

The Importance of Control of Malaria in the Mahaweli Development Project

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The vector which transmits malaria in Sri Lanka is the female *Anopheles culicifacies*. This mosquito breeds in collections of non-polluted, stagnant or slow flowing fresh waters. It prefers sunlight to shade. This mosquito is essentially a Dry Zone species where it is extensively prevalent in the jungle-covered plains and villages. It prefers to bite animals rather than man for its blood meals. The preferred breeding places of *A. culicifacies*, during drought periods are the sand pools and rock pools in the river beds. These may extend to manmade irrigation channels and streams, especially during droughts when a free flow of water cannot be maintained and pooling in the bed of the channel or stream occurs.

Therefore in largescale development projects such as the Mahaweli Development Scheme, where rivers are diverted, essentially to irrigate new areas and augment the already existing water supplies to the Dry Zone, the malariogenic potential can be increased in areas which are already hyperendemic.

Jungles are cleared, water courses are increased and the animals are driven away. Aggregations of populations such as the colonists are placed in these areas. Most of these populations may be from less malarious or non-malarious areas and their immunity level is low, so that if infected by the malarial parasite they could have a more severe clinical attack of malaria than the local residents of the area. The mosquito itself has its natural animal hosts removed and for its continued survival it has to attack the human population, as it needs blood meals for its existence.

It thereby enhances malaria transmission. Most of the malaria as it now exists in Sri Lanka is manmade. The receptivity and the vulnerability of the areas are thus both enhanced by largescale Development Projects of this nature and the malariogenic potential is increased several fold.

However, one must hasten to add that it is not one's intention to maintain that just because the malariogenic potential can be increased, such Development Projects should not be undertaken. On the contrary, it is our primary objective to indicate that timely measures be initiated in these areas before such projects commence. To fulfil this objective it is essential that the Anti-Malaria Campaign be involved from the planning stage of these projects.

The five-year intensive malaria programme for the malarious areas of Sri Lanka commenced around October, 1977. This includes all the areas which have to be developed under the Accelerated Mahaweli Scheme. The major objectives are :

(1) To reduce overall malaria transmission to a very low level at the end of five years, so that malaria will no longer be a major public health problem, and

(2) To eliminate malignant malaria progressively in the ensuing 5 years. The primary activities are :—

(I) **Residual Spraying** of 1 million households and outhouses in the malarious areas at 2gm/sq meter of Malathion on a 3 monthly cycle.

(II) **Drug Administration :**

(a) 5 days radical treatment is given to all clinically diagnosed and suspected cases of malaria by all Government Medical Institutions, — Anti Malaria Campaign field personnel and specially trained volunteers in remote areas.

(b) Prophylactic treatment is given to officers and workers engaged in development schemes in the malarious areas, as well as to those entering the malarious areas from non-malarious on a temporary basis.

(III) **Case Detection :**

Malaria case detection is carried out by 36 Special Indicator Institutions, Activated Medical Institutions and Active Case Detection Agents.

(IV) **Entomological Investigations :**

12 Entomological teams carry out entomological investigations in the malarious areas of the country. Their studies include monitoring of the effectiveness of the insecticide (malathion) under field conditions, impact of the insecticide spraying on the vector population and any behavioural changes of the vector population.

(V) **Other control methods that are in the process of development are as follows:—**

(a) Intermittent flushing of streams and irrigation channels and proper maintenance of irrigation systems, to eliminate vector breeding, with the cooperation of the River Valley Development Board, Mahaweli Development Board and the Irrigation Department.

(b) Prevention of the creation of manmade vector breeding places, with the cooperation

of the Social Services Department, Highways Department and the Gem Corporation.

- (c) Biological Control Methods such as the use of larvivorous fish.
- (d) Use of Chemical Larviciding Agents such as Abate.

(VI) Training and Health Education:

The Malaria Training Centre is the pivot for all training programmes for Anti-Malaria Campaign workers, Medical and Paramedical personnel, other Government Department Workers and Rural Community Health Workers.

Health Education programmes for the Community are carried out by the Health Education Bureau of the Ministry of Health with the close collaboration of the Anti-Malaria Campaign.

(VII) Research and Field Trials:

Research and Field Trials are designed and undertaken by the Anti-Malaria Campaign to overcome certain technical and operational problems that could arise, and also to develop new methods that could supplement the present methods of control.

Already after 3 rounds of intensive spraying with Malathion there has been an overall reduction of malaria with a dramatic decline of malignant malaria. This has been evident in the Kalawewa Area (H Project, Area) and even in Systems, A, B and C which are to be immediately developed under the Accelerated Scheme. The evidence of this is obtained both from hospital statistics as well as from Special Mass Surveys and Field Surveys carried out by the campaign personnel in these areas.

However with the intensification of these development schemes the malariogenic potential can be enhanced as described earlier. The activities set out in detail must be intensified in these developing areas. Activities such as the Malathion spraying of houses and waadies before occupation and after, the administration of prophylactic treatment to colonists and Board personnel entering these areas are essential.

It must be reiterated again that the Anti-Malaria Campaign **must be an active participant** with the Mahaweli Board from the Planning Stage to the final stage of *fulfilment*. With the acceleration of activities and the telescoping of these activities from 30 years to 6 years, the Anti-Malaria Campaign needs more insecticide, personnel, equipment and transport to carry out its activities in the Accelerated Scheme Area. Project Reports have already been submitted for these additional requirements.

Emphasis must also be placed on other activities such as Water Management and Water Manipulation.

In 1976, with the diversion of the Mahaweli at Polgolla, the river downstream on its original course started pooling during drought periods up to Haragama and areas with little or no malaria suddenly had localised epidemics of malaria. With the collaboration of the Mahaweli Board the problem was solved by flushing out the river and destroying the mosquito larvae, once a week with a release of 2,000 cu. secs. of water for 3 to 4 hours. This is now carried out as a matter of routine during drought periods in Polgolla. Such methods can be extended wherever feasible in other areas in the Accelerated Development Area. The proper maintenance and repair of broken irrigation channels, the prevention of pooling in irrigation channels and streams is also an important prerequisite for reducing the malariogenic potential in development areas. Here, too, the Campaign must work in close collaboration with the Mahaweli Board.

It has also been noted with regret that a few officials and employees do not get their houses sprayed, nor do they take the prophylactic treatment.

At present, due to the intensive malaria control programme, the malaria transmission is low in all these areas and these personnel do not have a felt need for taking these precautionary methods, but they would surely come down with malaria when the seasonal transmission peak is reached. Special film shows and Health Education programmes are now being carried out in these areas to activate these officials and employees on the absolute need of getting their houses sprayed and taking their regular weekly prophylactic malarial drugs. It is also ironical to note that these are the very people who vehemently protest that the Health Services have not provided them with adequate precautions when they do come down with malaria.

Treatment of malaria cases is already been done at all medical institutions in the area and at special **volunteer** treatment centres manned by volunteers selected from the colonies with the cooperation of the Community Development Leaders and other officials of the Mahaweli Board.

The Anti-Malaria Campaign has joined actively with the Health Education Bureau of the Ministry of Health in holding seminars and group discussions at grass root levels, to convince the workers and colonists of the need to get their houses sprayed and the need to take the prophylactic treatment.

It is important to note that a worker could lose 5 man-working days from a moderate attack of malaria. If complications occur or a worker gets a more serious attack, many more days could be lost and work targets may not be achieved.

If, however, the finances, logistics and transport are provided for the intensification of the Anti-Malaria activities in the Accelerated Mahaweli Project area and the full co-operation of the officials, workers and colonists is obtained, there is no reason at all to believe that malaria would impede the successful implementation of this massive and essential development scheme.