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MEANS TO STRENGTHEN THE NATIONAL MALARIA ERADICATION TRAINING CENTRES -  
COORDINATION OF THEIR ACTIVITIES - AND EXCHANGE OF FELLOWSHIPS AND  
ACCEPTANCE OF FELLOWSHIPS FROM NEIGHBOURING COUNTRIES

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Training activities in the Eastern Mediterranean Region have considerably grown with the progressive implementation of Malaria Eradication Programmes in various countries. As pioneer efforts in training for malaria eradication in the Region, Iran's contribution must be acknowledged. Through the facilities rendered by the Institute of Malariology training of personnel for the Iranian programmes has been progressing since 1956. In Pakistan, the Training Centre at Lahore has been developing rapidly since established in 1961 to meet the requirements of the extensive programme of Pakistan and it is expected that the Training Centre at Dacca would similarly complete its development to cater for the programme of the Eastern Province of the country. In Ethiopia, a National Malaria Eradication Training Centre has been functioning since 1958. Egypt established a National Training Centre in 1959 for training junior grades of personnel and specialized groups in addition to the benefit obtained from the Regional Malaria Eradication Training Centre in Cairo. It is expected that more National Training Centres would be established in other parts of the Region in the next few years.

With the growth in training activities coordination is equally important in the same way coordination of various efforts of programme is sought for the success of the global campaign. This undoubtedly would avail the reciprocal benefit of various experiences and efforts in training for malaria eradication. To this end, it is important to ensure that training in various countries is maintained at uniform standards, though emphasis may vary according to local requirements.

In view of the widely varied status of malaria eradication in countries of the Region, and possibly the varied training circumstances, it is difficult to devise specific recommendations for strengthening the National Malaria Eradication Training Centres in different territories. The question of precise guidance to strengthen the training activities in a particular situation can be dealt with by more close study of each individual case. It is, therefore, appropriate to define here in general lines, the principles for standardizing training procedures. Such principles should be observed when establishing National Malaria Eradication Training Centres or may be introduced if lacking in already existing Centres. This would lead to uniform training standards which obviously are the basis for mutual benefit.

#### PRINCIPLES TO BE REGARDED IN NATIONAL TRAINING CENTRES

##### THE NEED FOR PLANNING:

National Training Centres as well as other affiliated activities cannot effectively proceed without a detailed plan for a training programme. This plan should be an integral part to the master plan of operation. The Sixth Report of the Expert Committee on Malaria clearly indicated:

"The recruitment and training of personnel ought to be carefully coordinated at all levels, to avoid loss of time and waste of money".

For drawing a plan for training, it is not sufficient to consider the yearly requirements of the malaria eradication programme of trained personnel at various levels as quoted from the plan of operation, but more important is to define the target date of recruitment of each category and time when they will be required. Recruitment should be well adjusted to allow sufficient time for training. Reducing the designed duration of a course as may occasionally happen in order to remedy delayed recruitment or for economy will seriously affect the quality of work. It is agreed that it would be more costly for the programme to utilize insufficiently trained personnel.

The training plan should be supported by a special budget for training which can ensure adequate staffing, accommodation, equipment and supplies, transportation and teaching allowance for the National Training Centre and the affiliated training activities. The plan should allow a reserve for emergency training when required. The plan for training should be reviewed yearly on the light of experience gained and according to modifications that may be introduced to programme requirements of trained personnel in the form of a plan of action.

#### TYPES OF COURSES AND DURATION

Courses should be designed according to job description of each category of personnel. As a common procedure, Senior Courses are designed for professional personnel who will undertake overall responsibility in a section of the programme which may be a Zone or a province. Junior Courses are usually designed for non-professional Senior supervisors undertaking an overall responsibility next to the Senior staff. Microscopists, entomology technicians are specialized non-professional staff who require specialized Junior courses.

Experience has shown that a certain category of the professional staff, who will undertake a specialized responsibility, i.e. entomologists, engineers and chiefs of operations gain limited benefit from the General Senior Course which qualifies for overall responsibility. For such categories, specialized courses should be designed and it has been possible to organize a course with emphasis on the spraying operation concurrently with the General Senior Course combining Medical Officers and Engineers only in classes of common interest. The Senior Course of a general nature should be limited to Malaria Eradication Officers who are usually Medical Officers or may be engineers in some countries where medical graduates are not available. Entomologists are a group that should be treated separately in a specialized course.

The duration of the Senior Courses - either general or specialized, should not be less than three months. Junior Courses can be trained in 10-12 weeks.

Accordingly, the main Training Centre should be staffed and equipped to accommodate the following courses per year:

- One Senior Course      together with a specialized course for engineers.
- Two Junior Courses    concurrently with microscopists.

When need arises for training more junior personnel, affiliated training centres should be established and operated on the same principles and standards of the main Training Centre.

Needless to say that training of auxiliary personnel should be conducted at a peripheral level, yet there should be a control over these courses by training experts in order to ensure uniformity of work performance.

### CURRICULA

Curricula should be designed for each type of course. As mentioned earlier, the curricula for a certain type should ensure developing proficiency in aspects related to the job description of personnel concerned.

Discussion on detailed curricula is beyond the object of this document. As guide lines malaria eradication should be placed on all types of courses as a subject of a special entity. The organizational structure of the programme of the country should be outlined with emphasis on duties and responsibilities of the apprentices.

It is unprofitable to obliterate the aspect concerning epidemiological operation from general Senior and Junior Courses on the assumption that personnel will be engaged at the beginning in operations of the attack and that refresher courses will cover such an aspect prior to the start of epidemiological operation.

In our opinion this affects the consistency of knowledge and piecemeal information reduces the full comprehension of malaria eradication principles. In fact, epidemiological assessment is a continuous process that should be observed by all permanent personnel functioning at all levels. In this respect, it may be appropriate to emphasize that refresher courses cannot remedy incomplete training, but aim at reorientation of already trained staff into new phases of activity.

The curricula must be basically designed to ensure inculcating the practical aspects and the integration of theory and practice. Practice periods should not be reduced with a view that in-service training will compensate. In-service training to which personnel are directed after completion of their basic training cannot compensate supervised practice in training courses.

Curricula must be revised from time to time and brought up to date according to experience and new development in various techniques. They should also be modified according to experience gained from courses in the light of evaluation of training.

### ACCOMMODATION

Experience has shown that it would be more economical to place the National Training Centre within the premises of an already existing educational institution rather than creating a special building for this limited time.

\* At all levels, work-schedules should be organized on the basis of a six work-hours/day at least for indoor training, and not less than seven work-hours/day for field work. Work schedules should allow a midday break (at least 1½ hours) permitting students and teachers to have a light meal and for relaxation.

training. Needless to mention, that a Training Centre should have access to a number of rooms sufficient to accommodate the permanent teaching staff visiting lecturers, assistants, administrative staff, stores and preparation rooms. Of prime importance is the class-rooms, the number of which will depend on the number of courses to be conducted per year. The number of students per each course should be around 25-28 and may be exceeded to 30 students only in exceptional circumstances. If three of such courses are required one class-room which can serve as lecture-hall cum laboratory be adequate. It has been shown that engineers and parallel personnel should receive a specialized course to be run concurrently with the Senior Course for malaricologists. In view of the above, and as a wise precaution, it is advisable to provide an extra class-room to enable the Training Centre to conduct two courses concomitantly. The class-rooms should be equiped with projection apparatus such as ciné-projector and epidiascope with fitting for slide projection. A cafeteria for light meals is indispensable for a Training Centre.

#### THE FIELD TRAINING AREA

A field area sited in proximity to premises of the Training Centre is an important requisite for efficient training in malaria eradication. If the Training Centre is situated in the area of operations of the malaria eradication service, it would be advantageous to place field training activities in a section of it. The area may be shifted from one place to another within access to the premises of the Training Centre. In such a condition, the students will benefit from observing and practising in an atmosphere of actual operation with the extra supervision and direction from National Malaria Eradication Service personnel. The question of field training is complicated when the Training Centre has to be located in a place not accessible to the area of operations. In this case, it is imperative to create conditions of malaria eradication operations to be run on model basis in an area accessible to the Training Centre. It is not necessary to have a large area, an area of about 30 to 50,000 population would be sufficient, provided that it includes so far as possible, some examples of the difficult situations commonly met with in the programme. The area should be covered by geographical reconnaissance in order to provide knowledge and maps that can be used for checking the work carried out by students. Spraying should be applied in the area by organized squads in the same manner the programme is leading. Evaluation operations should also proceed. In this way, students apart from practice, can find examples and actual operations which they need to observe before they are assigned to the job.

The immediate expenses required for staffing and operation of such field training area might appear as a disadvantage, but the long term benefit is an advantage. There is also an added benefit which is the saving for the programme when this area merges into it. In countries where the programme is in the preparatory phase the field training area may provide a chance for early assessment of administrative difficulties and a trial for the reporting system and various procedures.

It should be remembered that in-service training cannot substitute field training and practice under close supervision and control of the teaching staff. Very often, the programme staff are fully engaged and may not have time to devote for constant supervision of students during field practice. In the field training area, it is necessary to establish a field station. The premises required for such a station are a large class-room modestly equipped with necessary benches and seats for accommodating the students during the short intervals for receiving orientation before they go to field and for discussions after a day's work is completed. The field station should have also a space for storage of insecticides and equipment. A workshop for sprayers is essential and should be established within the premises of the field station, because if such mechanical work is carried out within laboratories of the Training Centre, it will cause damage to class-rooms, apart from the lack of freedom for students in this type of practice.

#### STAFFING OF NATIONAL TRAINING CENTRE

Careful selection of teaching staff for training in malaria eradication is of utter importance. To provide the Training Centre with best training facilities and well adjusted curricula is not sufficient, since the great undertaking largely depends on the quality of teaching staff. The teachers need not to be highly qualified, but should have ample field experience which enables them to make the necessary emphasis on the practical aspects required for malaria eradication work. In fact, the teachers should be thoroughly acquainted with field conditions of the malaria eradication programme of their country before they are assigned to teaching. It is not sufficient for the teacher to compile knowledge from the plan of operation, documents and reports. In other words, training should start by acquainting teachers in the field in which the students will work, and this should not stop at the point of start of courses, but continuous contact with field conditions must be maintained. Needless to say, that teachers should have ample patience and are capable of imparting knowledge to students and so far as possible, experience in teaching which enables them to study the students individually and give the necessary coaching whenever necessary. Further the teaching staff should not spare an effort or time not only for raising the standard of training, but for standardizing the students knowledge and performance. Most important feature of teaching staff is their capacity in preparing the students to applying the various techniques directing their attention to the significance of the work they do and developing a critical approach coupled with the spirit of team work for remedial actions.

It is rather difficult to devise a uniform pattern for staffing the National training centres. Staffing of a Training Centre is directly correlated with the situation in which the training centre is placed. As already mentioned the training centre may be situated within access to field operations of the programme of the country. In such a case, the number of teaching staff, required for training is limited, whereas in the case of a Training Centre sited at a place distant from field operations, the number of the teaching staff should be increased to cope with teaching duties and maintenance of operations and observations in the field training area.

The Training Centre, however, should basically be staffed with full-time teachers and assisting staff, in addition to part-time lecturers and instructors who could be assigned for short periods from the National Malaria Eradication Service and/or from the host institutions. Apart from teaching responsibilities and extra coaching, the permanent staff should undertake the responsibility of preparing the requirements of equipment, supplies, transport and teaching material and take early action with the respective authorities to replenish stocks. Adjusting curricula to working schedules management of training courses and evaluation within the course are also major undertakings of the full-time staff.

For a National Training Centre conducting three to four courses per year (30 students per course) the following full-time staff should be provided:

One Director with wide overall practical experience in malaria eradication and training.

One Malariologist with practical experience in parasitology and evaluation techniques.

Three Instructors Entomological/Parasitological

Three Instructors for field operations.

The staff should be augmented by part-time lecturers and instructors to bring the tuition level so far as possible to a rate of one instructor per five to six students. When two courses are run concurrently, the staff particularly demonstrators and instructors should be proportionately increased by assignment of more part-time staff. In the case of operating a field training area further permanent staff will be required in respective fields. If WHO Advisers are assigned to training projects, apart from technical advice and active participation in training particularly of senior personnel, it would be their duty to ensure that training activities are proceeding in the right direction at all levels and that procedures adopted in the malaria eradication programme of the country are stressed. This is in addition to promoting knowledge on procedures of other programmes and experience gained elsewhere. To maintain coordination between training centres with requirements of National Malaria Eradication Service of trained personnel is an obvious necessity. The advisory capacity should also be extended to training at peripheral levels since training procedures should be in harmony with those of training of higher personnel, otherwise confusion and discrepancies might result in work performance of various categories. To ascertain that evaluation techniques followed in training are productive and that remedial action is taken should receive ample attention from the advisory staff.

#### EVALUATION OF TRAINING

The importance of evaluation is indisputable. As a common procedure universally adopted in educational and training institutions is examinations. In overall training in malaria eradication which deals with various aspects

within a limited period, evaluation by examination should cover an entire aspect and not part of it, since experience has shown that students' comprehension is augmented when all subject matter of one aspect are covered. It has always been beneficial to include in the evaluation system, field examinations; and oral examination will help in forming an opinion about the student's personality.

Evaluation, if it depends entirely on examinations, will not be completely fruitful. It is necessary, therefore, to make day to day study within the course by teachers to obtain an early idea of aptitudes and lacunae in both students' comprehension as well as in teaching technique. If the teaching technique is not up to the required standard or if it does not lay enough emphasis on the practical aspects action must be taken for correction of the situation. It is recognized that malaria eradication cannot be achieved if personnel engaged in it do not have a good understanding of techniques, their application, critical sense for detection of the defects and remedial action. It may be indispensable to conduct special coaching in extra time for the whole class or a group of it where further explanation and further repetition can be given, notwithstanding the fact that there may be students with very poor basic education and/or very low receptiveness who may be either detected during selection or repatriated if evaluation indicates that training cannot improve them. Malaria eradication campaign, once started must not suffer from irregular performance even at a section of the programme due to inability of some personnel.

It has been shown that the training courses cannot provide the constant repetition of field practices. Hence the value of in-service training is unquestionable. This may extend for a period of six months or even longer depending on the ability of persons under training and the supervision they receive. During this period the field senior staff are the best persons who are in a position to contribute to the process of evaluation of training. They may be able to discover defects due to incorrect teaching procedures or lack of emphasis on certain aspects. Reports from such staff on performance of graduates will help the training personnel to introduce improvement.

#### EQUIPMENT, SUPPLIES, ETC.

The Training Centre must be adequately equipped by various items necessary for teaching as well as teaching material and transport. It is not the object of this paper to elaborate knowledge on requirements but as a general guide, the Training Centre must have access to optical equipment enough to provide students with facilities for examination of parasitological and entomological material. In our opinion, each student must be provided with a compound microscope for parasitology practical classes and with a simple dissecting microscope for entomological practical classes. A number of stereoscopic-microscopes would be required for demonstration purposes but for Entomologists' course each student must have access to one stereoscopic-microscope. Field equipment must be sufficient to provide each student with a complete set. This will save time wasted if these students will practice with one instrument or one kit. Transportation should be sufficient to hold the number of students with their instructors and assisting staff.

A library containing up-to-date references on malariaology and malaria eradication should be made available to students and teaching staff. Well prepared manuals and lecturo-notes should be made available for each student covering every aspect of the study.

These are the requirements of National Training Centres on general lines. There is a lot to be said about the management and control of training courses which cannot be explored in this document.

#### TRAINING COMMITTEE

In order to establish the plan of training and constant coordination between National Training Centre and National Malaria Eradication Service it is advisable to form a Committee who would devise from the outset of the programme the plan for organization of training activities in the country and continues its function so long as training is in progress. It is suggested that such a committee would be formed of the National Director of the training centre, Senior WHO Adviser of the programme and Senior WHO Adviser of the Training Centre. This Committee would be able to fulfill the study of requirements for training through groups of personnel to be selected from and advisory panel. The advisory panel can be formed of Senior National and International Personnel engaged in malaria eradication and training. In regard to the functions of the committee, coordination of training activities with requirements of the programme should be a principal target. Reviewing of curricula of all courses at all levels, selection of candidates for the courses should also be the duty of the Committee. An important study to be explored by the Committee is the staffing of the training centre, appointment of teaching staff and forming examination committees. The Committee should give an immediate attention to reviewing of requirements of equipment and supplies, accommodation and transport for the Training Centre and the field training area according to suggestions submitted by training centre staff. The Committee should also look into the evaluation of training activities at all levels and introduce the necessary control that may further be required. Undoubtedly the training committee will coordinate with International Agencies assisting the training activities by technical and material advice. This also will enable the International Agencies to coordinate between National Training Centres of various countries for obtaining mutual benefit.

#### COORDINATION OF ACTIVITIES OF NATIONAL TRAINING CENTRES WITH A VIEW OF EXCHANGING FELLOWSHIPS AND ACCEPTANCE OF FELLOWSHIPS FROM NEIGHBOURING COUNTRIES

Mutual benefit can be obtained from National Malaria Eradication Centres by virtue of their geographical distribution if their efforts can be coordinated. At present, such coordination is either lacking or very limited amongst the National Training Centres as well as between these centres and neighbouring countries. To establish such coordination with a view of obtaining a reasonable mutual benefit six factors should be considered:

- 1- The terrain in which the training centre is situated.
- 2- The language(s) used by each centre.
- 3- Training standards of each centre
- 4- The standard of basic qualification of recruits in various countries.
- 5- The phase(s) of malaria eradication through which the programme is passing.
- 6- The facilities that can be provided by each Training Centre for accommodating students from neighbouring countries or for conducting specialized courses taking into consideration the requirements of their respective programmes.

#### THE TERRAIN

By virtue of their location National Training Centre either the already existing or planned represent various geographical territories which may extend beyond the boundaries of the country they serve. Consequently, there is a common features related to malaria status and fauna of vector species in the area of each training centre. Accordingly, it may be possible to extend the services of a National Training Centre to a larger geographical area beyond its political boundaries. In this way the Region may be served by a few National Training Centres instead of creating a centre in each country. Apart of the economical aspect there is a greater benefit of standardizing training techniques, broadening of knowledge and exchange of experience.

##### 1. Language(s).

The National Training Centres will be able to cater for a larger territory if the working language is universally used or if the training centre is able to conduct courses in one of the universally recognized working languages.

##### 2. Training Standards of the National Training Centre.

The training standards may be assessed in the light of the requirement which have already been defined. If the condition of a National Training Centre does not fulfill such requirements, efforts should be spent to bring it to the required standards before utilizing it for reciprocal benefit

##### 3. Standard of Basic Qualifications of Students.

In some countries personnel available for the malaria eradication programmes especially junior grades may not meet qualification requirements of the collaborating National Training Centre. In such

a case, efforts should be spent by such countries so as to bring up the standard of such candidates to an acceptable level. This could be done by conducting preparatory course and allowing only those who pass to take the malaria eradication course in the neighbouring country.

#### 4. Phases of the Programme.

The varied progress made by each member country in the field of malaria eradication, a condition which is already existing, reflects on the functions of the respective training centres. Thus, in countries where malaria pre-eradication programmes are implemented, can make use of a training centre catering for the same purpose and similarly countries implementing the programme by stages can all benefit from a training centre situated in one of them.

On the other hand, a training centre situated in a country having a large area under consolidation can extend its benefit to countries about to switch over to this phase.

#### 5. Possible training facilities beyond requirements of National Malaria Service

The possibility of utilizing the services of a National Training Centre either for assisting neighbouring countries or for other training centres the capacity of which may be limited depends entirely on the facilities that can be provided by the host country. Undoubtedly the National Training Centre has a prime target towards its own programme. Mutual benefit can be obtained if the country concerned can still extend its training facilities to accommodate fellowships from other programmes. Naturally, countries benefiting from such training would afford to participate in the extra expenses incurred. In addition, International Agencies may also give further assistance to National Centres who can extend their training facilities for other countries. This may be in the form of technical advice, extra equipment, supplies and transport.

If the above criteria is met with, reciprocal benefit can easily be achieved by utilizing the services of some National Training Centres representing various geographical areas and different phases of malaria eradication programmes. Similarly Training Centres themselves, can assist each other if training conditions and standards and other criteria are fulfilled.

The way in which National Training Centres can assist each other is summarized in the following:

- (1) When the number of a certain category of personnel does not justify conducting a course. These may be sent to the nearest country where the National Training Centre can provide facilities for their training. Examples of such conditions are:

At outset of the programme and probably at the last stages where the number of senior grades required is limited. Similarly, this applies to specialized personnel such as entomologists, health educators, administrators, etc. who may either be few or needed at an earlier date and facilities for such training is not available at their own training centre.

(b) If a training centre is selected by WHO to organize an advanced course such as an epidemiology course, countries though having their own training centre may benefit from such an opportunity.

(c) Some Training Centres may conduct refresher or re-orientation courses and it would be advantageous for countries which have not yet started such training activity to send some personnel to attend such courses.

(d) It may also be appropriate to add to the ways in which the National Training Centres can assist each other another aspect. This may be met with in countries at the outset of the malaria eradication programme and wish to train key personnel who will undertake planning and execution of the training programme.

Coordination among National Training Centres may be established through exchange of training information. This may be facilitated if each Training Centre issues at the beginning of each year training plan with brochure giving detailed information on types of courses to be conducted, their duration, number that can be availed to fellowships, qualification requirements, etc. This could also be supplemented by meetings of Training Centre key personnel to exchange views and coordinate their efforts. Further, training centres may utilize the services of some experienced lecturers from other training centres. Likewise, exchange of lecturers would establish coordinated efforts by promoting advances made in training facilities and procedures in various environments.

There is still a wide scope for coordination of efforts of National Training Centres, in the way of exchange of teaching material, manuals and lecture-notes.

#### ROLE OF WHO IN COORDINATION OF NATIONAL TRAINING CENTRES

WHO is already providing technical and material assistance to National Training Centre as well as technical advice to malaria eradication programmes. With the consolidation knowledge available to WHO on the status of each programme, its requirements of trained personnel, training facilities etc., it would be possible to re-organize and coordinate training activities in the Region. First, the geographical extent for services of already existing centre can be delineated as well as planning of new Training Centres to be establish to complete the geographical distribution.

Second, an important undertaking is to evaluate the work of each National Training Centre and assist in strengthening it. This may be done in the way of promoting technical and material assistance in addition to the advice for remedial action.

Also reviewing of curricula and introducing improvement in training procedures with a view of standardization of basic requirements for a uniform training technique can be guided by WHO. Third, it would seem appropriate to circulate information on plans of each training centre through WHO. Related to this aspect, is the direction of WHO fellowships, exchange of lecturers as well as inviting consultant lecturers.

Exchange of teaching material, manuals, lecture-notes and publications may also be done through WHO offices. Finally, an important task which may be taken by WHO, is the organization of specialized or advanced courses to professional personnel at a Regional level. Such courses need to run on a high level and for this, certain facilities may be required. These facilities can be studied in advance by WHO with the respective authorities in the country where the training centre is selected for conducting such courses.

It has been shown that training activities require ample attention and constant evaluation in order to justify the money and efforts spent to achieve the global target.

Such efforts can be more productive if properly coordinated and it seems that at this stage of growing training activities, it is time to direct it and coordinate it.