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A N N U A L R E P O R T

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ZANZIBAR MALARIA CONTROL PROGRAM  
USAID PROJECT NUMBER : 621 0163  
ZANZIBAR TANZANIA

REPORTED BY:

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Contract Number: 621 0163 01

A. BACKGROUND

The two islands comprising the location of the Zanzibar Malaria Control Program, are situated off the northeastern coast of the Tanzanian Mainland, approximately between latitude 5 degrees and 6 degrees south and longitude 39 and 40 degrees west. The southern island, referred to as either Zanzibar or Unguja, has a land area of approximately 1,658 kilometers. It is 87 kilometers long and 39 kilometers across. The northern island, Pemba, has a land area of approximately 984 square kilometers, is 64 kilometers long and 23 kilometers across.

This malaria control program, funded by the U.S. Agency for International Development (USAID), has been underway since the signing of the basic agreement in September 1981. The USAID has provided a loan of US\$ 7.4 million and the GOZ commitment is US\$ 4.6 million. The PACD is September 30, 1987.

B. EXTERNAL EVALUATION

The external evaluation was implemented from March 3 to March 21, 1986.

The following is extracted, from the EXTERNAL REVIEW REPORT of the Zanzibar Malaria Control Project:

END OF PROJECT STATUS (EOPS)

1. Malaria parasite rates, as determined at the end of the project by malariometric surveys are not to exceed 3 per cent in children 2 - 9 years.
2. Organized and operating larviciding programs are in place in Zanzibar Town, Chake Chake, Wete, and Mkoani. Program has mapped permanent breeding places, a regular schedule of work is used and 90 personnel have been trained in larviciding techniques.

PRESENT STATUS

The malariometric surveys indicate a lowering of infant parasite rates over the project period from 50-40% P.R. to approximately 20% on Unguja North and 7% on Unguja South. The parasite rates in the 2 - 9 age group in 1985, was 35% on Unguja and 33% on Pemba, according to malariometric surveys. It appears that the 3% goal will not be reached.

The larviciding program has begun but but a great deal of organizational work is required to ensure a cost effective operation. A viable work plan needs to be developed. Approximately 15 people have been trained in larviciding techniques. Biological control and environmental management was not initiated

3. An ultra low volume (U.L.V) program has been developed, with a clear policy and program guidelines, a work plan, and 20 ULV operators trained.
4. Residual spray coverage in target structures is no less than 85% during any given round of spraying.
5. The out-patient attendance rates in hospitals and health clinics should not exceed 10% of total patients in attendance.
6. The malaria case fatality rate (laboratory confirmed) in hospitals and health clinics should not exceed 0.4%
7. Ninety-five % of all houses in rural areas of the country are visited by the malaria active case detection agents (ACD), at least once per month.
8. One hundred % of all GOZ health institutions have received directives describing the appropriate drug treatment schedules for malaria and are fully supplied with malaria treatment schedules and preventive drugs.
9. An adequate system of technical and operational evaluation is in place within the program, with trained supervisory staff.

A ULV program is in the process of implementation but work plans based on technical assesement have yet to be developed.

Note: Entomological surveillance is required in both items #2 and #3.

4. Unguja
  - a.5 April - 19 December 1984, reported 91.5% total coverage.
  - b.9 Feb - 12 April, 1985. reported 96.43% total coverage.
5. a. Malaria represented 33% of all hospital admissions in the four hospitals and 27% of all hospital recorded deaths in 1983.  
b. It is estimated that 29% of out patient visits in the dispensaries are for malaria.

The case fatality rate is given as 10% in the projected 5 year plan. It is believed that a 4% rate is more suitable and obtainable.

Not accomplished; the Team believed that ACD is of marginal value at this stage of the program.

The Team found that such instructions were generally available at the health institutions visited, except Bweju Health Center in the South Region. Adequate drug supplies were available at all institutions visited.

This area needs great improvement and an annual plan of action, which includes targets.

10. An interministerial malaria control committee and a technical advisory committee will be formed and meet quarterly.

The Interministerial committee was formed and met on 16 January 1985 and 24 July 1985. The technical advisory committee has not been formed.

C. RESULTS ACHIEVED

1. MASS BLOOD SURVEY RESULTS

		<u>UNGUJA, 1983 - 1986</u>							
		<u>AGE GROUPS, YEARS</u>							
<u>YEAR</u>	<u>NO. OF LOCALITIES</u>		<u>&lt;1</u>	<u>1</u>	<u>2-5</u>	<u>6-9</u>	<u>10-14</u>	<u>15+</u>	<u>TOTAL</u>
1983	17	EXAM.	206	403	1130	834	987	2970	6530
		% POS.	56.8	60.0	65.5	65.1	62.1	46.3	55.6
1984	21	EXAM.	448	1368	1628	1187	2948		7579
		% POS.	59.4	63.2	56.6	53.4	25.4		45.4
1985	41	EXAM.	679	2062	2326	1503	4540		11,110
		% POS.	33.	44	37.6	33.5	17.1		29.6
			<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>9-14</u>	<u>ADULT</u>	<u>TOTAL</u>	
1986	34	EXAM.	560	1982	2391	1521	3698		10,172
		% POS.	44.1	53.4	46.2	44.8	24.09		38.6
		<u>PEMBA, 1984 - 1986</u>							
<u>YEAR</u>	<u>NO. OF LOCALITIES</u>		<u>&lt;1</u>	<u>1</u>	<u>2-5</u>	<u>6-9</u>	<u>10-14</u>	<u>15+</u>	<u>TOTAL</u>
1984	15	EXAM.	234	702	771	587	1326		3620
		% POS.	61.5	56.7	35.6	51.8	38.8		49.4
1985	16	EXAM.	357	699	1003	946	1479		4484
		% POS.	33.6	44.9	35.8	35.3	24.0		32.8
			<u>&lt;1</u>	<u>1-4</u>	<u>5-9</u>	<u>9-14</u>	<u>ADULTS</u>	<u>TOTAL</u>	
1986	15	EXAM.	292	724	909	734	1040		3699
		% POS.	45.2	46.0	37.1	33.1	18.8		33.5

Reductions in prevalence were seen from 1983 to 1985. However, It is noted that the main spray round was missed in early 1986 due to the non - arrival of DDT.

The Mass Blood Surveys are designed to ascertain differences in the malaria prevalence rate which might be attributed by the intervention of the insecticide. The slightly higher rate on both islands appears to be consequence of the missed spray round.

2. MORBIDITY AND MORTALITY

Ratio of patient deaths (from malaria), to total patients admitted; and the percentage of deaths of inpatients diagnosed for malaria.

	<u>RATIO OF</u> <u>TOTAL TOTAL</u> <u>ADMISSIONS/DEATHS</u>	<u>DEATHS</u> <u>AS</u> <u>%OF</u> <u>ADMISS.</u>	<u>TOTAL INPAT.</u> <u>MAL. DIAG.</u>	<u>% OF DEATHS</u> <u>TO MAL. DIAG.</u>
<u>1983</u>				
<u>ZANZIBAR HOSPITALS</u>	<u>18,182/348</u>	<u>1.9</u>	<u>7,979</u>	<u>4.36</u>
<u>1984</u>				
V. I. LENIN	12,521/220	1.7	4,368	5.0
CHAKE	4,537/13	0.3	1,299	1.0
WETE	4,101/45	1.1	1,513	2.9
MKOANI	1,927/30	1.5	988	3.0
<u>1984</u>				
<u>ZANZIBAR HOSPITALS</u>	<u>23,086/308</u>	<u>1.3</u>	<u>8,168</u>	<u>3.7</u>
<u>1985</u>				
V. I. LENIN HOSF.	15,676/289	1.8	5,772	5.0
CHAKE	4,284/22	0.5	686	3.2
WETE	5,148/66	1.3	1,745	3.8
MKOANI	2,908/19	0.6	743	2.5
<u>1985</u>				
<u>ZANZIBAR HOSPITALS</u>	<u>28,016/107</u>	<u>0.4</u>	<u>8,946</u>	<u>1.2</u>

In summary, the per cent mortality of all patients diagnosed for malaria is shown below:

<del>1983</del>	<del>4.4</del>
1984	3.7
1985	1.2

The mortality rate for patients diagnosed in the Zanzibar Hospitals, has shown a definite decline from 1983 to 1985. This reduction occurred during the period of malaria control activities and suggests that the change may be attributed to the intervention of the malaria control activities.

## 2 a.

The MOH Statistical Unit has documented decreases in amounts of chloroquine tablets and injectibles prescribed, which is also a reflection of the lower malaria case rates.

3. SUMMARY OF RESIDUAL HOUSE SPRAYINGJUNE 30 TO SEPTEMBER 16, 1986 - UNGUJA ISLAND

<u>REGION DISTRICT</u>	<u>TOTAL INHAB. PROTECTED.</u>	<u>HOUSES SPR. TOT. + PART.</u>	<u>PER CENT REFUSED</u>	<u>OTHER STRUCTURES</u>	<u>DDT USED, METRIC TONS</u>
West Distr.	30,857	7,887	1.1	5,410	3.6
North "B"	34,753	9,793	0.8	3,997	3.1
North "A"	60,027	18,626	0.8	6,026	5.3
Central	40,114	12,172	0.8	5,953	2.9
South Distr.	25,714	6,269	0.01	2,699	2.2
TOTALS	191,465	54,747		24,085	17.17

4. MALARIA AGENTS

Malaria agents function mainly as surveillance agents, checking malaria incidence in assigned areas and providing anti - malarials for curative or presumptive treatment for the population.

a. Total malaria agents - 84

b. From January to June 1986, 82,677 house visits were made, 2,230 blood films collected and 3,851 persons treated symptomatically. Four hundred, eighty-one positives were found among the blood films collected.

c. Malaria agents also function in the spraying activity, as spraymen, supervisors, and distributors of insecticides and equipment.

5. TRAINING SUMMARY - 1986b. AMREF TRAINING

Tentative agreement has been reached with the African Medical and Research Foundation (AMREF), to conduct training sessions in Zanzibar for health personnel trainers and trainees. The objective is to supplement the present training levels of national and district health workers in basic management skills, malaria control, and primary health care. The training will also include methods for teaching adults. and should commence in early 1987.

a. STAFF TRAINING

Because of a series of training delays, thirty ZMCP staff members have completed training courses in 1986. Three officials are still undergoing long term term training. Completion is expected by mid-1987. Details are shown below-

<u>TYPE OF COURSE</u>	<u>JOB CATEGORY OF PARTICIPANT(NOS.)</u>	<u>VENUE</u>	<u>DURATION</u>
Combined Course, Entomology parasitology	Laboratory technician (7)	Manila	10 weeks
Combined Course, Entomology and Parasitology	Laboratory technician (5)	New Delhi	04 weeks
Malaria eradication & Control	Malaria Supervisor (5)	Manila	04 weeks
	Malaria Supervisor (5)	Manila	10 weeks
Malariology	Malaria Supervisor (5)	Manila	02 months
Health statistics	Health Statistician (2)	Univ. of North Carolina	06 months
Supply management	Supply Management Officer	EASAMI, Arusha, TZ	01 month

ZMCP participants still undergoing studies, completion expected by mid-1987, are shown below

1. Master of Public Health      Director                                  Johns Hopkins
2. Master of Public Health      Assistant  
Parasitologist/Entomologist      Univ. of North Carolina
3. Master of Public Health      Assistant  
Parasitologist/Entomologist      Univ. of North Carolina

D. COMMENTS PREPARED REGARDING ANTI-MOSQUITO MEASURES IN ZANZIBAR TOWN

SITUATION

The population of Zanzibar Town is approximately 128,000 or about 40% of the entire population of the Isles. The ZMCP is implementing measures for the reduction of the mosquito vectors of malaria. The control measures undertaken, would be effective against other mosquito species as well.

METHODS TO BE EMPLOYED

- Anti-larval measures.
  - Source reduction.
  - Application of adulticides utilizing ULV or dry fog insecticides.
  - Extensive health education and public information efforts.
1. Anti-larval activities will be implemented by the urban malaria agents who will function as applicators and reporters of problem areas. Direct field supervision will be the responsibility of District Squad Chiefs, (suggested title) who are to be appointed by the Island Office. Overall supervision will be the responsibility of the Island Office. Assistance and consultation is also available from Headquarters Malaria. references useful as a guide to this activity will include the materials developed by the Consultant, Suyud Tarkojosopuro, in conjunction with the Entomology Section, in early 1985. Ongoing entomological evaluation will be an essential element of this operation.
  2. Source reduction is an important adjunct to the anti-larval measures. The Island Office collects information about problem areas from the Malaria Agents, other ZMCP staff, as well as through direct observations. This information is evaluated and decisions made at Island Office on recommended remedies to the problems. Active liaison and collaboration with Municipality and with relevant Party officials is very important, for the resolution of non technical problems related to successful anti-larval activities.
  3. Adulticiding with outdoor space sprays is applied from time to time. This method is very expensive but impressive reductions of large adult mosquito populations can be accomplished. Pyrethrum, with the synergist piperonyl butoxide, is the insecticide available for this activity.

3. - (Continued)

Applications are made in selected areas of Zanzibar Town. Entomological recommendations are necessary to arrange application times for the most effective results. Useful entomological methods for this determination may include light trap observations and the operation of a vehicle mounted insect scoop. Assessment criteria are under development but the initial suggestion is that the objective of each spray application would be to reduce the mosquito population by 75% of the baseline level. When the population increases to 25% more than the baseline, adulticiding should be applied. Effectiveness of the applications will be determined through bioassay tests using cages of mosquitoes, placed along the routes of spraying. The Entomology Section will revise its present activity schedule, in order to increase its participation in the urban anti-mosquito activities.

4. Active Health education/Public information measures are also a very essential aspect of all urban anti-mosquito measures being planned and implemented. It is important that urgent discussions be held with the MOH Health Education staff regarding methodology and including evaluation. The considerable expertise of this group will be requested in order to help this urban anti-mosquito program succeed. Field personnel immediately available for this activity could include Malaria Agents and other personnel presently assigned to the Island Office.

Finally, it is important that a comprehensive reporting format be developed by the supervisory entities concerned with this activity. The purposes of the format will be-

- To outline the activities, specifying responsibilities and roles of all participants.
- Preparation of activity schedules, including material and equipment needs.
- Providing for adequate evaluation of the overall activity.

E. PLANNING FOR THE END OF THE USAID MALARIA PROJECT

BACKGROUND

The PLAN OF OPERATION for the Zanzibar Malaria Control Program, Page 27, Paragraph 9.1 Later Stages of the Program, suggests the convening of a Planning Group "to consider the institutionalization of the the anti-malaria activities" in 1986.

COMPOSITION OF PLANNING GROUP

It was suggested that the Convener of the Group be the Director of Community Health, who might be assisted directly by the WHO Advisor to the MOH, Zanzibar. Other members may include one or more officers from Headquarters, Ministry of Health, representatives from the Curative Services, the Acting Director of the Zanzibar Malaria Control Program, the SMZ Permanent Task Force, the Chief Minister's Office and the C.C.M.

Resource persons may include the two Island Officers of the ZMCP, the Malariologist, and other persons, as determined by the Group. There should also be one secretary/typist.

This Group, should be nominated and convened as soon as possible for urgent consideration of the following and relative appropriate subjects:

PURPOSE

1. To nominate a Planning team and draft a preliminary scope of work for its guidance.
2. Determining how, to what extent, and in what context, malaria control activities can continue with expected reduced resources.
3. To outline the ongoing strategy to be implemented for the anti-malaria activities on Zanzibar.
4. Define the appropriate organizational structure for on-going anti-malaria activities.
5. Planning for institutionalization of the the anti-malaria activities within the Primary Health Care System.
  - a. Defining the steps necessary to effect subject institutionization
6. The exploration and initiation of overtures, on the part of the Government of Zanzibar to seek supplementary malaria control resources from bilateral and multilateral organizations.
7. Recommending the careful scrutiny of Job performance appraisals for the redistribution of efficient and deserving staff as there are expected to be fewer job positions after the end of the USAID Project in late 1987.

EARLY PLANNING FOR THE INTEGRATION PROCESS

(Refer also to Paragraph 5, Page 5 of this Report.)

In early 1985, ZMCP began to assemble ideas relative to the planning for eventual integration of its activities into the primary health care system. It was envisioned that the foundation for future anti - malaria efforts would be the strategically located rural health clinic network.

The African Medical and Research Foundation (AMREF) was engaged to make a study and to provide recommendations for the integration process, including the upgrading of skills among the rural health center personnel.

Purposes of this study were:

1. Defining the specific malaria control functions to be carried out by the PHC.
2. To assess the present capability of the PHC system, in relation to its responsibilities and identify areas where strengthening is needed.
3. Recommend strengthening measures.

The study was carried out by a three man team from AMREF during November 1985. It reviewed:

- a) The present rural health service physical and operational infrastructure;
- b) PHC staff performance, in relation to malaria control functions;
- c) Supply, availability and management of stores and equipment;
- d) Administrative support and supervision; and
- e) Community support and participation in Primary Health Care Programs.

AMREF recommended -

1. Decentralization of the present health management and administration by introducing provincial and district health offices and teams.
2. A phased introduction of the Zanzibar Malaria Control Program into the general health service, beginning with a pilot program on each island.
3. Enhancement of active community participation in health programs by introducing community health workers, village health committees and involving them in decision making.
4. Also specific recommendations have been made on manpower development through redefinition of roles and training for new responsibilities.
5. Physical rehabilitation of the dispensaries to improve work areas, sanitary conditions and storage facilities.

In November 1986, a meeting was held in Nairobi with Ministry of Health, Zanzibar officials and AMREF personnel in attendance. The purpose was to discuss and examine the proposed budget for the manpower development phase of the AMREF recommendations.

Subsequently, MOH, Zanzibar sent a letter to USAID/T requesting its concurrence with the necessary budget.

It is hoped that this activity can be initiated in early 1987.