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DRAFT

Guidelines for Implementation of Roll Back Malaria at District Level

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PREFACE

Roll Back Malaria (RBM) guidelines have been developed for use by the District malaria programme managers, who may be from diverse backgrounds including doctors with or without public health degrees; senior public health nurses; non-medical programme managers with science or social workers with a university degree etc. These guidelines have been written in simple language to enable the programme managers to adapt and translate them in local languages. RBM guidelines are basically generic and may be adapted to each country situation in the Region. At the same time specific details are also provided wherever possible.

In the preparation of these guidelines a broad range of issues were identified and addressed during the interactive participatory workshops that were organized to evolve these guidelines. These have now been grouped into three specific thrust areas.

- Community Participation in Malaria Control
- Building Partnerships in Roll Back Malaria
- Strengthening District Health System

These guidelines are based on the proceedings of the workshops organized by Community Health Cell, Bangalore; Department of Parasitology, PGI, Chandigarh, National Anti-Malaria Programme Directorate, New Delhi, and Edited by Community Health Cell, Bangalore in coordination with experts in WHO–SEARO These guidelines are not intended to provide details of the RBM activities in the field, but they are a starting point and stimulus for action in various areas crucial to malaria control. They must continue to evolve locally, nationally, regionally through action, adaptation, experimentation and evaluation.

1. INTRODUCTION

People of the world's poor communities face many threats to their well being. 40% of the world's population are at risk of malaria and the disease is a particular burden for the poorest countries. There are as many as 500 million cases and about 1 million deaths (mostly in children below 5 years age and pregnant women) of acute malaria in the world each year – as many as 5% of them causing severe illness associated with time away from work. The risk of malaria is a constraint and threat to the economic development of communities, nations and regions. Malaria predominantly affects children, women and lower socio-economic groups including indigenous people and tribal. Communities inhabiting regions closer to forests, dams, irrigation channels and water bodies and those living in mosquito infested urban areas have a higher risk of malaria. Malaria has been increasing over the last few years due to mosquito- friendly conditions produced by many environmental and development strategies. In many parts of the world it has emerged as the most important public health challenge. Malaria can be tackled by effective, comprehensive and integrated public health action. The time for action is now!

1.1 Malaria Situation in South-East Asia Region

Malaria continues to be one of the most serious public health problems in the South-East Asia Region. 85% of the total population in South-East Asian countries estimated at 1,202.5 million people are at risk of malaria, with 35% living in moderate to high-risk areas. Malaria burden in the South-East Asian region has remained static (1994-98) at about 3 million malaria cases annually (25-26 million clinically suspected). Malaria in South-East Asia is unstable and causes epidemics as well as high morbidity. Among the countries most affected and with the largest populations at risk are India, Indonesia, Myanmar and Thailand. Chloroquine resistant P. falciparum is reported from all endemic countries (except DPR Korea). Nearly 400 million people live in areas with risk of contracting drug resistant malaria. Sulpha – Pyrimethamine resistance is also reported from all endemic countries except Sri Lanka and

DPR – Korea with an estimated 140 million population at risk. Multi-drug resistant *P falciparum* is highly prevalent on the Thai-Cambodia and Thai-Myanmar borders. Deteriorating epidemiological indices are associated with drug resistance and operational problems. In this region 80-85% of malaria cases are reported from India and the bulk of the malaria deaths (55-65%) from Myanmar. Malaria has adverse effects on economic and social development in the region. It has been identified as the single largest cause of poverty in some countries. Morbidity caused by malaria reduces family earnings by 12% and an unhealthy workforce brings down productivity. The process of development itself contributes to the spread of malaria. As roads are built, forests cut down, new mining areas opened, new dams and irrigation channels are built, habitats, which favour the breeding of mosquitoes, expand. This is very common in the South-East Asia region.

1.2 Roll Back Malaria Initiative

The Roll Back Malaria initiative launched by WHO in 1998 is an effort to enhance the ongoing national programmes against malaria by additional strategies that include:

(a) Evolving Evidence based programmes

(b) Promoting community level action

(c) Strengthening partnership with other sectors and development agencies

(d) Strengthening and further developing the health sector to address a range of priority health problems including malaria

(e) Evolving a social movement to tackle malaria backed by governments, development agencies, NGO's, private sector groups, researchers and media working together.

The Global Roll Back Malaria partnership has an overall goal of reducing malaria related deaths throughout the world by half, by 2010.

In the WHO-SEARO region the RBM programme was endorsed at the fifty second session of the Regional committee of South-East Asia on 22nd July 1999. In keeping with the overall goal and strategies of the global initiative, RBM in the SEARO region seeks to draw on the strengths of the past

experience to fight the disease but also promote some new strategies. It focuses on:

- Community empowerment and mobilization
- Working through the Primary health care system for effective action.
- Promoting Intersectoral linkages.
- Partnerships with community, voluntary agencies, NGO's and the private sector involving both health and development programmes.
- Finding local solutions to local problems while drawing on potential resources outside the health sector.
- Emphasizing decentralization and district level planning and strengthening district health systems.
- Creation of a forum for joint advocacy and resource mobilization as a common ground to bring malaria to the forefront in health sector development.

National Malaria Control Programme's role is that of providing leadership, facilitation, coordination, regulation, and not that of sole implementor.

2. COMMUNITY PARTICIPATION IN MALARIA CONTROL

Enabling the active involvement of the community in efforts to tackle the malaria problem is a cornerstone of the Roll Back Malaria initiative. Drawing on the Primary Health Care Strategy, (WHO) endorsed at Alma-ata in 1978, the involvement of the community as active participants in the process rather than as passive beneficiaries is an important challenge.

The guidelines that follow are based on certain principles that are crucial to the successful evolution of a partnership with the community.

The community and its representatives both formal and informal must be involved in all aspects of the programme from planning, to organization, to monitoring and to evaluation.

The focus of activities should not be just providing packages of services but enabling and empowering the community to participate in decision making and taking responsibility.

The large range of untapped human and material resources in the community must be mobilized.

The malaria programme must not be compartmentalized or selectivised but must become an integral part of all the ongoing health and development programmes.

A major thrust should be to demystify the problem at community level; build confidence, skill and capability at community level to tackle the problem; and help community to identify the programme as their own

The process should also be facilitated with a certain humility so that the health team is willing to learn from local experience, wisdom and culture. New approaches or alternatives can emerge if this 'learning from the people' and 'working with them' rather than 'for them' becomes a team commitment.

'We need not only to persuade the people to accept the professionals wisdom, but also the professional to understand the peoples wisdom'

2.1 Partnership with the Community

What is partnership with community?

- It has now been demonstrated throughout the world that when a community participates effectively in a health programme with full understanding and involvement then the achievements of that health programme are sustainable and long lasting.
- This partnership should include the involvement of the community in all aspects and stages of the programme and in an increasing sense of ownership by them of the programme.
- All members of the primary health care team under the leadership and direction of the district Malaria Programme Manager will build this partnership.

(The community may be of different types: A village, a tribal hamlet; an urban slum; a small township. Within each of these there may be clusters based on class, caste, occupation, ethnicity or other characteristics. Some form of village or community self government may be available. Partnership with all these groups may have to be evolved gradually in an area or region. The process will differ depending on the levels of cohesion and the types of diversities/plurality within each community)

How partnership is developed?

The partnership with a community can be evolved through five generic steps:

- Step one: Identifying potential leadership in the community
- Step two: Evolving a local health committee to support malaria control
- Step three: Sensitizing and empowering the community
- Step four: Building capacity of local community and its volunteers
- Step five: Organising, managing and sustaining the programme.

Step One: Identify potential leadership in the community

Informal discussions should be held with various individuals and groups within the community to identify individuals who form and mould the opinion of the community and undertake leadership role on various occasions.

These may include one or more of the following:

- Leaders – both elected and traditional
- Leaders of community clubs and organizations of farmers, women and youth.
- Religious and socio-cultural group leaders.
- Teachers
- Retired defense services or government personnel living in the area.
- Village health workers and development workers, who stay in the area.
- Informal opinion leaders.
- Others in the community who could assume leadership roles.

Step Two: Evolve a health committee

Organize a committee at the community level with involvement of the potential leaders and orient the committee to the local malaria situation and the potential malaria control activities to get their help in sensitizing the community. This can be done through one or two informal discussions and dialogue. A "mini workshop" may be conducted to stimulate action and create commitment of committee members.

Caution

- Ensure adequate representation of women, youth and socio-economically-marginalised sections on these committee.
- If there is already a health committee in the community then integrate malaria as one of its visible function. If there is no committee than start a community malaria committee which will tackle other health problems as well, gradually.

The functions of the committee will be:

(a) Organize meetings to sensitize the community

(b) Help to identify and mobilize community volunteers

(c) Plan the local community based activities for malaria control

(d) Monitor the local community based activities.

Step Three: Sensitizing and empowering the community

(1) With the help of the committee conduct community level meetings to sensitize the community to all aspects of malaria situation and the malaria control programmes.

These meetings should stress at least three things:

(a) Create awareness of malaria situation and programme at village/ community level

(b) Emphasize and define community's role in the programme by stressing

- That they are partners not only passive beneficiaries.
- That their active participation to tackle the problem will ensure benefits to the community.

(c) Invite some of them to take active role to control malaria problems in their villages as active local volunteers who can be trained for specific roles and functions (see Step Four).

(2) The health team members and volunteers may conduct self-survey in the community to assess the existing knowledge of malaria in the community; to understand what the people do when they get 'malaria like' fevers (attitudes and local health practices); and then develop a plan of action that will be done by volunteer individually or jointly by community leaders, by each household or joint work by all people in the village. The action plan should build local strengths such as positive beliefs and positive health practices and should counter weaknesses those non-conducive beliefs and health practices.

(3) The community should be empowered through active interaction with the local committee members to develop action plan to prevent and control malaria in their own village. Several meetings may be conducted for the community to:

(a) Understand the local situation

(b) To identify the existing resources in the community including people to volunteer and material and other resources.

(c) To identify the external resources that can be mobilized from the programme especially the malaria health team at district level.

(d) To develop a local plan of action that will include:

- Health awareness building activities
- Promotion of early diagnosis and treatment
- Measures for prompt referral when required
- Prevention activities at individual household and community level
- Activities that be done by volunteers

(e) To develop a simple programme for implementation and for regular monitoring of the programme so that problems identified can be

solved and the local experiences will improve the programme and evolve further plans.

Step Four: Building capacity of local community volunteers

The local ***community based volunteers*** identified by the committee should be trained to build their capacity to participate effectively in the programme. This training should include:

(1) Knowledge of all the essential aspects of malaria control (see box on Malaria primer Page 11)

(2) How to conduct "self-survey" in the community?

(3) Practical skill development to do some or all of these potential functions:
   (a) Make local community members aware of all aspects of malaria situations and the programme.
   (b) Identify a case of malaria at community level.
   (c) Make a blood smear and send it for examination
   (d) Treat uncomplicated cases of malaria locally
   (e) Identify problem or serious cases and arrange suitable referrals.
   (f) Some form of simple community surveillance of malaria type fevers.
   (g) Promoting preventive measures at individual and at community level.
   (h) Mobilizing community to support vector control activities at community level
   (i) Helping to 'monitor and evaluate' programme at community level by facilitating community feedback.

The types of skill taught to local community volunteers will differ in different countries of the region and in different states of the same country since the levels of health care services are varied and the components of the malaria control programmes will be varied. However practical skill development will be the key to success in the programme.

A Malaria Primer – A to Z

In each country or region depending on the local 'malaria situation' and 'epidemiology' and the type of health care services including malaria control programme, a small primer which we have called 'A to Z' should be prepared in simple vernacular or local language with adequate simple illustrations and diagrams. This should then form the basis of all health education and awareness building and training programmes at community level. The primer should at least include answers to the following common questions that people may have:

(a) What is Malaria?

(b) What are its symptoms?

(c) How is it caused?

(d) Where do mosquitoes come from?

(e) Where do they breed?

(f) Who are most at risk of suffering from malaria?

(g) How can we test for malaria?

(h) Where can these tests be done?

(i) What can be done to treat malaria?

(j) Where is this treatment available? Who can treat?

(k) What are the complications of malaria?

(l) How can these be recognized?

(m) What should be done in case of complications?

(n) Whom should we inform when there is a case.

(o) How can we prevent mosquitoes from biting us?

(p) How can we control the mosquitoes?

(q) Are there any special reasons for malaria being common in our area?

(r) Are there other mosquito borne diseases in our area? If so what else should we do?

(s) How much malaria is there in our district?

(t) How much malaria is there in our country?

(u) (u to z) any other suggestions relevant to area/district/country

Step Five: Organizing, managing and sustaining the programmes

Once the plans of the local malaria programme is drawn up by the malaria programme manager by interactive dialogue with the local malaria/health committee and the local volunteers are trained then the programme must be organized and managed in close collaboration with the local committee and the volunteers.

As part of the partnership with the community, the programme will consist of the following major components:

(1) Empowerment of women in the community endorsing their role as the main health care providers at family level (See 2.2)

(2) Organizing diagnosis, treatment and referral at community level (see 2.3)

(3) Organizing malaria control at community level (See 2.4).

(4) Sustaining the community level action and partnership which includes community based surveillance, monitoring and evaluation (See 2.5).

As the programme evolves and all the above components are organized and managed, then through a continuous interactions with the committee and the volunteers and members of the community, the programme managers can seek feedback and suggestions for modifying and improving the programme. This can feed into the planning cycle for the programme so that newer and newer ideas, innovations and changes take place in the malaria programme and the community partnerships.

2.2 Empowerment of Women

An important challenge for the Roll Back Malaria initiative in each country is the recognition and involvement of women in the programme as health care partners.

Why empowerment of women?

- Women have been traditionally the main health care providers at family level and community level. They take family responsibilities that include nutrition, care of the children, care of the sick and elderly. This has provided them more knowledge, and skills to undertake health care tasks.
- In many parts of the world, women have shown greater potential and ability, collectively to promote and sustain programmes especially related to health. They support each other effectively.

Greater involvement of women through an active empowerment process for malaria control is therefore an important step. Women can be empowered in malaria, community and family-based actions.

In many societies and communities women already face the triple burden of family, work and childcare. It is therefore necessary to involve them in malaria control, recognizing their potential and their status but not necessarily adding to their burdens. Empowerment of women must be closely complemented by the involvement of men to share the responsibilities of malaria control at both family and community level.

What can empowerment of women do?

Women can be empowered to play a variety of roles that are required for effective community and family-based malaria control. These are:

(1) Diagnosing and management of malaria at family level (home care: see home care package 2.3.3.d)

(2) Identification of family members that need referral

(3) Health education and awareness building about common health problems and their management with locally available resources.

(4) Management of cleanliness in and around the house.

(5) Use of preventive measures at home level.

(6) Special needs of women who are pregnant and very small children when they fall ill, including malaria

(7) Involvement in organizing / managing malaria programmes as community volunteers.

(8) Involvement in organizing / managing malaria programmes as members of women's organizations or community health committees.

For all these roles they need empowerment training that provides them knowledge and skills to play their roles and also knowledge and awareness about existing health care structures and alternatives.

How to achieve women empowerment?

- Women should be reached preferably in groups to help the interactive and participatory process between and among them.
- They can be reached at and or through:
  - (a). Women's organizations or clubs (e.g. Mahila mandals)
  - (b). Informal community level groups of women
  - (c). Religious and social organizations and gathering
  - (d). Weekly community markets
  - (e). Voluntary organizations working with and for women
    - Special groups of women who are already playing leadership or other roles in society can be involved to take greater interest in mobilizing and empowering other women in the community. These may be :
      - Women members of local bodies/village self government
      - Women teachers
      - Women staff of banks, post offices and other services.
      - Women health and development workers.
    - All the members of the above groups can be trained in the functions listed above through regular local training sessions that use effective IEC materials.
    - A home care package that is particularly focused on women volunteers and participants should be stressed.

Women involved in social development work including malaria control should be recognized and honoured. This would act as an incentive for involvement of more women.

2.3 Diagnosis, Treatment and Referral at Community Level

Another important challenge for the Roll Back Malaria initiative is the demystification of 'Malaria' so that its treatment and control do not remain the monopoly of health workers. All people should have knowledge on malaria so that they can be better equipped to access treatment, as well as actively participate in malaria control.

Why elementary knowledge on malaria is important?

- All individuals in a community can be provided with basic and adequate knowledge of 'malaria' so that they are able to recognize it when it occurs. This will empower them to take decisions on what to do; ask for help from those who may be better informed or better skilled and tackle it effectively at both home and community level. Mothers, volunteers and community members can all play a significant role in managing malaria at home, and community level.
- Also in order to enhance the neighbourhood or community level confidence in managing malaria which has become a major public health problem it is imperative that as many people as possible are trained in each community. People should be able to distinguish malaria from other illness; help to detect the serious forms of the disease and help to reach the nearest and appropriate treatment facility. Some groups like traditional health workers, teachers, shopkeepers and local practitioners may be particularly useful.

What is required?

To enhance diagnosis and treatment skills at family (home) and community level, health volunteers should be trained in the following:

(1) How to recognize malaria?

(2) What to do when a case of 'malaria' occurs?

(3) What tests can be done for patients locally?

(4) How to manage and treat at home level?

(5) How to manage and treat at community level?

(6) How to identify a severe or complicated 'malaria case' that needs referral?

(7) How and where to refer?

(8) What to do ***in case of pregnant women or very small children?***

How and what to do?

The simple guidelines for each of the above action points is as follows and should be stressed in community volunteer training sessions:

(a) How to recognize malaria?

- Every case of fever in highly endemic areas or in persons with a history of travel to 'malarious areas' (highly endemic areas) should be presumed malaria unless proved otherwise. Consequently the person should be given presumptive treatment (see diagram).
- Fever is the commonest sign in malaria. Some of the signs and symptoms of mild or uncomplicated malaria are:
  - Chills
  - Sweating
  - Headaches
  - Body aches
  - Lump in higher part of abdomen! (Enlarged spleen or liver)
  - Joint pains
  - Anaemia (pallor)
  - Jaundice (yellow coloration)

(b) What to do when malaria cases occur?

- Patients with any of the above symptoms as given in a) above should visit the nearest health center or health facility or treatment source for further diagnosis and treatment for malaria.
- There may be different treatment sources in a community

- A traditional healer
- A shop with malaria drugs
- A private practitioner
- A trained community health volunteer
- A village dispensary run by a voluntary agency
- A government health centre or sub-centre

- Other than the government center any or all of these may be designated as fever treatment depots and given some training / orientation and helped to stock malaria medicines.
- Ideally one or more of these centers should be situated within a short distance of any community i.e. short enough that a lone woman with a sick child can access easily.

(c) What tests can be done for patients locally?

- The commonest test for malaria is a blood smear examination. If facilities for blood smear examination are available locally or nearby and results can be obtained within 2 hours, then treatment can be deferred till blood smear examination results are available
- If facilities for blood smear examinations are not available nearby or results are likely to be delayed, then treatment for malaria can be given presuming it is malaria fever (presumptive treatment).
- Community health workers and volunteers can be taught to make thin and thick blood smears examination. If such a trained health worker is available in the programme, in that area then teach him/her to make a blood smear and then give presumptive treatment (see diagram). Also give instructions of how to send slide for testing at health centre.

Skill One: How to prepare a thick and thin blood Smear for malaria microscopy		
Equipment required • Clean glass slides • Disposable Lancet • Specimen tube with cork for fixing pricking needle • Spirit or antiseptic solution	• Small bottle with cork for keeping spirit or antiseptic solution • Cotton • Clean handkerchief • Slide box for 25 to 50 slides	• Lead pencil • Register and forms • Carbon paper • Ball point pen • Antimalarials for giving presumptive treatment.

Method

1.	• Third finger of the left hand of the patient should be held with left hand between thumb and finger by blood slide collector at the first phalangeal joint. • Wipe fingertip with swab dipped in spirit or antiseptic solution. • Allow the fingertip to dry. (Refer Figure 1)
2.	• Hold the disposable lancet in the right hand and prick the finger. • Allow blood drop to ooze out. (Refer Figure 2)
3.	• Take a clean slide. • Take 3 drops of the blood (sufficient blood) 1cm. From the edge of the glass slide. • Take another drop of blood one cm from the first (Refer Figure 3)
4.	• Take another clean slide with smooth edges to use spreader. • Make thick and thin smears • Allow it to dry (Refer Figure 4 & 5)
5.	• Put the slide number on thin smear with lead pencil - Refer Figure 6

- In high risk areas where facilities for blood smear examinations are not available then facility for dipstick test for *P.falciparum* should be

provided at fever treatment depots for early diagnosis by health workers.

- Where dipsticks are made available but health workers are not available, efforts should be made to train some responsible community members, such as teachers and volunteer health workers to diagnose *P.falciparum* infections.
- If dipstick kits are available in limited stock then priority for diagnosis should be given to children, pregnant women and seriously ill patients.
- Private practitioners, NGO's who run health centers and other locally available health facilities should be encouraged to provide diagnostic facilities for malaria at no cost/reasonable cost to support the programme.
- In high risk areas, if laboratory tests for malaria are negative and fever persists than the laboratory tests should be repeated on 3 consecutive days.

While it is good to diagnose malaria properly and treat it, treatments should never be delayed because of the absence of facilities for laboratory diagnosis or for delays in availability of results of test done.

(d) How to manage and treat at home level?

- Fever should be brought down as quickly as possible with cool water sponging and paracetamol (500gm to 1 gm for adults and 10mg/kg per dose for children may be used.)
- Patients should be given plenty of fluids to drink. Glucose or sugar solutions must be given to the patients, particularly to children and pregnant women.
- In case of children, continue breast-feeding.
- Seek medical care in the nearest treatment center, as early as possible.
- Identification of complications which need immediate referral to the hospital (see Ref. 2.3.3.f)
- Prophylaxis for pregnant women especially in high endemic areas.

(e) How to manage and treat at community level (treatment centre)?

At the community level there may be different alternatives for treatment centres for malaria (see 2.3.3b)

In all these treatment centres the following could be done:

- A blood smear is taken and sent for examination (if the centre has laboratory facilities the smear can be examined there itself).
- Presumptive diagnosis is made and treatment given according to the national drug policy and the standing instructions in each country programme.

  The patient care providers are advised to:

  – Provide supportive therapy as required (paracetamol for fever and headache, plenty of fluids etc.)
  – Report back about nutrition, home care, the need for treatment adherence.
  – To look for signs of serious illness and refer the patient to a health centre or hospital if these occur.
- Primaquine is to be given in all cases when the laboratory tests come positive. This is usually done under the supervision of a trained member of the primary health care/ malaria team. However there is no benefit of giving Primaquine to all patients in a hyper endemic area.

(f) How to identify a 'severe' or complicated malaria case that needs 'referral'?

- The community members, health committee members, the volunteers and others can be trained to identify severe or complicated malaria so that "the patients" can be referred immediately for treatment and management at a higher centre with better facilities.
- A reasonably aware person can be taught to identify and recognize the following signs:

- Very high fever
- Very pale color
- Persistent or severe vomiting
- Dehydration
- Little urine of dark color
- Restlessness
- Refusal to take feeds in children
- Signs of shock i.e. cold/clammy skin, low thready pulse and rapid breathing.
- Agitation
- Delirium (confused mental state)
- Feeling very sleepy (somnolence)
- Coma (not responding to stimulus)
- Inability to swallow anti malarials
- Failure to respond to previous antimalarial treatment (malaria recurs within 3-4 weeks of treatment)

(g) How and where to refer?

- The Health committee and trained health volunteers should be encouraged to know of all alternative transport facilities available in the area which can be urgently used to transport a serious patient for treatment to a higher health facility. This may be a local bullock cart, jeeps, vans, cycle, ambulance, stretcher or palanquins, tractor with wagon etc. This is important since pre-planning will ensure that there is no delay when the emergency transport is required.
- They should also know in advance about the government health centers and private or NGO health institutions in the area to which severe or complicated case of malaria can be referred.
- Health institutions must have all the facilities for treatment of severe cases i.e. intravenous quinine infusions, or other appropriate drugs like Quinine, Sulphadoxine – pyrimethamine, sodium artisunate/arteether, and other facilities to manage other systemic complications of malaria.
- The minimum facilities required in a referral centre should be available such as:
  - Tablets and injectable antimalarials
  - Facilities for :
  - Blood smear examination

- I/v and oral quinine
- I/v fluids
- Oxygen
- Oral and injectable antipyretics, ant-convulsants, diuretics and antibiotics.
- Hemoglobin Estimation
- Urine-routine and microscopy

All these centres with different levels of care are to be:

– Properly oriented,
– Provided with standard national treatment guidelines, and
– Linked effectively in a planned referral service mechanism

If these have been done, the primary health care management of malaria at community level will be greatly supported by the prompt and efficient management of referred severe and complicated cases. This will greatly enhance the morale and confidence of the primary health care/malaria team and the community based health committee and volunteers.

(h) What to do for malaria in pregnant women and in very small children?

- Malaria in pregnant women is often more severe and causes worsening of anemia and increased risk of abortions, new born deaths and low birth weight babies.
- Except for the first 3 months of pregnancy chemoprophylaxis can be given throughout the last 6 months of pregnancy if the danger of malaria in the area is high. Any type of medical treatment is preferably avoided
- Approved doses of chloroquine or Quinine may be given in any trimester of pregnancy for curative treatment of malaria.
- Sulfadoxine, pyrimethamine combination may be given after first trimester of pregnancy and up to one month before delivery.
- Primaquine should not be given during pregnancy or to infants below one year.

Health education: regarding early treatment

- To support efforts to establish a programme of early diagnosis, treatment and referral at family and community level the following important but simple messages must be included in the health awareness building initiatives by the health committee and health volunteers.
  - Treating severe malaria costs much more than treating malaria early.
  - Take proper and complete treatment
  - See a trained health provider if a person is not better in two day or if becoming worse.
  - See a trained health provider if signs of malaria return a few weeks after full treatment.
  - Some antimalarial drugs can be very dangerous if taken in the wrong dose.
  - Even when a person suspects that he or she or a member of their family have malaria, there are still many factors that may delay them in seeking early treatment e.g.
    - Lack of money
    - Lack of time
    - Fear of loss of daily wage required for daily survival
    - Decision needs concurrence of other elders in the family.
    - Beliefs systems that make patient hesitate to access health centres etc.
    - Lack of relative to accompany patient

Package delivery for common diseases

Malaria treatment should not be part of a vertical and compartmentalized national programme. Malaria should gradually be integrated with other common diseases and control programmes in the area, district, region or state.

An essential services package of drugs for common endemic diseases especially communicable can be prepared by keeping consideration of disease prevalence in the area and the felt need of the community. A package of 5 to 6 diseases can be selected depending on the priority health problems in the area.

A drug kit can be prepared for different levels. e.g.

- Multipurpose health workers (nurse midwife etc)
- Community health workers
- Community volunteers.

The drug kit or package will have other preventive drugs, equipment, materials that will enhance the quality of the service rendered by the primary health care workers and health volunteers in the region.

- The essential package or kit may include some of the following :

Preventive drugs/equipment	Curative
1. Tab Iron & Folic Acid 2. Tab. Chloroquine 3. Vit A solution/capsule 4. Chlorine tablets 5. Disposable pricking needle 6. Gauze / Bandage 7. Microslides 8. Sputum cup 9. Thermometer 10. Health Education Materials 11. Simple monitoring records	1. ORS packets 2. Cotrimoxazole tablets/syrup 3. Paracetamol tablets/syrup 4. Anthelminthics tab./syrup 5. Cough expectorant syrup 6. Amoxycillin tab./cap /syrup 7. Diazepam tab/syrup 8. Tab. Primaquine 9. Tab. Sulphadoxine/ Pyrimethamine 10. Tab. Quinine Sulphate 11. Tab. Ergometrine 12. Antispasmodics 13. Anticoagulant tablets 14. Anti-emetic tablets, e.g., Prochlorperazine/Metoclopramide

- The essential package or kit will have additional information which will include proper drug information, details of dosage, mode of administration, side effects, and expiry dates and cautions regarding storage and transport. Different combinations of these 26 items can be prepared for different levels depending on what and how much each of the workers at different levels are expected to do, for

malaria and other health problems in the context of the country's health care guidelines.

Additional administrative support

To support the home and community level diagnosis and treatment, the primary health care and malaria team need to initiate a series of administrative and organization measures that support and keep up community level action and confidence.

- Establishment of functional fever treatment depots in each village and urban slum.
- Ensure timely replenishment of antimalarial drugs and glass slides or needles for smears etc.
- Continuing training and education of health workers and volunteers in malaria diagnosis and treatment.
- Clear standing instructions for chemoprophylaxis and treatment of simple and complicated cases according to national/state guidelines that take into account availability of drugs, patterns of drug resistance etc.
- Continuous technical updates for private practitioners, NGO's and other health care providers in the region.
- Provision of required drugs, preferably in age-group wise packets with instructions in local languages.
- Formulations for small children should be made available.
- Mechanisms to monitor quality control of anti-malarial drugs.

2.4 Malaria Control at Community Level

There are four ways by which people in the community can protect themselves from malaria and also prevent malaria.

(1) Avoiding mosquito bites by preventing mosquitoes from biting people with personal protection

(2) Controlling mosquito breeding by elimination of breeding places in and around the house and in the community.

(3) Killing adult mosquitoes by house spraying or thermal fogging.

(4) Chemoprophylaxis by regular intake of drugs taken to prevent malaria.

For Malaria prevention to be effective at household and community level, the local health committee, community volunteers, other members of the community, particularly women should be made aware of all the simple and effective methods to prevent and control malaria by all these four ways.

Why prevention is necessary?

- Remember prevention is better than cure because: contracting malaria can be fatal; malaria treatment cost is high; prevention of malaria is simple, low cost and elimination of breeding places reduces chances of contacting other vector borne diseases as well.
- Mosquito bites also disturb sleep and have great nuisance value leading to increased stress and irritability.
- Teaching the community to take measures to prevent malaria and reduce mosquito breeding has additional advantages of teaching people to take more personal responsibility for their own health as well as encouraging collective action to tackle some of the health problems at the community level.

Methods of Malaria prevention

Prevention from malaria mainly involves avoiding mosquito bites, use of mosquito repellents and the elimination of mosquito breeding.

(a) Avoiding mosquito bites

What measures are there? There are four major methods to avoiding mosquito bites. They include mosquito proofing of human dwellings; sleeping under insecticide treated mosquito nets; mosquito repellent cream and mosquito coils and pellets.

Some details of each method including active ingredients, side effects and advantages and disadvantages are shown in Table 1.

Table 1: *Measures to prevent mosquito bites: An overview*

Method	Suitable for	Advantages	Disadvantages
1. Mosquito proofing of human dwelling	Permanent dwellings	1. All members of household are protected once they are inside the house 2. Collateral benefits such as protection from flies and other insects. 3. A person can perform normal household activity inside the house without restriction.	1. Thatched houses with leaves cannot be made mosquito proof by screening 2. The method is costly to install but usually very little recurrent expenditure. 3. Not effective if the family members sleep outdoors.
2. Sleeping under insecticide treated mosquito nets	Used by an individual or members of family while sleeping indoor or outdoor	1. Suitable for use by an individual 2. The effectiveness as a protection against mosquitoes depends on sleeping time 3. Costly at beginning only for plain net.	1. An individual remains exposed to mosquito bites after dusk till he goes to bed 2. No other collateral benefit. 3. For more advantages, net has to be chemically treated regularly

Method	Suitable for	Advantages	Disadvantages
3. Mosquito repellent cream	Can be used by individual on journey when involved in outdoor activities.	1. Suitable for use by an individual 2. Action last for a short time. Repeat application is required during the night. 3. Local herbal alternatives should be encouraged. E.g. Neem oil / citronella oil	1. Some individuals may experience adverse reactions due to skin sensitivity. 2. Rate of acceptance is low because repeated applications are required every night. 3. Some individuals do not like greasy material on their skin.
4. Impregnated coils / pellets	For use by individual or by group of people sleeping indoors.	1. Most effective in confined sleeping area 2. If used in all rooms of the house from dusk onwards, usual household activity can be carried out by family members with very little exposure to mosquito bites. 3. Efficacy differs from one product to another and is estimated as 60 to 80% protection only.	1. Efficacy is adversely affected by direct air current 2. Impregnated coils and pellets are costly. 3. Effect of long term exposure to chemical vapour used in coils, etc has not been studied.

Source: Malaria Action Plan (MAP) Manual NAMP, India 1997.

(b) How to promote bed nets and repellents?

- The manager of the malaria control programme along with the primary health care team and the health committee should explore the options for making available repellents and nets at community level.
- These can be made available through the following:
  - Shops and public distribution systems
  - Health center and field staff
  - Women's organizations and other community organizations
  - Local NGO's and health centers; health practitioners
  - Any other outlets/organization
- These materials can be procured and distributed through various schemes:
  - Purchase on payment
  - Subsidized purchase through local cooperatives and autonomous societies.
  - Subsidized and or free distribution through government programme.
- The health care team, local community volunteers, NGO's local government institutions, educational institutions and others should be involved in IEC activities which inform the community about the different methods of personal protection.
- These distribution programmes of protective measures should be monitored by a local committee and regularly evaluated by it on a regular basis.
- Where the availability of personal protection particularly bed nets - treated or otherwise are limited then the priority should be given to pregnant women, infants and children in a community.
- The organization of programmes to procure and distribute personal protection measures especially bed nets - treated or otherwise can be very effective mechanisms to build community confidence and experience in taking greater responsibility for their own health.

- Some quality control mechanisms should be introduced to ensure those substandard, fake or poor quality repellents and protective devices are not thrust on an uninformed public.

(c) Elimination of mosquito breeding habitats:

Larvae control can be carried out if breeding sites are within the flight range of mosquitoes from the community and breeding sites are limited and accessible. The following options can be used in larvae control:

- Chemical larvicides are useful as an instant larval killer and may be used even in potable water.
- Use of larvivorous fish which are cheap, can be linked with edible fish production and can provide long term control, if proper supervision is maintained.
- Biolarvicides are specific for mosquito larvae, do not kill predators and are not prone to illicit sale for other purposes. However resistance develops against them.
- Use of expanded polystyrene breads (EPB) to cover the water surface is also long lasting in sites which are confined and without wind and overflow.

Each country programme will have its own policy for larval control. This must be communicated to the local community through suitable IEC and other materials].

(d) Elimination of breeding places through community action/campaigns

Community action is essential for the successful elimination of mosquito breeding places. This is possible only if the community is made aware of the mosquito cycle and the points at which community can intervene.

What is community action?

- Community action is required to eliminate breeding places as most of the breeding habitats are man made and hence it is the responsibility of the community at risk of vector borne diseases to eliminate the source of breeding. This action may be organized as campaigns.

Methods of elimination of breeding places are:

- Source reduction by eliminating or changing the breeding places to make them unsuitable for developing larvae.
- Making the breeding places inaccessible to adult mosquitoes for laying eggs.
- Releasing fish/predators that feed on larvae and pupae.
- Apply in the operational area principle of eliminating breeding places in an area with a radius of 1.5-2 kms, and around human settlements i.e. the flight range of target mosquito species.
- Elimination of breeding places can be on permanent (long term) basis through environmental modification or on a temporary basis through environmental manipulation and release of bio-control agents.

How to promote community action?

- Identify the target community; rural, urban and developments project area, (stratify if there are diversities in the socio-epidemiological situation of malaria in the area).
- Motivate the community through awareness campaign using appropriate IEC materials (see 4.6).
- Carefully identify breeding places at community level and map them.
- Evolve guidelines for community action to eliminate breeding places (depending on local mosquito species and choice of methods for specific-breeding habitats identified locally.
- Establish a committee with a chairperson. Active members such as teachers, women postmasters, retired employees, development workers, religious leaders can be included with one person assuming the leadership role.
- The activities of the committee should include
  - Motivation of the community through interactive meetings
  - Identifying solutions - including those from community experience
  - Planning the campaign
  - Monitoring and reviewing the campaign.

- Small groups with active members can be formed to generate collective force in filling low lying areas. Such reclaimed areas can be used for public use such as playground, etc.
- School children and youth can be motivated in planning trees in the reclaimed marshy low-lying areas in the effort of developing social forestry.
- Technical skills in masonry, plumbing and constructing of soakage pits need to be developed so as to make the community self-reliant especially in construction of proper drains etc.
- Potential avenues can be explored for resource mobilization from local sources and from other sectors and departments to enhance the campaign nature of activity.
- If the campaign has to be successful then all sections of the community should be involved - children, youth, women, teachers, others. The campaign committee should identify the roles of each of these groups and orient them to those roles to ensure that the campaign goes smoothly.
- Other departments who can help the campaign are:
  - Local administration
  - Sanitation / water supply
  - Agriculture department
  - Fisheries
  - Public works department
  - Forestry etc.

Cooperation and resources from all of them especially their field workers should be mobilized.

(e) How to control mosquito breeding?

A. In the Homes

Major mosquito breeding sites within the house, comprise water storage container, animal drinking pans and flower vases, roof gutters and pit latrines. Taking the following preventive measures that need to be made public

knowledge through IEC campaigns could check mosquito breeding in these habitats:

- Mosquito proofing of water storage containers like overhead tanks, unwanted standing water should be cleared and the containers inverted, and choked roof of gutters should be cleared of debris, so that rain water does not stagnate.
- Water in animal drinking pans, flower vases, etc., should be replaced every day.
- Breeding of mosquitoes in pit latrines could be controlled by treating with malaria oil to cover the water. Another novel method is placement of polystyrene balls to form a complete physical barrier over the water to prevent oviposition. These balls are cheap, non-toxic, virtually indestructible and have little attraction or value for people to steal them. Proper design and maintenance of sanitation systems is essential for eliminating mosquito breeding in these habitats.
- Access of mosquitoes to the interior of the house could be prevented by screening doors and windows with 18 inch gauge wire mesh screens.

B. Around the Houses

Mosquito breeding habitats around the house include rain water collected in waste articles dumped in vacant plots such as used drinking cans and plastics, plastic bags etc., underground cisterns and water storage tanks, wastewater drains, cesspits, and septic tanks. Mosquito breeding in these habitats could be eliminated by adopting the ***following preventive measures.***

- A thorough search of yards and vacant plots must be made for discarded articles and rain water collection sites.
- Tree holes should be filled with mud or cement to prevent accumulation of rain water. If solid waste disposal services are inadequate, articles that may collect rain water could be dealt with, in other ways, e.g., cans could be cut open and crushed, pans and trays could be turned over, discarded tires could be cut and turned over, etc.
- Underground cisterns and water storage tanks should be covered with 18-guage mesh screens. If possible these may be stocked with mosquito-eating fish such as Gambusia affinis for clean water and Poecilia reticulata for dirty water.

- Drainage arrangements should be made.
- Cesspits should be avoided completely and replaced with proper soakage pits.
- Septic tanks should be sealed properly and the vent pipes furnished with screens. Effluent from the septic tank should be discharged into a soak away and not into the open.

C. In the Community

In the community, major mosquito breeding habitats comprise spillage around water supply sources, wastewater drains, storm water drains, cesspools, ponds and other large water bodies, and low-lying vacant plots. *These habitats should be dealt with as follows:*

- Water spillage around community water supply sources such as hand pumps, wells, public stand posts, etc., should be checked and drainage arrangements made.
- Wastewater and storm water drains should be maintained properly and dumping of solid wastes into these areas should be forbidden.
- Undesirable water collections in the community could be eliminated by drainage or filling. Cesspools and low-lying vacant plots are best dealt with by filling with rubble, earth or refuse. Ponds, borrow pits and ditches could be filled or, alternatively, these could be drained. However, small and temporary habitats such as small pools and puddles, roadside ditches, water-filled vehicle tracks and cattle hoof-prints may be too numerous and scattered to fill or drain.
- Mosquito breeding in large water areas could be eliminated through environmental modification e.g., construction of public irrigation works that allow control of the water level and shore conditions (impoundment).
- Drainage, filling and impoundment are methods that usually give long lasting effects. However, these may have other ecological repercussions and therefore should be undertaken only with expert advice.

For Malaria prevention and mosquito control to be successful then environmental management by individuals, family, community and the government, separately or in partnership is a very important component of concerted and collective action.

Methods of Malaria Control: Methods of malaria control at the community level are the killing of mosquitoes by spraying insecticides and thermal fogging

(a) House spraying and thermal fogging

These are methods aimed at killing the mosquitoes and require careful planning. Knowledge relating to the vectors, breeding season, epidemics etc are necessary. Therefore house spraying and thermal fogging should be done by well-trained health personnel. Communities should assist in house spraying operations and fogging by:

- Providing volunteers for spraying and
- Motivating people to accept house spraying.

[Each country programme will have different spraying schedules. This must be informed to the local people through suitable IEC and other materials].

(b) Chemoprophylaxis

The community should be educated by the District officials whether or not to take Chemoprophylaxis and which drugs to be used for the same. In special circumstances, chemoprophylaxis should be offered as per national guidelines to special groups such as pregnant women in endemic areas and short-term non-immune travellers to endemic areas.

[Each country programme will have its own guidelines about chemoprophylaxis. This must be informed to the local people through suitable IEC and other materials]

2.5 Sustaining Community Level Action and Partnership

To eliminate malaria as a problem in the community, action at community level should be sustained on a long term basis. Community participation can be sustained by the following measures in the programme:

Involve community right from planning in all stages of programme.

(1) Frequent interaction with community, providing solutions to the problems in carrying out control activities will also sustain the interest of community in malaria control activities.

(2) Promote socially acceptable and viable solutions that are

- Culturally acceptable
- Low – cost, available / affordable by all
- Socio-epidemiologically sound and need based.

(3) Ensure that supplies are constantly available (insecticides, fish, nets, medicines, neem oil, equipment, microscopes, stain, slides). This will also greatly help the sustainability of the programme.

(4) Develop dynamic leadership and encourage self reliance.

(5) Minimize conflicts by keeping organizations small; restricting memberships to persons with harmonious objectives; defining objectives; in a focussed way and distributing benefits equally.

(6) Increase popular awareness of the value and the benefits of a malaria programme.

(7) Encouragement of income generating vector control activities, e.g., social forestry plantations will also help sustainability of the community involvement.

(8) Provide some incentives for the community from the district administration in the form of

- Declaring malaria-free or healthy villages
- Developmental inputs.

3. BUILDING PARTNERSHIPS

Partnership building is a major challenge for the Roll Back Malaria initiative. National malaria programmes have often been, till recently the sole responsibility of the National Ministries of Health. There is urgent need to build partnerships within and outside the health sector to make malaria control a collective responsibility.

Partnerships are built on

- Common interest
- Mutual respect
- Clear manageable common objectives
- Commitment to contribute time, resources, energy
- Mutual trust

Partnerships should lead to:

- Significant social gains or reduction in the problems which the partnership seeks to tackle
- Common goals, more productivity and welfare of the people
- Strengthening of the programmes role as a catalyst for health sector development
- The efforts involved in establishing and maintaining the partnership should be worth it.

Partnerships are alliances in which individuals groups or organizations agree to:

- work together to fulfil an obligation
- undertake a specific task
- meet a common goal
- share the risks as well as the benefits
- review the relationship regularly
- revise the agreements as necessary.

Partnerships in malaria control must be built on all these principles and criteria as gradual process with skill, care and enthusiasm

- To begin with there should be an Advocacy process at the district level supported by similar processes at state and national level to generate enthusiasm and identify and develop leadership at all levels (refer 3.1)

Partnerships should then be built with a wide variety of partners identifying their specific and special contribution to the malaria control programme. These would include:

(1) Advocacy and leadership for change (refer 3.2)

(2) Partnership with non-government organizations (voluntary sector) (refer 3.3)

  (a) Partnership with the educational sector (refer 3.4)

  (b) Partnership with private sector (refer 3.5)

  (c) Partnership with other sectors / departments (refer 3.6) through intersectoral coordination.

- The most important objective of all the different partnerships is to increase the community awareness of the malaria problem and encourage them to be actively involved in tackling it and participating in all the strategies and action programmes that are organized for malaria control. Communication for behavior change is therefore a major challenge and a comprehensive health education strategy (IEC) should be a collaborative effort with all the partners (refer 3.7).

3.1 How to Build Partnership?

The partnership should be built gradually through the following steps.

(a) Identify all potential partners in this sector in the district

- List out all government and non-government sectors and health care providers and institutions; the health care product manufacturers;

and all others in the non-health private / business/industrial sector in the district.

- Identify all those who are likely to be partners in the malaria control programme giving priority to those who are already doing some activities, that can be supportive of the programme.

(b) Involve in District coordination committee

- Involve some of the key representatives of associations of the health care providers and the private sector in the local Health/ Malaria coordination committee described earlier.

(c) Sensitize all the potential partners

- Involve all the potential partners by sensitizing them to all aspects of the malaria control programme through
  - Informal personal interaction
  - Formal meetings
  - Communication – handouts and news letters.
- Those who show specific interest and enthusiasm can be further oriented/trained through workshops and skill orientation sessions.

(d) Identify the role and contributions they could each make to the programmes.

- They could adopt malaria control activities in their own work places.
- They could join malaria control activities at the community level.
- They could participate in IEC campaigns, events, exhibitions and programmes.

(e) Provide assistance to all the partners

- If these partners require they should be offered technical information and training support to enhance their partnership in the programme.

(f) Monitor and review the private sector partnership

- Each partnership should be reviewed regularly and the representatives of the health care providers and the private industry sector in the district coordination committee should participate in the monitoring / review of the control programme at the district level.

3.2 Advocacy and leadership for change

For the Malaria control strategy to be really effective there is need for commitment and participation from a variety of people outside the health sector. The causes of malaria are not just biomedical but deeply linked to the development, environmental and other policies of the government. Different sectors contribute to the problem. All sectors must therefore contribute to the solution.

To make this happen there has to be an active process of Advocacy and leadership development at all levels starting from national level; to state or sub-national level; to district and municipal level; and finally to community level (described in section 2.1). This process of advocacy and leadership development should precede and also complement all efforts to build new partnerships for malaria control.

"Public policy advocacy is the effort to influence public policy through various forms of persuasive communication. Public policy includes statements, policies, or prevailing practices imposed by those in authority to guide or control institutional, community, and sometimes individual behavior."

At the District level this Advocacy and leadership development must be focussed on:

- Political commitment of district level leadership (District and Municipal administration)
- All government departments and programmes especially their field level officers and functionaries at district and sub-district level.
- Leadership of educational institutions; NGO's private sector; professional associations; and civic society organizations and associations at district and sub-district level.
- Media and communication groups at district and sub-district level.
- Local public or private sector industry and related services or establishments.
- Any other organizations that the malaria programme manager or primary health care team, consider to be a resource for the programme.

To strengthen the process for advocacy and leadership development, the district malaria manager in collaboration with the primary health care team should first evolve the following at the district level.

(a) Comprehensive analysis of the local malaria situation and the problems to be tackled. To understand the malaria situations in the district find out some details of each of the following :

- Characteristics of malaria (epidemiological)
- Number of people at risk
- Type of people at greatest risk
- Vectors (Anopheles)?
- Plasmodium species?
- Annual OPD attendance due to malaria in government health institutions, others
- Percentage of all OPD attendance due to malaria
- Potential for epidemics
- Types of environment and malaria transmission

(b) Designing the framework of strategy

While a national or state level control strategy may be available, this should be adapted to the local social and epidemiological realities and to the local health care development situation and constraints. The strategy must at least include:

- What is the problem?
- Why there is problem?
- Decide the strategic actions.
- What sort of information or technical or training support is needed for the tasks to be done?
- Who will provide these supports?

(c) Identification and mobilizing of resources

An exercise to identify all the sources of human, material, monetary and other resources must be undertaken. All these sources should be tapped formally and informally.

(d) A programme should be planned with details on

Implementing action - (By whom and how)

Monitoring and evaluating (By whom and how)

Planning for review and maintaining continuity of action.

(e) An Advocacy strategy

Planning who should be reached with what messages and how to seek their support and involvement.

The strategy should be

- ***Informal***: Personal interactions with all the identified important / significant people at political / administrative and other levels is very important. An informal approach helps to understand the power structure and the decision making process (i.e. who influences whom and how) which can help in the planning of the strategy.
- ***Formal*****:** This is a planning of meetings, events, activities, that will help the Malaria manager involve everyone concerned who needs to be reached and involved in the programme.

(f) A leadership strategy

The most effective strategy beyond the formal and informal advocacy strategy is to bring together all the key decision makers and potential partners into a malaria or a Health coordination committee at a District level which will then support and promote malaria control programmes at district level (refer 3.1.3)

How to evolve leadership

The key leadership development strategy at the district level is to evolve a malaria health coordination committee at the district level and supporting, facilitating and evolving development of local leadership potential through working together.

The malaria core/coordination committee (Leadership)

The malaria programme activities at the district level needs the involvement of at least the following:

- The District Administrator
- District Health Officer
  - Health Officer designated for malaria, if available.
  - Education Officer
  - Agricultural Officer
  - Public Works engineer
  - Representative leaders of local / village self government
  - Selected NGOs
  - Representative of health care providers associations if any
  - Public / private industry if any
  - Officers in charge of:
    - water and sewerage
    - irrigation
    - rural and urban development
    - social welfare

(The composition of this coordination committee will vary in each country and state and will depend on the resource persons available at district level)

Evolving the role of the coordination team

Step One

- A coordination committee chaired by the district administrator and health/malaria officer as secretary will be the first step to ***develop leadership at the district level***. In keeping with the new philosophy of RBM, representatives of leaders of the community, NGOs, private practitioners and industry should also be included in the committee so that the ownership and the stakes of a much wider group are facilitated.

Step Two

- The committee should evolve mechanisms for:
- Promoting participation - meetings, working groups, subcommittees focussed on special ideas.
- Sharing information - communications, newsletters
- Formulating strategic action plans for each department, sector, partner represented on the committee
- Implementation and its monitoring
- Fostering new partnerships - (new partners will keep joining as the programme evolves and spreads)
- Interdepartmental, intersectoral and inter-partner coordination.
- Reviewing partnership through regular monitoring and review

Step Three

- Prepare IEC materials applicable for the district to motivate participation by all these sectors. Each member of the committee must be encouraged to plan IEC events in his/her own sector and increase awareness and involvement of the sector (Also refer 3.6).

Step Four

- Communicate integrated malaria control plans for the district to various sectors and partners involved in the programme through regular meetings and update.

Step Five

- All members of the committee should facilitate the participation of the community as the central theme of the programme. (refer section 2) Community mobilization will therefore be a shared responsibility.

Step Six

- Constantly review the malaria situation and programme with all partners, especially the community.

Developing capacity of leadership

- The success of RBM will rest on the capacity of district level officers placed in charge of the programme to carry out the above steps. For this purpose, they will need training /orientation to develop the following skills:
  - Managerial and leadership
  - Strategic planning
  - Monitoring and evaluation
  - Communication
  - Networking and partnership
  - Advocacy
  - Community mobilization
  - Resource mobilization
  - Rapid appraisal procedures
- Suitable resource persons and training centers from governmental and non-governmental sectors should be identified for this capacity building process through regular workshops and skill development sessions.

3.3 Partnership with Non-Governmental Organizations (Voluntary Sector)

- ***The role of NGOs*** especially the voluntary agencies (not for profit NGOs) is ***being increasingly recognized in planning and policy circles*** as an effective complementary/ supplementary strategy in health care programmes and malaria programme is no exception.
- In the past, they have played this role without much governmental support. In recent years a ***greater degree of collaborative effort is emerging as a policy alternative.***

Why develop partnership with NGOs?

The Voluntary agencies (Volags) have their Strengths

(a) They are closer to the people and usually more aware of grass root realities.

(b) They have experience to work with more marginalised groups, the underprivileged and difficult to reach areas.

(c) They are committed to certain values and principles.

(d) They often have a stronger development orientation and awareness building commitment and skill.

(e) This flexibility is a strength.

The Voluntary agencies (Volags) have their Weaknesses as well

(a) They are individualistic and not often linked by any integrated network.

(b) They are inadequately aware of governmental programmes.

(c) They have their own programmes and agenda.

(d) They are very diverse in their, ideology, type, size, distribution, linkages and competence.

(e) They lack adequate professional expertise, being stronger in motivation rather than in skills.

(f) They often follow fund driven or donor driven agendas.

It is a very important development that collaboration of government and non-governmental are being increasingly promoted in recent years. Malaria control should take this new opportunity, as an asset for obtaining more NGO collaboration to reach the unreached population through various areas of collaborations. The evolving process of partnership should build on NGO strengths, and capabilities.

What are the Avenues and Areas of Partnership?

(a) Building Community awareness

Any community awareness programme should be relevant to the local context and hence working with the NGOs as partners could greatly enhance the efficacy in the community awareness programmes. Developing IEC material relevant to the local context and carrying health messages through indigenous and local methods will have greater acceptability and adoption and could be a major role for NGOs.

(b) Involvement of community in planning

Most NGOs promote participatory methods that favours bottom up planning and ownership of the programme by the community. In the area of malaria control, this will be a good strategy and the government could use the expertise available within the NGOs.

(c) Community mobilization for community action

As mentioned earlier this is one of the great strengths of the NGOs. A recent example of this has been the pulse polio programme. Similar strategy could be specifically adopted for vector control and promotion of personal protection measures of malaria control.

(d) Early Diagnosis and prompt treatment

As the NGOs are the first level contact in the community, access to diagnosis and treatment could be made available nearer to the community. NGO could be involved in case finding, fever treatment centres and stock malaria medicine.

(e) Epidemic preparedness

A few NGOs could be built as resource centres for epidemic preparedness. They could be trained in surveillance and monitoring the malaria problem and initiating a response when the problem begins to increase.

(f) Building malaria profile in area

NGOs could help in building a profile (socio-epidemiological) of malaria in the area using interactive participatory approaches and appraisal methods. These would help to understand community behavioral pattern and health seeking behavior which could be useful for effective strategy formulation.

How to build up partnership with NGOs?

The Partnership with NGOs could be gradually built up by the following steps:

(a) Identification of NGOs in the districts

The District coordination committee (refer 3.1) will develop simple tools to identify NGOs and their existing activities.

(b) Setting up district coordination committee

Include the potential NGO in the coordination committee.

(c) Define lead role that NGOs can take in district RBM.

(d) Sensitization and capacity building of the NGOs

The committee will conduct a workshop for the identified NGOs to sensitize them on the issues of vector borne diseases and do a need assessment to look at gaps in the skills. This committee will also identify resource persons in the district to build the skills of the NGOs, especially in areas of diagnosis, treatment and vector control.

(e) Information dissemination through the NGO's

Involve NGOs in development of appropriate information and programme guidelines for various activities for the NGO partners on the health issues identified. This in turn will be further simplified by the NGOs for community level dissemination.

Information from the community also will be received, sometimes through the NGO at the district level for follow-up. This may be documented systematically or could be taken up for policy advocacy work.

(f) District level action plan

As member of the committee, NGOs are involved in development of action plan. These will include targeted intervention and preparation, development and distribution of IEC material. The district coordination committee will ensure that each district or even sub-district has an action plan worked with the help of NGO partners. This may be presented to the committee and queries clarified and approved. Since malaria is a local disease decentralized local strategies based on local malaria situation will be the most effective strategy.

(g) Participatory planning and monitoring

The NGOs will be encouraged to use participatory tools for programme planning and monitoring. Other than this, they will also develop indicators as MIS for bringing out reports and to measure outputs.

(h) Monitoring and review

The committee along with the partner, NGO and community will conduct this review at regular intervals to give direction to the programme.

(i) Documentation

Enhancing the documentation skills of NGOs involved in the programme are an important adjunct activity and should be promoted. Learning from field experiences both positive and negative are an important adjunct to group learning and NGOs and the government health team should be encouraged to do so, constantly.

(j) Advocacy

NGOs could be strong advocates. Many health programmes have been closely collaborating with NGOs to advocate with political leaders, local leaders and public to obtain attention and support. The committee along with the partners, and NGO networks will take up local issues for advocacy. This may be at the local government level or at the district level. They may be specific malaria campaigns or general health campaigns, which include action on malaria.

3.4 Partnership with Educational Sector

Why education sector?

Children and youth are a very important group to be reached by IEC and other programmes because:

- They are the future citizens who should be made more aware of health as a responsibility and a right
- They are eager to learn scientific concepts and have great energy and enthusiasm that can be harnessed for field programmes and campaigns

- Elder children and youth can be motivated to get involved in civic society campaigns to sensitize them to civic and social responsibility.
- Children can carry messages home and pass on information to parents and other members of the family including persuading them to change their ideas and attitudes
- The role of children and youth in Health programmes and campaigns are increasingly being recognized all over the world and in the region.

What is the target population?

- The partnership with the educational sector should be aimed at the following target population.
- Teachers, principals, and administrators
- School children and college going youth (6-21 year)
- School dropouts
- Children with no formal education
- Child labour and working children
- The partnership will therefore focus on all the locals schools – primary, middle and high schools; colleges and vocational training centers and polytechnics; non-formal education programmes for school dropouts and working children.
- What is expected from children and youth:
    - know cause and control of malaria, change attitude and practice preventive measures
    - involve in health education campaigns to create awareness among community
    - participate in mosquito breeding preventive measures (in and around educational institution)
- What is the role of partners?
    - Inclusion of health education in school / college curriculum including malaria control and prevention.
    - Motivate the students
    - Mobilize their participation in preventing mosquito breeding
    - Involve them in community / family awareness programmes.

How to work?

(1) List out all the educational sector institutions in the district, finding out details of the levels the number of children, teachers etc.

(2) Request the Education Department / Directorate should also send a circular to all schools / colleges to join the Malaria control initiatives in the district, and invite them to attend workshops/meetings.

(3) Invite them to some meetings and workshops to sensitize / orient them to all aspects of malaria control programme and how children and youth can be involved in them.

(4) Involve the education department in celebrating a malaria event by carrying out anti-malaria activities on the occasion.

(5) Exposing students and youth to various aspects of malaria by including malaria related activities and experiments as project work in the curriculum.

(6) Involve science clubs and science networks in increasing awareness about anti-malaria activities amongst children and youth.

(7) Involve parents to initiate malaria control and prevention activities in their neighbourhood.

(8) Conduct seminars / guest lectures / demo-exhibitions / field trips / essay competitions / debates appropriate to the level of schooling / education.

(9) Initiating debates / competitions between schools, colleges, and universities on malaria control and on vector control to create widespread awareness.

(10) Including the practice of vector-control activities by students and youth in scout movements, national defence and social service auxiliary corps.

(11) Explore the possibility of inputs by teachers and students into fairs and festivals.

(12) To support all these activities a small booklet on how children / youth can be involved in malaria control should be prepared supported by posters and charts for wide distribution. (all the items in the primer A-Z should be covered in the booklet see 2.2)

To sustain the above activities

(1) Regular meetings with teachers and staff involved in education should be held.

(2) Capacity building/training sessions for volunteers, teachers and high school students should be organized.

(3) Organize events at regular intervals to maintain the interest and tempo of awareness activities in the educators and the students / youth. E.g. a Malaria Day; a Malaria week or a Malaria month.

(4) Evolve separate Guidelines For Partnership with Agencies Involved In Non-Formal Sector of Education

3.5 Partnership with Private Sector

The Private Sector include the following at the District level:

Health care providers

- General private practitioners of all systems of medicine
- Private dispensaries, health centres, nursing homes, hospitals
- Laboratories and diagnostic centres
- Chemists and pharmacists

Health product manufacturers of

- Drugs and pharmaceuticals
- Insecticide manufacturers
- Bed nets and personal protection equipment.

Non-health private sector

Which includes

- Local industries
- Small-scale industries
- Construction companies and contractors
- Engineering firms and
- Other private companies.

Why private sector? because…

- The public health sector and government programme cannot reach all the people or make all the health gains on its own.
- The private sector already runs a large number of health related services that reach a large number of the population.
- The private sector has management, marketing, organizational and communication skills that can be harnessed to enhance a government programme.
- There are financial resources from the private sector that can be harnessed to support government programmes as their social/community responsibility.
- In some cases like very large corporate sector establishments or private industrial establishments they may provide townships for their own workers and their involvement to ensure that these townships do not allow mosquitogenic conditions to develop due to poor environmental management is necessary.

The partnership with the private/corporate sector should be evolved very carefully since the profit motives of private sector are strong and the government malaria control programme must not become a vehicle to sell specific goods or services or become compromised in any way due to financial support and any unhealthy practices related to their deployment. To avoid conflicts of interest whether real or perceived – the concerned government programme while evolving the partnership must establish procedures that will ensure.

Final normative decisions are free from undue influence.

Industry funding is not used for salaries of staff involved in normative decisions.

Consultations and other normative activities never have their majority financing from the concerned industry.

Source: Partnerships for Health Promotion (6)

What are private sector partnerships?

While the partnerships should gradually explore all sectors of the private sector – each group must be involved in those aspects of the programme in which they have specific expertise interest and skill.

(a) Health care providers

- All health care providers at the health facilities level should provide scientific diagnosis and rational treatment of malaria cases under their care.
- All of them should be made aware of the different types of malaria in the district and how to identify severe or complicated cases that need referral to centres that are equipped to handle these complications.
- All the health care providers at different levels of facilities should be involved in health education and IEC activities that provide all the information to patients and the communities from which the patients come simple knowledge about the do's and don'ts for malaria, prevention, treatment and control.
- All of them should be encouraged to notify the health authorities about malaria cases they diagnose or treat so that suitable public health measures can be taken including enhancing epidemic preparedness and response.

(b) All Health Care product manufacturers

- They must be encouraged to produce low cost products appropriate to local needs. These include:
  - Nets
  - Mosquito repellents
  - IEC materials on Health including malaria
  - Drugs
- They should adopt good manufacturing practices including quality control, fair pricing, and ethical marketing and sales of all malaria prevention and control products.
- Drug manufacturers in the region should be encouraged to provide rational formulations and produce single ingredient drugs in the recommended dosages only.

(c) Non – Health private / industrial sector

They could be involved at district level to provide the following supportive services to the programme.

- Financial resources for the programme
- Promotion and distribution skills
- Supporting IEC activities.
- Taking steps to provide healthy work place and non-mosquitogenic conditions in their institutional environs.

How to build partnership?

The partnership should be built gradually through the following steps.

(1) Identify all potential partners in this sector in the district

- List out all government and non-government sectors and health care providers and institutions; the health care product manufacturers; and all others in the non-health private / business/industrial sector in the district.
- Identify all those who are likely to be partners in the malaria control programme giving priority to those who are already doing some activities, that can be supportive of the programme.

(2) Involve in District coordination committee

- Involve some of the key representatives of associations of the health care providers and the private sector in the local Health/ Malaria coordination committee described earlier (refer 3.1(a)

(3) Sensitize all the potential partners

- Involve all the potential partners by sensitizing them to all aspects of the malaria control programme through

– Informal personal interaction
– Formal meetings
– Communication – handouts and news letters.

- Those who show specific interest and enthusiasm can be further oriented/trained through workshops and skill orientation sessions.

(4) Identify the role and contributions they could each make to the programmes.
- They could adopt malaria control activities in their own work places.
- They could join malaria control activities at the community level.
- They could participate in IEC campaigns, events, exhibitions and programmes.

(5) Provide assistance to all the partners
- If these partners require they should be offered technical information and training support to enhance their partnership in the programme.

(6) Monitor and review the private sector partnership
- Each partnership should be reviewed regularly and the representatives of the health care providers and the private industry sector in the district coordination committee should participate in the monitoring / review of the control programme at the district level.

Private practitioners and malaria – A special challenge

In many South Asian countries the treatment of Malaria has become quite irrational.

- A wide variety of irrational combinations and regimes often at high cost are prescribed for patients suspected to have malaria.
- The illness episode is often exploited by the use of injectable preparations and other adjuncts not in consonance with rational malaria care guidelines.
- The standards of clinical diagnostic facilities are falling and very often practitioners prefer symptomatic treatment rather than after sending for a confirmatory laboratory diagnosis.
- Quality of medicines is variable.
- Quality controls and checks are poor in laboratory facilities and drug procurement systems.
- Some degree of medical misinformation also prevails due to medical representatives from some companies making unscientific claims about

the superiority of their anti-malarial products over others available in the market particularly generic drugs in the government programmes.

Irrational medical practice is therefore a major problem, which should be urgently tackled.

How to work?

(1) Regular continuing Medical Education sessions on Rational Malaria care in consonance with National Malaria Treatment guidelines. These can be organized by :

- The malaria control manager (district level)
- Local professional associations
- Local medical colleges and other health training institutions.

(2) Rational Malaria treatment guidelines should be prepared as pamphlets, booklets, charts, calendars or handouts and widely distributed to all the practitioners and pharmacists in the District.

(3) All practitioners should be encouraged to notify cases of malaria which they diagnose and treat, to the district or sub-district level health authorities so that suitable follow up measures can be taken by the malaria manager and his team.

3.6 Partnerships with other sectors (Intersectoral Coordination)

Why partnership with other sector?

Intersectoral coordination is another important challenge in the RBM initiative. Today there is greater knowledge about the development and environmental strategies that can lead to mosquito friendly environments and in the new projects environmental impact or health impact assessments must be incorporated before starting development programmes and strategies. Various other departments be it agriculture, industry, forestry, mining, power and irrigation, rural and urban development etc. can become partners in malaria control.

Many departments like Railways, Transport and Communication, Defense, Industry and others look after large sections of the population their own staff and their families. They can help in the malaria control programme

by making their work places and their environments free from mosquitoes and thus protecting their own work force.

Intersectoral coordination therefore aims at involving all other sectors outside the health sector who contribute to the problem and who can also participate in the solution and the programme. This intersectoral partnership is therefore urgent and crucial.

What should be done?

It is important for the programme managers to identify all the sectors in the district who can contribute both to the problem and to the problem solution. The partnership with each of these sectors will seek to:

- Orient them to important aspects of the malaria situation and control strategy.
- Identify ways and means by which their activities may be contributing to the problem.
- Identify ways and means by which they can contribute to the solutions.
- Evolve malaria control strategies at their work places or for the populations / workforce they cover.
- Identify skills, capacities and other resources they may have which can be tapped to support the district level malaria programme.

How it should be done?

(a) Identify all the sectors in the district that need to be involved in an intersectoral partnership. Identify their functions and their functionaries at district level.

(b) Dialogue with each of these departments / sectors through personal interactions and visits. In these discussions and visits identify all the activities they can do to support malaria control in the district. Also identify the information they need and the capacities / skills that may need to be developed.

(c) Invite them to join the coordination committee and be part of the planning and strategy development process for the district.

(d) Through regular meetings the partnerships can be evolved and operationalized.

(e) Training and or orientation or specific skill training sessions can be provided for staff of these sectors if they are required.

(f) Through regular meetings monitor and evaluate these programmes and constantly renew, adapt and make the partnership more effective.

[Different types of sectors will participate in malaria control in different ways. District level partnerships should be evolved with each of them gradually.]

Two examples are given in this section - agricultural and urban development departments. These are only illustrative not exhaustive.

A) Agriculture

The agriculture department can be involved in:

- IEC activities for agricultural community
- Source reduction to decrease mosquitogenic conditions
- Promotion of larvivorous fish hatcheries
- Introduction of larvivorous fishes in water bodies in selective high-risk areas.

B) Urban Development

- Urban development department can help in:
- Awareness of bylaws / legislation
- Source reduction drive
- IEC activities particularly for slum dweller and migrant labour
- Promoting ***guidelines for construction and maintenance of***
  - Roads
  - Safe drinking water supplies
  - Sewerage systems
- Orientation of engineers from different sectors for their involvement for the malaria control activities.

Similar partnerships can be evolved at local / district with all the other ministries and departments as well -including Forestry, Industry, Mining, Social Welfare, Railways, Defence, Irrigation, Power, etc. Specific guidelines for these have not been outlined. These will vary from country to country.

3.7 Communication for Behavioural Change

Health communications

The most important challenge in Malaria control is:

- To inform the community and new partners
- To change knowledge, attitude and practices and
- To build skill, confidence, capacity and trust.

This process is called by different names in different programmes; Health education programme; Information campaign; Awareness building initiatives; and now more commonly IEC activities (Information, Education and Communication)

What is communication?

In a simple language, communication is explained as a process of transferring message from the sender to the receiver through a certain channel. Basically, the sender has to express idea or thought in the form of symbol(s) such as language or picture or sound or anything that could be transferred through communication channel. The process of putting thought into symbol is called "encoding". The set of symbol(s) that is transmitted by the sender is called "message". The receiver will receive the symbol(s) or message(s) and will assign meaning to the symbol(s) sent by the sender. The process of assigning meaning to the symbol is called "decoding". The receiver will make response(s) to the message(s), a set of reactions that the receiver has, after being exposed to the message(s). The receiver may give a "feedback", a part of the receiver's response(s) that the receiver communicates back to the sender. Many times, there are found unplanned distortion during communication

process, resulting in the receiver receiving a different message that the sender sent. This is called "noise". Therefore, a communication to be successful should be really planned.

Why communication is needed for behavioural change?

The goal of communication in roll back malaria programme is behavioural change. The communication is not only for giving the new knowledge but to change the non-conducive attitudes and habits or practices of people in the community as well as the people involved in the programme, health providers and other stakeholders. The communication in RBM should make the people respond in positive behaviour changes, in line with expected roles, tasks, activities, behaviours, habits in the prevention and control malaria in their community or settings.

Behavioural change is not a simple process. Obtaining new positive knowledge does not guarantee individual to obtain new positive attitudes. Many other factors influence individual to change attitudes, such as value system in the society. Having positive attitudes does not also guarantee individual to practice positive behaviour. Other factors, such as non-availability of facility, may hamper to practice new behaviour.

If community has to be encouraged and involved in home and community level actions to prevent and control malaria, and participate actively in community initiatives, then communication activities must form the core of all malaria efforts.

What are communication channels?

There are two major channels of communication viz., mass media and interpersonal communication. Mass media communication will consist of different types of information materials used to reach messages to a community such as:

- Posters and charts
- Hand bills or handouts
- Flash cards and flipcharts
- Booklets and pamphlets

- Video cassettes
- Audio cassettes
- Radio and television programmes
- Educational films
- Newspapers, magazines and local media.

Interpersonal communication will consist of face to face communication with individuals and groups.

Interactive communication in groups will also need to be evolved and utilized in the process. These could be:

- Role plays
- Street theatres
- Folk songs / folk media
- Exhibitions
- Puppet shows
- Village events like fairs / festivals events
- Whether mass media information materials are used or interactive communication methods are utilized some general principles for health communications must always be kept in mind. These include:
- Communication should be a two-way process between communicator and target group
- Choices of language should be simple, in local vernacular (mother tongue); jargon free; and with colloquial expressions and usage's
- Significantly local events and lives of well-known people should be used in the communications. Local cultural / folk stories should be adapted and used.
- Communicators should be encouraged to listen to what the community says, feels or does before planning messages.
- Communication must be focussed on all the four phases of awareness knowledge, attitude and practices.

- It should be learner or audience oriented not teacher or communicator oriented
- Role-plays and real life situations should be utilized more and more to help people understand how they can change in the ways they do things.
- While communications is a significant skill, it can be taught to health workers and community volunteers by those who have done it themselves.
- Communications must focus not only on content but also on the process of interactive and participatory methodology.
- Innovative methods of communication need to be evolved and experimented with all the time. Some recent examples are :
  - Colouring books or sheets on mosquitoes and mosquito control for little children.
  - Educational toys and models around the theme of malaria control.
  - Activity modules for science experiments and science through interactive activity.
  - Adaptation of folk media and folk arts to spread malaria control messages.

Communications for malaria control should explore all the above methods and approaches and build on the principles outlined. Contents must be based on the need of the target audiences/populations and relate to the strategic steps being taken/implemented.

- Health promotion including personal protection
- Prevention including preventing breeding sites for mosquitoes
- Early diagnosis and management at home and community level and at health centre.
- Early referrals of severe and complicated cases
- What can people, volunteers, local health workers do for all the above.

- What can be done as
  - A community programme;
  - School health initiatives;
  - Community campaigns;
  - At family level in individual homes?
  - How can these be done?
- The emphasis must always be that health action is a responsibility for every person and that the availability of health care services is also everyone's right.
  - How can every member of the community develop this responsibility?
  - How can every member be empowered to assert this right?

How to evolve an effective IEC programme?

The main steps to evolve an effective communication (IEC) programme for behaviour change in a community are as follows:

(a) Learn about the existing knowledge, beliefs and behaviour of groups in the community.

(b) Find out more about all the sources of information on health for the community groups in your district, which are the sources they believe in most? Or who influences them most.

(c) Review all the communication channels, media and methods and decide on which are the most useful or capable of reaching all the community groups.

(d) Identify whom in the community you wish to reach and with what specific or general messages.

(e) Define clearly what ideas you are trying to promote or what actions you want people to take in the community.

(f) Design your messages building on knowledge and beliefs that are supportive to malaria control.

Some methods / media may be better for some community groups

Interactive channels

Doctors, nurses, community health workers and volunteers, women and youth organizations, religious and community leaders, school teachers and school children, development workers, union leaders, NGO's government staff and civic society organizations.

Mass media

Local newspapers, magazines, radio, television

Small media

Posters, charts, booklets, pamphlets, flashcards, flip charts, videos, audio cassettes, small displays and exhibitions

Traditional folk media

Puppet shows, dramas, street theatre, songs, folk story telling sessions, and folk dances.

(g) Decide on content of the messages to be used in the programme. These must definitely include:

- Information that the community needs but does not have
- Actions that the community group may need to take
- Suggested ways to overcome obstacles to taking action

(h) Create messages for different information channels selected in (3) some may be short messages and slogans. Others may have many messages. This will depend on each channel.

(i) Pretest the messages that you select, on small groups to check whether:

- They understand the message
- Is it culturally acceptable and appropriate
- Is it relevant to the community group

These can be found out by focus group discussions and interviews and the messages can be suitably modified by community feedback.

(j) Produce and distribute the materials

- Production should as far as possible be local decentralized and low cost.
- Sometimes special skills and equipment may be required. These may be identified in the district or elsewhere.
- Requirements should be estimated realistically.
- Distribution channels and means should be clearly identified.

(k) Coordinate your communication programme and services with different partners to reach as many members of the community as possible.

(l) Evaluate the effect of your messages (Also look at the strengths and weaknesses of all the methods and the activities).

(m) Repeat and adjust the messages and methods at frequent intervals by active learning from the field and through experimentation.

(n) Develop a new schedule, and plan for conducting your communication programmes based on your evaluation (k) and (l).

[This section has been adapted from Partnerships for change and communication: Guidance's for Malaria Control: WHO/Malaria consortium UK]

4. STRENGTHENING MANAGEMENT OF THE DISTRICT HEALTH SYSTEM

The National Malaria Control Programme has always had a national strategy; nationally evolved guidelines; has often been funded nationally as a vertical communicable disease control programme because of the epidemiological and public health significance of malaria; and has been monitored and evaluated nationally. At the state level, the governments have actively participated in the programme strategy contributing state level resources and human power to complement the national strategy. However it is at the district level where the main operational and epidemiological challenges lie and hence in a spirit of decentralization there is need to focus at this level to ensure that the District health system is geared to meet the techno-managerial and the socio-epidemiological challenges of malaria control.

Malaria is now understood to be a more local disease; a focal problem that needs a local / focal strategy. Epidemiological patterns and disease trends vary with ecological paradigms and hence a District level strategy will be more effective and relevant than a standard state or National level strategy. For this capacity, for District level situation analysis and district level strategic planning at district level need to be; strengthened. District level skill and capabilities of the Malaria control team and the primary health care team need to be greatly enhanced.

Strengthening technical and Operational Management systems at the District level will therefore be a major strategic challenge in our efforts to Roll Back Malaria.

4.1 Management and Referral of Malaria

It is unfortunate that in spite of having simple diagnostic tools, low cost and effective drugs, it has not been possible to control the malaria problem. Early diagnosis and treatment continues to be the key strategy of controlling malaria. Making drugs readily available is the important mechanism. Providing full course of treatment backed by effective referral mechanism to take care of severe and complicated cases are the other most important strategies in the management of malaria.

Diagnosis and management

(1) **Ensure** a blood smear is always examined for malarial parasites among those with fever and suspected of malaria whenever possible. Diagnose malaria by way of symptoms alone and to presume malaria in an endemic area unless proved otherwise.

(2) **Promote** the provision of full course of anti-malarials to an individual suspected of malaria according to national guidelines in an endemic area when blood smear results cannot be obtained within 2 hours.

(3) **Presume** every case of fever with chills and rigors occurring cyclically in highly endemic areas or a person coming from malarious area in the past few weeks as malaria unless proved otherwise.

(4) **Establish** Fever Treatment Depots (FTDs) at short distances so that a

lone mother with a sick child can access it. Ensure the availability of approved anti-malarial drugs down to the level of Fever Treatment Depots (FTDs) if established so that they may be accessed whenever a presumptive diagnosis of malaria is made.

(5) **Train doctors** and other heath workers to:

- Confirm the diagnosis of malaria
- Treat uncomplicated malaria with nationally approved drugs
- Treat severe and complicated malaria cases with IV Quinine or other drugs known to be effective in all severe malaria cases that are approved nationally.

(6) **Teach all** health workers and volunteers the following

- Bring down fever either by sponging with tepid water or with paracetamol (500mg to 1 gm. for adults and 10 mg/kg for children)
- Breast-feeding should be continued for children. Sugar solution / Rice water / or glucose water may be given.
- Create algorithmic charts to differentiate other illnesses from malaria and for treatment by all primary level health workers and volunteers. They must be trained for using the same.
- Urgently refer all patients of severe malaria recognized by Fever accompanied by:
  - altered mental state
  - convulsions /fits
  - unconsciousness
  - blood in urine
  - jaundice
  - severe pallor

(7) **Ensure** that all health staff are aware and practice the following relating to pregnant women:

(a) Approved doses of Chloroquine or Quinine may be given in any trimester of pregnancy for treatment.

(b) Sulphadoxine - Pyrimethamine may be given after first trimester and up to one month prior to delivery.

(c) Primaquine should not be given during pregnancy and to infants.

(8) **Ensure** timely estimation of requirements, dispatching of indents and procurement of diagnostics, insecticides and drugs so that the most peripheral units are always stocked with anti-malarials, especially during the peak malaria season. Train health workers and volunteers in malaria diagnosis and treatment.

(9) **Co-ordinate with** different government programmes – Reproductive and Child Health (RCH), Integrated Management of Childhood Illness (IMCI) and with other partners,(Private Practitioners, Non-Governmental Organizations NGOs, Volunteers) to ensure rational malaria care for more people in your district.

Referral mechanism

(1) **Provide** a referral system in the district for severe malaria cases, teaching health workers to use the following criteria to identify persons for referral.

- Severe and complicated cases of malaria.
- Malaria in children with very high temperature
- Malaria in pregnant mothers with *P.falciparum* infection and/or severe anemia.
- Cases of malaria not responding to known available anti-malarial drugs.
- Malaria cases with continuous vomiting and inability to retain oral drugs.

(2) **Provide** standing instructions for administering symptomatic treatment and loading dose of nationally approved anti-malarials before referral.

(3) **Train** workers in sending a referral form with fever history and treatment given, unfailingly**.**

(4) **Provide** feedback from referral centre to referring centre after the disposal of case**.**

(5) **Ensure that there** are sufficient referral centres in the district having the following:

(a) Blood smear examination facility.

(b) Blood Haemoglobin estimation.

(c) Urine routine examination

(d) Intra-venous Quinine / Oral Quinine

(e) Intra-venous fluids

(f) Oxygen

(g) Antipyretics, anti-convulsants, diuretics, antibiotics.

Provide additional and extended support to disadvantaged population in drugs and materials for the poor and marginalised living in:

- *Remote areas*
- *Isolated areas*
- *Hard to reach areas*
- *Inaccessible areas*

4.2 Drug Supply and Logistics

This is a crucial area for strengthening. Regular drug supplies; a good medical audit and constant drug supplies; and constant monitoring of drug resistance is crucial for the success of the malaria control strategy. Quality of drug is very important.

Drugs – estimates and supplies

(1) **Define** common disease for Health Care Package for each district or area using the following criteria :

(2) **Select** the diseases using the following methods:

- Study of existing records at district level and below
- Special survey reports if available
- Study of infrastructure including manpower, institution
- Study the delivery system
- Pattern of local administration and community system *(select five to six common diseases)*

(3) **Estimate** the drug requirements based on 1 & 2 and the quantities required to be supplied at each level of the health care system.

(4) **Ensure** uninterrupted, adequate and timely supply of essential anti malarial drugs, other equipment and supplies

- Strengthen procurement procedures for drug supply
- Remove bottlenecks in the procurement, storage and supply of drugs
- Ascertain drug needs for routine and complicated malaria cases
- Train district level officers and staff in the management of drug supply
- Send random samples of drugs for quality check up to approved laboratories
- Regularly inspect peripheries for availability of:

(a) Primary level (sub-centre/Forward Treatment Depot/Drug Distribution Centre)

(i) Tablet and syrup Chloroquine
(ii) Tablet and syrup Paracetamol
(iii) Tablet Anti-emetic Prochlorperazine/Metoclopramide only for sub-centres
(iv) Tablet Antacid
(v) Tablet Primaquine

(b) Secondary Level (Primary Health Centre/ sub-district)

(i) All above
(ii) Tablet, syrup and Injection Chloroquine
(iii) Tablet, syrup and Injection Paracetamol
(iv) Tablet, syrup and injection Quinine (or as per national list)
(v) Injection 25%/50% w/v Glucose.
(vi) Tablet and Injection anti-emetic.
(vii) Intravenous Fluids
(viii) A combination of Sulphadoxine and Pyrimethamine

(c) Tertiary Level (Hospital / district)

(i) All above
(ii) Artemisinin and its derivatives
(iii) Dipstick test kits for *P.falciparum* diagnosis.
(iv) Additional supplies to treat complications e.g. anticonvulsants, IV fluids, blood transfusion, oxygen, etc.

Medical audit

Ensure that a system of medical audit is developed for the district through the District Health Authority/Committee:

- Analyze systematically quality of medical care including diagnoses, treatment, resource and outcomes initially in the district hospital and then more peripherally.
- Involve committee consisting of District Health Authority public health experts and clinicians.
- Audit specifically the prescriptions (or a sample of it) to check whether malaria treatment is rational.

Monitoring drug resistance

With malaria not being adequately controlled and with inadequate or irregular treatment with Chloroquine and/or other drugs, resistance to available drugs is becoming an increasing problem. Therefore monitoring drug resistance becomes important in the control of malaria.

(1) **Establish** links with a sentinel centre in any appropriate institution located in endemic areas for carrying out the activities of drug resistance monitoring.

- Carry out drug resistance studies in their own areas regularly.
- Collect material from different areas with the help of mobile teams.
- Generate sufficient data to enable the district to scientifically review and formulate its drug policy.

(2) **Identify** all sources of information relating to resistance:

- Medical Practitioners treating large number of malaria patients
- Primary Health Centres
- Sub District Hospitals
- District Hospitals
- Teaching and Research Medical Institutions

(3) **Investigate** reported information on failure of treatment by using the following parameters:

- Adequacy of treatment, whether
- Complete
- Incomplete
- Irregular
- Whether drugs are substandard
- Host factors - such as other concomitant diseases like diarrhea which limit absorption
- Ensure testing of drug resistance through sentinel centers in coordination with State Health Authorities
- In vivo tests
- Therapeutic efficacy

(4) **Motivate** malaria personnel to look out and identify earliest occurrence of resistance of P. vivax by following therapeutic efficacy.

(5) **Provide guidelines *regularly*** to all concerned of how to handle drug resistance.

4.3 Health Management Information System (HMIS)

The National Health Management Information Systems are operating in most countries. The District HMIS should collect data from all the PHCs and after analysis should forward it to state/region/province/division levels to the national level.

Improving existing HMIS

(1) **Review** the existing HMIS so as to understand the present known weakness of:

- Delayed Information
- Inaccurate Information
- Insufficient Information
- Scattered Information.

Reflect with your team how to tackle the reasons for the same and how to overcome them.

(2) **Identify** the essential information needed with indicators appropriate to the national and local settings as to:

- Investigate and contain outbreaks of disease
- Provide corrective actions in areas with poor programme performance.

Suggested list of indicators

The information to be analyzed and accessed at each level is indicated below as a list of indicators.

Administrative Level	Indicators to be monitored
Community Level Worker	No. of fever cases treated No. of slides prepared and sent for microscopy
Primary Health Centre (PHC) (These indicators will be analyzed village-wise)	No. of fever cases treated No. of slides prepared and sent or examined No. of slides positive for Plasmodium vivax No. of slides positive for Plasmodium falciparum. No. of villages sprayed No. of malaria cases treated No. of treatment failures No. of Health Education programmes
District/Township (These indicators will be analyzed PHC-wise)	Annual Parasite Incidence (API) Annual Blood Examination Rate (ABER) Slide Positivity Rate (SPR) No. of Deaths due to malaria

(a) **Review** and modify forms used for malaria surveillance according to the purpose of each set of data and level of usage so as to:

- Field test the forms before its wider use.
- Include all data for essential information
- Eliminate data not used
- Make it easy to use
- Provide enough space for recording the values
- Avoid ambiguous text
- Ensuring it contains all crucial instructions.

(b) **Facilitate** the analysis of data at each level it is collected either using computers or manually. Quality of data improves when those who collect it also use it for planning at their own level.

(c) **Highlight** deviation from the normal occurrence while reporting to the next higher level. Disseminate analyzed report to both higher and lower levels.

(d) **Validate** the data received from various units periodically followed by quality control of data.

(e) **Co-ordinate with other** health sectors for enhancing the coverage of information e.g.

- Private Practitioners
- Voluntary Agencies
- Private Dispensaries/Nursing Homes
- Government Health Institutions
- Railway Hospitals
- Armed Forces Hospitals

(f) **Disseminate** analyzed data that can be made available in the public domain like the Internet.

Introduce computerized HMIS if feasible

(a) **Use computers at the district level.**

- Improve existing systems
- Enhance district network.

(b) **Implement** integrated computer based Health Management Information System at different levels based on factors such as availability, cost, local expertise etc. Sufficient user documentation and technical documentation is essential. Choose hardware to a large extent, determined by the software that is to be used, available finance, local support etc.

(c) **Identify** the availability of manpower and training facility and other support locally before finalizing the choice of software and hardware.

(d) Establish clearly the data flow from the most peripheral level to the most central level taking into account the following factors:

- Which forms are to be used at which level.
- Which data items are to be forwarded to the next level, how often and in what format.
- Standardized format, compatible with the software.

(e) **Introduce** modern communication facilities such as Fax, E-mail, other Internet services [World Wide Web (www), File Transfer Protocol (FTP) etc.], to whatever extent possible.

4.4 Epidemiological and Entomological Surveillance

Surveillance is an essential activity that must aim to provide early evidence for outbreaks, besides indicating the efficiency of anti-malarial activity and effecting necessary changes in them. With the change of malaria scenario, it is necessary for systems of surveillance to keep pace with the changes in agent, vector, environment and the human host.

Epidemiological Surveillance

(a) **Include** the following while planning malaria surveillance

- Routine epidemiological surveillance
- Entomological surveillance
- Surveillance for forecasting and early detection of epidemics
- System surveillance
- Geographical Information System and mapping

(b) **Institute surveillance** with **reference** to the following:

- Urban areas
- Peri-urban areas
- Industrial areas
- Rural areas

(c) **Strengthen** the routine **epidemiological** surveillance at the district level. Ensure necessary **personnel** and equipment are placed at the district level to effect a good surveillance system in tune with Roll Back Malaria.

(d) **Tilt** surveillance towards **focusing** on the following priority groups

- Migratory populations
- Seasonal workers groups
- Labor aggregations at construction sites

(e) **Include** active, passive and **mass** surveillance in rural areas and modify surveillance methods suitably to prevent higher morbidity, mortality among infants, children and pregnant women.

(f) **Share** the status of malaria and the anti-malaria operations after analyzing the continued surveillance data at regular intervals with all concerned.

Entomological surveillance

(a) **Utilize entomological** surveillance data to predict **outbreaks** and epidemics

- To guide the district in selecting vector control measures
- To draft IEC messages
- To propagate personal protection measures

(b) **Identify** the **person responsible** for entomological surveillance and forecasting at each level :

- ***Urban / peri urban/*** industrial
  - Entomologists/biologist
  - Local body health officer
- Rural
  - Entomologist or other responsible authority
  - Epidemiologist
  - MO/ PHC
  - District Health Authority

(c) **Include** the following in the regular monitoring and surveillance

- Vector population dynamics at rural/urban and rural / peri urban and industrial interfaces

- Vector bionomics
- Vector density
- Susceptibility of larvae and adult vectors to insecticides/biocides
- Mosquitogenic conditions created by industries, irrigation and other development projects

(d) **Pick up changes** as highlighted below and initiate prompt corrective action.

- Rapid increase in
  - No. of fever cases
  - Clinical malaria cases
  - Slide positivity rate
- Change in *Plasmodium vivax* : *Plasmodium falciparum* ratio in favor of the latter
- Spurt in vector density
- Change in vector behavior
- Change in vector population dynamics
- Change in susceptibility of larvae and adult vectors to insecticides/biocides
- Inter mixing of vector population at rural/urban and rural peri-urban interfaces
- National calamities/mass influx
- Disarrayed intervention programme schedule

Operational surveillance

(a) **Institute** a system to ***monitor*** the **surveillance** of activities as well as

- Procurement and distribution of anti-malaria supplies
- Authorization and placement of personnel for spraying and lab activities
- Coverage
- Work quality

- Adherence to time schedules
  - Larviciding
  - Spraying
  - Surveillance
  - EDPT (Early Detection and Prompt Treatment)
- Effective response to epidemic situations.

(b) **Use** the data to institute problem **solving** process through regular team meetings and review.

Mapping of malaria and geographic reconnaissance (GR)

(Wherever feasible in region)

(a) **Initiate** a geographical information/reconnaissance system (GIS) based on programme objectives of the malaria control programme to:

- Map basic receptivity
- Serve as a guide for establishing control priorities
- Identity cost effective control methods
- Prepare monitoring and intervention schedule

(b) **Prepare inventory** of existing material such as:

- Maps
- Survey reports
- Tabular information on entomological components
- Disease scenario
- Reports on control measures taken in the past.

(c) **Plot** disease **surveillance** case data at the appropriate geographical locations of the district.

(d) **Collect** information **regarding** topological and ecological parameters both at macro and micro levels in rural areas.

Macro	Micro
	Soil type parasite load
Vector species and breeding sites.	Surface water bodies
Contour map/altitude	Local temperature, relative humidity and rainfall
Drainage	Social, cultural &economic practices
Major projects forest cover irrigation pattern crop pattern.	

(e) **Prepare** a base district map with PHC or other such divisional boundaries clearly marking:

- Roads
- Canals
- Villages
- Religious places
- Swamps
- Forest area

(f) **Classify geographical** areas into well-defined ecological -geographic areas.

- Forested areas
- Foothill areas
- Swamp areas
- Riverine plains

(g) **Include the** following spatial (**location**) data on the district map to correlate the variations of malaria prevalence with geographical causes.

- Boundaries
- Buildings
- Trails
- Streets & Highways
- Lakes
- Rivers

- Streams
- Water reservoirs
- Land use / land cover
- Mountain peaks

(h) **Identify** basic receptivity of each geographical area through data collected at macro level.

(i) **Define** the dynamics of transmission and build up locally adapted vector control strategies based on identifying malaria foci using interactive analysis of micro level data.

(j) **Carry out** a complete GR in urban areas to map all breeding foci for planning an integrated anti-larval programme for control of malaria. Also emphasize on peri-urban GR to determine the foci of breeding places for effective vector control.

(k) **Include the following** in the GR of border areas :

- Health infrastructure
- Drug resistance
- Uncontrolled populations migration

(l) **Map** periodically relevant attributes/tabular data to help in providing a visual analysis of trends and impact of action taken.

- Choose appropriate scale of map.

(m) **Use computerized** geographical information system (GIS) at the district level and coordinate with other departments.

4.5 Epidemic Preparedness and Response

A Malaria epidemic is the occurrence of malaria in a community or geographical area in excess of the normal (for the part of the year) that is of public health significance.

(a) **Identify** malaria epidemics in the district when they occur by looking for:

- Increased fever cases reported by Primary Health Centre/ dispensaries.
- Increased clinically suspected cases of malaria
- Increased deaths reported due to fever.

(b) **Forecast** and prepare for **impending** malaria epidemics based on the routine epidemiological surveillance data using the following indicators:

- Increase in clinical malaria cases/ slide positivity rate.
- Change in Pv:Pf ratios in favour of the latter.
- Rapid increase in mosquito/Anopheles density. A simpler way may also be to monitor the increase in number of vector breeding places.
- Influx of migrants from non-endemic areas to endemic area or vice versa for wages, conflict, calamity; movement of labour to forests, for seasonal agriculture or for large construction projects.
- Early and heavy rains in pre-transmission period; intermittent heavy rains; natural disasters like floods, cyclone and earthquake and large-scale deforestation, etc. and large construction activities like dams and irrigation channels having malariogenic potential.

(c) **Prepare** for a malaria **epidemic** in an endemic area:

- Establish a standing Epidemic Response Team (ERT)
- Train this ERT team annually before the Malaria transmission season.
- Maintain buffer stocks of anti-malarials and insecticides for epidemics.

(d) **Respond** fast to an epidemic by taking the following steps:

- Investigate the epidemic
- Confirm the epidemic by rapid assessment using the following parameters. Assess the extent of involvement
  - Rapid fever survey
  - Mass Survey
- Delineate the affected population and geographic area
- Mobilize the ERT in the shortest possible time
- Establish mobile field laboratories to make on-the-spot blood smear
- Provide appropriate treatment to all cases
- Convene a meeting of district officers. Discuss and develop a plan of action.
- Commence anti vector, anti parasitic and anti larval measures

- Complete the entire process within 10-15 days so as to prevent secondary cases.

(e) **Carry** out following activities at the end of 3 and 6 week of initial response

- Sample village randomly
- Carry out Rapid Fever Survey/Mass survey
- Resume prescribed malaria activities at the earliest
- Prevent a relapse by posting a full complement of staff
- Disseminate malaria specific information using posters, Audio-Visual Aids and public address system
- Avoid speculative reporting by proactively informing the media about the epidemic.

(f) **Train** Epidemic Response Team(ERT) personnel in the district at regular intervals in addition to the following category of personnel:

- District Health Authority
- MOs Incharge of PHCs
- Other Medical Officers
- Paramedical staff
- Additional personnel who might be called in an emergency

(g) **Provide** initial and refresher training at regular intervals for Epidemic Response Team

- Ensure district specific training manuals and schedules are developed and ready
- Lay out clear, step-wise procedures
- Rehearse procedures frequently.

(h) **Increase access** to early diagnosis, prevention and treatment for epidemic affected areas

- Sensitize community to seek early treatment
- Reinforce malaria control activities by all health staff
- Establish partnership with Non-Governmental organizations and private sector

- Explore the use of rapid diagnostic test where available
- Update antimalaria drug policy periodically
- Identify disadvantaged population.

(i) **Provide** additional and extended support to disadvantaged population in drugs and materials for the poor and marginalised living in:

- Remote areas
- Hard to reach areas
- Isolated areas
- Inaccessible areas

So that they are better prepared to handle sudden epidemics.

4.6 Research and Development

(a) **Facilitate** research on malaria at the district level in the following areas :

- Knowledge – attitude – practices – behaviour of people in rural, tribal and urban areas.
  - Focus on Health practices and Health seeking behaviour for Malaria type fevers and symptomatology.

(b) **Study** Potential role / involvement and / or mobilization of the community, community organizations, Panchayats (Village level elected bodies), general practitioners, alternative systems of medicine and folk health practitioners, voluntary agencies, and projects and networks of development environment and women's groups.

(c) **Review** critically the role, training, and process of monitoring and continuing education of village based health workers, community level resources persons, village guides etc.

(d) **Study** the evolution and operationalization of community based approaches and alternatives to malaria control exploring viable, feasible, sustainable options and strategies of malaria control in response to the diversities and disparities that one finds at the community level.

(e) **Evaluate** scientifically traditional systems of medicine and Folk medicine practices to prevent/cure malaria as available in the respective area.

- Use quantitative and qualitative research methodologies

- Evolve multidisciplinary research advisory groups and study teams including resource persons from public health, entomology, clinical pharmacology, social sciences, anthropology, traditional systems of medicine, etc.
- Use more interactive, participatory and decentralized approaches that validate local practices and uses.

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Annex 1

Insecticide Treated Mosquito Nets

- Insecticide treated mosquito nets (ITN) provide a physical as well as chemical barrier that prevents mosquitoes from biting. Further treated nets kill mosquitoes that come in contact with ITN and repel them from entering the rooms with ITN. In a village or a settlement high ITN coverage (70-80% or more) produces "mass killing effect" thus substantially enhancing the impact of ITN in malaria control.

Advantages of ITN over the Indoor Residual Spraying (IRS)

- ITNs are suitable in:
  - Slum, huts in agricultural field, Jhum huts and many other structures unsuitable for IRS.
  - Areas with scarcity of water e.g. hilly terrain.
  - Areas with inaccessible and difficult terrain.
  - Urban and industrial areas.
  - Community based interventions
  - Areas with exophilic vectors.
  - Areas with the problem of insecticide resistance.
  - Disturbed areas or population in conflict, refugee camps etc.
  - Providing protection to the high risk population e.g. children <5 years, pregnant women, and migrants.
- Insecticide consumption in ITN strategy is low i.e. 1/4th to 1/6th of IRS.
- Operational cost is low and convenience in organizing is high.
- Toxic hazards to man and animals are negligible.
- Beneficial non-target species remain unaffected.
- Mis-use of insecticides is minimal.
- Target population is well protected.

- Epidemiological impact is very significant and this effect is enhanced with high coverage.
- ITN provide protection to user during transit and tours.
- ITN production promotes local industry.
- One treatment protects the entire transmission season of up to six months.
- Per capita cost of a malaria case averted is low.
- Use of ITN delays the selection of resistant gene(s).

Experience in South-East Asian Countries

- Field trials carried out in different countries of SEA Region have provided good evidence of the efficacy of ITNs in providing protection against active malaria transmission. Malaria endemic countries are now incorporating ITNs in their Plan of Action. Promotional activities for the use of ITNs have been stepped up. Kindly provide examples of the use of ITN in your own country.

IEC for ITN

- Inform community the risk of acquiring malaria and its consequences.
- ITN may cost Rs. 150 (US $ 3) or so and re-treatment Rs. 10 (US cents 20) but one attack of malaria costs in private sector Rs. 250 (US $ 5-6) and complications may cost upto Rs. 20,000 (US $ 500) or so. ITN is the cheapest method of protection from malaria (kindly replace this information by using country information and currency).
- ITN provide collateral benefits of undisturbed sleep and protection from nuisance and biting insects. Include examples like the bed bugs, sandflies, nuisance mosquitoes, houseflies' etc.
- ITN can be easily procured from the nearest shop or PHC (CMO/DMO to kindly specify outlets).
- ITN are available free (people below poverty line) and subsidized ITN (people who can afford to share cost). Kindly give more details as applicable in your country.

- Complete information on ITN is available from the nearest health centre. Kindly provide the names of the places from where to obtain ITN and for more information on ITN.
- Permanently treated nets are now available which may be useful to avoid the hassle of re-treatment. Give information on the source of these nets and cost.

Dos and Don'ts in the use of ITN

- Use the ITN properly tucked under mattress from all sides or ITN should touch the ground if sleeping on the floor.
- Avoid contact of exposed body parts with ITN.
- Use the ITN every night and all year round.
- Take your net with you when going out of village even for a single night.
- Pregnant women, children and immigrants should get priority in the use of ITN.
- Don't smoke or use fire near the ITN.
- Do not handle the ITN roughly during storage.
- Avoid direct sunlight on the treated nets.
- Do not wash ITN frequently.
- Never wash ITN in ponds and streams.
- Wash hands thoroughly with soap and water after treatment of nets.
- If treated nets are not available, use of untreated plain nets is strongly recommended.
- Keep a net in reserve for a guest.
- ITN is one of the best gifts

Suggestions for ITN specifications

- Use multi-filament synthetic material (Polyester or Nylon).
- Shape of nets may be rectangular or conical. Select as per choice and convenience.

- Select 75 to 100 deniers net (Note: <75 denier net is weak and may not last long).
- Nets with 1.5 to 2mm holes or 156 mesh (12X13 holes per sq. inch.) are recommended.
- Coloured nets require less washing. Select a colour of your choice.
- Mosquito nets come in various sizes and can also be custom made. The size of nets should be selected as per the individual needs. Nets are generally marketed in the following sizes.
- Single Net (small) 70 H X 180 L X 150 W in cms. (8.8 sq. m.);
- Double Net (medium) 100 H X 180 L X 150 W in cms.(10.2 sq. m.), and
- Family size (large) Net 130 H X 180 L X 150 W in cms. (11.6 sq. m.).
- A thick fabric skirt of nylon can be sewn around the bottom of each net to avoid sagging and tearing of nets.
- Insecticides for the treatment of nets are available in bulk, and for single net treatment in sachets and tablets.
- Recommended insecticide and dosages to treat net fabric are the following:
- Alpha-cypermethrin SC 10% @ 20-40 mg/ sq.m. (1ml=10mg therefore use 2 to 4 ml alpha-cypermethrin SC 10% per square meter fabric);
- Cyfluthrin EW 5% @ 50 mg/sq.m. (1ml=5mg therefore use 10 ml cyfluthrin EW 5% per square meter fabric;
- Deltamethrin SC 1% @ 25-30 mg/sq.m. (1ml=1mg therefore use 25 to 30 ml Deltamethrin SC 1% per square meter fabric);
- Etofenprox EW 10% @ 200 mg/sq.m.(1ml=10mg therefore use 20ml Etofenprox EW 10% per square meter fabric);
- Lambdacyhalothrin SC 2.5% @ 25-30 mg/sq.m. (1ml=2.5mg therefore use 10 to 12 ml Lambdacyhalothrin SC 2.5% per square meter fabric), and
- Permethrin EC 10% @ 200-500 mg/.sq.m. (1ml=10mg therefore use 20 to 50 ml Permethrin EC 10% per square meter fabric).

- Note: Percentage against the insecticide refers to the amount of active ingredient of insecticide in one litre.
- Follow the procedure given below to treat or re-treat a net:
- Note the fabric size used in the net e.g. Single net is 8.8 sq.m.;
- Measure the amount of insecticide required for the total fabric e.g. to treat with Cyfluthrin EW 5% 10 ml X 8.8 sq.m.= 88 ml Cyfluthrin EW 5% would be required;
- Mix 88 ml Cyfluthrin EW 5% in clean water and stir well so as to make approximately 210 ml solution for 8.8 sq. net, 250 ml solution for 10.2 sq m. net and 280 ml for 11.6 sq. m. net. The final solution should be just enough to soak the net and spread the insecticide uniformly without wasting any solution as left over;
- The amount of water suggested is arrived by experience therefore you may like to use your own measurement by soaking a net in water and measuring the total amount of water required;
- Drip-dry the net- in shade, and store in dark place.
- Note: For the treatment of a single net it is advisable to use either a sachet or a tablet marketed for this purpose

Preparation of the plan of action

- Study knowledge, attitude, practices and belief of the target population. Use this information to promote the use of ITN in the community. Prepare appropriate IEC material to promote the use of ITN based on this information.
- Prepare a comprehensive list of householders with sex, age, profession, economic status, SC/ST, and any other group identified. Calculate total net requirement based on the criteria: husband, wife and infant (one double net); adult brother and adult sister (one single net each); two children <12 years (one double net) and 3 children <12 years (one family size net).
- Study the population structure to identify high-risk groups, vocations, site of work, socially dis-advantaged groups to organize priority in ITN distribution.

- Make provision of free ITN distribution to 30%, subsidy to 50% and social marketing to 20%. This is flexible and should be determined for each situation through household surveys.
- Promote marketing through government, non-government and private outlets.
- Organize revolving fund at the district level for cost recovery of ITN.
- Train all key personnel involved in the ITN programme.
- Give prior notice for re-treatment by the communities as per the insecticide specifications described above.
- Keep 10% provision of nets for loss, new arrivals, damage of nets etc.
- Action plan should have strong provision of IEC on continuing basis.
- Use RBM indicators for monitoring and evaluation.
- Do not spray (IRS) synthetic pyrethroids in areas selected for ITN.

Annex 2

Community Participation and Building New Partnerships

In the last few years many interesting initiatives in Malaria control have evolved in India. Focussing on innovative strategies, new partnerships and involvement of new players in malaria control, these case studies demonstrate that there are new ways of doing things and effective ways in enabling community action.

Some illustrative Case Studies of initiatives in India include the following:

(i) A School Health Education Programme in Goa;

(ii) An NGO organizing a community based 'bed net' programme in Orissa;

(iii) An NGO involved in a malaria campaign in Rajasthan;

(iv) A research centre enlisting and sustaining community participation by adding an income generating dimension to vector control in Pondicherry;

(v) An NGO involved in Health Education and Malaria Control in Gujarat;

(vi) Involvement of School Children in an Urban Campaign in Chennai, Tamil Nadu, and

(vii) An NGO involved in tackling malaria in Rural Gujarat.

There are an increasing number of such initiatives all over the country. These have been compiled to show that enabling community action and building new partnerships is possible. These have been compiled from annual reports and bulletins and are therefore not exhaustive but primarily illustrative.

- Would you like to organize a similar initiative in your district?
- Would you like to share a similar experience in your district?

The Time for Action is Now!

Case Study 1

School Health Education on Malaria in Goa – I

With an aim to make students in schools of Goa malaria literate, a systematic education programme was devised and initiated in Goa, in 1992 by Malaria Research Centre, Goa, in collaboration with Indian Red Cross Society, Goa. This programme was implemented in phases starting 1992 when 81 schools were enrolled targeting 16211 students from 8th to 10th standard. In 1994, this programme was extended to Higher Secondary classes up to 12th standard and by 1998, 227 schools participated in the programme targeting 53,462 students throughout Goa.

The aims and objectives of the programme were us under:

(i) To introduce teaching on Malaria in the entire state of Goa in school children through Junior Red Cross (JRC) and Youth Red Cross (YRC) components in Secondary and Higher Secondary classes.

(ii) To train JRC and YRC counsellors (Teachers) to impart malaria education to the students.

(iii) To prepare curriculum on malaria and seek its ratification from Goa Board of Secondary and Higher Secondary Education.

(iv) To reach community through these students and teachers so as to train and involve people in the vector and disease control process.

(v) To undertake field projects on malaria with the help of Red Cross counsellors and volunteers (students) wherein the local community is exposed to the problem and its remedial measures.

(vi) To prepare a cohesive force over a period of time in the community who would practice the mosquito / vector control in their day to day life and also continue to disseminate the self action idea to others in future.

Training of Red Cross Counselors

Thirteen State Level Workshops have so far been organized by the MRC and Red Cross for imparting Orientation training to 808 teachers with the understanding

that organizational and technical responsibility will be shared by the Red Cross and MRC Goa Field Station respectively.

The technical aspects of training included lectures, preparing course material, hand outs, audio visual aids, and films and exhibitions on malaria. 61 exhibitions were organized for 24,133 students in 232 schools.

The exhibitions on malaria included:

(a) Immature and adults of *Anopheles, Culex* and *Aedes* mosquitoes explaining the life-cycle and their distinguishing features.

(b) Models of domestic and peridomestic breeding habitats. These focussed upon man's negligence and indifference which may support the growth of mosquito populations.

(c) The control aspects demonstrated, consisted of:

(i) Larvivorous fish such as *Aplocheilus blockii*, *Rasbora daniconius*, *Gambusia affinis* and *Poecilia reticulata* devouring mosquito larvae and pupae.

(ii) *Bacillus thuringiensis* and *Bacillus sphaericus* samples.

(iii) Expanded polystyrene beads (EPS) forming a top layer on the water in the model of an unused well.

(iv) Models of air-tight overhead tanks and sumps, highlighting the mosquito-proof arrangements such as the lid assembly and the sieved overflow pipe opening.

(v) Models showing efficient drainage of water from terraces and water channels to avoid stagnations responsible for mosquito breeding.

(vi) Personal protection methods such as mosquito nets and window screens.

(vii) In addition, blood slides with *P. vivax* and *P. falciparum* parasites were shown under the compound microscope. Charts showing the life-cycle of a malaria parasite, the need for early detection and treatment of malaria cases and the importance of species-specific treatment of malaria were also displayed.

(viii) A set of panels highlighting various aspects of malaria in the urban and rural settings were also exhibited.

(ix) Handbills containing tips on self-action for the prevention and control of malaria were distributed. *(Source: 8)*

Study - 2

A community based malaria control strategy
Bissam, Cuttack, Orissa, 1996

[The Christian Mission hospital in Bissam, Cuttack, Orissa has been recently involved with tackling the malaria problem by involving the community from the villages served by the hospital as follows:]

Step One

- We began with helping people to recognise their public health enemy No.1 – Malaria by sharing with them the MIS data from the government PHC on Morbidity and Mortality. This prepared the ground for step two.
- We also did an informal survey to ascertain sleep habits and patterns, according to community, age and gender.

Step Two

- If the village so desired they invited us to explain to them the basics of Malaria. This involved almost a full day when we met with as many of them as those who could get organized into groups according to gender, age and community. The classes were quite intensive and based on 4 questions:
  - What is Malaria?
  - How does one get it?
  - What can we do if we get it?
  - What can we do to avoid getting it?
- We used teaching aids, flashcards, photographs, Neem oil, mosquito nets, synthetic pyrethroids, etc.
- An Oriya pamphlet was also distributed to those who could read.
- We stressed environmental methods, neem oil, clothing and nets – as alternatives.

Step Three

- The villages chose the options they wished to pursue. Most opted for Neem oil and impregnated nets.

  The village decided who will take charge – usually 2 or 3 respected people. They would be incharge of finalizing the order, supervising the distribution and collection of money. Each village decided on different schedules and modes of payment.

- We supplied nets, taught the method of impregnation and taught 8 principles of using the net. Our team members stayed over the first night to help sort out 'teething problems'.
- We got nets from Raipur and synthetic pyrethroids from Calcutta.
- More than 50% of our investment has been repaid already.
- Our investment had been in terms of time, energy and capital money. The approach chosen was slow but encouraging.
- We have not raised the question of subsidy because most families spend around Rs. 800-00 a year on Malaria and our nets are cheaper than local shops – so they opt for it.

To summarize:

Our strategy is an Alternative, people based, village level, sustainable strategy with 3 basic thrusts:

- Malaria Education
- Promotion of personal protection measures – all methods including ITNs
- Early clinical diagnosis and prompt treatment.

We then did a 2 day workshop for other NGOs to share our experience. The idea is that they will go home and launch similar village level 'wars' against malaria!

Christian Hospital, Bissam, Cuttack, Orissa, India.
Source: (1)

Case Study 3

Evolving a Community Strategy to keep villages Malaria-free

[The Uttari Rajasthan Milk Union Limited (URMUL) Trust is a farmers' cooperative that organizes an integrated rural development programme with health care being an important component of the diverse development package. They were actively involved during the malaria epidemics in their area of operation in recent years and tried to evolve strategies to keep their villages free of malaria deaths]

Aim: To keep our villages free of deaths from Malaria

Our limitations

1. One lab technician for our 30000 population scattered over 2500 kms. and also doubling as Health Coordinator.
2. 3 PHCs and 1 CHC as referral support and numerous RMPs and quacks – none of them under our control.
3. No data for 1994 but government data put API below 2 everywhere so no spraying could be done.
4. Literacy levels of women <5% and males below 20%.

Our Strategy

1. Drug Distribution Centres with teachers who were trained for the purpose.
2. Chloroquine taken from government and replacement made every month.
3. Modified Fever Treatment Depots with our own workers.
4. Presenting our findings on fortnightly basis to CHC, CM & HO, Dy. CM & HO – Malaria, District Collector and Divisional Commissioner to galvanise action on behalf of district authorities.
5. Posters procured from government and pasted all over.
6. Pamphlets in Hindi for all educated people and RMPs and quacks.
7. Street theatre and puppet shows by our communication team in each village.
8. Placing slides with RMPs etc., to help in monitoring patients.
9. Introduced larvivorous fishes in own campus to help staff gain confidence in method and effect.
10. Holding and referral facilities for the serious patients at our headquarters centre.

Results Succeeded in our pledge to prevent malaria deaths.

URMUL TRUST, Rajasthan, India
Source: (1)

Case Study - 4

The Pudukuppam Initiative

The Vector Control Research Centre (VCRC) demonstrated that vector control could be made into an income generating programme, which is the only way to enlist and sustain community participation in such endeavours. A success story of a research project, carried out from1980 to1985 in the coastal villages of Pondivherry in which malaria control was made a by-product of income generating activities is given below:

Pudukuppam, a coastal village, in the Union Territory of Pondicherry, was meso-endemic for malaria. The vector incriminated was Anopheles subpictus breeding in brackish water. The major source for mosquito breeding was a backwater lagoon (approximately 3 to 5.5 sq. kms.) with the entire water surface covered with Enteromorpha compressa a filamentous algae facilitating vector proliferation. Removal of algae was the only practical solution to control the vector breeding. Vector Control Research Centre explored the economic utility of this algae in paper industry and the technology developed was handed over to the hand made paper unit of Sri. Aurobindo Ashram, Pondicherry. The art paper made by the unit using this algae drawn world wide attention with an excellent export market. This resulted in the creation of a self sustaining system for algae removal with economic incentives to the local populace. Total elimination of malaria was thus demonstrated exclusively through community action.

- Feasible vector control measures
  - Source reduction: By the removal of algae which promote vector breeding
  - Quantity of algae removed in one year: 130 tons
  - Practical permanent solution: Economic exploitation of algae for manufacturing paper, file cover, etc.
  - Technology developed by: Vector Control Research Centre
  - Technology transferred to: 1. Hand made paper unit of Sri. Aurobindo Ashram, the pioneers in art paper manufacture. 2. Hand made paper unit of Mahatma Gandhi Leprosy Rehabilitation Centre.
- Benefits to the Community
  - Total elimination of indigenous transmission of malaria from the village.
  - Additional regular income to the villagers.
  - Employment opportunities to the unemployed youths, who collect

and sell algae.

- Reduction in the cost of production of mottled art paper, file covers, etc.
- A clean environment"

VCRC project – Pudukuppam, VCRC, Pondicherry, India.
Source: (4)

Case Study - 5

Health Education for Malaria
(An experience in Rural Gujarat

[The Trust for Reaching the Unreached (TRU) is a voluntary agency involved with health and development services for marginalized rural communities in the Panchamahal areas and the bastis of Gotri area in Vadodara City]

When TRU started its work in the Shivrajpur area of Panchmahals, 70% of our OPDs in July to October were cases of Malaria. Patients would pour in from interior villages walking, on bicycles, or being carried on shoulders or in a doly. For the first two years, we responded to this by a clinic based approach.

In 1992 we decided to train our health workers for intensive health education work in malaria. The training covered all aspects of clinical diagnosis, treatment and prevention. By 1993, their clinical skill to treat and diagnose Malaria was adequate.

Since July 1993, our programme consisted of intensive door to door education on 'how to recognize the early symptoms' and how to treat it effectively. The emphasis was on taking 10 tabs of chloroquin, continued intake of food and not going to private practitioners for injection or for IV fluids. A few leaflets were given out as aids to health workers for person to person health education. Public programmes including role plays on malaria and a folk dance on malaria were added during the period.

School children between 8-15 years were taught elaborately about malaria including rational therapeutics. The children were our real messengers. They had a weekly class in health and produced posters during the health camps. The school programme went on in 10 schools in the area.

Results

1. While it is too early to claim a reduction in the OPD cases, people in general are more aware, report fever earlier, and do not accept the private practitioners' arguments for injections.
2. During the Malaria season, all the surrounding areas showed increased incidence of malaria but the villages around Shivrajpur were happy with full chloroquine course.

Trust for Reaching the Unreached, Baroda, Gujarat, India
Source: (1)

Case Study - 6

Madras City Experience

A seven-point action plan was prepared for malaria control. An action committee was constituted. Students made house-to-house visits and interacted with residents. One of the main misconceptions that was addressed was that overhead tanks should not be closed – it would make water stale, therefore the overhead tank should be only partially covered so that air could enter and maintain the water fresh. A student action group was formed under Prof. Swaminathan. The students were drawn from various schools and colleges. They also monitored the status of the fish in overhead tanks after they were released. All the schools in the city with grades 6^{th} to 12^{th} were targeted.

The handouts consisted of:

1. Procedures for schools
2. Posters
3. Fact sheets for teachers
4. Handouts for the students
5. Pamphlets for the community

School principles were informed about the campaign through letters. One or two teachers per school were oriented; they, in turn, oriented the students.

Source: (12)

Case Study – 7

Tackling Malaria in Rural Gujarat

[SEWA – Rural is a voluntary agency that has provided health and development services extending from the nucleus of a small rural hospital in Jhagadia. This case study highlights the key features of the experience with malaria control]

- As an NGO we had taken over a PHC and done mainly surveillance and presumptive / radical treatment of fever just as any other PHC is supposed to do.
- After four years we realised we were getting nowhere and malaria prevalence was changing in spite of our efforts; so we decided to look at feasibility and efficacy of introducing simple vector control measures.
- We took a study and control population and monitored fever cases (smears) round the year and vector density (standard procedures) fortnightly.
- Interventions included simple engineering measures, fish, kerosene and very rarely insecticide (for one-time use to curb exceptionally heavy breeding sites).
- Interventions and Monitoring were done by Male Multipurpose workers and supervisor after due training and alongside routine 'PHC work'. The female health workers took on some extra load (of other work) from the male workers.
- We also took the community's help, especially school children, informally.
- Ongoing informal health education was given to people about mosquitoes and malaria.

Result

- Vector density never rose above critical in study area but almost always remained far above critical in control area.
- General confidence of health workers in other vector control measures rose.
- People became more aware.
- No adverse effects on excellent performance in other health fields (MCH-FP activities).

Next Step

Encouraged by vector control feasibility / efficacy, we are now introducing on condition of community / panchayat participation, a mosquito control campaign in the area

SEWA – Rural, Jhagadia, 1995, Gujarat, India.
Source: (1)

Annex 3

Regional RBM Guidelines and Mechanism of Adaptation and Implementation at District Level

The group discussed the guidelines page by page and recommended the following process of adaptation and implementation of RBM SEARO guidelines.

(1) The task force agreed to the RBM SEARO guidelines being used as a reference document for adaptation at individual country level (by restricted circulation).

(2) The guidelines will be examined at country level in the context of national malaria policy and its financial implications for the budget.

(3) The guidelines emerging from 2 above will be circulated to a wide range of potential partners/stake holders (including some district programme personnel) for their comments and suggestions for enhancing the content and its ownership.

(4) Subsequently the guidelines will be translated into local languages and then reviewed/revised after active dialogue with the field level health staff involved with implementation.

(5) The guidelines will then be operationalized in the pilot districts through a process of orientation and training not only for technical aspects but also for developing their communication skills and leadership/management abilities.