomer content on percentage basis only and any testing in the way conducted by him could not be deemed to lying within the scope of the specification covered in the A/T apart from the proper sampling procedure. He was further told that Inspection Dte. was not in a position to take further action from DGS&D, he was requested to have the sample re-analysed strictly to the requirement of the contract specification and inform his results."

1.44. In another case, it was found that stock of insecticides (BHC 50 per cent and DDT) tested by the State Public Analyst in Uttar Pradesh was found to be substandard and the BHC was retested at a recognised testing laboratory (Sri Ram Testing House, New Delhi) and found it to be of standard quality. In this context, the Committee enquired as to why the insecticides were retested at a private laboratory rather than entrusting the same to a Government laboratory. In reply, the Ministry of Health and Family Welfare have stated in a note*:—

"....In order to settle the issue urgently, the samples were to be tested on priority to proceed for further action and since the Government laboratories did not have spare capacity to test samples without delay, it was imperative to get the samples tested from an independent approval laboratory from which the results becomes available without any delay.

It is further stated that a sample was sent to other laboratory *i.e.* National Test House, Calcutta, which also declared the sample to be of standard quality. The testing of DDT 75 per cent wdp was carried out by Insecticide Testing Laboratory of Dte of NMEP, which is carrying out the testing of DDT routinely and well acquainted with the testing of DDT wdp for many years."

1.45. The Audit para also mentions a case of 694 tonnes BHC procured by the Government of Madhya Pradesh where semples drawn by the NMEP Directorate failed in the laboratory tests and instructions were issued against its use. The Committee learnt that the Government informed Audit that it had not been possible to observe the system of quality due to wide spread storage of insecticides and lack of technical facilities and staff.

*Not vetted in Audit.

1.46. The Committee enquired the reasons why samples were taken by NMEP Directorate for test in 1979 from Madhya Pradesh when this organisation had no machinery for such tests. In reply, the Ministry in a note have stated as under:—

> "In 1979 when States were empowered to purchase insecticides on 50:50 basis, the power of cross check of the malerial at any time was kept with NMEP Dte. and under this samples were drawn in Madhya Pradesh, when the State purchased the material for the first time. No special testing staff was provided.
>
> However, the existing staff of the NMEP Directorate meant for testing of DDT 50 per cent supply from HIL, Delhi were utilised for cross checking as an emergent measure."

1.47. The success and effectiveness of Malaria Eradication Programme primarily depend upon the quality of insecticides used. Distressingly, the C&AG's Report under examination has brought out a number of cases of the use of sub-standard insecticides valued at more than Rs. 53 lakhs. Earlier the C&AG's Advance Report (1979-80) had also brought out various cases of use of substandard insecticides worth Rs. 535 lakhs. In a few cases residual insecticides were replaced by the suppliers, while in a majority of cases sub-standard insecticides had been used. The fact that even a test check in audit could bring to light so many cases reveals that the supply and use of sub-standard insecticides are fairly wide-spread.

1.48. The Committee's examination of the cases relating to Uttar Pradesh and Madhya Pradesh revealed that besides inadequacy of independent testing facilties under Government, there has been lack of quality control and technical facilities to ensure acceptance and use of quality insecticides. It is a pity that such inadequacies should persist even after twenty years of the start of the programme. The Committee desire that the Ministry should go into these deficiencies carefully with a view to taking remedial measures. The Committee note in this connection that the Ministry of Health and Family Welfare has mooted a proposal to set up nine Insecticides Testing Laboratories in different States.

Coverage under spray operations

1.49. Under the Programme insecticidal spray operations have to be repeated once after 8 to 10 weeks where DDT is used and twice after 6 to 8 weeks where BHC/Malathion is used so that all sprayable surface available in the area remains lethal for the vector throughout the transmission period. However, during 1977 to 1980 substantial population areas requiring regular spray were left unsprayed each year in different rounds of spray operations. The shortfall in coverage was attributed to shortage| late receipt of insecticides. In this context the Committee enquired if it

was not the responsibility of the Directorate to gear up its logistics machinery to match with the requirements of the Programme, particularly when Evaluation In-depth Committee had recommended (1970) that placing of order on a one-time basis, a two year supply of DDT should be considered. In reply, the Ministry of Health and Family Planning, in a note, have stated:

> "The direct responsibility of the NMEP for procurement was limited to items and quantities procured from Hindustan Insecticides Limited. All other procurements are made eiher through S.T.C. or through DGS&D as per prescribed procedure. Hence strengthening of logistics machinery was not considered warrented."

1.50. The Audit has pointed out that the coverage under insecticidal spray operations in several States had been very inadequate (less than 50 percent) over the targeted areas and several areas due for coverage in second and third rounds had not been so covered. When asked about the reasons for the inadequate spray coverage, the representative of the Ministry of Health and Family Welfare stated during evidence:

> "The States report to us on the basis of coverage of a house or a room, or part thereof. When they approach and try to spray, the acceptance varies from place to place, from city to city and from State to State. When the teams go and if a room is partially sprayed in terms of the sprayable surface, the coverage goes down. And if the kitchen and the bed room are not allowed to be sprayed, the coverage still goes down. That is the problem. Another reason for refusal by the people is that they have lost faith as the cultural benefit of DDT has gone. We make efforts by health education camps so that people cooperate and accept spray. But in some States they have made malaria a notified disease. In Punjab and Gujarat people had been prosecuted for refusing to get their houses sprayed; and they were fined Rs. 2. Even that did not work. We are a free country where things cannot be imposed on people. Through goodwill we can go ahead."

1.51. In reply to another query from the Committee the witness stated:

> "It is a question of refusal rate. In U.P and Rajasthan houses are found locked.....May is the harvesting season. Advance information is not given. Person is not available in the house. Refusal is there. In Rajasthan, there are some cases where the house owners have refused. In other States also, refusal is there. Normally, we get 10 per cent houses, out of 100 houses. Sometimes it may be of the order of 15 per cent.

1.52. The Committee enquired if any instance of house owners refusing to get their houses sprayed in Rajasthan had come to the notice of the Ministry. The Ministry of Health and Family Welfare have stated in a note:

> **"The details of house owners refusing to get their houses sprayed are not obtained at national level by the Dt. of NMEP. As per the recommendations, under Modified Plan of Operation, 44 Superior field workers have been provided for conducting spray in a million population Eeach workers indicates the details of houses owners refusing to accept spray, in his daily spray report. The rounds of spray are carried out in a period of 5 months. To collect the details of refused houses, the daily reports of superior field workers for 5 months period have to be consulted. The State of Rajasthan have a population of more than 26 million with API 2 and above, requiring spray operations, the difficulty of compiling the details of refused houses may be appreciated. Hence the State Headquarter also will face difficulty to compile the information within a short period.**
>
> It is a fact that refusals are encountered in Rajasthan due to similar reasons and [illegible] measures have been recommended to combat the refusal rate.
>
> Under the Modified Plan of Operation the States/UTs have been requested to furnish information of rooms and cattlesheds targeted and those actually sprayed. As per the information received from the State the percentage of coverage of rooms varies from 75 per cent to 92 per cent in different rounds. However in few districts like Jaisalmer and Pali the refusal rate is also high, ranging from 40 to 60 per cent."

1.53. The Committee were further told during evidence that the poor sections of the people are the most cooperative and they do not refuse spray. It is only the affluent section who do not allow spraying in their kitchen and prayer rooms because it is a question of inconvenience for them and the shortfall is only in relation to the affluent section.

1.54. The Committee pointed out that affluent people formed a very small proportion of population and even in their case also only a part of household was not sprayed. When enquired, how in view of this fact, the shortfall in spray could be as high as 40 precent as reported by the Audit. The witness stated before the Committee:

> **"There are other reasons also. At the time of harvesting the houses are locked. People go to the fields and work from 8.00 A.M. to 4.00 P.M."**

1.55 The Committee asked if it was not incumbent on Government to adjust the programme of spray in such a way that the spray workers went to the houses for spraying, when the people were in their houses. In reply, the witness stated:—

> "May-June is the period when people are busy cutting their grains or threshing them. That is the time when we face this difficulty of locked-houses. I agree that the workers should adjust their programme according to the convenience of the villagers. It has been suggested to the States that the timing must be adjusted to the convenience of the villagers."

1.56. In a subsequent note* furnished to the Committee, the Ministry of Health and Family Welfare have given the following reasons besides locked houses for shortfall in the number of houses sprayed:

> "Non-acceptance of spray operation by the households due to the following reasons:
>
> (i) Prayer rooms are not allowed to be sprayed.
>
> (ii) Kitchen are not allowed to be sprayed.
>
> (iii) The rooms if distempered are not permitted for insecticidal spray as the marks of the insecticides on well may dis-figure the colour.
>
> (iv) Refusal to accept spray is encountered during festivals, marriage ceremonies, etc.
>
> (v) If any member of the family is bed-ridden due to some chronic illness, the living room, in such cases are refused for insecticidal spray coverage.
>
> (vi) In areas with sericulture industriest refusal is high because of possible damage to the silk worm.
>
> (vii) Some communities like Jain community refuse to accept spray on religious ground.
>
> (viii) Some times the smell of the insecticides is not liked by the households and they do not spray the living rooms.
>
> (ix) Some times the bed bugs nuisance increase after the insecticidal spray. The insecticidal spray kills the natural pedators of bed bugs, like ants, and other insects. As a result the number of bed bugs increases after spray. Public misunderstand that the increase of bed bugs is directly due to insecticidal spray in the rooms.

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*Not vetted in Audit.

The remedial action taken by Government is as under:

(i) "It has been recommended to State Health authorities that advance intimation regarding the date of spray should be sent to the households before the visit of spray squads so that the people desirous to get the houses sprayed remain in the houses, Mopping operations are organised to spray locked and missed houses.

(ii) The public are explained about the benefit of the insecticided spray and are requested to get their houses sprayed to ensure prevention of Malaria among the family members particularly children.

(iii) In case of high refusal due to bed bugs nuisance arrangements are made to supply diazionon to mix with insecticide, while spraying. Diazionon is very effective to kill the bed bugs. The public are informed about the fact that bed bug killer, diazinon, has been added to the insecticide to ensure their cooperation for complete coverage.

(iv) To prevent refusal during annual festivals the dates of spray are suitably adjusted in certain areas depending on the community observing such festivals. Health publicity materials have been provided to the State for explaining the benefits of insecticidal spray to the villages.

(v) Films have been prepared with recommendation to the States for showing in Cinema halls and other public gatherings.

(vi) Talks are arranged through Audio Visual media like All India Radio & Television.

(vii) Slides showing the benefits of spray have been recommended to be shown in Cinemas houses and other public gathering where films shows are arranged.

(viii) Gram Panchayat members have been|are being trained in the fundamental aspects of spray operations and their benefits. Their services are utilised for persuading the public to reduce refusal rate."

1.57. Houses left unsprayed by regular spray teams, for one reason or the other are required to be covered quickly by spay squads following the main team (known as mopping up operations). Technical directions required that one of the campaigns against malaria is to ensure that houses left unsprayed are covered urgently. It has been pointed out in Audit para that in nine districts of Uttar Pradesh and five districts of Rajashan however, mopping up operations were not carried out during

the yeas 1977 to 1980 although the houses left unsprayed by the main teams ranged between 10 to 21 per cent of the houses sprayed, in U.P and 32.6 to 41.8 per cent of rooms sprayed in Rajasthan.

1.58 The Ministry of Health & Family Welfare informed Audit in November, 1981 that the States had not sanctioned mopping up gangs to cover the required population. The Committee desired to know the steps that had been taken by the Directorate of NMEP to ensure that such teams were sanctioned by the State Governments concerned to meet the technical requirements of the campaign. In reply, the Ministry have stated as under:—

> "To cover up the left over houses by the spray gangs as a result of the houses being found locked, refusal to accept spray operations, normally one spray-pump is deployed. Out of the sanctioned strength to cover the missed houses for improving the spray coverage. As per share of 50:50 basis, the budget for NMEP from 1979-80 onwards, employment of spray gangs is to be met from the 50 per cent share of the State Governments. Quite a few of the State Governments have not been able to engage even the requisite number of spray gangs as per the prescribed pattern. Due to this and the rise in population the work load of the spray gangs employed exceeds the prescribed limits. Further, only some of the States are able to spare the spray pump for taking up the mopping up operations."

1.59. It has further been stated in the note:

> "Shortfall in supervision have been brought to the notice of the State authorities by Regional Director, Directorate NMEP and the Ministry of Health at the corresponding level with the State Government. Every single Independent Appraised Team which has reviewed the programme since 1978 has highlighted the shortfall in this regard which have again been communicated for action by the State authorities. This is an area of greatest concern to the Ministry of Health and Directorate of NMEP and very actively followed up."

1.60. The representative of the Ministry of Health and Family Welfare stated during evidence before the Committee:—

> "We want to place before you a couple of problems which we experience. One is sanction of spraying staff. This has to

be sanctioned by the State Government. The responsibility of arranging for spraying staff, even when DDT is supplied by the Central Government, rests on the State Government. The spraying staff are engaged on daily wage basis. We have had difficulties in getting the State Government sanction the spraying staff well in advance of the transmission seasons. The sanction is sometimes issued in April or May to the District Malaria Officer. There is the technicality of the budget having to be passed by the Legislature. Secondly, the sanction that is given related to the 1971 population. Every time we have raised with the State Governments that they should relate it to the 1981 population. Very few States are sanctioning extra staff because it is part of their budget. The third point is, they do not increase the daily wages. It is a running battle between us and the State Governments to ensure that the daily wages sanctioned are on par with those for unskilled labour under the PWD in each State. At the rate of daily wages allowed in the sanction issued by the State Governments, the Malaria Officers are not able to recruit staff....There should be a standing provision in the Financial Code authorising the State Malaria Officer to issue the sanction in accordance with certain norms and they need not have to go to the Finance Department. The sanction is to issue from the Health Department. Then the Finance Department is consulted but very often it requires the approval of the Cabinet and in States like Bihar and Assam the appointment of spray staff was delayed. Then they have to recruit labour at a time when the labour is required for agricultural operations. They had to engage labour at daily rates which is less than the normal rate. These are the operational problems which we wanted to place before you."

1.61. He further added:—

"Right from the month of September-October, it is our job sitting in Delhi to watch on a week to week basis the movement of insecticidal spray material to the States. They reach there but then the staff is not in position. Let there be no getting away from it."

1.62. The Committee desired to know as to what extent, inadequacy of staff had been responsible for resurgence of malaria and the steps that had

been taken by the Ministry of Health to overcome these problems. In a note, the Ministry of Health and Family Welfare have stated as under:—

"As per information availale in NMEP Dte. during the year 1980 the spray operations were affected in Bihar and Orissa due to want of timely sanctions of spray staff and limitation of resources. Some of the areas which were targeted for spray could not be covered for want of adequate staff.

During the year 1981 for want of funds, only one round of spray was conducted in Orissa instead of two rounds. In Haryana, the State Government did not provide funds in conducting spray operations during 1979 and 1980.

During the year 1982 spray operations were not carried out in Manipur for want of sanction of spray staff.

In Bihar and Orissa the incidence could not be contained upto expectations for want of insecticidal spray. In Haryana the incidence increased due to non-spray in the years 1979 and 1980. Only some selected areas were covered with focal spray.

The State Authorities have been alerted about the danger of leaving areas without spray operations and have been persuaded from time to time to provide funds for spray operations."

Focal Spray

1.63. Population areas having APLI below *i.e.* less than 2 cases per 1000 population were normally not to be covered by regular insecticidal spray, but the programme envisaged that even in such areas 50 houses around a detected malaria case must be given insecticidal spray However, focal spray in and around a detected malaria case had practically not been done, the shortfall varying between 91 and 98 per cent during 1977 to 1980 due to non-availability of insecticides at that time.

1.64. The Committee enquired why adequate quantities of insecticides were not responsible for resurgence of malaria. In rply the Ministry of were not responsible for resurgence of malaria. In reply, the Ministry of Health and Family Welfare have stated in a note as follows:—

"By and large supply of insecticides available was adequate for meeting requirements during the period and in fact at the end of each year quantities of insecticides were physically carried over by States for utilisation during the next year's malaria season. In cases where inadequacies of availability of insecticides was noted, preferential allotments of insecticides were made to P. falciparum areas. P. falciparum can lead to cerebral malaria and prove fatal, if not treated in time.

Initially, the question was with regard to focal spray in areas with API below 2 for which the reply was given that the focal spray could not be undertaken by all the States. If carried out in all the houses, it would have required tremendous amount of insecticides which was not available at that time. Hence the focal spray had to be limited to only certain selected limited areas."

1.65. The Committee are dismayed that during the period 1977 to 1980 substantial population areas requiring regular spray were left unsprayed each year in different rounds of spray operations. Several States reported less than 50 per cent insecticidal spray operations over the targeted areas and several areas due for coverage in second and third rounds had not been covered. After hearing the representatives of the Ministry the Committee are of the view that weaknss of the institutional framework of the programme at the field level and not so much lack of cooperation of people is mainly responsible for this shortfall in achieving the target of spray operations. This weakness should be removed. The Committee further suggest that in rural areas the spraying operations should be conducted by giving sufficient advance notice to the households and by adjusting the same to sust the commence of the people. As the programme of malaria eradication is a mass programme it cannot succed without the active cooperation of all the people. It is, therefore, imperative that merits of spray operation are explained adequately and convincingly to the people. Benefits of spray operations should be given wide publicity and cooperation of local and social organisations solicited.

1.66. Though theoretically the guidelines provided that houses left unsprayed by regular spray teams should be quickly covered by spray squads in mopping up operations, yet in practice the picture is found to be altogether different. The Committee find that in some districts of Uttar Pradesh and Rajasthan mopping up operations were not carried out at all during the years 1977 to 1980 although the houses left unsprayed by the main teams ranged between 10 to 21 per cent in Uttar Pradesh and 32.6 to 41.8 per cent of the rooms sprayed in Rajasthan. The shortfall has been explained in terms of inadequate spray gangs and spray pumps. It has been stated that the cost of spray gangs was to be met from the State's contribution to the Programme since 1979-80 and that a few of the States had not been able to engage requisite number of spray gangs as per the prescribed pattern. However, the Committee find that picture before 1979-80 in this regard had also not been satisfactory when the Programme was a cent per cent Centrally sponsored Scheme. As the overall responsibility with regard to its implementation and monitoring vests with the Ministry of Health & Family Welfare, it is for them to ensure that the Programme is implemented effectively and targets are achieved. The Committee, therefore, rcommend that the union Ministry of Health and Family

Welfare should thrash out these problems with the States and find solution thereto. In any case, it must be ensured/that the spray operations are not allowed to fall in arrears. The Committee desire that at least 1/3 of population should be conered by spray operations every year.

1.67. The technical guidelines envisaged that population areas having API below 2 (i.e. less than 2 cases per 1000 population) were normally not to be covered by regular insecticidal spray, but 50 houses around a detected malaria case were to be given insecticidal spray. The Committee are shocked to learn that the shortfall in spraying in and around detected malaria cases in such areas varied between 91 to 98 per cent during 1977 to 1980 due to non-availability of insecticides at that time. This is ptrticularly surprising in view of the claim made by the Ministry that supply of insecticides was adequate and stocks were being carried over by States from one year to another. The Committee would like to be apprised of the correct position in this regard.

Blood smears

1.68. Technical directions issued by the Directorate of NMEP envisaged screening of all fever cases with the object of detecting malaria infection in the community. However, in Uttar Pradesh, 98.96 lakhs of blood smears had not been collected out of 267.26 lakhs of fever cases detected during 1978 and 1979. In 6 districts in Himachal Pradesh, 0.76 lakh and 1.04 lakhs of fever cases were given presumptive treatment without collecting blood smears during 1979 and 1980 respectively. The position in respect of a few other States was as follows:

Year	Number of States involved	Number of fever cases detected	Number of fever cases in which blood smears not collected
		(Figures in lakhs)	
1977	4	294.58	143.51
1978	5	296.58	142.95
1979	5	300.96	142.61
1980	3	194.00	89.67

1.69. The Government informed Audit that in areas where epidemiological situation deteriorated and there was sudden spurt of cases, it was not possible to collect blood smears and drug distribution was intensified.

1.70. The Committee enquired if it was not a fact that presumptive treatment did not completely immunise a patient of malarial parasite in his body and if so, how Government were reconciled to the situation. The Committee further enquired if the situation would not lead to resurgence of malaria. In reply, the Ministry of Health & Family Welfare have stated in a note:

"It is a fact that presumptive treatment does not completely sterilise the patient of malarial parasite in his body.

The available machinery for taking blood smears and giving radical treatment for complete sterilisation of infection is utilised to the maximum possible extent. Some percentage of cases receive the presumptive treatment with chloroquine through DOCs. These cases when they got fever subsequently are advised to get the blood tested through the surveillance workers or at the passive agencies. It would thus be seen that the arrangement of drug distribution without blood smear collection has been made with a view to provide clinical relief to the patients right at their door step without compromising the basic fact of blood smear collection and radical treatment. This is a measure for dealing with emergent situations in areas afflicted with high incidence of the disease. The Directorate of NMEP has decided as a matter of policy to convert more and more DDCs into FTDS where blood smears are collected from all fever cases and radical treatment given to microscopically positive cases. The fact that the malaria incidence has shown consistent reduction over the year viz. 60 per cent from 1976 to 1981 clearly reveals that the strategy had been sound, dependable and result-oriented.

Under the Modified Plan of Operations one of the prime objectives is to reduce fatalities and period of sickness of malaria cases. The existing surveillance machinery can screen about 10 per cent of the population in their districts. Due to high incidence of fever in a number of districts, the surveillance workers are not able to cope up with the workload of blood smear collection in all the cases of fever occurring in the population. The administration of drug, chloroquine, had been authorised without blood smear collection under the programme through Drug Distribution Centres which are based mostly in the tribal and remote inaccessible villages. The administration of chloroquine to a case of malaria relieves clinical symptoms including fever. This single factor besides giving relief from fever, in case of P. *vivax* infection, makes the patient incapable of transmitting further infection. In the case of P.

falciparum also, the asexual and young sexual parasites are eliminated. This gives freedom from fever, thus reducing the potential of the transmission of the diseases. The radical treatment is given to prevent relapses in the case of P. vivax which occur after 2-3 months interval of the primary attack and to sterilise the mature sexual forms in case of P. falciparum."

1.71. It has been stated in the Audit para that according to technical directions given by the Directorate of NMEP, the maximum time lag permissible between the collection of blood smear and its examination should be 7 to 10 days. However, a test-check in audit revealed that out of 1.38 lakh blood smears collected by 17 districts in 3 States (Assam, Gujarat and Uttar Pradesh), only 0.89 lakh blood smears were examined within the time schedule. Delays ranged from 11 to 30 days for 0.33 lakh cases, 31 to 60 days for 0.11 lakh cases, 61 to 90 days for 0.04 lakh cases and over 90 days for 0.01 lakh cases. In Karnataka, Maharashtra and the Union Territory of Pondicherry, the number of blood smears pending examination at the end of each year, 1977 to 1980 was as under:

"Year	Karnataka	Maharashtra	Pondicherry
1977	3.19	4.85	0.02
1978	2.60	3.62	0.05
1979	1.75	3.47	0.26
1980	2.31	4.45	0.06

In the annual reports furnished by the Malaria Department, Maharashtra to the Directorate of NMEP, no back-log at the end of the year was however, reflected.

Government informed Audit in November, 1981 that during peak transmission seasons, the blood smears collected, could not be handled by a single technician and that proposal for providing a second technician in some States was under consideration."

1.72. In this context the Committee asked whether the delay in examination of blood smears beyond the stipulated period did not defeat the very purpose of taking blood smears particularly when the erethrocytic

a sexual life cycle of malaria parasite was only 72 hours. The Ministry of Health and Family Welfare in a note have stated:

"The procedure followed under NMEP in tackling the fever cases is as follows:

All fever cases are given presumptive treatment with chloroquine which clears the sexual stages of all the species of malaria parasites within a period of 72 hours and gives full relief from the symptoms of the disease. The radical treatment undertaken for microscopically positive cases aims to check the relapses in the case of *P. vixax* which occur at 2-3 months interval from the primary attack and diminish the transmission in some of *P. falciparum* infection. Under the Modified Plan of Operation, one Laboratory technician is provided for one lakh population in a PHC area. The Laboratory technician examines blood smears from only 1 per cent of the population of the area during a month. In case the fever rate is high and the number of blood smears collected is excessive, the blood samples go in arrears for examination. Priority is assigned for examination of blood smears from children and persons from clinical malaria. The remaining blood slides are examined during the lean period, when the capacity is available in the laboratory for examination. Besides this, the Headquarter Laboratory technician the general Laboratory technicians in the district hospitals and medical colleges are pressed into service to tide over the crisis."

1.73. The Committee note from the Audit Report that blood smears had not been collected in a large number of fever cases during the years 1977 to 1980. Of the 295 lakh, 297 lakh, 301 lakh and 194 lakh cases of fever detected during 1977 in 4 states, 1978 in 5 states, 1979 in 5 States and 1980 in 3 States blood smears had not been collected in 144 lakh, 143 lakh, and 90 lakh cases respectively. In one state viz., Uttar Pradesh alone, out of 267 lakh cases of fever detected during the years 1978 and 1979, blood smears were collected in 99 lakh cases only. This has happened in spite of the technical directions issued by the NMEP Directorate envisaging screening of all fever cases with the objective of detecting malaria infection in the community. It has been stated that the existing surveillance machinery could screen about 10 percent of the population in their districts and in the case of high incidence of fever, the surveillance workers could not cope with the workload of collection of blood smears in all the cases of fever. The Committee wish to stress that in order to detect cases of malaria and completely sterilise the patients of malarial parasite timely blood test is a must. The arrangements in this regard should be augmented early.

1.74. Operations guide on surveillance procedures envisaged that theoretical time lag between blood smear collection and its examination should not exceed a maximum period of 72 hours. According to technical directions given by the Directorate of National Malaria Eradication Programme, the maximum time lag permissible between the collection of blood smear and its exemption ranged between 7 and 10 days under certain conditions. However, there had been inordinate delay in the examination of blood smears in some States. Out of the 1.38 lakh cases of blood smears collected in some districts of Assam, Gujarat and Uttar Pradesh only 0.89 lakh cases could be examined within the stipulated time schedule. The delay in the examination of blood smears ranged from 11 days to 90 days and in some cases is was more than 90 days. There were heavy arrears of blood smears for examination in Karnataka and Maharashtra States at the end of each year between 1977 and 1980 though in the annual reports furnished by Malaria Department, Maharashtra to the NMEP Directorate, no backlog had been reported. The delays in the examination of blood smears beyond stipulated period defeated the very purpose of taking blood smears. The Committee desire that the Ministry should ensure that the organisational and other inadequacies in this regard are attended to early.

Radical treatment . . . .

1.75 To sterilise infection, radical treatment with primaquine (15 mg. per day) for five days was required to be administered at the earliest in all the fever cases found malaria positive. However, the Audit para points out that a test-check in audit of 15 lakh positive cases in selected districts of Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh and Maharashtra revealed that in a very larged number of cases, the treatment was delayed considerably, the delay in some cases exceeding 90 days after the collection of blood smears. In the States of Karnataka, Maharashtra, Haryana and Arunachal Pradesh radical treatment was not administered at all in respect of 11.30 lakh out of 31.25 lakh malaria positive fever cases. Some of the State Governments had stated in April, 1981 that shortage of drug supplied by the Central Government was one of the reasons for not giving radical treatment. Nevertheless, the Central Government stated that States of Haryana and Karnataka had reported a carry-forward stock of 33.28 lakhs primaquine tablets as on 1 January, 1977 and that with this quantity available, it should have been possible for them to treat all the malaria cases.

1.76 The Committee enquired if the NMDP Directorate had ascertained the States the reasons for non-administration of radical treatment to all the positive cases particularly when they had sufficient quantities

of drugs in their stock. In reply, the Ministry of Health, in a note, have stated as under:

"The Directorate of NMEP fully realises the need for administration of radical treatment to the microscopically positive cases. The Independent Appraisal Teams have also emphasised the same in their reports. However, in the administration of the radical treatment, besides the availability of drug, the question of manpower is of paramount importance Administration of radical treatment to *P. vivax* cases entails visit for 5 days to an individual case. The cases do not occur at the same level during all the 13 months in a year. Bulk of the cases occur during the period from July to October. The existing organisation is not able to cope up with the heavy load of work in districts with high incidence However, priorities are always fixed for giving radical treatment to *P. falciparum* cases and children of younger age groups. All fever cases are given presumptive treatment with chloroquine at the time of drawal of blood smear from them, which gives relief from symptoms of the disease and also reduce the chances of transmission.

Augmentation of staff to cover all the cases would require heavy outlay of resources and there would also be problem in continuity of staff after the end of the main malaria season. This is not considered feasible under the prevailing situation."

1.77 According to guidelines, radical treatment with primaquine (15 mg per day) for 5 days was required to be administered at the earliest to sterlise infection in all the fever cases found positive. The Committee are concerned to note that of the 15 lakh positive malaria cases in certain districts of Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh and Maharashtra radical treatment was administered in a very large number of cases after considerable delay, exceeding 90 days after the collection of blood smears in some cases. What is still more disturbing is that in some States like Karnataka, Maharashtra, Haryana and Arunachal Pradesh radical treatment was not administered at all in respects of 11.30 lakh out of 31.26 lakh malaria positive cases. Shortage of drugs has been stated to be the reason by some State Governments for this. On the other hand, the Ministry of Health have contended that States of Haryana and Karnataka had reported a carry-forward stock of 33.28 lakh primaquine tablets as on 1 January, 1977 and that with this quantity, it would have been possible to treat all the malaria cases. Shortage of manpower has also been stated to be the reason for not administering the radical

treatment. The Committee have been informed that the existing organisation was not able to cope with the heavy load of work in districts with high incidence. It has also been contended that augmentation of staff to cover all cases would require heavy outlay of resources and continuity of their services after main malaria season would also be a problem. Nevertheless the Committee apprehend that in the absence of radical treatment to such a large proportion of malaria cases, it would not be possible to eradicate malaria in the forseeable future. The Committee therefore urge that ways and means to devised to arrange sufficient manpower and resources for this important Health Programme.

Substandard anti-malarials

1.78 The Audit has pointed out that 0.70 lakh dis-coloured and sub-standard tablets of primaquine were used in Gurgaon district of Haryana in 1979. The Committee desired to know the reasons for use of these sub-standard primaquine tablets. The Ministry have stated in reply :—

> "Instructions were issued sufficiently in advance to the State of Haryana not to use the discoloured and sub-standard primaquine tablets and they were advised to return such tablets to the firm for replacement with good quality of tablets. It is not known under what circumstances Gurgaon District authorities used discoloured sub-standard tablets. Most of the sub-standard quantity had already been replaced by the firm with good quality tablets. The case regarding supply of sub-standard and discoloured tablets by the firm is already under investigation. The Haryana State authorities have been requested to intimate the circumstances under which discoloured tablets were used/consumed by Gurgaon Distt. authorities. The reply is awaited.
>
> The primaquine tablets are sugar coated. Under defective storage condition the sugar coating gets discoloured without affecting potancy of the active ingredient. In such tablets, discolourisation is not likely to cause any untoward effect on the consumers. However, wherever such cases are brought to notice instructions are issued for the withdrawal of the defective material."

1.79 Explaining the position, the representative of the Ministry of Health stated during evidence:—

> "Wherever we have received complaints about sub-standard material, we have withdrawn all those samples. Then the manufacturing premises of the firm in Bombay was inspected at our instance by the Controller of Drugs. It was

discovered that the equipment which they were using for drying tablets was not adequate, because the manufacturing was done during the monsoon. Therefore, effective stpes were taken to improve it and the formulations were replaced. They were sub-standard coatings; the coating was discoloured. Therefore, it was declared as sub-standard material and the samples were replaced."

1.80 The Committee asked about the action taken against the firms in such cases. The witness replied:—

"These are all indents placed on the DGS&D and DGS&D in turn converts them into purchase orders on the basis of tenders. We are very keen that the purchase of drugs, whether they purchase for malaria programme of TB programme should be done only from firms which are called registered firms. A firm is a registered firm if it is inspected by the Directorate of Inspection of Defence and it should have a production experience of a least two years. A firm can become a registered firm after it submits its data to a high powered Committee. So, we have been emphassing that the DGS&D should issue tender enquiries only to registered firms because we cannot afford to take risk in respect of drugs. The DGS&D condition is that 20 per cent of the tenders should be floated to unregistered firms."

1.81 The Committee desired to know the number of cases where discoloured and sub-standard drugs have been supplied during the last 3 years. In a note furnished to the Committee the Ministry have stated no complaint has been reported during last three years regarding Chloroquine tablets. It has further been stated in the note:—

"Primaquine is bitter substance and therefore its tablet are sugar-coated. The sugar coating changes colour in some cases due to storage conditions. The discoloured primaquine tablets remained petent in active ingredient and did not lose the efficacy.

The states complaining about discolourisation of Primaquine tablets are invariably advised not to use such tablets under the Programme as a precautionary measure. The consignees reporting discolourisation of Primaquine tablets during the last three years were as under:—

1. Sikkim	2,683 Nos.
2. U. P.	1,76,340 Nos.

3.	Karnataka	17,365 Nos.
4.	Mizoram	85,000 ,,
5.	Tamilnadu	4,96,282 ,,
6.	Haryana	30,072 ,,
7.	A. P.	20,150 ,,
8.	Assam	1,76,000 ,,
9.	A & N Islands	4,750 ,,
10.	DADG (Calcutt.)	1,10,000 ,,
11.	Lakshadweep	1,050 ,,

The consignees were advised not to use such tablets under the programme and return the same to DADG. Bombay for getting them replaced from the tabletting firm."

Excess consumption of anti-malarials

1.82 Technical directions issued by the Directorate of NMEP envisaged different dosages of 4 AQ tablets and 8 AQ tablets for different age groups. Accordingly on an average, 3 tablets of 4 AQ (chloroquine) for presumptive treatment and 20 tablets for 8 AQ (primaquine) together with 3 tablets of 4 AQ were to be given for radical treatment. However, during 1976 to 1980, the states of Assam, Bihar, Harayana, Maharashtra and Uttar Pradesh had shown consumption of 2,913.28 lakhs of 4 AQ tablets and 891.13 lakhs of 8 AQ tablets as against the estimated required quantity of 2,264.91 lakhs of 4 AQ tablets and 651.80 lakhs of 8AQ tablets, according to the average of the standard prescribed dosages. The excess consumption involved an extra expenditure of Rs. 111.55 lakhs approximately.

1.83 The Committee asked if the excess consumption of anti-malarials was investigated by Government. In reply, the Ministry have stated:—

"In many areas due to non-availability of insecticide in time it was not possible to carry out insecticidal spray on a 100 per cent basis. In such areas and in areas having large number of fever cases, the approach is to maximise the use of anti-malarials through the voluntary agencies and mass drug administration. For this purpose Drug Distribution Centres (DDCs) and the Fever Treatment Depots (FTDs)

have been effective promoted. The Drugs Distribution Centres have been promoted so that the drugs are available all the time to provide relief to the people and reduce the morbidity and loss of agriculture|industrial output.

The States make tentative projections of requirement of anti-malarials based on the consumption of the previous year. Subsequently, supplementary demands are made by them which are met by the Directorate of NMEP. Additional quantities are issued to the States for meeting unforeseen exigencies like drought, floods, epidemics, construction projects etc. In addition to this, efforts are made to maintain buffer stocks at the State Headquarters for meeting emergency situation.

In some instances, the stocks of anti-malarials are supplied to the States in excess of their requirements for want of storage facilities at the NMEP Directorate. Most of the anti-malarials have long shelf life and carried over balances on anti-malarials are used in subsequent years according to the need.

The NMEP Directorate from time to time have received the position on the consumption of anti-malarials and observed that excess consumptions were due to the reasons already mentioned in foregoing paragraphs."

1.84 Another disquieting feature of malaria eradication programme has been the use of sub-standard anti-malarials. In a number of States discoloured and sub-standard primaquine tablets have been supplied. The Committee note that the case regarding supply of sub-standard and discoloured primaquine tablets in Haryana is being investigated. The Committee would like to be apprised of the outcome of these investigations as well as remedial measures taken to guard against the recurrence of such cases.

1.85 The Committee are at a loss to understand why the drugs purchased for malaria programmes had not been purchased from registered firms. The DGS&D's insistence that 20 per cent of the tenders for supply of drugs should be floated to un-registered firms appears to be curious and needs clarification. The Committee would like to emphasise that in the matter of purchase of drugs strict quality control has to be exercised.

1.86 The Committee note that during 1976 to 1980, the States of Assam, Bihar, Haryana, Maharashtra and Uttar Pradesh had reported excess consumption of 2265 lakh 4 AQ tablets and 652 lakh 8 AQ tablets over and above the standard prescribed dosages valued at Rs. 111.55 lakhs. The reasons for excess consumption of the anti-malarials has not been adequately and precisely explained to the Committee. They would

therefore like the Ministry of Health and Family Welfare to look into the matter and ascertain the precise reasons for excess consumption of anti-malarials on such a large scale.

Non-Consumption of insecticides according to scales

1.87 It has been stated in the Audit Para that consumption of insecticides had been excessive of deficient to a substantial extent as against the standard laid down in the States of Bihar, Arunachal Pradesh and Madhya Pradesh. In Bihar during 1977 to 1980 the quantity of DDT used was 37.24 percent to 57.70 percent of the quantity prescribed. The Committee asked how the lower quantities of insecticides could be effectively used without lowering the dosages. The Ministry in a note have replied:—

> "Requirement of insecticide is calculated on the basis of population of an area targeted for spray operations. Under the following circumstances consumption of the insecticides can be less than the estimated requirement.
>
> (i) Some of the house in a village are not sprayed either due to refusal by the households or due to locked houses.
>
> (ii) All the rooms in the houses are not sprayed when the household refuse due to aesthetic/religious reasons.
>
> (iii) Due to late sanction of spray staff incomplete coverage of the population within the schedule period of spray.
>
> It is a fact that DDT had been in use at constant dosages of 100 mg/sq. fleet and this dosage schedule had not been reduced any time and is applicable for all the States/UTs in the country including Bihar."

1.88 In Arunachal Pradesh the quantity of DDT 75 percent used each year during 1976 to 1980 was 121 to 154 percent of the prescribed quantity. In 5 units of Madhya Pradesh 13.58 lakh pounds of insecticides were consumed during 1976 to 1979 against the possible consumption of 8.17 lakh pounds of insecticides. The excess consumption of 5.41 lakh pounds of insecticides resulted in an extra expenditure of Rs. 15.79 lakhs.

1.89 The Committee asked whether the reasons for excess consumption of insecticides beyond the Standard laid down have been analysed. The Ministry of Health and Family Welfare in written note have stated as under:—

> "The Directorate of NMEP has been analysing and evaluating through the various returns received from the States and

wherever excess consumption of insecticides beyond the standard laid down was reported, it was reviewed and investigated and remedial action taken where warranted in consultation with the State Government.

In the remedial action to prevent excess consumption of insecticides beyond the maximum quantity prescribed, it has been periodically tested for discharge rate and to change the nozzle tips showing higher rate of discharge than the prescribed level. In addition, it has been advised that individual spray teams, maintain records of daily consumption of insecticides. The supervising officers are to meticulously check the discharge rate, and cross-check the daily consumption in the field. It has also been stressed that necessary tools are provided to the spray teams for field level repair of sprayers to prevent leakage and wastage of insecticides."

1.90 The Committee enquired if the insecticides used under the NMEP are also used as pesticides under agricultural operations and whether there had been any cases of diversion of insecticides meant for spray purposes to other purposes. In reply, the Secretary, Health and Family Welfare stated during evidence:

"DDT and BHC—both have some use as pesticides and there have been problems in some of the States. In a few districts it has been observed that some pilferage has been there and the State Governments have been requested to investigate. In fact we are thinking of colouring the DDT so that detection becomes easier. We have devised a colour also."

1.91 Another representative of the Ministry of Health added:

"You have come to the heart of the problem. Our view has been that DDT, BHC and Malathion—this view has not been accepted and it is before the ICM Research Group in which Agriculture Ministry is also represented—should be used only for public health and for agriculture there are several more effective pesticides. The reason is that when these are used for agriculture, the resistance to the insecticides develops. We are rather keen that these three insecticides—their use should be confined to public health. The Research Committee is going into this. The Agriculture Ministry has not accepted it. But this is one of our problems."

1.92 The Committee enquired if there had been any complaint of insecticides supplied under the NMEP being disposed of to farmers for spraying crops. The Health Secretary stated during evidence:

> "We have had specific complaints from Orissa where DDT supplied to them for spraying in the public health programme has been diverted. This is a case of corruption. Orissa Government is conducting an inquiry. It is said that it has been sold and for spraying in agricultural operations for tobacco."

1.93 Asked about the frequency of such complaints, the witness replied:

> "We have got complaints off and on from districts. Some complaints come from some district about the sale of DDT and the matter is referred to the State Government who refer it to the district authorities for inquiry and we get a copy of the report and they take suitable action against the defaulters if the case is established."

1.94 Asked about his reaction in this regard, the Director General ICMR stated in evidence:

> "There are instances where the insecticides which were supplied for public health use have in fact been used for other purposes including not only for crops but over the grain that has been harvested in order to ward off insects coming there, posing a health hazard. In fact we, in this country, in our body fats carry rather high levels of DDT which is perhaps one of the highest in the world. So we have a danger there and some action needs to be taken. If you will permit me—because the Committee, I think, is very rightly deeply concerned about the use of insecticides and the question has arisen that in the very near future we need to have alternative policies for the control of insects, pests as we do not have a substantial reserve of alternative insecticides. The mosquitoes in course of time acquire biological resistance to insecticdes and this is a serious thing. Therefore, it is important that we should look for minimal use of these insecticides so that they do not induce resistance and then we adopt an integrated approach for malaria control through environmental improvement. Places where the mosquitoes breed are tackled. This is the Gandhian way and

this make commonsense. We do know where mosquitoes breed. We can measure the rate at which they are coming out every day. Things can improve by environmental methods coupled with selective use of insecticides. At the present time, what is happening is that we are throwing insecticides into an environment where we are not sure whether entire mosquito population is susceptible or not. We would at this rate be inducing what we call in biology, selectivity of resistant genes. For instance in the Khera district of Gujarat which is a highly agricultural area, there is high rate of resistence to multiple insecticides. It is irrigated. It is a prosperous area. Malaria is prevalent. The mosquito habits are also changing. They used to sit on the walls of the houses; but now in some places they go out of the houses. They don't any longer sit on the walls of the houses. So, there is no point in spraying in Gujarat. We tell the people that for environmental clearance, we should attack their breeding places and clear them out effectively. Chemical and biological control methods can be used in combination. There are new trials going on to bring this alternative approach in Khera. I am taking a long term view of vector control."

1.95 In a subsequent note furnished to the Committee on the subject, the Ministry of Health have stated as under:

"Under the NMEP three insecticides namely, DDT, BHC and Malathion (recently introduced) are in use. DDT and BHC are used for indoor residual spray under the NMEP. These and many other insecticides are also used in agriculture for protecting the crops against pests and also the stored foodgrains from grain pests. The insecticides used in the outdoor conditions in agriculture are of low dosage. However, the mosquitoes rest also in outdoor conditions and also breed in rice fields etc., and thus become exposed to numerous insecticides including these which are used in the NMEP. This poses a problem particularly in the development of insecticides resistance in the mosquitoes.

'The pesticides Environmental Pollution Advisory Committee had suggested to limit the use of DDT in the country for which the Ministry of Health has taken up the matter with the Ministry of Agriculture."

1.96. The Committee find that in some of the States there had been excessive or deficient use of insecticides to a substantial extent against the standard laid down. In Bihar during the years 1977 to 1980 the quantity

of DDT used was only 37 to 58 per cent of the quantity prescribed. In Arunachal Pradesh the quantity of DDT consumed during 1976 to 1980 ranged between 121 to 154 per cent of the prescribed quantity while in Madhya Pradesh 13.58 lakh pounds of insecticides were consumed during 1976 to 1979 against the possible consumption of 8.17 lakh pounds of insecticides. This excess consumption of 5.41 lakh pounds of insecticides resulted in an extra expenditure of Rs. 15.79 lakhs.

1.97. The Committee are astonished to find that while there had been very low consumption of insecticides ranging from one-third to a little more than half in Bihar, there had been substantial excess consumption in Madhya Pradesh and Arunachal Pradesh during the years 1976 to 1980. The excess consumption has been stated to be due to higher discharge from nozzle of spray pumps. However, if the explanations for the low and excess consumption of insecticides are viewed in totality, a hazy picture emerges. Refusal and closed houses can not be confined to Bihar only nor can excessive discharge from nozzle tips, be confined to Madhya Pradesh and Arunachal Pradesh. These factors could have operated universally. The Committee would like the Ministry to analyse reasons for excessive and deficient consumption of insecticides in depth for ensuring suitable action especially for properly regulating the supplies and use in future. The Committee would like to be apprised in due course of the action taken in this regard.

1.98. The Committee are concerned to note that insecticides supplied for public health use had been diverted in some cases for use as pesticides for agricultural operations and also for storage of grain to ward off insects. The wide-spread use of DDT and malathion in agricultural operations can pose a grave health problem. The Committee are told by an eminent scientist that in this country the people in their body fats carry a rather high level of DDT which is perhaps one of the highest in the world. The Committee are convinced that some drastic action is required in this regard to prevent indiscriminate use of DDT and malathion. In this connection, the Committee feel that Ministry of Health and Family Welfare's suggestion that use of DDT, BHC and Malathion should be confined to only public health and for agricultural operations some other effective pesticides should be used merits consideration. The Committee note that the ICMR Group is looking into this matter and their expert advice would be available to the Government shortly. The Committee would like to be apprised of the final action taken in this regard.

1.90. The Committee commend the suggestion of an eminent medical expert that use of insecticides may be minimised by adopting an integrated approach for malaria control through environmental improvement. Some work in this respect has already been done in some selected pockets and

the results achieved are encouraging. They wish that public opinion be mobilised and voluntary organisations involved in this programme of environmental improvement and it should be extended to other parts of the country with a view to achieve vector control.

Appraisal

1.100 Independent appraisal teams which visited the States during February to April 1981 at the instance of the Government of India had observed in their reports that in Gujarat, the spray coverage was far from satisfactory mainly due to inadequate supervision; the effective coverage could never be more than 40 to 50 per cent although a coverage of 90 to 95 per cent was reported in various returns; In Karnataka, though the PHCs, visited by independent appraisal teams, had reported spray coverage to the extent of 80 per cent, the actual coverage did not exceed 30 per cent of the sprayable surfaces and the favourable resting places of mosquitoes had invariably been left out; In Punjab during 1980, the spray coverage was claimed to be over 75 per cent, but on verification in the field the team had reasons to believe that effective spray did not exceed 40 per cent and in fact, it would be nearer 30 per cent; and in Haryana, there had been no regular insecticidal spray during 1979-80 due to non-availability of insecticides; selected village-wise spray in one round only was done in some of the villages with high number of malaria cases and flood-affected areas.

1.101 The Committee asked if the NMEP Directorate was not receiving the information from the States through monthly reports and if so what remedial steps was taken. In reply, the Ministry have stated:

> "The District Health authorities send the spray reports after completion of the round. The coverage communicated in the reports is generally higher, as often partially sprayed rooms are also included as sprayed. These reports are generally received late. The Directorate of NMEP takes up the question of poor insecticidal spray coverage observed by the visiting officers with the State authorities for remedial action at their end.
>
> Here also the visits of NMEP and Regional Offices as also that State Govts. of P. falciparum Containment programme officers have been taken up with the periodically. Where necessary this has been done at the level of Additional Secretary/ Secretary/Minister in the Ministry of Health and Family Welfare with the Health Secretary/Chief Secretary/Health Minister/Chief Minister of the States concerned. This is a continuous process on a regular basis."

1.102. The Committee note with distress that progress reports on spray coverage sent by various State Governments to the Union Ministry of Health and Family Welfare generally contained exaggerated claims of achievement. This fact has been amply brought out by the independent appraisal teams which visited States during February to April 1981 at the instance of the Government of India. It was observed that in Gujarat effective spray coverage never exceeded 40—50 per cent although the State Government reported 90 to 95 per cent in various returns. In Karnataka the PHCs visited by independent appraisal teams had reported spray coverage to the extent of 80 per cent though the actual coverage did not exceed 30 per cent of the sprayable surfaces and the favourable resting places of mosquitos had invariably been left out. In Punjab during 1980, the spray coverage was claimed to be over 75 per cent, but on verification the team found that effective survey did not exceed 40 per cent and would be nearer to 30 per cent. In Haryana there had been no regular spray during 1979-80; selected villagewise spray in one round only was done in some of the villages with high incidence of malaria. This clearly shows a lack of reliable monitoring and supervision of the programme. The Committee desire that the monotoring machinery be strengthened and concrete follow-up action taken in all cases where deficiencies in the programme are pointed out by the appraisal teams.

Surveillance operations

1.103 Besides thorough insecticidal spray operations, effective surveillance operations, comprising case detection by blood smear examination of fever cases and administration of radical treatment of all cases found to be malaria positive, were required to be carried out by workers/ inspectors of the malaria eradication department in the process called 'Active Surveillance' as also through static and voluntary agencies, private practitioners, etc. in the process of 'Passive Surveillance'. Apart from routine 'Active' and 'Passive' surveillance, mass blood smear survey was also to be conducted for the entire population of selected areas. Under technical directions issued by the Directorate of NMEP, each surveillance worker was expected to visit each house in his area twice a month. However, in the case of one unit in Madhya Pradesh surveillance was conducted monthly instead of fortnightly all through from 1958 to March 1981. In some other units in that State, the surveillance workers did not visit the houses for months together.

1.104 The Government had informed Audit in November 1981 that with the staff sanctioned under Modified Plan of operation, it was not possible for some of the States to carry out the operations on fortnightly basis and the States had to resort to monthly visits without doubling the staff. The Committee asked if the NMEP Directorate was aware of

these short-comings and if so what steps had been taken to ensure that there was no departure from prescribed norms. The Ministry in a note have stated as under :—

"The shortcomings in this regard are fully known and are highlighted by each Independent Appraisal Team annually and brought to the specific notice of the State authorities at the highest level. They have, however, limitations in this regard due to constraint of resources. As the cost of the programme is now on 50 : 50 cost-sharing basis, some States are unable to sanction the posts or to fill them in time.

Modified Plan of Operation provides for adequate surveillance staff considered necessary on technical grounds. The States have been advised repeatedly to sanction additional surveillance staff on the basis of the mid-year population increasing from year to year. Here also the non-provision of additional personnel is due mainly to the categorisation of the programme on 50:50 cost sharing basis.

In view of the position already explained above with the increasing population from year to year it was recognised as late as in 1978 and the Govt. of India issued sanction orders to the State Govts. requesting them to augment the surveillance staff based on mid-year estimated population. In addition the Govt. of India has also advised the State to augment the staff based on the 1981 census population."

1.105 The Committee enquired if the genuine needs of States were kept in view while formulating MPO. The Ministry have replied:—

"The need of augmentation of the surveillance staff was kept in view and was considered and the States were advised to augment the staff on the basis of the mid-year population every year buut many of them have not strengthened such additional personnel particularly due to the categorisation of the scheme as a 50:50 cost sharing one. To make the programme 100 per cent centrally sponsored scheme a proposal has been submitted to the Planning Commission for their consideration."

1.106 When asked if Government had reconciled to the relaxation of the surveillance operations in the face of the technical directions, the Ministry stated in a note* as under:—

"Neither the Directorate of N.M.E.P. nor the Ministry of Health have reconciled to the relaxation of the surveillance operations in the Programme by the States. Both the Directorate and this Ministry have been impressing upon the States

*Not vetted in Audit.

Health authorities to sanction/appoint adequate number of staff for surveillance operations as per the provisions of the Modified Plan of Operations since 1977. Even, the States have been authorised to calculate the number of surveillance staff on the basis of the prescribed norms based on the mid-term estimated population from year to year.

Some of the State Health Organisation have taken up with their respective Govt. to agument the surveillance staff, as for example in Assam the matter is under consideration of the State Govt. It is learnt that Orissa Govt. will take appropriate action for the augmentation after rationalisation of the pay structure of different categories of staff in the MPO Scheme."

1.107 Pointing out that of late cereberal malaria which had been confined to North-Eastern States, M.P., Orissa, Bihar and Maharashtra has spread to some Northern States, the Committee desired to know the reasons for the same. In reply, the Ministry of Health and Family Welfare have stated as under:—

"Generally Cerebral Malaria is an acute manifestation of some of the Pf infection is proportionately much more in comparison to that of States of Northern India like Punjab, Haryana, U.P. and Rajasthan. About 60 per cent of the total positive cases are of Pf type in North Eastern States whereas 6 to 8 per cent of total positive cases are Pf in the States of Northern India.

Because of high proportion of Pf infection Cerebral Malaria is common in the North Eastern States than in the States of Northern India. During the recent years there was increase in the Pf infection in Northern India due to following reasons:—

(i) Congregation of labour in the project areas like Mirzapur in U.P. where large number of labourers are recruited from different parts of the country including from areas with high Pf infection resulting in spread of the infection to the project areas.

(ii) Increased irrigational facilities as in the States of Punjab and Haryana, resulting in increase of breeding sources of the mosquitoes.

(iii) Movement of population from malarions area of working in the minor irrigation and other projects."

1.108 Asked if it was due to insufficient supply and non-availability of insecticidal spray in these areas, the Ministry stated:

"Yes partly."

1.109. The Committee desired to know the remedial steps that have been|are proposed to be taken to prevent this disease from spreading further and to control it in the above areas/states. The Ministry replied:—

"The following remedial measures have been|are proposed to be taken to contain the increase in Pf incidence.

(i) The project authorities have been requested to create an infrastructure of health for attending to labour management and control of malaria among the recruits from other parts of the country.

(ii) In areas with high incidence of Pf the drug regiment has been modified by givings 8 Aminequinoline group of drugs to all fever cases alongwith chloroquine in order to contain spread of the infection through mosquito vector.

(iii) Prompt radical treatment has been recommended in Pf areas by introducing single day treatment to all Pf positive cases in order to cut down transmission to other members of the community.

(iv) The problem PHCs have been identified for intensification of supervision.

(v) Priority has been given for supply of insecticides for areas with high Pf incidence and focal spray has been recommended around Pf cases.

(vi) For quick anti-adult measures fogging machines have been provided for project areas and urban areas. It may not be out of place to mention that regular fogging operations in the labour camps and the surrounding areas in Delhi prior and during ASIAD games prevented increase of malaria in the capital."

1.110. Under the Programme, apart from routine 'Active' and 'Passive' surveillance, mass blood smear survey was also to be conducted for the entire population of selected areas. Under the technical directions issued by the Directorate of NMEP, each surveillance worker was expected to visit each house in this area twice a month. However, it is seen that in a unit in Madhya Pradesh surveillance was conducted monthly instead of fortnightly from 1958 to March 1981. In some other units, surveillance workers did not visit the houses for months together. The failure on the part of State Governments to meet their financial obligations and the consequential inadequacy of staff strength were stated to be the reasons for this state of affairs. Nevertheless, the Committee are constrained to observe

that such lapses on the part of surveillance machinery may result in nullifying the effectiveness of the programme. The Committee would like early remedial measures to be taken in this regard.

1.111. The Committee are gravely concerned to note that of late cerebral malaria which had been confined to North-Eastern States, Madhya Pradesh, Orissa, Bihar and Maharashtra has spread to some Northern States because of migration of labour/population from cerebral malarious areas to Northern States and also because of increased irrigation facilities in these States. Insufficient supply and non-availability of insecticidal spray in these States had also partly contributed to the spread of cerebral malaria which is an acute manifestation of some of the Pf. infections and proves fatal in many cases. The Committee need hardly emphasise that urgent preventive measures should be taken up in right earnest not only to contain this disease but to eradicate it effectively in those areas in the country where it is at present prevalent.

Audit Reports

1.112. The National Malaria Eradication Programme has been a joint effort on the part of Central and State Government. The Comptroller and Auditor General of India conducted audit of the Programme and submitted reports to Central and State Legislatures highlighting the various deficiencies noticed in the course of Audit examination. The Committee enquired if the Ministry of Health and Family Planning were aware of the Audit Reports submitted to various State Legislatures and if so what remedial measures had been taken by the Ministry to overcome the deficiencies pointed out in these reports. In reply the Secretary, Ministry of Health and Family Welfare replied during evidence:

> "Those Audit Reports have not come to our notice. Frankly speaking, I have not gone through those Audit Reports which have been presented to the various Legislative Assemblies in the States."

1.113. In reply, to a further question, the witness stated:

> "The Audit Reports are very valuable and we attach great importance to them because the evaluation done by them is really precise and useful also. We have been amiss, I might say, not to have kept a track of them. But flowing from your suggestion, we will call for the Audit Reports and we will look into them."

1.114. The Committee drew the attention of the witness to the various deficiencies noticed in the implementation of National Malaria Eradication

Programme by Audit and pointed out in the Reports of the C&AG of India for the year 1980-81 relating to the State of Karnataka, Uttar Pradesh, Bihar, Tamil Nadu, Orissa and Maharashtra. The witness added:

> "I have already submitted that it is useful to have knowledge about the Audit Reports placed before the State Legislatures. In future, we will keep a track of them.
>
> The crucial points which have been brought out in these Audit Reports are basically four or five in number and those points are broadly in our knowledge and we have been taking steps in regard to them.
>
> The first point is about vehicles. The mobility of vehicles is an essence of any successful programme. The vehicles which are provided must be roadworthy so that the vehicles are not to be garraged and put out of commission, but to be used in the implementation of the programme. The second point is about the availability of insecticides of the right quality and in adequate quantity and also to be made available in time, when needed. The third point is about spraying operations. The fourth point is about blood smears and that there should be no gaps between blood smears taken and the treatment of cases. The fifth point is about the type of insecticides which are required and which must be in tune with the need not only on entomnalogical basis but also on the Epidemiological basis."

1.115. The National Malaria Eradication Programme has been a joint endeavour on the part of Central and State Governments. The C&AG of India has conducted an evaluation audit of the Programme in various States and submitted his reports to the concerned State Legislatures highlighting the various deficiencies found. The report of the C&AG of India for 1980-81 relating to the States of Karnataka, Uttar Pradesh, Bihar, Tamil Nadu, Orissa and Maharashtra have enumerated various deficiencies found in the implementation of NMEP. The Committee regret that these Reports were not taken notice of by the Ministry of Health. The Health Secretary was frank enough to admit before the Committee: "We have been amiss, I might say, not to have kept a track of them". He assured the Committee that it would be done and follow-up action ensured. He also promised to evolve the mechanism to keep a track of such Audit Reports whenever presented in future. The Committee would like to be informed of the action taken in the matter. The Committee would further like the Planning Commission and the Ministry of Finance to evolve an arrangement whereby such Reports of the C&AG are examined for necessary action both

by themselves and by the other concerned Ministries/Departments of the Government of India in so far as the responsibilities of the Central Government are concerned.

NEW DELHI;
July 18, 1983
Asadha 27, 1905 (*Saka*).

SUNIL MAITRA
Chairman,
Public Accounts Committee.

Appendix I

National Malaria Eradication Programme: Incidence of Malaria from 1977 1981

Sl. No.	Name of the States/U.Ts	1977		1978		1979		1980		1981	
		Incidence	Deaths	Incidence	Deaths	Incidence	Deaths	Incidence	Deaths	Incidence	Deaths
1		2	3	4	5	6	7	8	9	10	11
1	Andhra Pradesh	114620	..	71723	..	55575	..	36204	..	38234	..
2	Assam	96771	35	30073	30	73397	58	65705	47	58106	49
3	Bihar	41097	..	44787	..	73457	5	71954	4	61111	5
4	Gujarat	722687	..	399854	..	361119	..	434770	..	412447	..
5	Haryana	639063	2	708008	1	436984	1	294334	1	305992	..
6	Himachal Pradesh	42154	..	49947	..	39870	..	49044	..	35534	..
7	Jammu & Kashmir	37679	..	27376	..	11580	..	5463	..	5703	..
8	Karnataka	536404	..	318890	..	276832	..	224634	..	158003	..
9	Kerala	5468	..	6196	..	3972	..	3339	..	4127	..
10	Madhya Pradesh	365077	..	271740	1	270819	2	391364	25	320742	16
11	Maharashtra	340071	..	215773	1	204596	..	191911	5	109553	..
12	Manipur	1082	..	3655	4	4234	..	2646	3	1265	..
13	Meghalaya	9812	..	9974	..	17342	8	19016	12	12640	1
14	Nagaland	3805	..	8424	..	12019	17	8733	4	7401	2
15	Orissa	212337	..	374591	..	310952	41	281047	42	293057	51

1	2	3	4	5	6	7	8	9	10	11	
16	Punjab	529147	..	467558	..	325227	..	228478	..	232071	..
17	Rajasthan	231862	..	154549	..	83394	..	96118	..	99001	..
18	Sikkim	98	..	45	..	66	..	44	..	40	..
19	Tamil Nadu	83300	..	76227	..	95009	..	73381	..	71517	..
20	Tripura	4332	5	12918	27	10769	27	6364	5	6182	13
21	Uttar Pradesh	433044	1	360059	..	149919	..	182308	..	172913	..
22	West Bengal	15722	1	11850	1	11909	1	2219	3	26239	4
	Union Territories & Others										
23	Andaman & Nicobar	2820	1	2010	..	7481	..	9812	30	4610	4
24	Arunachal Pd.	24571	9	30127	9	35595	14	32166	17	33601	6
25	Chandigarh	34624	..	28676	..	36453	..	42725	..	34351	..
26	Dadra & Na. Haveli	N.A.	..	N.A.	..	1937	..	3676	..	3198	..
27	Delhi	178196	..	375077	..	98812	..	63227	..	62415	..
28	Goa, Daman & Diu	2286	..	450	..	270	..	2134	..	1277	..
29	Lakshadweep	97	..	33	..	15	..	4	..	0	..
30	Mizoram	5490	1	12361	..	19345	3	17779	..	17361	4
31	Pondicherry	326	..	302	..	378	..	451	..	414	..
32	Coalfields	5448	..	3804	..	3917	1	3927	1	1771	1
33	DNK Project	20510	..	17078	..	31453	20	25039	8	25562	12
	(INDIA)	4770000	55	4144385	74	3064697	198	2896000	207	2666244	170

APPENDIX I

(*vide* para 2 of Introduction)

National Malaria Eradication Programme

Audit Paragraph-7

1. *Introductory.*—Following the National Malaria Control Programme launched in 1953, the Government of India introduced in 1958, a centrally aided programme for implementation by the State Governments for total eradication of malaria within 6 to 7 years, the programme being renamed as National Malaria Eradication Programme (NMEP). The time schedules for the programme were revised in 1964 and 1967, with termination dates of 1970 and 975 respectively. In the Fourth Five Year Plan period (1969—74), the programme was made centrally sponsored with 100 *per cent* grants to the State Governments; prior to 1969 the expenditure was shared between the Centre and States for some years. From 1977, the strategy of the programme was revamped with a view to effectively controlling and containing malaria and preventing of deaths due to malaria instead of its total eradication, and it was called 'Modified Plan of Operations' (MPO).

2. *Organisational set-up*—The responsibility for the implementation of the programme is entrusted at the national level to the Director of NMEP under the Director General of Health Services. Till August 1979, the directorate was assisted by 6 regional coordinating organisations which functioned as liaison agencies between the States and the directorate. In September 1979, 14 integrated regional offices and 3 sub-regional offices came into existence. At the State level, the programme is being executed by the district malaria officers, supervised by the zonal malaria officers under the overall control of the Director of Health Services (DHS) of the State concerned.

3. *Pattern of assistance*

3.1 The Central assistance (during the Fourth Plan) covered expenditure on—

(i) material and equipment including vehicles, anti-malarials, insecticides, etc.; and

(ii) operational cost including the expenditure on spraying and surveillance staff for malaria units in 'attack' and 'consolidation' phases, subject to deduction of the level of expenditure being incurred by the State Governments in 1957-58 as a part of their committed liability.

3.2 Material and equipment required for the programme units in the 'attack' and 'consolidation' phases in the form of insecticides etc. as per scales laid down by the Government of India, were to be procured centrally and supplied directly to the State Governments concerned and the cost thereof adjusted as grants. Material and equipment required for units in the 'maintenance phase could also be supplied by the Central Government, but the cost thereof was to be recovered from the State Governments concerned. Similarly, incidental charges on account of the cost of handling the material and equipment procured through the Director General, Supplies and Disposals, though initially borne by the Central Government, were recoverable from the State Government at a flat of 2 per *cent* of the cost of material and equipment supplied to them.

3.3 The expenditure on operational cost and other incidental charges incurred on staff, according to approved scale, in the units under 'attack' 'consolidation' phases was to be borne initially by the State Governments, but was to be reimbursed to them to the extent of additional expenditure incurred by them in excess of the expenditure level of 1957-58.

3.4 With the introduction (April 1977) of MPO, the entire spray cost was to be borne by the Central Government excepting that the cost of 5 tonnes of insecticides in respect of 'maintenance' phase units was recoverable from the States concerned. From 1979-80 onwards, the financing of the scheme is being shared equally between the Centre and the States.

4. *Phasing of the programme*

4.1 The programme was divided into 3 main phases, namely, 'attack'. 'consolidation' and 'maintenance'. In the 'attack' phase which was launched from 1958, attention was focussed on insecticidal spray operations and for this purpose, the field of operations was divided into 393.25 units (1965-66). The progress of implementation of the programme in 'attack' phase was to be assessed by independent appraisal teams constituted for the purpose and based on their recommendations, units or part thereof were to be shifted to the 'consolidation' phase, regular spraying operations being discontinued in these areas. During the 'consolidation' phase, lasting about two years, all residual human infections were to be detected and eliminated through radical treatment and focal spray around the malaria-positive cases. Again on the basis of assessment by the independent appraisal teams, the units were to enter the 'maintenance' phase whereafter it would be the responsibility (both financial and operational) of the State Governments/ Union Territory administration concerned to ensure that the units were kept free of malarial infection as a permanent measure.

4.2 The year-wise position of units under various phases for the years 1966-67 to 1976-77 was as under:—

Year	Attack	Consolidation	Maintenance
1966-67	55.85	134.09	203.31
1967-68	68.50	96.79	227.96
1968-69	112.985	70.385	209.880
1969-70	107.464	68.740	217.046
1970-71	105.259	68.225	219.766
1971-72	100.029	67.425	225.795
1972-73	98.429	68.365	226.456
1973-74	97.409	66.310	229.531
1974-75	97.409	63.010	232.831
1975-76	97.409	63.010	232.831
1976-77	97.409	63.010	232.831

It would be seen from the table above that 57 units in 'consolidation' phase were reverted to 'attack' phase by 1968-69. No appraisal with the object of transferring units from one phase to the other was conducted during 1974-75 to 1976-77 and as such here was no passage of units from 'attack' to 'consolidation' phase and from 'consolidation' to 'maintenance' phase during this period.

From 1977 when Government changed its approach to the programme and introduced the MPO, all areas which had an incidence of 2 cases per thousand population per year (i.e. Annual Parasitic Index-API-2 and above) were to undergo regular spray operations irrespective of the pasing of the areas as 'attack' 'consolidation' or 'maintenance' According to MPO, a population of 250 million was to undergo regular spray operations each year from 1977 onwards (based on 1975 data) as against a population of only 97.5 million being sprayed during each of the years, 1973, 1974, 1975 and 1976.

4.3 The incidence of malaria in the country during the years 1977 to 1980 based on the cases detected and recorded, was as under:

Year	Number of malaria positive cases
1977	47,40,900
1978	41,44,385
1979	30,64,697
1980	28,44,815

Statewise details of malaria positive cases are givei in annexure I. It was, however, noticed in audit that no yard-sticks has been laid down to assess the effectiveness of the MPO, with reference to the objectives. Also in view of the observations in sub paragraphs 9.3, 9.5 and 9.6 regarding non-testing of blod smears and failure to take blood-smears, the possibilitiy of a large number of positive malaria cases having been omitted from statistical data could not be ruled out.

4.4 The Director, NMEP stated (December 1981) that prior to implementation of the National Malaria Control Programme in 1953, the estimated deaths due to malaria in the country were 8 lakhs. A separate scheme (known as P. Falciparum project) for preventing deaths due to malaria was being implemented by Government with assistance from the World Health Organisation. The Director, NMEP added (December 1981) that deaths that took place due to malaria in the country during the years from 1977 to 1980 were 55.74, 198 and 207 respectively; the authenticity of these figures could not be vertified in audit.

5. *Expenditure on the programme*

5.1 Under the programme an expenditure of Rs. 526.74 crores (excluding expenditure on operational cost for 1979-80 and 1980-81 figures for which were not available) had been incurred by the Government of India upto 1980-81 as details below:—

Year	Material and Equipment	operationl cost	Total
		(Rupees in crores)	
Upto 1976-77	149.36	202.51	351.87
1977-78	36.40	21.17	57.57
1978-79	30.77	23.40	54.17
1979-80	31.19	N.A.	31.19
1980-81	31.94	N.A.	31.94

Position about recoveries due from the States according to the pattern of assistance is given in the succeeding sub-paragraphs.

5.2 An amount of Rs. 85.69 lakhs, representing the cost of insecticides used in the units under 'maintenance' phase in different States, as detailed below, was not paid to the Government of India :—

State	Year	Amount (Rupees in lakhs)
Haryana	1977 1978	3.00
Karnataka	1976-77	48.54
Meghalaya	Upto 1980	1.72
Tamil Nadu	1977-78 1978-79	32.43
TOTAL		85.69

Reimbursement of the cost of insecticides used in areas under the 'maintenance' phase had not been made by the Government of Assam since 1966.

Government stated (November 1981) that the concerned State Governments had already been requested to remit the dues. The incidental charges (aggregating Rs. 124.66 lakhs) at 2 *per cent* of the cost of material and equipment supplied to the States were outstanding for recovery from Maharashtra (Rs. 109.62 lakhs: 1974-75 to 1980-81, Gujarat (Rs. 10.47 lakh,: 1976-1977, 1978-79 and 1979-80), Assam (Rs. 2.32 lakhs: 1975-76 to 1979-80), Punjab (Rs. 1.45 lakhs: 1978-79) and Himachal Pradesh (Rs. 0.80 lakh : 1973-74 to 1979-80).

5.3 According to the procedure obtaining in the Directorate of NMEP, the cost of material and equipment supplied to different States was advised by the Central Government by issue of quarterly sanctions under intimation to the concerned State Governments for adjustment as grant-in-aid to the States concerned Test-check in audit revealed that the Government of Madhya Pradesh did not receive 2 lakh tables of primaquine (worth Rs. 0.35 lakh) included in the quarterly sanctions for adjustment against the State during 1978-79 and that in the following cases though the material and equipment were received in Madhya Pradesh, no sanctions for supply thereof had been accorded as a result of which the cost (amount not available) thereof had not been adjusted against the state:—

Year	Material and equipment	Quantity received
1976-77	(i) 4 AQ tablets	245.38 lakhs
	(ii) 8 AQ tablets (15 mg.)	2.00 lakhs
	(iii) 8 AQ tablets (7.5 mg.)	1.50 lakhs
	(iv) 8 AQ tablets (2.5 mg.)	15.00 lakhs
	(v) Daraprim tablets	7.76 lakhs
	(vi) Quinine Sulphate	3.48 lakhs
	(vii) Quinine Hydrochloride Ampules	1,125 nos.
	(viii) Microslides	1,008 Gross
1979-80	(ii) 8 AQ tablets	10.00 lakhs
	(ii) Oil emerson lenses	10 nos.

Government stated (November 1981) that necessary action had been initiated in these cases to ensure adjustment of the cost.

6. Logistics.—Till 1978-79, all insecticides, anti-malarials and other equipment required for the implementation of the programme (both imported and purchased in India) were being procured centrally by the

Directorate of NMEP for supply to the States. From 1979-80 onwards, the States were advised to make their own arrangements for procurement of all material and eqiupment except the material which the NMEP Directorate could procure through imports or from Hindustan Insecticides Ltd. (HIL) or other sources.

6.1 Information in regard to the availability of stocks was vital for initiating further procurement of material and equipment and for this purpose the Directorate of NMEP obtained annually the stock position from the States. The Directorate of NMEP was, however, not maintaining a Statewise inventory of stock based on supplies made by it to the States and the consumption reported by them through periodical reports. Instead, the Directorate depended entirely on the figures of stock balance reported by the States for procurement of further supplies asked for by them. A test-check in audit, however, revealed several instances wherein the opening balances of stocks with the States as per figures made available by the Directorate, varied considerably from the stock position as per records maintained by the States (*vide* instances given in annexure II). Further, it was also noticed in audit that the figures of consumption of material as worked out from the figures made available by the Directorate of NMEP, differed largely from the corresponding figures of consumption of material as per records maintained in the States (*vide* instances in annexure III). Government stated (November 1981) that the NMEP Directorate did not have separate staff for reconciliation of the position of insecticides as reported in various returns.

The States of Haryana and Uttar Pradesh, were not maintaining districtwise inventories of stock and the State DHS entirely depended on the stock reports received from the districts. Government added (November 1981) that it was the responsibility of the States to collect the correct information from the districts.

6.2 Besides, the quantities of stores issued by the Directorate of NMEP each year did not agree with the quantities received by the consignee States, and some of the States were taking on stock quantities less than the supplies made vide instances below :—

State	Year	Drugs/ insecticides	Quantity despatched by NMEP	Quantity taken on stock by the State
1	2	3	4	5
			(In lakhs of tablets)	
(Anti-malarials)				
1. Bihar	1977	4 AQ	150.00	135.00
	1978		370.00	284.85
	1978	Daraprim	6 00	1.00
	1979		9 00	6.92

1	2	3	4	5
2. Gujarat	1977	4 AQ	359.00	230.00
	1979		200.00	150.00
	1977		210.00	168.00
	1978	8 AQ	343.00	253.00
	1979		285.00	115.00
3. Haryana	1978	8—AQ	245.00	147.00
4. Karnataka	1978	4 - AQ	425.00	296.00
	1977	8 AQ	118.00	40.00
	1978		165.00	160.00
5. Madhya Pradesh	1978	4—AQ	385.00	195.00
	1979		140.00	69.90
	1977		132.00	22.00
	1978	8 - AQ	165.00	Nil
	1979		220.00	60.00
	1977	Daraprim	26.76	Nil
(*Insecticides*)			(In tonnes)	
1. Gujarat	1977	BHC 50	1,615	1,235
	1978	*per cent*	1,170	670
2. Haryana	1977	DDT 75 *per cent*	535	515
3. Karnataka	1978	DDT 75 *per cent*	600	441
	1978	BHC 50	1,500	1,166
	1979	*percent*	769	716

No reconciliation between the quantities despatched by the NMEP Directorate and the quantities received by the State Governments had been done.

6.3 The Directorate of NMEP had not laid down any norms for assessing the requirements of the States for anti-malarials. However, normally the consumption of anti-malarials during the previous year and the stock balance in hand should provide a reasonable basis for assessing the requirement for the coming year. In the following cases noticed during a test-check in audit, the requirement of anti-malarials indented by the States far exceeded their assessed requirements:—

State/Union Territory	Year for which assessment was intimated	Anti-malarials	Consumption during previous year	Closing balance of stock with the state during previous year	Further assessed requirement	Requirement indented by the State
1	2	3	4	5	6	7
			(In lakhs of tablets)			
Arunachal Pradesh	1980	4 AQ	2.48	2.63	Nil	5.00
		8 AQ (2.5 mgm)	2.94	4.10	Nil	2.00
		8 AQ (7.5 mgm)	0.87	0.15	0.72	3.00
		8 AQ (15 mgm)	0.09	0.11	Nil	0.50

1	2	3	4	5	6	7
Gujarat . . .	1977	8—AQ	169.00	43.00	126.00	247.06
	1978	4 - AQ	251.00	89.88	161.12	696.80
Haryana . .	1979	4 - AQ	255.11	138.89	116.22	622.80
	1980	4 - AQ	236.51	69.67	166.91	361.25
	1978	Daraprim	4.47	Nil	4.47	20.00
	1979	Daraprim	1.56	Nil	1.56	9.06
	1980	Daraprim	3.67	5.33	Nil	10.59

6.4 For spray operations during 1978, Haryana had not asked for DDT; nevertheless, 143.95 tonnes of DDT 50 *per cent* were supplied to the State, of which 101.36 tonnes were consumed. Again, in 1980 this State had asked for 105 tonnes of BHC 50 *per cent*, but received 910.56 tonnes. On the other hand, this State had been asking for Malathion since 1978 to 1980 (1978 : 4,854 tonnes; 1979 : 8,364 tonnes; and 1980: 9,607 tonnes) but the request could not be complied with. Government stated (November 1981) that cheaper insecticides like DDT and BHC were sprayed so long as they gave epidemiological impact. However, the epidemiological situation in the State indicated a rise in malaria cases to 7.08 lakhs in 1978 from 6.39 lakhs in 1977.

6.5 During 1977 to 1979, 65 to 100 per cent of the insecticides supplied by the Directorate of NMEP to Madhya Pradesh each year were being received late; the delay ranging from one to 15 months. In 3 districts of Punjab, 640 tonnes out of 942.65 tonnes of BHC 50 *per cent* supplied by the Directorate of NMEP during 1980 were received late by 5 to 8 months. Government stated (November 1981) that delays in supplies were due to difficulties in procurement of the insecticides.

7. *Supply and use of insecticides*

7.1. *Vector susceptibility tests.*—Technical directions issued (1966) by the Directorate of NMEP envisaged that there would be no fresh malaria cases after 2 to 3 years if the spray operations were conducted thoroughly in the given areas with the right type of insecticide. As effectiveness of the spray operations would depend upon the susceptibility of the vector mosquito to the insecticide sprayed, entomological surveys are basic requirements in the selection of right type of insecticide. A test-check in audit in some of the States revealed the following:

(i) In Andhra Pradesh, the Director, Medical Health Services, stated (February 1981) that entomological work was not stressed till 1977 and that no studies were undertaken as separate staff for the purpose had not been sanctioned.

(ii) In Himachal Pradesh, no entomological survey had ever been carried out (May 1981).

(iii) In Karnataka, out of 269 primary health centres, vector susceptibility tests were conduted in only 124 centres during 1977 to 1980.

(iv) In Madhya Pradesh, about 924 vector susceptibility tests were required to be carried out each year in 462 primary health centres. However, only 111, 61, 107, 82 and 96 tests were actually conducted during 1976 to 1980 respectively.

(v) In the Union Territory of Mizoram, an entomological cell was created only in 1979, but no survey had been conducted to collect data regarding susceptibility of vector to the insecticides till June 1981.

(vi) Out of 153 primary health centres of 2 zones in Bihar, vector susceptibility tests were conducted only in 6, 14 and 16 centres during 1978, 1979 and 1980 respectively.

(vii) Of the 27 blocks under spray in Jammu and Kashmir, vector susceptibility tests were conducted in 9 blocks, 14 blocks and 17 blocks during 1978, 1979 and 1980 respectively.

(viii) In Tamil Nadu, entomological activity had been confined only to a few primary health centres. Even in the third year (1979) of the MPO, entomological data were collected in respect of 39 areas out of the total 382 priority areas. In Rameshwaram island, where malaria problem was acute, susceptibility status of the vector had not been ascertained (June 1981).

7.2 *Use of wrong type of insecticides.*—At several places the supply and consumption of insecticides had not been regulated in accordance with the results of entomological surveys as per instances given below:

(i) In Haryana and Uttar Pradesh, 260.49 lakh population which required to be sprayed with BHC, was sprayed with DDT and 32.02 lakh population which required to be sprayed with Malathion, was sprayed with DDT or BHC during 1977, 1978 and 1980.

(ii) In Gujarat, out of 318 vector susceptibility tests conducted during 1977—1980, tests numbering 300 showed the vector resistant to BHC. However, BHC was continued to be sprayed during 1977, 1978 and 1979 to cover a population of 198.03 lakhs out of a total population of 290.62 lakhs requiring spray.

(iii) In 36 primary health centres, out of 74 in 5 districts in Karnataka, where vector susceptibility tests were conducted during 1977 to 1980, 81 out of 98 tests showed vector resistant to DDT|BHC, yet these

two insecticides were continued to be used. The State Government stated (April 1981) that in view of epidemiological situation showing decline in incidence, the same insecticides were continued to be used. As, however, the decline in incidence could also be due to massive consumption of antimalarials or non-collection of adequate number of blood smears from all fever cases (through drug distribution centre etc.), continued use of insecticides, against which vector was showing resistance, would tend to prolong the programme.

(iv) In Madhya Pradesh 5 units requiring BHC were sprayed with two rounds of DDT and another 11 units requiring BHC were issued DDT for focal spray only due to shortage of BHC during 1980.

7.3 *Use of substandard insecticide.*—In paragraph 5 of the Advance Audit Report (Civil) for 1979-80, a few cases of procurement and supply of sub-standard insecticides costing Rs. 534.98 lakhs were reported. A few more cases of supply of sub-standard insecticides (amount: Rs. 53.36 lakhs approximately) are mentioned below:

(i) In Haryana, out of 42 tonnes of sub-standard BHC supplied by a firm in October 1976, against DGSD rate contract, 36.55 tonnes worth Rs. 1.23 lakhs were consumed and only 5.45 tonnes thereof were replaced by the firm as a result of a complaint (December, 1976) by the Directorate of NMEP to the DGSD.

(ii) In Haryana, a sample drawn (September 1977) by the District Drug Inspector out of 140 tonnes of BHC received in November 1976 from a firm was declared sub-standard by the Government analyst. The entire lot worth Rs. 4.71 lakhs was consumed without ascertaining the quality of the stock.

Government stated (November 1981) that the material was tested by the Government Analyst by using 'Hydrolysable Chlorine content Method' which was not the acceptable procedure and hence the material could not be labelled substandard in terms of the contract. No information was, however, given to indicate whether the material was retested according to acceptable procedure and was found to be of standard quality.

(iii) The State directorate of Uttar Pradesh had ordered (February 1980) that the stock of insecticides in all the districts should be got tested by the State Public Analyst and the insecticides should be used only if

these were certified as conforming to the specifications. The tests revealed that BHC (50 *per cent*) in 13 districts and DDT in 8 districts were substandard. Data on the quantity consumed and the balance in stock of the substandard insecticides in those districts were not available with the Department (State Directorate). A test-check in audit of the records in 7 districts however, showed that out of 113.6 tonnes (DDT 75 *per cent*) 58.3 tonnes (DDT 50 *per cent*) and 100 tonnes (BHC 50 *per cent*) found sub-standard (total cost: Rs. 18.78 lakhs approximately), 99 tonnes, 49 tonnes and 71 tonnes (total cost: Rs. 15.57 lakhs approximately) respectively had been consumed. Government stated (November 1981) that the State Public Analyst had not tested the insecticides as per the relevant ISI specifications and that the State got the material re-tested at the Government recognised testing laboratory and found it to be of standard quality. No clarification was, however, given as to why the State Public Analyst was not directed to test the material according to ISI specifications and why re-testing was got done by another laboratory.

(iv) In March 1979, the Government of India permitted the Government of Madhya Pradesh to procure 4,000 tonnes of BHC (50 *per cent*) on its own for spray operations in the State during 1979, subject to specifications, quality and warranty requirements of the insectide and the State Government placed (June 1979) supply order with a firm for 1,000 tonnes at the rate of Rs. 5,180 per tonne, against which the firm could supply only 694 tonnes.

In September 1979, samples of the material, taken by the Directorate of NMEP failed in the laboratory tests and accordingly instructions were given in April 1980 against the use of the substandard material. However, in May 1980 the units were asked by the State Directorate to accept the insecticide with reduced strength in terms of gamma isomer (killing agent) contents upto 6.25 *per cent* instead of the prescribed 6.50 *per cent* and suspensibility upto 45 *per cent* instead of the prescribed 50 *per cent*.

Out of the 694 tonnes of insecticide (cost: Rs. 35.95 lakhs), for which part payment of Rs. 28.33 lakhs had been made, 244 tonnes (cost: Rs. 12.63 lakhs) were found even below the reduced standards while the remaining 450 tonnes (cost: Rs. 23.32 lakhs) were within the reduced range.

From out of 244 tonnes, 220 tonnes (cost: Rs. 11.39 lakhs) were lifted by the supplier during July 1980 to February 1981 for replacement, which was yet to be made (July 1981). The remaining 24 tonnes (cost: Rs. 1.24 lakhs) were, however, consumed and the balance payment therefor (Rs. 0.31 lakh) was also released to the supplier.

8. *Coverage under spraying operations*

8.1 Under the Programme, insecticidal spray operations, have to be repeated once after 8 to 10 weeks where DDT is used and twice after 6 to 8 weeks where BHC/Malathion is used so that all sprayable surface availabe in the area remains lethal for the vector throughout the transmission period. However, during 1977 to 1980 substantial population areas requiring regular spray were left unsprayed each year in different rounds of spray operations, as indicated below:

Year	First and second rounds				Third round		
	Number of States	Target	Population not covered		Number of States	Target	Population not covered
			In first round	in second round			
		(In lakhs)				(In lakhs)	
1977	9	878·66	309·65	358·62	2	134·79	78·65
1978	9	652·45	302·63	399·61	2	134·48	69·66
1979	10	659 ·22	299·65	370·43	3	167·02	120·95
1980	9	499·39	199·41	294·37	2	112·57	90·92

8.2 In Uttar Pradesh, against the required three rounds of BHC spray, only two rounds were gone through each year during 1977 and 1978. Thus, a population of 176 lakhs each in 1977 and 1978 was left unsprayed in the third round. Similarly, a population of 30.32 lakhs and 200 lakhs requiring spray with DDT and BHC was left unsprayed in the second and the third rounds of spray respectively in 1979. In 1980, a population of 256.54 lakhs requiring DDT spray was left unsprayed in the second round. The shortfall in coverage was attributed to shortage/late receipt of insecticides.

8.3 According to the guidelines for MPO issued by the Director, NMEP, population areas initially selected for spray under MPO on the basis of API-2 and above for 1975 should continue to receive regular spray even in the event of decline of API to less than the level of 2 till further instructions from the Directorate of NMEP. However, in the States of Andhra Pradesh, Assam, Gujarat and Maharashtra large population areas sprayable as per API-2 and above obtaining in 1975 were left

unsprayed during subsequent years in violation of the aforesaid directive on spray, as detailed below:—

State	Population sprayable as per API-2and above for 1975	Year	Population Actually sprayed	Population left unsprayed
			(Population in lakhs)	
Andhra Pradesh	87·47	1977	53·26	34·21
		1978	74·04	13·43
		1979	51·45	36·02
		1980	53·34	34·13
Assam	73·26	1977	52·70	20·56
		1978	47·90	25·36
		1979	58·08	15·18
		1980	63·04	10·22
Gujarat	293·10	1977	87·10	206·00
		1978	119·90	173·20
		1979	83·62	209·48
Maharashtra	420·98	1977	306·80	114·18
		1978	131·19	289·79
		1979	126·24	294·74

Government stated (November 1981) that whenever the supply of insecticides did not reach as scheduled, the spray operation strategy was revised, surveillance operations intensified and chemotherapeutic measures undrtaken to avoid flare up of incidence due to non-spray.

8.4 Focal spray.—Population areas having API below 2 (i.e. less than 2 cases per 1,000 population) were normally not to be covered by regular insecticidal spray), but the programme envisaged that even in such areas 50 houses around a detected malaria case must be given insecticidal spray. However, in 10 districts in Uttar Pradesh, test checked in audit, there were 35,247 malaria cases during 1977 to 1980 in areas having API below 2, but 91.2 to 97.8 per cent of the houses requiring focal spray in such areas were not sprayed, as may be seen from the table given below:—

	Number of malaria cases detected	Number of houses to be covered	Number of houses covered under focal spray	Percentage of short-fall
1977	11,823	5,91,150	13,721	97·8
1978	10,910	5,45,500	45,782	91·6
1979	7,532	3,76,600	26,064	93·0
1980	4,982	2,49,100	21,992	91·2

Government stated (November 1981) that focal spray could not be undertaken by the States due to non availability of insecticides at that time and that remedial measures were taken in areas affected by serious malaria parasites (P. falciparum) which could prove fatal, if not treated in time.

8.5 Mopping up operations.—Houses left unsprayed by regular spray teams, for one reason or the other, are required to be covered quickly by spray squads following the main team (known as mopping up operations). In 9 districts in Uttar Pradesh, however, mopping up operations were not carried out during the years 1977 to 1980 although the houses left unsprayed by the main teams ranged between 10 to 21 per cent of the houses sprayed, as detailed below:—

Year	Number of houses sprayed	Number of houses left unsprayed	Percentage
		(In lakhs)	
1977	24·22	2·41	9·98
1978	27·45	5·79	21·1
1979	25·15	4·97	19·7
1980	16·44	3·07	18·7

Similarly in 5 districts of Rajasthan test checked in audit, mopping up operations were not undertaken during 1977 to 1980 although the rooms left unsprayed by the main teams ranged between 32.6 to 41.8 per cent of the rooms sprayed as detailed below:—

Year	Number of rooms sprayed	Number of rooms left unsprayed	Percentage
		(In lakhs)	
1977	49·52	16·16	32·6
1978	40·23	14·52	36·1
1979	33·87	14·06	41·8
1980	37·56	15·33	40·8

Government stated (November 1981) that the States had not sanctioned mopping up gangs to cover the required population.

8.6 *Non-consumption of insecticides according to scales.*—According to MPO, 100 tonnes of DDT 75 per cent were required for covering one million of population to facilitate application of the prescribed dosage of 100 mgn. of the insecticide per square foot of the sprayable surface. A test-check in audit revealed that the consumption of insecticide was excessive or deficient to a substantial extent, as against the standard laid down, in 3 States, vide particulars below:

(i) During 1977 to 1980, in 7 districts of Bihar, the quantity of DDT 75 per cent used each year was 37.24 to 57.76 per cent of the quantity prescribed, as indicated below:—

Year	Population sprayed (in lakhs)	Quantity of DDT 75 *Per cent* required	Quantity of DDT 75 *Per cent* used	Percentage
1	2	3	4	5
			(In lakhs)	
1977	99·86	999	372	37·24
1978	82·35	824	407	49·39
1979	97·35	974	557	57·19
1980	118·87	1,189	685	57·76

Government stated (November 1981) that due to administrative bottlenecks in the State, coverage fell short of the targets.

(ii) In Arunachal Pradesh, the quantity of DDT 75 *per cent* used each year, during 1976 to 1980 was 121.01 to 153.97 *per cent* of the quantity prescribed as shown below:—

Year	Population sprayed	Quantity of DDT 75 *Per cent* required	Quantity of DDT 75 *Per cent* used	Percentag
	(In lakhs)	(tonnes)		
1976	6·00	60·00	88·87	148·12
1977	6·91	69·10	98·59	142·68
1978	7·07	70·70	108·86	153·97
1979	5·63	56·30	82·41	146·37
1980	6·81	68·10	82·41	121·01
		324·20	461·14	

The excess consumption of 13694 tonnes of DDT involved an extra expenditure of Rs. 7.28 lakhs. Government stated that this State had difficult terrain and that labour huts were not taken into account when spray operations were planned but that these had to be covered also and this accounted for excess consumption of DDT. No reasons were, however, assigned as to why huts were not included in the planned targets.

(iii) According to the technical directions issued (1976) by the directorate of NMEP, one spray worker could use 10 pounds of DDT 75 *per cent*, 15 pounds of DDT 50 *per cent* or 20 pounds (approximately) of BHC 50 *per cent* per day. In 5 units of Madhya Pradesh 13.58 lakh pounds of insecticides were reported to have been consumed during 1976 to 1979 against the possible consumption of 8.17 lakh pounds of insecticides by the spray squads developed for 72,769 mendays. The excess consumption of 5.41 lakh pounds of insectcides (2,53,969 pounds of DDT 75 *per cent* and 2,86,873 pounds of BHC 50 *per cent*) resulted in an extra expenditure of Rs. 15.79 lakhs approximately.

8.7 *Appraisal.*—Independent appraisal teams which visited the State during February to April 1981 at the instance of the Government of India had observed in their reports that :

— In Gujarat, the spray coverage was far from satisfactory mainly due to inadequate supervision; the effective coverage could never be more than 40 to 50 *per cent* although a coverage of 90 to 95 *per cent* was reported in various returns;

— In Karnataka, though the PHCs, visited by independent appraisal teams, had reported spray coverage to the extent of 80*per cent*, the actual coverage did not exceed 30 *per cent* of the sprayable surfaces and the favourable resting places of mosquitoes had invariably been left out;

— In Punjab during 1980, the spray coverage was claimed to be over 75 *per cent*, but on verification in the field the team had reasons to believe that effective spray did not exceed 40 *per cent* and in fact, it would be nearer 30 *per cent* and

— In Haryana, there had been no regular insecticidal spray during 1979-80 due to non-availability of insecticides; selected village-wise spray in one round only was done in some of the villages with high number of malaria cases and flood-affected areas.

Government stated (November 1981) that the observations had been brought to the notice of the States and that the Directorate of NMEP regularly followed up the matter with the States.

9.Surveillance operations

9.1 Besides thorough insecticidal spray operations, effective surveillance operations, comprising case detection by blood smear examination of fever cases and adminitration of radical treatment of all cases found to be malaria positive, were required to be carried out by workers|inspectors of the malaria eradication department in the process called 'Active Surveillance' as also through static and voluntary agencies, such as hospitals dispensaries, health centres, private practitioners, etc. in the process of 'Passive Surveillance'. Apart from routine 'Active' and 'Passive' surveillance, mass blood smear survey was also to be conducted for the entire population of selected areas.

9.2 Under technical directions issued by the Directorate of NMEP, each surveillance worker was expected to visit each house in his area twice a month. However, in the case of one unit in Madhya Pradesh surveillance was conducted monthly instead of fortnightly all through from 1958 to March 1981. In some other units in the State, the surveillance workers did not visit the houses for months together as indicated below:—

Year	Number of units	Number of houses not visited by surveillance worker for			
		1 to 3 months	3 to 6 months	6 to 9 months	9 to 12 months
				(In lakhs)	
1978	5	1·91	1·77	1·71	1·76
1979	6	2·12	2·46	1·84	2·00
1980	6	2·24	1·49	1·39	1·24

Government stated (November 1981) that with the staff sanctioned under MPO, it was not possible for some of the States to carry out the operations on fortnightly basis and the States had to resort to monthly visits without doubling the staff.

9.3 Collection of blood smears.—During 1977 to 1980, blood smear collection each year in the States of Assam, Bihar, Himachal Pradesh, Kerala, Punjab, Rajasthan, Tamil Nadu and Uttar Pradesh was significantly below the targeted collection (of 10 per cent population) as indicated below.—

Year	Target	Actual
	(In lakhs)	
1977	145·55	110·04
1978	199·57	148·38
1979	205·74	143·35
1980	177·87	139·36

9.4 A test-check in audit of the records in some of the districts in Andhra Pradesh (5 districts), Gujarat (5 districts), Himachal Pradesh (6 districts), Haryana (4 districts) and Maharashtra (all districts) revealed that whereas passive blood smear collections (by outside agencies) had shown an improvement from year to year during 1977, 1978 and 1979 (33.00 lakhs, 37.87 lakhs and 40.73 lakhs respectively), the performance of active blood smear collections (done by the malaria eradication department) had declined from year to year during the three years (74.00 lakhs, 64.63 lakhs and 64.02 lakhs in 1977, 1978 and 1979 respectively). This would indicate that the turnover by the specially recruited staff had been going down from year to year.

9.5 Technical directions issued by the directorate of NMEP, envisaged screening of all fever cases with the object of detecting malaria infection in the community. However, in Uttar Pradesh, 98.96 lakhs of blood smears had not been collected out of 267.26 lakhs of fever cases detected during 1978 and 1979. In 6 districts in Himachal Pradesh, 0.76 lakh and 1.04 lakhs of fever cases were given presumptive treatment without collecting blood smears during 1979 and 1980 respectively. The position in respect of a few other States was as follows:—

Year	Number of states involved	Number of fever cases detected	Number of fever cases in which blood smears not collected
1	2	3	4
		(Figures in lakhs)	
1977	4	294·58	143·51
1978	5	296·58	142·95
1979	5	300·96	142·61
1980	3	194·00	89·67

Government stated (November 1981) that in areas where epidemiological situation deteriorated and there was sudden spurt of cases, it was not possible to collect blood smears and drug distribution was intensified. In the absence of timely blood test, several positive malaria cases would have remained undetected.

9.6 According to technical directions given by the Directorate of NMEP, the maximum time lag permissible between the collection of blood semear and its examination should be 7 to 10 days. However, a test-check in audit revealed that out of 1.38 lakh blood smears collected by 17

districts in 3 States (Assam, Gujarat and Uttar Pradesh), only 0.89 lakh blood smears were examined within the time schedule. Delays ranged from 11 to 30 days for 0.33 lakh cases, 31 to 60 days for 0.11 lakh cases, 61 to 90 days for 0.04 lakh cases and over 90 days for 0.01 lakh cases. In Karnataka, Maharashtra and the Union Territory of Pondicherry, the number of blood smears pending examination at the end of each year, 1977 to 1980, was as under:—

Year	Karnataka	Maharashtra	Pondicherry
1	2	3	4
		(Figures in lakhs)	
1977	3·19	4·85	0·02
1978	2·60	3·62	0·05
1979	1·75	3·47	0·26
1980	2·31	4·45	0·06

In the annual reports furnished by the Malaria Department, Maharashtra to the Directorate of NMEP, no back log at the end of the year was. however, reflected.

Government stated (November 1981) that during peak transmission seasons the blood smears collected, could not be handled by a single technician and that proposal for providing a second technician in some States was under consideration.

10. *Radical treatment*

10.1 To sterilise infection, radical treatment with primaquine (15 mgm. per day) for five days was required to be administered at the earliest in all fever cases found malaria positive. However, a test-check in audit of 15 lakh positive cases in the selected districts of Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh and Maharashtra revealed that in a very large number of cases, the treatment was delayed considerably after collection of blood smears, as detailed below:—

	(Cases in lakhs)
Within 10 days	7.00
Between 11 and 30 days	5.01
Between 31 and 60 days	1.85
Between 61 and 90 days	0.54
Over 90 days	0.39

10.2 In the States of Arunachal Pradesh, Karnataka, Maharashtra and Haryana, radical treatment was not administered at all in respect of 11.30 laks (out of 31.26 lakh) fever cases found malaria-positive, as shown below:—

State	Year	Total number of fever cases found malaria positive	Number of cases given radical treatment	Number of cases in which radical treatment was not given
1	2	3	4	5
			(Figures in lakhs)	
Arunachal Pradesh	1977	0.25	0.16	0.09
	1978	0.30	0.23	0.07
	1979	0.36	0.28	0.08
Karnataka	1976	6.30	2.39	3.91
	1977	5.36	3.36	2.00
	1978	3.68	2.50	1.18
Maharashtra	1977	3.40	2.80	0.60
	1978	2.16	1.72	0.44
	1979	2.08	1.71	0.37
Haryana	1976	7.37	4.81	2.56
		31.26		11.30

The Malaria Department, Karnataka, stated (April 1981) that shortage of drug supply by the Central Government was one of the reasons for not giving radical treatment during 1976. In Karnal district of Haryana, in particular, 0.42 lakh out of 0.85 lakh of malaria positive cases were not given radical treatment for want of primaquine tablets.

10.3 *Substandard anti-malarials*:—In 1979, 0.70 lakh discoloured and substandard tablets of primaquine (7.5 mgm. mnufactured in January 1978) were used in Gurgaon district in Haryana. 1.68 lakh primaquine tablets (2.5 mgm.) and 1.29 lakh of these tablets (7.5 mgm.) received in Arunachal Pradesh had to be returned to the Medical Stores Depot, Bombay in 1978 due to discolorisation of the tablets. Reasons for discolorisation such a long storage or manufacturing defect were not ascertained before return.

Government stated (November 1981) that the States had already been advised not to use the substandard drug.

10.4 *Excess consumption of anti-malarials.*—Technical directions issued by the Directorate of NMEP envisaged different dosages of 4 AQ tablets and 8 AQ tablets for different age groups. Accordingly, on an average, 3 tablets of 4 AQ (chloroqine) for presumptive treatment and 20 tablets of 8 AQ (primaquine) together with 3 tablets of 4 AQ were to be given for radical treatment. However, during 1977 to 1980, the States of Assam, Bihar, Haryana, Maharashtra and Uttar Pradesh had shown consumption of 2,913.28 lakhs of 4 AQ tablets and 891.13 lakhs of 8 AQ tablets as against the estimated required quantity of 2,264.91 lakhs of 4 AQ tablets and 615.80 lakhs of 8 AQ tablets, according to the average of the standard prescribed dosages. The excess consumption involved an extra expenditure of Rs. 111.55 lakhs approximately.

The District Malaria Officer, Pune (Maharashtra) attributed (January 1981) the excess consumption of chloroquin tablets to non-receipt of proper accounts from the drug distribution centres and community health workers.

11. *Urban malaria scheme.*—Till November 1971, the operations under the programme were limited to rural areas only. The urban malaria scheme for towns having population of 30,000 and above was introduced as part of the programme from 1971. The towns were being covered under the scheme in phases. Out of 310 towns having over 40,000 population, 115 had been taken up by the end of 1979-80 (22 in 1971-72, 6 in 1972-73, 38 in 1977-78, 37 in 1978-79 and 12 in 1979-80).

Under the scheme, interruption of malaria was to be ensured through anti-larval operations by application of larvicides instead of insecticidal spray in the case of rural areas. The larvicides were to be applied to mosquito breeding sources in order to control them in their aquatic stages. It was observed in audit that supply of larvicides was far in excess of their requirements in Bihar to the following extent:—

Period	Name of larvicide	Quantity needed	Quantity supplied	Quantity supplied in excess
1977 to 1980	Beytax	157.00 liters	980.00 liters	823.00 liters
1977 and 1980	Parisgreen	236.40 Kgs.	1300.00 Kgs.	1063.60 Kgs.

The value of the quantities supplied in excess would come to Rs. 1.42 lakhs approximately.

Summing up.—The following are the main points that emerge:—

— As against the programme to eradicate malaria totally by 1975, the number of units under active attack stage of malaria increased from 55.85 in 1966-67 to 97.409 in 1974-75.

— An amount of Rs. 85.69 lakhs towards cost of insecticides and another amount of Rs. 124.66 lakhs towards incidental charges were overdue for recovery from the States.

— There were substantial *inter se* variations in the stock position of insecticides and anti-malarials as reflected in periodical returns, annual demands and stock accounts of the States; there were also discrepancies between quantities despatched by Central Government and quantities accounted by the States in their records.

— Though the use of a particular insecticide was dependent on the nature and extent of vector susceptibility to the same, the relevant tests had not been conducted in several states and in some others, the supply and use of insecticides had not been in accordance with the results of the susceptibility tests.

— Apart from cases of sub-standard insecticides worth Rs. 534.98 lakhs reported in paragraph 5 of Advance Audit Report (Civil) for the year 1979-80, 3 more cases of use of sub-standard insecticides (value: Rs. 53.36 lakhs) had been noticed.

— The coverage under insecticidal spray operations in several States had been very inadequate (less than 50 *per cent*) over the targeted areas and several areas due for coverage in second and third rounds had not been so covered.

— Focal spray in and around a detected malaria case had practically not been done, the shortfall varying between 91 and 98 *per cent* during 1977 to 1980.

— Independent appraisal teams which visited the States, reported very low coverage of spray of insecticides varying between 30 and 50 *per cent* as against reported coverage of 75 to 95 *per cent* as claimed by the States.

A test-check in audit revealed that blood smears, with needed to be examined within 7 days of collection, were examined in time in respect of 0.89 lakh cases only out of

1.38 lakh cases and out of 1086.12 lakh cases of fever cases detected, blood smears were not collected in 518.74 lakh cases; further collection of blood smears by active staff of the Malaria Eradication Department declined from 74.00 lakhs in 1977 to 64.02 lakhs in 1979 though collection by outside agencies showed in increase.

— Radical treatment with primaquine, required to be given for five days in all fever cases, was delayed by more than 10 days in 8 lakh cases out of 15 lakh cases test-checked in audit and in some States, radical treatment was not administered at all for 11.30 lakh out of 31.26 lakh fever cases.

— Consumption of anti-malarials was substantially high in 5 States as compared to estimated quantity needed for positive cases; consumption was 2913 lakh 4 AQ tablets and 891 lakh 8 AQ tablets against requirement of 2265 lakh 4 AQ tablets and 616 lakh 8 AQ tablets. The excess consumption involved an extra expenditure of Rs. 111.55 lakhs.

— The incidence of malaria under the Modified Plan of Operations introduced in 1977 continues to be appreciably high, as per records, apart from the fact that a large number of cases might have gone unrecorded. Thus, while eradication of malaria had to be given up as an objective after, nearly two decades of operation, the effective control and containment of the disease as envisaged in the later scheme is yet to be achieved.

— Though one of the objectives of Modified Plan of Operations was to prevent deaths due to malaria, the number of such deaths, according to the Director of NMEP (December 1981), increased from 55 (1977) to 207 (1980).

ANNEXURE :

(*See* paragraph 4.3)

Statewise Malaria positive cases from 1977 *to* 1980

Sl. No.	State/Union Territory and other areas	1977	1978	1979	1980
1	Andhra Pradesh	114620	71723	55575	36204
2	Assam	96771	80073	73397	65708
3	Bihar	41097	44787	73457	69797
4	Gujarat	722687	399254	361119	434770
5	Haryana	639463	708048	936884	294334
6	Himachal Pradesh	42154	49947	29070	49044
7	Jammu & Kashmir	37679	27376	11580	5423
8	Karnataka'	536404	318890	276832	224634
9	Kerala	5468	6196	3972	3325
10	Madhya Pradesh	365077	261749	270819	343020
11	Maharashtra	340071	215733	204596	191911
12	Manipur	1082	3655	4234	2646
13	Meghalaya	9812	9974	17342	19010
14	Nagaland	3895	6424	12019	9733
15	Orissa	212337	374591	310952	281047
16	Punjab	529147	467558	325227	228478
17	Rajasthan	231862	154549	83394	96118
18	Sikkim	98	45	66	44
19	Tamil Nadu	83300	76227	95009	72708
20	Tripura	4332	12918	10769	6364
21	Uttar Pradesh	433944	360059	149919	182308
22	West Bengal	15722	11850	11909	22219
23	Andaman and Nicobar	2820	2810	7481	9842
24	Arunachal Pradesh	24571	30127	35595	32166
25	Chandigarh	34624	38676	36453	42725
26	Delhi	178196	375077	988172	68227
27	Goa	2286	450	270	2134
28	Lakshdweep	97	33	15	4
29	Mizoram	5490	12361	19345	17779
30	Pondicherry	326	302	378	451
31	Dadar Nagar Haveli Others	..	..	1937	3676
32	Coalfields	5448	3804	3917	3927
33	Dandakaranya Project	20510	17078	31453	25039
	TOTAL	4740900	4144385	3064697	2844815

ANNEXURE II

(Refer para 6.1)

State	Year	Drugs/insecticides/ equipment	Opening stock for the year as per records of State Directorate	Opening stock for the year (with the State as per record of the Directorate of NMEP)
1 2	3	4	5	6
(Anti-malarials)			(In thousands of tablets)	
1. Bihar . .	1979	8 AQ tablets	20·92	2·41
	1978 1979	4 AQ tablets	175·40 342·99	Nil 26·0
	1979	Daraprim tablets	1·36	0·21
2. Gujarat .	1978	4 AQ tablets	89·88	Nil
3. Karnataka .	1977 1978 1979	4 AQ tablets	33·15 120·60 2·07	1·85 Nil 61·57
	1979	8 AQ tablets	39·86	41·86
4. Madhya Pradesh	1977 1978 1979	4 AQ tablets	481·48 633·06 644·51	74·25 190·15 175·00
	1977	8 AQ tablets	199·98	117·21
	1977 1978 1979	Daraprim tablets	34·33 27·54 19.85	7·48 16·75 ..
5. Maharashtra .	1979	4 AQ tablets	498·52	369·30
	1978 1979	8 AQ tablets	57·76 151·29	96·50 142·49
	1978 1979	Daraprim tablets	13·28 8·48	4·00 10·89
	1978 1979	Quinine Sulphate	18.67 13·30	5·92 9·53
(Insecticides)				
1. Gujarat . .	1977 1978 1979	DDT 75 per cent	10·20 10·20 8·60	117·66 117·66 10·35
	1977 1978	BHC 50 per cent	1956·00 1946·00	1157·20 1782·92
	1977 1978	Malathion	928·00 1011·00	749·13 975·00

1	2	3	4	5	6
				(In tonnes)	
2.	Haryana	1979	BHC 50 per cent	100·42	110·62
3.	Karnataka	1977	DDT 75 per cent	663·16	143·50
		1978		634·80	347·78
		1979		426·83	497·15
		1978	BHC 50 per cent	1326·58	970·00
		1979		1265·18	1250·67
		1979	Malathion	500·01	523·36

ANNEXURE III

(*See* paragraph 6.1)

Sl. No.	State	Year	Drugs/insecticides	Consumption	
				As worked out from records of NMEP	As per State records
1	2	3	4	5	6
(Anti-malarials)				(In lakhs of tablets)	
1	Bihar	1977	4 AQ	150·00	91·37
		1978	4 AQ	343·98	117·26
		1978	8 AQ	36·09	16·83
2	Gujarat	1977	4 AQ	629·49	251·00
3	Haryana	1977	Daraprim	3·87	4·47
		1978	4 AQ	246·10	255·11
		1978	8 AQ	252·51	155·42
4	Madhya Pradesh	1977	4 AQ	210·10	175·42
		1978	4 AQ	400·15	163·55
		1977	8 AQ	132·87	121·46
		1978	8 AQ	223·34	63·96
		1977	Daraprim	17·49	6·79
		1978	Daraprim	16·75	7·69
5	Maharashtra	1978	4 AQ	525·70	396·53
		1978	8 AQ	89·01	81·47
(Insecticides)				(In tonnes)	
1	Gujarat	1977	BHC 50 per cent	989·28	1,245·00
		1977	Malathion	1,574·13	1,717·00
		1978	DDT 75 per cent	107·31	1·60
		1978	BHC 50 per cent	2,223·14	1,687·00
		1978	Malathion	604·09	1,862·00
2	Haryana	1977	DDT 75 per cent	5 52·15	532·15
		1977	BHC 50 per cent	1,470·82	1,730·05
		1978	BHC 50 per cent	2,209·56	2,194·76

APPENDIX III

Statement of conclusions and recommendations

S. No.	Para No.	Ministry/Deptt Concerned	Recommendation and observations
1	2	3	4
1	1.7, 1.8 & 1.9	Health of family welfare	**Malaria is one of the most malicious maladies afflicting our country. In endangering the health of the people on a massive scale, it is one of the major factors retarding the socio-economic development of the country.**
			At the time of Independence, the incidence of malaria in the country was about 75 million with 0.8 million deaths annually. With the objective of containing malaria morbidity in highly malarious areas of the country, the Government of India launched in 1953 a National Malaria Control Programme (NMCP). Encouraged by the success achieved under NMCP, Government switched over to National Malaria Eradication Programme (NMEP) from April 1958. The Programme was intially a Centrally aided Scheme to be implemented by the State Governments to protect the population in malarious areas, irrespective of the degree of malariousness and finally to eradicate malaria from the country in 6-7 years or by 1965.

As a result of various measures taken, the number of malaria cases came down to 0.1 million in 1965 with no death. However, subsequently, the number of malaria cases again started rising and were as high as 6.5 million in 1976. Government reviewed the position and from April 1977 by which time Rs. 352 crores had been spent on the Programme, a Modified Plan of Operation is being implemented with the objective of effectively controlling malaria and ultimately eradicating the disease. Although the number of malaria cases has decreased gradually the number is still high (2.7 million in 1981).

2 1.10 -do-

The Committee note with concern that after a steep fall in the incidence of Malaria (From 75 milion cases to 0.1 million cases and number of deaths from 0.8 million to nil, there should again have been a phenomenal increase in the incidence of malaria and of death because of it. It is apparent that after attaining initial success, the authorities became complacent. The Committee canno but express their deep anguish over this state of affairs, which compelled the nation to pay dearly both in financial as well as in physical terms. The reasons for shortcomings for recurrence of malaria given by Government viz. short supply and the late arrival of DDT, inadequate transport, inadequate laboratory services, inadequate development of basic health services in many States are such that could have been removed if only there was proper planning and monitoring as well as prompt efforts. It is a matter of great concern that as pointed out subsequently in the Report mosquitos are developing greater resistance to the traditional insecticides like DDT and cases of cerebal malaria which in many cases prove fatal are on the increase. The Committee feel that this

1	2	3	4
			poses a national challenge which has to be met by the concerted efforts of the Government of India, States as well as researchers in the medical field. Already two Committees appointed by the Govt. had carried on indepth studies and pin-pointed the lacunae in the programme in its implementation phase. The Govt. therefore, cannot take the plea that they are unaware of the reasons for re-emergence of malaria in this country in a vicious form. The Committee feel that the Govt. should immediately formulate concrete action programmes on the basis of the finding of the two In-Depth Evaluation Committees as well as this Report and take concerted efforts with the object of totally eradicaing this disease from the country. The Committee would like to be apprised of the concrete action programme that Govt. may adopt in the light of the above observations. . . . .
			As per the norms prescribed under the NMEP, the population of units having API 0.5 per cent and obve (i.e. one case and above per 2000 population) had to be kept in 'attack' phase where attention was focussed on insecticidal spray operations. Phasing arrangements envisaged that area units would be shifted from 'attack' to 'consolidation' and then to maintenance phases on the basis of independent appraisals of progress achieved in the implementation of the programme. The Committee are unhappy to note that large areas were maintained under 'consolidation' and 'maintenance' phases in spite of the fact that these were having incidence of more than 2 API (i.e. more than 2 cases per 1000 population) Consequently when the modified plan of Operation was introduced in 1977, are as covering population of 25 crores had to be sprayed each year regularly.

against the area covering 9.75 crores sprayed earlier. The explanation of the Ministry is that the reversion to earlier status was not considered feasible because of enormous administrative and financil inputs involved. The Committee are not convinced by this reasoning as a realistic rephasing was evidently necessary in order to avoid serious set-back in implementation. It is therefore surprising that when incidence of malaria had been increasing during the period 1969—74, more and more units were recommended for entry into 'consolidation' and 'maintenance' phases. This is indicative of negligence and casual attitude on the part of those entrusted with the task of protecting the health of the people. The Committee expect a detailed explanation from the concerned authorities for this.

1·24 do

The National Malaria Eradication Programme was implemented as a Centrally sponsored Health scheme with cent percent Central assistance from 1969 till 1979. Subsequently, in pursuance of the decision taken by the National Development Council, the cost of the scheme was equally shared between the Central and State Governments. However, on the basis of subsequent experience, the Ministry have found that this decision has adversely affected the programme because while adequate allocations covering 50 per cent share of expenditure from the Central Government have been made, some of the State Governments have not been able to provide matching funds to finance the scheme with the result that even the Central share has not been utilised. The Committee note the Ministry's view that for effective NMEP implementation, prime need is to cover the programme into a category I-100 per cent centrally assisted programme, the Committee recommend that the financing aspect of the entire programme should be on the earlier basis when the Central Govt. took upon

1	2	3	4
			itself the responsibility to defray the entire cost of the programme. It should be so, specially in view of the fact that malaria eradication programme is basically a national health problem minvolving crores of people mainly coming from the weaker sections of our population.
5	1.25	-do-	The Committee note that large amounts are due for recovery from States for the period 1974-75 to 1980-81 on account of incidental charges in respect of insecticides, anti-malaria and other material supplied to them. Only a sum of Rs. 29.55 lakhs could be recovered so far out of the account of Rs. 124.66 lakhs on this account. Again, only Rs. 13 lakhs could be realised out of the outstanding amount of Rs. 85.69 lakhs representing the cost of insecticides from various States In view of what has been stated in the foregoing paragraph, the Committee feel that the amounts representing their share of expenditure from 1979-80 and 1980-81 due from the States shoud be reconceiled and adjusted and the amounts representing their liability otherwise, should be utilised in conjunction with the Centre as and when a hundred per cent centrally sponsored scheme, as was in vogue upto 1979, comes in for implementation as recommended by the Committee.
	1.32	-do-	According to Audit, there have been a number of cases wherein opening balances of stocks of anti-malarials with States varied considerably from the stock position maintained by the Directorate of NMEP. However, the Committee regret to observe that no steps were taken by the

			NMEP Directorate to monitor and reconcile the opening stock balances of anti malarials held by the States with the supplies made by the Directorate till Audit pointed out glaring discrepancies in the stock position whereafter verification was taken up and each case reconciled over a period of years. The Committee are not convinced by the reply of the Ministry that monitoring and reconciliation was not considered necessary as the NMEP was implemented through the State Governments. The statement that the work involved in reconciliation would have entailed enormous staff and expenditure on TA/DA etc. does not also hold good in view of the subsequent statement that all the discrepencies pointed out by the audit were reconciled. The Committee feel that as huge quantities of insecticides involving large amounts of money are being supplied by Central Government it is their duty to ensure that these are properly accounted for by the concerned State Governments as in its absence, the chances of the same being not properly used cannot be ruled out. The Committee recommend that proper monitoring and reconciliation arrangements in this regard should be evolved expeditiously.
7	1.38	-do-	The Committee are not happy over the manner in which the NMEP authorities had acted in the matte of supply and use of insecticides. The technical directions envisaged that there would be no fresh malaria cases after 2-3 years if spray operations were conducted thoroughly with the right type of insecticide. As effectiveness of spray operations depended on susceptibility of vector mosquito to the insecticide sprayed, entomological surveys were a basic requirement in the selection of right type of insecticide. However, in a number of cases in Andhra Pradesh, Karnataka, Madhya Pradesh, Bihar, Tamil Nadu, J&K, Himachal Pradesh and Mizoram

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			entomological surveys had not been carried out at all even under the Modified Plan of Operation or were conducted only partially. Though inadequacy of entomological studies was realised at the time of framing the strategy for the Modified Plan of Operation (1976-77) and subsequently 72 Entomological Zones had been established, many of the States have yet to appoint proper personnel to man these entomological Cells. This is evident from the fact that as many as 12 posts of Assistant Entomologists, 19 posts of Lab. Technicians and 10 posts of Insect Collectors are vacant in 72 Entomological Cells sanctioned. The Committee need hardly emphasise that immediate steps should be taken to fill up these posts and ensure that entomological coverage is not allowed to fall in arrears.
8	1.39	do.	.The Committee are distressed to find that in a number of States like Haryana, Uttar Pradesh, Gujarat and Karnataka in large areas covering lakhs of population supply and consumption of insecticides had not been regulated in accordance with the results of entomological surveys. These areas were sprayed with DDT and BHC though susceptibility tests had shown vector resistance to these insecticides. That this had to be done on financial and administrative considerations does not carry conviction with the Committee as no positive results can be expected by spraying a particular type of insecticide in an area where there was vector resistance to that insecticide. It is, therefore, no surprise that in some of these areas there was a rise in malaria cases. Moreover, the use of wrong insecticides results not only in wastage of resources but is also likely to lead to avoidable environmental pollution entailing serious adverse repercussions. .The

			Committee need hardly stress that supply and consumption of insecticides should be regulated strictly in accordance with the results of entomological surveys.
9	1·47	-do-	The success and effectiveness of Malaria Eradication Programme primarily depend upon the quality of insecticides used. Distressingly, the C&AG's Report under examination has brought out a number of cases of the use of sub-standard insecticides valued at more than Rs. 53 lakhs Earlier the C&AG's Advance Report (1979-80) had also brought out various cases of use of sub-standard insecticides worth Rs. 535 lakhs. In a few cases residual insecticides were replaced by the suppliers, while in a majority of cases sub-standard insecticides had been sed. The fact that even a test check in audit could bring to light so many cases reveals that the supply and use of sub-standard insecticides are fairly wide-spread.
10	1·48	-do-	The Committee's examination of the cases relating to Uttar Pradesh and Madhya Pradesh revealed that besides inadequacy of independent testing facilities under Government, there has been lack of quality control and technical facilities of ensure acceptance and use of quality insecticides. It is a pity that such inadequacies should persist even after twently years of the start of the programme. The Committee desire that the Ministry should go into these deficiencies carefully with a view to taking remedial measures. The Committee note in this connection that the Ministry of Health and Family Welfare has mooted a proposal to set up nine Insecticides Testing Laboratories in different States.
11	1·65	-do-	The Committee are dismayed that during the period 1977 to 1980 substantial population areas requiring regular spray were left unsprayed each

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			year in different rounds of spray operations. Several States reported less than 50 per cent insecticidal spray operations over the targeted areas and several areas due for coverage in second and third rounds had not been covered. After hearing the representatives of the Ministry the Committee are of the view that weakness of the institutional framework of the programme at the field level and not so much lack of cooperation of people is mainly responsible for this shortfall in achieving the target of spray operations. This weakness should be removed. The Committee further suggest that in rural areas the spraying operations should be conducted by giving sufficient advance notice to the households and by adjusting the same to convenience of the people. As the programme of malaria eradication is a mass programme it cannot succeed without the active cooperation of all the people. It is therefore, imperative that merits of spray operation are explained adequately and convincingly to people. Benefits of spray operations should be given wide publicity and cooperation of local and social organisations solicited.
12	1.66	-do-	Though theoretically the guidelines provided that houses left unsprayed by regular spray teams should be quickly covered by spray squads in mopping up operations, yet in practice the picture is found to be altogether different. The Committee find that in some districts of Uttar Pradesh and Rajasthan mopping up operations were not carried out at all during the years 1977 to 1980 although the houses left unsprayed by the main teams ranged between 10 to 21 per cent in Uttar Pradesh and 32.6 to 41.8

per cent of the rooms sprayed in Rajasthan. The shortfall has been explained in terms of inadequate spray gangs and spray pumps. It has been stated that the cost of spray gangs was to be met from the State's contribution to the Programme since 1979-80 and that a few of the States had not been able to engage requisite number of spray gangs as per the prescribed pattern. However, the Committee find that picture before 1979-80 in this regard had also not been satisfactory when the Programme was a cent per cent Centrally Sponsored Scheme. As the overall responsibility with regard to its implementation and monitoring vests with the Ministry of Health & Family Welfare, it is for them to ensure that the Programme is implemented effectively and targets are achieved. The Committee, therefore, recommend that the union Ministry of Halth and Family Welfare should thrash out these problem with the States and find solution thereto. In any case, it must be ensured that the spray operations are not allowed to fall in arrears. The Committee desire that atleast 1/3rd of population should be covered by spray operations every year.

13 1·67 do

The technical guidelines envisaged that population areas having API below 2 (i.e. less than 2 cases per 1000 population) were normally not to be covered by regular insecticidal spray, but 50 houses around a detected malaria case were to be given insecticidal spray.. The Committee are shocked to learn that the shortfall in spraying in and around detected malaria cases in such areas varied between 91 to 98 per cent during 1977 to 1980 due to non-availability of insecticides at that time. This is particularly surprising in view of the claim made by the Ministry that supply of insecticides was adequate and stocks were being carried over by States

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			from one year to another. The Committee would like to be appraised of the correct position in this regard.
14	1.73	-do-	The Committee note from the Audit Report that blood smears had not been collected in a large number of fever cases during the years 1977 to 1980. Of the 295 lakhs, 297 lakh, 301 lakh, 194 lakh cases of fever detected during 1977 in 4 States, 1978 in 5 States, 1979 in 5 States and 1980 in 3 States blood smears had not been collected in 144 lakh, 143 lakh, 143 lakh, and 90 lakh cases respectively...In one State viz., Uttar Pradesh, alone out of 267 lakh cases of fever detected during the years 1978 and 1979, blood smears were collected in 99 lakh cases only. This has happened in spite of the technical directions issued by the NMEP. Directorate envisaging screening of all fever cases with the objective of detecting malaria infection in the community.. It has been stated that the existing surveillance machinery could screen about 10 per cent of the population in their districts and in the case of high incidence of fever, the surveillance workers could not cope with the workload of collection of blood smears in all the cases of fever. The Committee wish to stress that in order to detect cases of malaria and completely sterilise the patients of malarial parasite timely blood test is a must...The arrangements in this regard should be augmented early.
15	1.74	-do-	.Operations guide on surveillance procedures envisaged that theoretical time lag between blood smear collection and its examination should not

exceed a maximum period of 72 hours. According to technical directions given by the Directorate of National Malaria Eradication Programme, the maximum time lag permissible between the collection of blood smear and its examination ranged between 7 and 10 days under certain conditions. However, there had been inordinate delay in the examination of blood smears in some States...Out of the 1.38 lakh cases of blood smears collected in some districts of Assam, Gujarat and Uttar Pradesh only 0.89 lakh cases could be examined within the stipulated time schedule. The delay in the examination of blood smears ranged from 11 days to 90 days and in some cases it was more than 90 days. There were heavy arrears of blood smears for examination in Karnataka and Maharashtra States at the end of each year between 1977 and 1980 though in the annual reports furnished by Malaria Department, Maharashtra to the NMEP Directorate, no backlog had been reported. The delays in the examination of blood smears beyond stipulated period defeated the very purpose of taking blood smears. The Committee desire that the Ministry should ensure that the organisational and other inadequacies in this regard are attended to early.

16 1·77 do

According to guidelines, radical treatment with primaquine (15 mg per day) for 5 days was required to be administered at the earliest to sterilise infection in all the fever cases found positive. The Committee are concerned to note that of the 15 lakh positive malaria cases in certain districts of Andhra Pradesh, Bihar, Gujarat, Harayana, Himachal Pradesh, Madhya Pradesh and Maharashtra, radical treatment was administered in a very large number of cases after considerble delay, exceeding 90 days after the collection of blood smears in some cases. What is still

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			more disturbing is that in some States like Karnataka, Maharashtra, Haryana and Arunachal Pradesh radical treatment was no administrered at all in respect of 11.80 lakh out of 31.26 lakh malaria positive cases. Shortage of drugs has been stated to be the reasons by some State Governments for this. On the other hand, the Ministry of Health have contended that States of Haryana and Karnataka had reported a carry-forward stock of 33.28 lakh primaquine tablets as on 1 January 1977 and that with this quantity, it would have been possible to treat all the malaria cases. Shortage of man-power. has also. been stated to be. the reason for not administering the radical treatment. The Committee have been informed that the existing organisation was not able to cope with the heavy load of work in districts with high incidence. It has also been contended that augmentation of staff to cover all cases would require heavy outlay of resources and continuity of their services after main malaria season would also be a problem.. Nevertheless the Committee apprehend that in the absence of radical treatment to such a large proportion of malaria cases, it would not be possible to eradicate malaria in the foreseeable future. The Committee therefore urge that ways and means be devised to arrange sufficient manpower and resources for this important Health Programme.
17	1.84	-do-	Another disquieting feature of malaria eradication programme has been the use of sub-standard anti-malarials. In a number of States discoloured and sub-standard primaquine tablets have been supplied The

			Committee note that the case regarding supply of sub-standard and discoloured primaquine tablets in Haryana is being investigated. The Committee would like to be apprised of the outcome of these investigations as well as remedial measures taken to guard against the recurrence of such cases.
18	1.85	-do-	The Committee are at a loss to understand why the drugs purchased for malaria programmes had not been purchased from registered firms. The DGS&D's insistence that 20 per cent of the tenders for supply of drugs should be floated to un-registered firms appears to be curious and needs clarification. The Committee would like to emphasise that in the matter of purchase of drugs strict quality control has to be exercised.
19	1.86	-do-	The Committee note that during 1976 to 1980, the States of Assam, Bihar, Haryana, Maharashtra and Uttar Pradesh had reported excess consumption of 2265 lakh 4 AQ tablets and 652 lakh 8 AQ tablets over and above the standard prescribed dosages valued at Rs. 111.55 lakh. The reasons for excess consumption of the anti-malarials has not been adequately and precisely explained to the Committee. They would therefore like the Ministry of Health and Family Welfare to look into the matter and ascertain the precise reasons for excess consuumption of anti-malarials on such a large scale.
20	1.96	-do-	The Committee find that in some of the State there had been excessive or deficient use of insecticides to a substantial extent against the standard laid down. In Bihar during the years 1977 to 1980 the quantity of DDT used was only 37 to 58 per cent of the quantity prescribed. In Arunachal Pradesh the quantity of DDT consumed during 1976 to 1980

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			ranged between 121 to 154 per cent of the prescribed quantity while in Madhya Pradesh 13.58 lakh pounds of insecticides were consumed during 1976 to 1979 against the possible consumption of 8.17 lakh pounds of insecticides. This excess consumption of 5.41 lakh pounds of insecticides resulted in an extra expenditure of Rs. 15.79 lakhs.
21	1.97	do	The Committee are astonished to find that while there had been very low consumption of insecticides ranging from one-third to a little more than half in Bihar, there had been substanital excess consumption in Madhya Pradesh and Arunachal Pradesh during the years 1976 to 1980. The excess consumption has been stated to be due to higher discharge from nozzle of spray pumps. However, if the explanations for the low and excess consumption insecticides are viewed in totality intriguing picture emerges. Refusal and closed houses cannot be confined to Bihar only nor can excessive discharge from nozzle tips, be confined to Madhya Pradesh and Arunachal Pradesh. These factors could have operated universally. The Committee would like the Ministry to analyse reasons for excessive and deficient consumption of insecticides in depth for ensuring suitable action especially for properly regulating the supplies and use in future. The Committee would like to be apprised in due course of the action taken in this regard.
22	1.98	do	The Committee are concerned to note that insecticides supplied for public health use had been diverted in some cases for use as pesticides for agricultural operations and also for storage of grain to ward off insects.

			The wide-spread use of DDT and malathion in agricultural operations can pose a grave health problem. The Committee are told by an eminent scientist that in this country the people in their body fats carry a rather high level of DDT which is perhaps one of the highest in the world. The Committee are convinced that some drastic action is required in this regard to prevent indiscriminate use of DDT and malathion. In this connection, the Committee feel that Ministry of Health and Family Welfare's suggestion that use of DDT BHC and Malathion should be confined to only public health and for agricultural operations some other effective pesticides should be used merits consideration. The Committee note that the ICMR Group is looking into this matter and their expert advice would be available to the Government shortly. The Committee would like to be apprised of the final action taken in this regard.
23	1.99	do	The Committee commend the suggestion of an eminent medical expert that use of insecticides may minimised by adopting an integrated approach for malaria control through environmental improvement. Some work in this respect has already been done in some selected pockets and the results achieved are encouraging. They wish that public opinion be mobilised and voluntary organisations involved in this programme of environmental improvement and it should be extended to other parts of the country with a view to achieve vector control.
24	1.102	do	The Committee note with distress that progress reports on spray coverage sent by various State Governments to the Union Ministry of Health and Family Welfare generally contained exaggerated claims of achievement. This fact has been amply brought out by the independent appraisal teams which visited States during February to April 1981 at the ins-

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			tance of the Government of India. It was observed that in Gujarat effective spray coverage never exceeded 40-50 per cent although the State Government reported 90 to 95 per cent in various returns. In Karnataka the PHCs visited by independent appraisal teams had reported spray coverage to the extent of 80 per cent though the actual coverage did not exceed 30 per cent of the sprayable surfaces and the favourable resting places of mosquites had invariably been left out. In Punjab during 1980, the spray coverage was claimed to be over 75 per cent, but on verification the team found that effective survey did not exceed 40 per cent and would be nearer to 30 per cent. In Haryana there had been no regular spray during 1979-80; selected village-wise spray in one round only was done in some of the villages with high incidence of malaria. This clearly shows a lack of reliable monitoring and supervision of the programme. The Committee desire that the monitoring machinery be strengthened and concrete follow-up action taken in all cases where deficiencies in the programme are pointed out by the appraisal teams.
25	1.110	do	Under the Programme, apart from routine 'Active' and 'Passive' surveillance, mass blood smear survey was also to be conducted for the entire population of selected areas. Under the technical directions issued by the Directorate of NMEP, each surveillance worker was expected to visit each house in this area twice a month. However, it is seen that in a unit in Madhya Pradesh surveillance was conducted monthly instead of fortnightly from 1958 to March 1981. In some other units, surveillance workers did not visit the houses for months together. The

failure on the part of State Governments to meet their financial obligations and the consequential inadequacy of staff strength were stated to be the reasons for this state of affairs. Nevertheless, the Committee are constrained to observe that such lapses on the part of surveillance machinery may result in nullifying the effectiveness of the programme. The Committee would like early remedial measures to be taken in this regard.

26 1.111 do The Committee are gravely concerned to note that of late cerebral malaria which had been confined to North-Eastern States, Madhya Pradesh, Orissa, Bihar and Maharashtra has spread to some Northern States because of migration of labour/population from cerebral malarious areas to Northern States and also because of increased irrigation facilities in these States. Insufficient supply and non-availability of insecticidal spray in these States had also partly contributed to the spread of cerebral malaria which is an acute manifestation of some of the Pf. infections and proves fatal in many cases. The Committee need hardly emphasise that urgent preventive measure should be taken up in right earnest not only to contain this disease but to eradicate it effectively in those areas in the country where is at present prevalent.

1.115 do The National Malaria Eradication Programme has been a joint endeavour on the part of Central and State Governments. The C & A G of India has conducted an evaluation audit of the Programme in various States and submitted his reports to the concerned State Legislatures highlighting the various deficiencies found. The reports of the C & A G of India for 1980-81 relating to the States of Karnataka, Uttar Pradesh

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			Bihar, Tamil Nadu, Orissa and Maharashtra have enumerated various deficiencies found in the implementation of NMEP. The Committee regret that these Reports were not taken notice of by the Ministry of Health. The Health Secretary was frank enough to admit before the Committee: "We have been amiss, I might say, not to have kept a track of then". He assured the Committee that it would be done and follow-up action ensured. He also promised to evolve the mechanism to keep a track of such Audit Reports whenever presented in future. The Committee would like to be informed of the action taken in the matter. The Committee would further like the Planning Commission and the Ministry of Finance to evolve an arrangement where by such Reports of the C & A G are examined for necessary action both by themlsevles and by the other concerned Ministries/Departments of the Government of India in so far as the responsibilities of the Central Government are concerned.