



VECTOR BIOLOGY & CONTROL

Vector Biology & Control Project
1611 North Kent Street, Suite 503
Arlington, Virginia 22209
(703) 527-6500

Telex 248812 (MSCI UR)
Cable MSCI Washington, D.C.

TNZ
Zanzibar
Malaria

MEMORANDUM

615-00

TO: A. D. Long

FROM: A. Arata *AA*

PD BUK 507

DATE: May 21, 1990

SUBJECT: PROJECT COMPLETION REPORT: ZANZIBAR MALARIA CONTROL PROJECT (TANZANIA)

Attached are three copies of the subject report. Please note that the team leader was Dr. Barbiero (REDSO/Nairobi): VBC provided the services of Dr. Robert Tonn as malariologist/medical entomologist as a member of the team on request from USAID/Dar es Salaam.

Although the report focuses on some of the problems that prevented this project from obtaining its objectives, the team has also provided an excellent section (VI. Lesson Learned pages 26-27 of the attached report) which identifies actions that could have prevented, or mitigated, the results actually obtained. These include:

- Appraisal/Monitoring of Government Commitment/Involvement
- Investment in Management
- Foundation at the Peripheral (i.e. Community Participation)
- Vertical vs. Integrated Systems, and
- Planning for Sustainability Well in Advance of PACD

As you know, VBC II has programmed activities in the first (and subsequent) years that are addressed specifically to these points. The failure of the project to reach its stated objectives was not due to a failure of vector control mechanisms, but the manner in which they were, or were not, applied. The project failed to build a Zanzibari structure that could deal with the complexity of the program and failed to demonstrate the importance of the project thereby establishing a perceived need in the community.

These lessons learned are very important. We hope that VBC II will have an opportunity to work in programs in other African countries at a very early stage in project development so that such mistakes can be avoided and that such future malaria projects can meet their objectives.

VBC understands that the mission has accepted the report when the team was debriefed in Dar es Salaam by the Director. VBC does not plan to distribute further copies unless instructed by the mission and Dr. Barbiero.

AAA/jam

Attachment

cc: Dr. Barbiero, REDSO/Nairobi
VBC Staff

DRAFT

**PROJECT COMPLETION REPORT
ZANZIBAR MALARIA CONTROL PROJECT**

by

Victor K. Barbiero, Ph.D., REDSO/PH
Andre DeGorges, MSc., REDSO/ENG
Japhet Minjas, Ph.D.
Robert J. Tonn, Ph.D.

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ACKNOWLEDGEMENT*

Appreciation is expressed for the assistance from the staff of the Zanzibar Malaria Control Program in providing information for review, their participation in frank discussions and in furnishing us with transport during our visit. The assistance for staff at the Ministry of Health, UNICEF, FAO and the London School of Hygiene and Tropical Medicine is appreciated. Discussions with USAID/T staff were helpful in ascertaining some of the history of the project and present project status.

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LIST OF ACRONYMS

A.I.D.	Agency for International Development
AIDS	Acquired Immune Deficiency Syndrome
CIDA	Canadian International Development Agency
COP	Chief of Party
CQ	Chloroquine Phosphate
DX	Diagnosis
EC	Emulsifiable Concentrate
EDP	Essential Drug Program
EOPS	End of Project Status
FAO	Food and Agricultural Organization
FWD	Four Wheel Drive
GOZ	Government of Zanzibar
GR	Geographical Reconnaissance
HEU	Health Education Unit
HSD	Health Service Delivery
IEE	Initial Environmental Examination
LOP	Life of Project
LSTM	Liverpool School of Tropical Medicine
LSHTM	London School of Hygiene and Tropical Medicine
LT-TA	Long Term Technical Assistance
LTA	Long Term Advisor
MOA	Ministry of Agriculture
MOH/Z	Ministry of Health/Zanzibar
OTJ	On-The-Job
PACD	Project Assistance Completion Date
PP	Project Paper
PVC	Peace Corps Volunteer
RHA	Rural Health Assistant
SCF	Save the Children Fund
sp.	Specie
spp.	Species
ST-TA	Short-Term Technical Assistance
TA	Technical Assistance
TSh	Tanzanian Shilling
TWD	Two Wheel Drive
ULV	Ultra Low Volume
UNICEF	United Nations International Children's Emergency Fund
USAID/T	Agency for International Development/Tanzania
USEP	U.S. Environmental Protection Agency
WHO	World Health Organization
ZMC	Zanzibar Municipal Council
ZMCP	Zanzibar Malaria Control Program
ZNSP	Zanzibar Nutrition Support Program

I. INTRODUCTION/BACKGROUND

A. Overview

The ZMCP began September 30, 1981 as a loan to the government of Zanzibar, with a PACD of September 30, 1986 and a funding level of \$11.8 million. In addition, the GOZ was to contribute the equivalent of \$4.3 million (37% of total), in the form of salaries, office space, drugs, some pesticide, and fuel. Following a review in November 1983, it was decided in June 1985 to amend the project, reduce the funding level to \$7.4 million, and extend the PACD to September 31, 1987. Although the GOZ contribution was reduced to the local equivalent of \$3.4 million it increased as a percentage of the total project funding level (i.e. from the 37% to 46%). Subsequently, the PACD was extended three times. The project ended September 30, 1989.

A.I.D. invested about \$6.2 million in the project. The project supported an extensive operational malaria control program which included the purchase of insecticide supplies (DDT and malathion), vehicles and spare parts, spray pumps and parts, office and lab equipment, a PSC long-term advisor (1983 -1987), technical assistance, overseas training, and anti-malarial drugs. With the termination of the project, approximately \$1.0 million remained undisbursed. These funds will have to be deobligated by the mission.

B. Project Design

The purpose of the initial project design (9/81) and subsequent PP Amendment (6/85) was: "to reduce the prevalence of malaria on Zanzibar to a level at which it no longer constitutes a major public health problem...in such a way that the GOZ will be able to maintain effective control with its own resources". As stated in the Internal Review (9/88) (and other consultant reports), this purpose may have been too robust given the timeframe of the project and the difficulty in implementing and sustaining the project's priority interventions (i.e. domiciliary spraying, source reduction, larviciding, and ULV spraying). Furthermore, with the increase of chloroquine resistance prophylaxis and efficacious treatment became less feasible. Indeed, chloroquine prophylaxis and source reduction through engineering were deleted as project outputs (PP Amendment 6/85). Although the PP prologue stressed the "committee consensus approach" to project design, it is reasonable to state that too much was expected too fast. The Amended EOPS objectives (6/85) reinforce the optimistic naivete of A.I.D., and the GOZ. Granted, island biogeographical characteristics lend themselves to a rapid impact on malaria parasites and their vectors. However, sound organizational, logistic, technical and administrative foundations are required prior to effective implementation. In this respect, A.I.D. and

the GOZ erred regarding the ease of malaria control on Zanzibar.

C. Past Evaluations/Recommendations

External evaluations were conducted in June 1983 and June 1986. The 1983 evaluation led to a revised Project Amendment and project description. An internal review was conducted in August 1988 to assist the mission define the future course of the project. During the project period, numerous consultants appraised project activities and submitted reports inclusive of recommendations. Generally speaking, technical recommendations received more attention from the ZMCP than administrative recommendations. However, logistical constraints often made follow through difficult. Fuel, labor and commodity shortages caused delays or discontinuation of activities. In addition, conflicting and poorly stated recommendations may have caused confusion, especially late in the project, because the mission did not have the technical expertise to assist the ZMCP in the evaluation/implementation of recommendations. Greater mission assistance on the technical appraisal of recommendations and required planning therein would have been extremely useful.

D. Consultant Technical Assistance

The original design suggested two long-term project consultants, a senior malariologist (COP) and a vector control specialist (PP Annex C). Regrettably, only the former was recruited and he served more as an administrative/procurement specialist than as technical advisor. Project implementation suffered as a result. Numerous consultants assisted the ZMCP during the LOP. For example, short-term specialists were used for: procurement/warehouse management; entomology; vector control; residual spraying; larviciding; operational planning; environmental management; and, options for use of alternative insecticides. It is estimated that over 28 person-months of TA were supported by the project. In addition, WHO and Universities (LSHTM, LSTM) supported TA in specific areas such as epidemiology and source reduction. Given the breadth of the TA required and the numbers of consultants involved, it was difficult for the mission and ZMCP to coordinate and prioritize recommended actions. This may have resulted in confusion by project management. Apparently, reports were not fully analyzed and sometimes contained conflicting recommendations. This resulted in sluggish implementation or no action at all. However, although problems with LT-TA and ST-TA did exist, both the mission and the ZMCP made an earnest effort to obtain quality advice on key issues throughout the LOP.

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E. Assessment of Project Success

It is difficult to conclude that the ZMCP was a success for A.I.D. or the GOZ. Malaria remains the number one public health problem in Zanzibar. The epidemiological and entomological capacities of the ZMCP have progressed, but clearly more could have been realized given the time and money expended in the project. Assessment of success in relation to PP EOPS is complicated because the anticipated EOPS objectives may have been unrealistic from the beginning. It can be stated with confidence that malaria control in Zanzibar was a much more difficult problem than originally perceived. Some important accomplishments were achieved, particularly in training, but how much could/should have been done is less clear. The output/investment ratio is considered small - indicating a costly effort for the achievements realized. A philosophical question exists at the heart of this issue: "if the project did not occur, what would have been the difference?". Perhaps the dimension of success or failure of the project will be better understood in the next two years.

F. Approaches to Malaria Control

F.1 Chemical Control

Major emphasis was placed on residual house spraying in rural and peri-urban areas of Unguja using DDT and rural and urban areas of Pemba using Malathion (1984-1985) and DDT (1986-1988). Although resistance to DDT was substantiated before the project began, and apparently increased during the LOP, a decision was made to continue its use. In the latter years of the project (1988-1989) consultant TA strongly recommended discontinuation of DDT spraying, but this occurred too late in the project for effective follow-up. Regardless of the insecticide used, the efficacy of residual spraying was compromised because of irregular supplies of insecticides, person-power shortages that extended the spraying cycle time, fuel shortages, lack of geographical reconnaissance (GR), poor supervision and reduced public compliance with indoor sprays. In urban areas, ULV spraying was attempted, but received less emphasis due to its high cost and logistic difficulties. Both malathion and pyrethrum was used for ULV spraying. Larviciding is also logistically costly and thus was difficult to implement on an adequate scale in urban and peri-urban areas. Furthermore, mosquito control in Zanzibar town was the responsibility of the Municipal Council and therefore not under the direct management of the ZMCP. Larvicides of choice included Temephos (Abate), Triton-X-207 and oil.

F.2 Environmental Management

Source reduction of mosquito breeding habitat in Zanzibar Town was envisioned to use engineering/biological control based upon geographical reconnaissance. Entomological field data was to be a major goal in the initial years of the ZMCP. Once accomplished in Zanzibar Town, this was to have been expanded to other target areas in Zanzibar.

G. Health Education and Community Involvement

Health education and community involvement were to have been major objectives of the ZMCP. Elements included:

- * Training of Health Workers in Malaria Education;
- * Training of School Teachers in Malaria Education;
- * Redevelopment of the Health Education Unit of the MOH;
- * Enlisting Support of National Television/Radio Stations.

It was determined that this campaign would be oriented towards the general public and would build a basis for community support and involvement of the ZMCP.

H. A.I.D. Management

A.I.D. management of the ZMCP has been less than optimal. In the early and middle stages of the project procurement was slow, the performance of the long-term advisor was not rigorously monitored, action on consultant advice was sluggish and incomplete, and project implementation benchmarks (6/85) were not adequately monitored. In 1987 new mission management looked more closely at the ZMCP and endeavored to "salvage" the project. Although diligence was exemplified by the most recent project manager, a strong sense of mutual confidence between the mission and ZMCP was not cultivated. Perhaps this was due in part to the fact that the mission's project manager was not technically a health professional, yet was tasked with making technical decisions regarding project operations and procurement. The friction which ensued compromised project implementation during the last two project extension periods. Undoubtedly the mission's perceptions of project progress were justified (and have been supported by recent consultant reports). However, it is regrettable that the interpersonal skills of the project manager and the consequent working relationships between the mission and ZMCP were not stronger during the latter years of A.I.D. support.

II. PROJECT STATUS

A. Rationale for Termination

On November 10, 1988 USAID/T informed the Zanzibar Ministry of Health that the ZMCP would be extended until September 30, 1989, but that USAID/T did not propose additional grant funding for a further project. A number of reasons were cited which included: 1) mission and AID/W reluctance to support stand-alone malaria control programs in Africa; 2) insignificance of further capital investment for malaria control in Zanzibar (based on substantial USAID/T investment in vehicles, spares, etc.); 3) mission view that the overall impact of USAID's investment did not justify continued assistance; 4) mission view that accountability and inventory control had not been satisfactory; 5) mission disappointment in project management and supervision; 6) USAID/T's shift in its focus from health and agriculture to transport and family planning. The mission made their position clear to the GOZ and provided ample opportunity for discussion (and rectification) of project shortcomings throughout the final extension period. In fairness to both parties, project-supported TA made numerous recommendations which if implemented expediently, may have improved project performance. Regrettably, these recommendations were often difficult to implement and were also postponed (or obviated) due to procurement delays. Perhaps the most cogent rationale for project termination lies in points 1, 3 and 6 presented by the mission to the MOH/Z. USAID/T cannot be criticized for its decision. The situation was analyzed, different points of view were expressed and an internal consensus reached. From the mission's viewpoint the correct decision was made, and it is one which is readily defensible. Sadly, much remains to be done on Zanzibar to cope with its number one health problem. Hopefully, others will provide more effective assistance in the future.

B. End of Project Status (EOPS)

As noted above, the purpose of the project was to eliminate the public health importance of malaria. Nine EOPS objectives were contained in the project - none were fully realized nor was the project purpose achieved. The final status of the project was less than satisfactory in part because of project extensions without provision of insecticides. A summary of EOP status inclusive of comment is presented in Table 1.

C. Ongoing Activities

Since the termination of A.I.D. support, emphasis on vector control has been significantly curtailed. Present emphasis has shifted to monitoring the epidemiology of malaria, aimed at more

effective treatment. Present directions focus on reducing malaria-related mortality via an improved surveillance and drug distribution system. The ZMCP devoted considerable resources to establishing a system of malaria agents based in rural health units. Hopefully, the revised approach will be able to utilize this cadre of trained personnel to identify, treat and effectively refer malaria patients thus reducing mortality and possibly morbidity. The UNICEF ZNSP also proposes strengthening rapid diagnostic capabilities of the MOH HSD by utilizing ZMCP-trained personnel assigned to health centers. Other ZMCP-trained staff are being utilized for distribution and evaluation of a widescale, UNICEF-supported bednet project. Geographical reconnaissance is ongoing with most of the mapping completed. Additional effort in house numbering is required. GR can be utilized in malaria and general epidemiological surveillance at the health center level and provides an important planning tool for the MOH's Department of Preventive Services. The ZMCP continues to provide an advisory role to the Municipal Council on larval control in urban areas. Present and future options for effective vector control are limited due to insecticide cost, resistance factors and logistic difficulties. The GOZ has insufficient funds to mount an effective chemical-based campaign and the practicality of this approach is highly questionable. This option could succeed only after present directions in malaria control have been proven successful technically and administratively. Other donor support would require a long-term investment far beyond commodity supply. Thus, for the foreseeable future, this aspect of malaria control on Zanzibar is finished. The use of Azolla as a biological control agent is under consideration by the FAO and MOA as a source of nitrogen for rice cultivation. The anti-larval aspects of Azolla cover is being evaluated in cooperation with the ZMCP.

D. Epidemiology

Based on anticipated EOPS objectives and assessments of project progress to date, a review of the most recent epidemiological information is in order. The data below are taken from the ZMCP and the MOH/Z Health Information Bulletin No. 47 (March 1989) entitled: **Statistical Tables for Health Planners and Administrators** (Haji, H.M. & Garssen, J., 1989). The data indicate that malaria decreased somewhat between 1983 and 1988 in general prevalence. Data from Pemba are slightly more encouraging than those from Unguja. Malaria disease does not appear to decrease, but may be on the rise due to drug resistance and possibly changing patterns of transmission. It is unrealistic to have presumed (as the PP and PP Amendment did) that malaria infection could have been lowered to 3% in children 2-9 years of age, and the equally drastic presumption

of lowering case fatality to 0.4% in hospitals and health clinics. The data, as presented, clearly indicate malaria remains a serious public health problem on Unquja and Pemba.

* * * * *

Malaria Positivity Rates (Percent Positive) by Age 1983-1988

AGE	1983	1984	1985	1986	1987	1988
0-1	56.8	60.3	30.7	44.6	31.1	46.2
1-4	64.1	60.4	43.6	50.2	37.8	48.6
5-14	63.5	54.7	36.2	40.4	30.1	39.3
>15	46.3	31.3	20.9	21.8	18.7	24.0
ALL	55.6	46.9	31.3	36.4	28.6	36.3

source: (Haji & Garssen, 1989)/Mass Blood Surveys, ZMCP

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Results of Mass Blood Survey of Indicator Villages - Pemba and Unguja 1983 - 1989

YEAR	PEMBA	UNGUJA
1983	48.6	55.4
1984	32.8	48.9
1985	32.8	29.6
1986	33.5	40.7
1987	26.4	30.3
1988	33.3	37.3
1989	23.2	40.2
MEAN	32.9	40.3

source: (ZMCP, 1990 - unpublished)

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Six Most Common Causes of Deaths Diagnosed in Zanzibar Hospital 1982 - 1987 (Percentage of All Deaths Due to Specified Causes) (Inpatient Diagnoses)

Cause	1982	1983	1984	1985	1987	1987
MALARIA	16.4	26.6	27.8	27.8	27.8	31.5
ARI	12.8	10.9	9.1	9.0	11.8	8.6
Anemias	6.7	5.6	12.6	7.9	11.6	9.1
Diarrhea	13.4	5.3	0.8	3.9	3.0	1.1
Malnut.	3.9	2.7	4.4	3.0	3.6	3.5
Heart Dis.	3.3	5.3	7.4	4.5	9.2	4.2

source (Haji & Garssen, 1989)

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Hospital-Based Morbidity for Malaria (Outpatient Diagnoses)
1983-1988

YEAR	OUTPATIENTS
1983	24.2
1984	29.1
1985	28.1
1986	30.1
1987	30.7
1988	34.7

* * * * *

E. Commodities/Procurement/Inventory

Impressive stores exist on Unguja and Pemba. Vehicle parts, office supplies, electrical supplies, compressors, etc. are in stock and are intact. Some vehicle parts are for vehicles no longer available and thus cannot be used. (These may be sold with the money being returned to the national treasury.) ZMCP supplies and equipment on Unguja are in different places and should be consolidated once the new warehouse is operational. As noted by previous TA, procurement has been problematic. The final procurement request was refused by USAID/T because of a poor justification. Essential diagnostic equipment (microscopes and laboratory supplies) was contained in that request and it is quite unfortunate an effective compromise was not reached prior to the PACD. Throughout the LOP, procurement of insecticide has been plagued with delays. The problems associated with insecticide (and other commodity) procurement were multifaceted. Although trite, the lesson being: sound planning well before anticipated use will save time and money. The establishment of the ZMCP inventory system was a primary accomplishment of the LTA. The system is relatively sophisticated, but is not being optimally used. Lack of funds for resupply hamper the effectiveness of the system. However, the system is established and should be viewed as an accomplishment.

F. Construction

During the project, steel structure warehouses/garages were established for malaria control operations on both Unguja and on Pemba. In November 1989 a visit by the USAID/T Engineer and the Deputy Director found the work by the contractor unsatisfactory and incomplete. Due to time and transport constraints, only the Unguja construction site was visited by the study team. The chain link/barbed wire fence is too short (below the two meter standard) and is anchored improperly. The lock holes do not line up which make the main gate impossible to secure. The buildings are inadequately ventilated which will result in very high indoor temperatures. Not only would this make working in such structures very difficult, but temperature sensitive pesticides (or drugs) could rapidly deteriorate. Poor ventilation also poses major risks to workers handling toxic chemicals because vapors and dust from these chemicals do not have a chance to dissipate. The storage building appears to have its door on the wrong side, making it difficult to access the warehouse supplies with vehicles. This will be resolved with the construction of a parking lot and loading dock on the west side of the stores. However, the timely construction of the lot is doubtful. The shower for the warehouse is approachable only from the outside, making access difficult in case of an emergency.

G. Vector Control

G.1 Insecticides

The ZMCP staff advised FAO of the potential for Anopheles spp. resistance developing from using malathion for agricultural purposes. As a result FAO has ceased using all pesticides unless an economic threshold exists which justifies their use. Environmental management, as described below, is receiving increased attention as a means controlling insects and increasing rice production.

G.2 Environmental Management

Biological Control: In 1987, 40 permanent and/or temporary breeding sites were identified by the ZMCP and consultant TA. Depending on the site, larval control via predatory fish (Tilapia spp.) or source reduction (drainage/filling) was suggested. Based on cultural factors, the use of Tilapia spp. was determined inappropriate. However, at present FAO is investigating the possibility of introducing a predatory

species of fish as a means of mosquito control and as a supplemental protein source. ZMCP personnel are collaborating with the FAO and the LSHTM to use various species of Azolla, an aquatic fern, as a source of nitrogen in rice fields and as a larval control agent. (Applied at 50 kg per hectare, 21 days before seedlings are ready to be transplanted from the nursery, Azolla spp. form a mat over the rice paddy's surface which reduces oviposition and required sunlight needed by anopheline larvae to survive.) One question is the possibility for Azolla spp. to support of snail hosts of schistosomiasis. FAO is exploring this issue at present. It is doubtful that using Azolla alone will significantly reduce malaria transmission, however, it is a step in the right direction. In an attempt to economize on water, rice varieties have been introduced that require standing water for no more than 6-7 days. Indirectly, this is believed to greatly reduce the use of this habitat for mosquito breeding. However, to date this potential has not been quantitatively studied.

Urban Drainage: In April 1988 personnel of the ZMCP along with the Zanzibar Municipal Council (ZMC) proposed an urban drainage plan for USAID/T support. USAID believed the proposal was not cost effective and that the ZMC was technically incapable of addressing many of the drainage problems. (The USAID/T engineer felt that the only cost-effective approach would be construction of a central storm water, drainage, sanitation system.) It appears that the ZMC is continuing to address these drainage issues on their own without the support of USAID. The ZMC engineer is working on draining the basements of Kilimani Apartments, a major breeding source for Culex and Anopheles mosquitoes, and is in the process of rectifying the poor plumbing that led to this problem. A future source reduction step will be to drain the Kilimani swamp/rice paddies. To his credit, the ZMC Engineer has involved the Kilimani community in this effort. For the past two years the Municipal Council has had a project to keep the old drainage system open. In the future, donor support for urban drainage may be forthcoming, particularly from the Italian government.

H. Insecticide Disposal

At the outset of the project, 70 tons of malathion, 25% EC, were mistakenly purchased by the GOZ as part of their contribution to the ZMCP. (This concentration of malathion is suitable only for agricultural purposes, 50% EC being required for wall spraying to control mosquitoes.) The pesticide has remained poorly stored over the last nine years. Concern existed that isomalathion, a toxic degradant of malathion, would eventually exceed tolerable limits. Samples analyzed on June 30, 1988 were found to fall within the WHO limits for isomalathion. During the LOP, at least three consultant teams

made recommendations for disposal of the insecticide. Suggested options were: 1) dilution of malathion with lime and burial in a pit; 2) deposit of small amounts in pit latrines throughout the island to control Culex mosquitos; 3) deposit of small amounts around the bases of homes to control termites; and, 4) incineration. The malathion has been repackaged and is currently stored in locked cargo containers, two on Unguja and one on Pemba. As currently stored it is neither an environmental nor a health hazard. The evaluation team was advised that in a recent discussion with the Dutch consultant firm, Tauw B.V., it was decided that the firm will collect these containers and have the malathion incinerated either in the Netherlands or in a portable incinerator. USAID, among other donors (Netherlands and CIDA), is contributing US\$ 20,000 to this effort.

I. Health Education

By 1988, the ZMCP health education unit had basically dissolved due a decision by the MOH to place all health educators in a new unit with a more general public health mandate. Of the four persons trained, two are currently in the Health Education Unit of the Ministry. Of these two, one is a professor at the College of Health Services in Zanzibar which trains RHAs. (The RHA system is the extension arm of health education in Zanzibar.) The other continues to broadcast weekly radio/TV talk shows on public health including malaria. Of the two remaining individuals, one is heading the AIDS program and the other is in charge of the MOH activities on Pemba. Currently, the health education unit has one person assigned to the ZMCP to supervise the production of master maps as part of the geographical reconnaissance effort. A major shortcoming of the ZMCP project was the failure to obtain community involvement in malaria control. Although information reached the grass roots level, the failure to succeed can be related to the inability of the ZMCP to compensate local political leaders who had to devote full days to motivating local communities to participate.

J. Training

Staff training was considered a priority in the ZMCP. If one considers the quantity of training, objectives were achieved (Section III). However, application of knowledge may have not been optimal. In-country training in basic malariology tended to be weak, but this could have been due to the education level of trainees, rapid staff turnover, and candidate selection. The efforts of A.I.D. and WHO concerning the provision of training opportunities have left a core of skilled professional staff. How these staff use their acquired skills in the future will depend on the status of the ZMCP and the opportunities for

staff secondment to other MOH/Z programs. More training for mid-level and peripheral staff is in order. Greater attention should be given to the production of teaching materials and evaluation of training over the medium term.

K. Environmental Impact

The pesticides for this project were all USEPA registered and recommended for use in malaria control. Additionally, malaria control officers were sent to the Philippines for training in vector control and in the safe use of pesticides.

DDT: The use of DDT to spray the interior of houses is neither a human nor an environmental health risk. As pointed out in the Project Paper, the cancellation of DDT by the USEPA only applies to agricultural use and other out-of-door activities due to its environmental persistence and its ability to bioaccumulate in the food chain. As used by this project there was no major environmental risk.

Malathion: Malathion is approved by the USEPA for interior wall spraying and was only used for this purpose within the ZMCP. It is among the least toxic of organophosphates. During the LOP it was purchased only for use on Pemba. As used on this project, adverse public health or environmental impacts were not observed.

Larviciding: Temephos (Abate)), the primary pesticide used for larviciding during the LOP, is so safe that it is approved by the USEPA for control of mosquito larvae in well water. No adverse environmental impact has been observed.

ULV Space Spraying: During the project, space spraying was undertaken with 0.03 % pyrethrum in kerosine. Pyrethrum, a naturally occurring pesticide extracted from the chrysanthemum flower, is one of the least toxic pesticides known to man and is not persistent in the environment. ULV spraying was discontinued early in the LOP; no adverse consequences were observed.

III. SUMMARY OF INPUTS

Table 2 summarizes USAID/T and the GOZ inputs into the ZMCP.

IV. PROJECT ACCOMPLISHMENTS

A. Senior Staff Training

Six MPH candidates were trained by the ZMCP. Candidates included the ZMCP Director, the ZMCP Deputy Director, two Parasitologist/ Entomologist Assistants, and a MCH specialist. Although senior level technical training objectives were met, there is some question concerning the utility of the technical training in the management of a major operational program. Future considerations for training in any project should include sound management skill building of administrators and other support staff. Training should not solely focus on technical skills for health professionals.

B. Mid-Level Operational Staff

The ZMCP has created a core of trained middle level operational staff, however sound planning and supervision of peripheral malaria control activities has not been institutionalized. Mid-level staff have experience in training and organizing residual spray teams and perhaps this capability can be utilized in the general HSD system. During the LOP approximately 150 malaria agents have been placed in the field. Although these are temporary employees, many are being transferred to other MOH units or seconded to the UNICEF/ZNSP. Thus, an availability of semi-skilled staff has been established which could contribute to the infrastructure of the MOH and provide a nucleus of expertise for service delivery outreach in the future. The long-term impact of this "accomplishment" will depend on the MOH's utilization of these individuals. Linkage to other donor projects should be explored by the MOH in the near term.

C. Fleet Maintenance

Given the environment of Zanzibar, the maintenance of the vehicle fleet can be viewed as an accomplishment. Vehicles are maintained through the availability of spare parts acquired through the ZMCP. Although imperfect, vehicles are maintained in reasonably working order. It will be important for the GOZ (and perhaps other donors) to help sustain the vehicle maintenance system established by the ZMCP.

D. Basic Parasitology Laboratory

A basic parasitology laboratory is in place at ZMCP headquarters. It is sparsely equipped to diagnose malaria. Some of the staff are now qualified microscopists. With minimal extra training, identification to species and

quantified bloodfilm reading can become routine. With extra equipment and training, chloroquine sensitivity studies can be undertaken. The laboratory could eventually be a nucleus for training and quality control of malaria diagnosis nationwide.

E. Sustainability

Although sustainability was considered in the PP, there does not seem to have been adequate efforts towards achieving true sustainability during the LOP. Consequently, the project remained largely vertical and present attempts to integrate program activities into the HSD system are proving difficult. Furthermore, popular confidence in the program is not strong due to the remaining high prevalence of malaria throughout the country. However, there is a resource commitment by the MOH/Z to give malaria priority attention. This is evidenced by continued financial support for ZMCP staff and general program activities. Although it is unlikely that MOH/Z support will be adequate to sustain the ZMCP at previous levels, the support is real and represents an important component of program sustainability. It should be noted that the distinction between MOH/Z support and GOZ support is important. It remains to be seen to what extent the GOZ will support the ZMCP through the MOH/Z budget.

F. Health Education Unit

In the early years of the ZMCP, there was an active health education unit. Until 1986 a major malaria education program was initiated including radio/TV programs, newspaper articles, poster production, printed T-shirts, and khongas (women's skirts). Collaboration took place with the Ministry of Education to introduce the concept of mosquito and malaria control in the primary and secondary schools. Teachers were also trained to work with students in this area, the feeling being that they would be more receptive to new ideas than adults and would do more to influence their parents than other efforts. Also, over the life of the project a number of Form 6 students conducted school projects related to malaria in collaboration with the ZMCP staff. USAID has obtained quite a bit for a small investment in the area of health education. ZMCP-trained personnel are helping to educate Zanzibar's population not only about malaria but other communicable diseases, as well as about family planning, nutrition and environmental sanitation.

G. Geographical Reconnaissance

The completion of most aspects of GR established the basis for improved program planning in malaria prevention and control. More work needs to be done to make the GR system fully operational, particularly in the use of maps in relation to disease patterns. The GR system recently established could be used to aid decision making for general HSD efforts of the GOZ. However, further attention to the application of the GR system is in order. Once again, the MOH/GOZ, and perhaps other donor projects, should try to capitalize on investments made in GR.

H. Established Capability for Vector Surveillance

Even though vector control is not economically feasible, the capacity for vector surveillance and population monitoring will allow other public health efforts to utilize what the ZMCP has established. Examples of ZMCP involvement in monitoring field activities include: evaluation of the SCF bednet study; association with the LSHTM applied research projects; and, evaluation of the UNICEF/ZNSP bednet project. Every effort should be made by the GOZ to maximize the use of the field service established by the ZMCP.

I. Inventory System and Stores

As noted earlier, the inventory system and stores of the ZMCP represent an important accomplishment. Sustained management of the warehouse(s) will require considerable attention by the GOZ. Further attention should be placed on organizing the stores in the central depots on Unguja and Pemba, and a more simplified system of inventory monitoring.

J. Established Malaria Treatment and Referral System

The ZMCP was initially tasked with improving the treatment and referral system for malaria on Zanzibar. Training and guidelines were provided for health units, health centers and hospital outpatient staff, as well as hospital clinical staff. Technical recommendations by ZMCP consultants influenced concern for drug resistance monitoring and changes in treatment strategies. One of the deficiencies with the treatment and referral system was the lack of follow-up on input. This system requires continuous monitoring and updating in relation to changing patterns of malaria. Thus, although progress on system establishment was made, more thorough follow-up would have been desirable.

K. Bloodfilm Reading Teams - Surveillance Capacity

At least two technical personnel of the ZMCP are seconded at each of the four hospitals within the country to assist in the laboratory diagnosis of malaria. This is considered a valuable contribution to the management of clinical malaria given that only 20%-30% of the clinically suspected malaria cases are parasite positive. Accurate patient diagnosis improves case management and in the long run conserves anti-malarials.

L. Training of Teachers/Curriculum Development

The following accomplishments have been noted:

- * Integration of malaria education into primary/secondary school syllabus;
- * Training of teachers to teach children about malaria;
- * Working with Form 6 students to conduct projects on malaria and its control.

M. Environmental Management

The following accomplishments have been noted:

- * Production of a major report pointing out important areas where source reduction could have an important role in controlling malaria breeding habitat;
- * Hiring of a resident engineer by the Zanzibar Municipal Council and 300 workers to begin addressing source reduction in Zanzibar Town;
- * Collaboration with FAO in malaria control around rice fields using environmental management in favor pesticides; and,
- * Collaboration with other donors to obtain funding for environmental management around Zanzibar Town.

V. PROJECT PROBLEMS

A. General Considerations

A.1 Eradication Philosophy/Changing Global Strategy

Even though the ZMCP PP called for malaria control, many of those involved still followed an eradication philosophy. This was understandable because the project was planned and implemented during a period of transition of global strategies for malaria. A high investment in commodities and more vertical approach to control were emphasized rather than a longer-term system building approach. Over the long term, this did not serve the GOZ well and today, the ZMCP is forced to redirect their objectives towards building a better infrastructure to improve diagnosis, treatment and surveillance of malaria, within the HSD system, as one of many public health problems.

A.2 Implementation without Infrastructure

The PP correctly recognized the significance of "system building" (in terms of training, baseline data collection, operational planning, etc.) prior to full scale program implementation. However, when project operations began in 1984, there did not appear to have been a solid foundation to build upon. Apparently, little was done between 1981 and 1984. Furthermore, in spite of an impressive list of TA in various and relevant fields, the overall output in terms of solid baseline information, operational planning and monitoring of impact (i.e. establishing an operational system) can be considered far from satisfactory. It is also suggested that the training supported by the project was inappropriate to some degree, i.e. overemphasizing technical training and underemphasizing management training. Furthermore, follow-up on the impact of training was lacking. Regrettably, the action plan described in the PP could have been followed more closely. The lack of a sound infrastructure prior to the implementation of project operations is viewed as an important contributing factor to the relatively poor performance of the project.

A.3 Lack of Integration into HSD System

The ZMCP was established prior to the PP as a vertical, semi-autonomous agency within the MOH. Therefore it was difficult to incorporate program activities into the MOH HSD in the early eighties. Furthermore, the ZMCP project promoted a vertical approach to malaria control and only indirect aspects

of integration were identified. Later in the project period, the MOH/Z moved closer towards the decentralization of HSD. With the termination of the project, the ZMCP will have to identify ways to incorporate personnel and activities into the general HSD system. Perhaps better planning for integration during the early stages of the project might have made the present transition easier.

B. Poor Project Management - ZMCP

B.1 Inefficient Procurement Process

The ZMCP had to deal with A.I.D.'s procurement process and thus had to thoroughly understand procurement mechanisms. Problems occurred because of a lack of trained ZMCP procurement staff, lack of stock control, physically separated stores, inaccurate inventories, poor telephone communications and outdated supply catalogues. Attention to detail was not strongly observed in the ZMCP system and this may have impeded efficient procurement further. Given the time and money devoted to commodity procurement in the project, a much stronger and smoother procurement capability should have been established by the ZMCP.

B.2 Lack of Standardized Procedures

Standard methods and formats for procurement were never produced. As a result procurement continued to be a problem throughout the LOP. Poor standardization may have also contributed to communication breakdowns because of specific A.I.D. regulations requiring strict attention to detail. The inventory system also suffered from a lack of standard procedures and guidelines. Even though a card-inventory system was developed, it was never fully accepted by the mission and thus commodity requests were frequently questioned. Lack of technical standardization in program implementation and evaluation contributed to lags in administrative and technical decision making. It also led to confusion in the ranks concerning how and why an activity should be undertaken. Furthermore, job descriptions were not standardized (i.e. routinely updated and detailed), nor routinely shared with peripheral staff. This also contributed to poor performance within the program and between supervisors and staff.

B.3 Inefficient Flow of Financial Support

The economy of Zanzibar suffered severe setbacks during the project period and recovery has been slow. Inflation has been high - limiting real growth and purchasing power. Thus, the dedication of GOZ funds to the ZMCP did not increase as

envisioned in the PP. Not only was the level of support decreased, but delays in the disbursement of shillings were common. This resulted in fuel shortages, irregular payment of staff and constricted hard currency purchases. Although this issue was beyond the control of the ZMCP, it did cause major problems with program implementation and consequent project progress.

B.4 Lack of Communication and Delegation of Authority

Within any administrative structure two-way communication is important for effective management. Within the ZMCP there was little evidence that there was adequate communication between senior staff and junior staff. Often staff members did not have a clear idea of what their colleagues were doing and as far as can be discerned, staff meetings occurred rarely. There was little delegation of authority and when the Director was absent, few substantial decisions were made. The lack of team management undoubtedly contributed to the lack of project success and tardy execution of operational activities.

B.5 Little Interministerial Cooperation at the Operational Level

The malaria problem seems to have been left entirely in the hands of the ZMCP and MOH/Z. Although the PP calls for an interministerial committee, there is little evidence that a sincere effort was made to broaden interministerial ties. Regrettably, even though malaria control extends into environmental, educational, cultural and political issues, a unified approach to the problem did not materialize. With the termination of A.I.D. support, the ZMCP will have to work closely with other ministries and divisions within the MOH/Z. Unfortunately, it is likely that it will take some time to build a strong intra- and interministerial network to address the complex issues facing malaria control in Zanzibar.

B.6 Insufficient Job Descriptions

Basic job descriptions were prepared during the initial stage of the project. However, these descriptions were not revised during the LOP nor used in personnel evaluations (if they occurred). Job descriptions were rarely used in the selection of personnel or as a reference point for staff training. Field staff were unclear about their own and their subordinates' responsibilities. This lack of action on job description and employee performance monitoring represents an important management deficiency which should have been recognized and rectified early in the LOP.

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C. Poor Project Management - A.I.D.

C.1 Inadequate Follow-Up on Consultant Recommendations

The distance between Zanzibar and the mainland contributed inadequate follow-up on consultant recommendations. However, between 1987 and 1989, mission follow-up significantly improved. The diversity of consultant expertise and their varied (and sometimes conflicting) recommendations also made follow-up difficult. Continuity and follow-through of and by consultants might have been facilitated if better planning of consultant TA was conducted by the mission throughout the IOP (see V.D.6, V.E.2-4).

C.2 Poor Monitoring of the Long-Term Advisor

LTA performance should have been monitored more closely by mission management. This deficiency led to sluggish implementation, poor technical planning and a missed opportunity for counterpart OTJ training in operations, laboratory management, technical planning and epidemiology. By all accounts the LTA performed below expected standards. If rigorous performance reviews occurred, this deficiency should have been identified and corrected.

C.3 Lack of Project Officer Continuity

Since the project's inception, USAID/T management changed at least four times. Even though up to 1987 all project managers were BS-50s, administrative and technical problems were encountered. Fewer project managers with longer tenures would have been preferable.

C.4 Non-Priority Status of ZMCP in USAID/T Portfolio

The physical separation and technical focus of the ZMCP may have made the project somewhat of an "orphan" within the USAID/T portfolio. The "non-priority" of the project could have encouraged a looser management than otherwise indicated. This could have compounded some of the project's technical and administrative problems.

C.5 Lack of Communication between USAID/T and ZMCP

An important aspect of program management is communication - i.e. a dialogue that leads to team work. Regrettably, a strong sense of communication was not evident, particularly during the

latter years of the project. ZMCP staff felt that their opinions were not listened to and thus felt they were at best junior partners in the program. This obviously compromised morale and project implementation. Perhaps the strongest lesson for A.I.D. management to learn is that listening is an important aspect of communication. There exists great sensitivity toward a donor taking command. ZMCP management felt a sense of a more mutual pursuit of project objectives was lacking.

D. Poor Operations - ZMCP

D.1 Lack of Effective Geographical Reconnaissance

The latest attempt to establish a working GR system began in February 1989. Early problems included different survey techniques between Unguja and Pemba, lack of supervision, unavailability of field and drafting equipment, lack of fuel, and inadequate quality control of field staff. Although numerous consultants (including the LTA) stressed the importance of establishing an effective GR system, little progress was made. The lack of GR affected control operations because the location of houses was unknown. This in turn hindered supervision, planning, implementation and evaluation of the spray operation. As of April 1990, the ZMCP has begun to map villages and number houses. Perhaps this will facilitate better monitoring of control activities in the future.

D.2 Lack of Reflective Planning Process

Advance planning is a prerequisite for efficient field operations. This seems to have been inadequate at all levels of the ZMCP. Routine workplans/schedules were sketchy (if available) and not strictly followed. Consequently operations were not completed on time and/or field teams were ill-prepared for the tasks. A clear example of the poor planning process is the delays encountered with the establishment of an effective GR system. After five years, the ZMCP is only beginning to make this system operational. One of the priorities for ZMCP management should have been interactive planning within the ZMCP and among concerned ministries. This is lack of reflective (and reactive) planning may have been the most important impediment to project success.

D.3 Insufficient Supervisory System (Quality Control)

Good supervision is directly proportional to project success. Regrettably, supervision within the ZMCP was one of its weakest links. Contributing factors include lack of training and

clearly defined duties, unclear long-term directions, a poor system of checks and balances and poor delegation of authority. Coupled with fuel and other supply constraints, weak supervision compromised project success. Senior ZMCP management failed to delegate authority and establish a "vision" of performance. Although senior staff received technical training, their management skills required greater strengthening.

D.4 Insufficient Availability of Fuel

Fuel was frequently unavailable to the ZMCP either because of short supply or lack of GOZ funds for purchase. Due to factors beyond its control, the ZMCP was unable to establish a separate fuel depot for ZMCP transport. Although both islands suffered fuel shortages, the problem was more severe on Pemba. The lack of fuel directly affected supervision of malaria agents and prevented a clear understanding of field operations and problems by the central staff. Thus quality control of activities was minimal. Both entomological and epidemiological monitoring suffered because of the fuel problems. Although the lack of fuel may not have been the sole cause of poor project performance, it was definitely a contributing cause.

D.5 Poor Data-Based Decision Making

Little attention was given to developing a good system of managing technical data. Filing was poor and the reliability of data was questionable. Essential information from reporting forms was frequently missing and little evidence was found to demonstrate that ZMCP managers attempted to improve the system. Although two computers were available during the LOP, little data were stored. This was not due to a lack of technical skill, but rather a lack of effective organization. Examples of problems caused by poor data within the ZMCP include: 1) incomplete description of DDT resistance; 2) continued use of insecticides when information suggested a change was in order; 3) inadequate planning of field activities and dedication of staff time; and, 4) delays in relating risk of disease to control operations. Regrettably, information was utilized for writing reports, but not for decision making, planning, operations or supervision.

D.6 Difficulty in Follow-Up of Consultant Recommendations

Consultant recommendations frequently present what "should" be done, but not what "can" be done under local circumstances (for example the 1987 Stokes report). The ZMCP labored under this problem because many of the recommendations were too costly or

outside the realm of project technical depth. As in all projects, there is a concern for absorptive capacity, and consultant recommendations may have exceeded ZMCP capabilities to respond. However, the ZMCP was unable to prioritize recommendations, for example, recurrent advice concerning GR and insecticide resistance monitoring. This latter problem was due to a lack of technical and administrative follow-up on the part of ZMCP staff.

E. Poor Operations - A.I.D.

E.1 Complex Procurement Process

It is likely that ZMCP personnel did not thoroughly understand A.I.D.'s procurement process. This led to delays in procurement due to poor justifications and the lack of explicit descriptions of required commodities. Perhaps if the mission devoted more effort to working with ZMCP management staff on A.I.D. procurement requirements, more efficient procurement could have been realized. Regrettably, even with the LTA based in Zanzibar (who had a major procurement responsibility), procurement was problematic.

E.2 Insufficient Long-Term Planning

The mission did not appear to devote adequate attention to long-term planning for the ZMCP. Routine Plans of Action were sketchy and responded in a somewhat Ad Hoc manner to consultant recommendations. Long-term planning was clearly the responsibility of the LTA and should have been clearly stated as an important element of his job description. Furthermore, the mission should have closely tracked progress in this area. Poor long-term planning was also reflected in a lack of cohesion of TA. Continuity was absent (until recently) and consultant recommendations sometimes contradicted other TA advice and/or PP objectives.

E.3 Inadequate Technical Monitoring

To a large extent, inadequate attention was given to technical monitoring of the ZMCP by USAID/T. The mission often relied heavily on telephone communication with the LTA rather than on site visits. During the LOP, technical expertise in malaria was weak. Only during the latter years of the project was local expertise sought at the Faculty of Medicine, U. Dar es Salaam. Towards the end of the project ZMCP managers lost confidence in the capability of USAID/T to technically monitor the project. Right or wrong, this reduced mutual confidence

and may have fueled ongoing procurement difficulties. However, most of A.I.D.'s technical failure focused on the inadequacy of the long-term technical advisor who failed to help develop a technical/managerial infrastructure within the ZMCP.

E.4 Lack of Cost-Effective Analyses

Although the project design called for a broad approach to malaria control, residual sprays were consistently in the forefront of ZMCP activities. Little attention was given to the selection and use of alternative strategies. Given all the problems associated with the application of residual sprays, particularly DDT resistance, it should have been evident that reliance on sprays was unsustainable and established goals would not be met. Amendment No.1 (6/85) attempted to focus the project, but little attention was given to possibly more cost-effective interventions such as surveillance and focal control. Greater attention to cost analyses, alternative control options, and program planning should have been made to enable the ZMCP to plan for future efforts with or without A.I.D. support.

VI. LESSONS LEARNED

- A. **An Open Dialogue is Essential** - Sound project management depends on an open dialogue between the mission and host government. Communication was difficult throughout the LOP and, during the latter years, mutual trust broke down as well. In the future, the mission should closely assess interpersonal as well as technical skills to avoid friction between A.I.D. managers and their counterparts.
- B. **Clarity/Efficiency of Procurement** - Efficient procurement was never completely realized throughout the LOP. This was due to the complexity of the A.I.D. procurement system and a lack of understanding on the part of the Zanzibaris. Future projects should devote considerable effort to instruction on commodity procurement and joint preparation of annual procurements.
- C. **TA Coordination/Follow-Up/Continuity** - Consultant recommendations are often lofty in scope and cost. This project was no exception. Mission backstopping should be able to provide clear technical direction and commensurate TA. TA which promotes continuity and rational approaches to system strengthening should be emphasized in the future. Technical management and direction of TA is also required, arguing for a technical mission backstop for sector-specific projects.
- D. **Appraisal/Monitoring of Government Commitment/Involvement** - A realistic appraisal of host government commitment and consequent devotion of resources is in order during project design and implementation. In Zanzibar, a depressed local economy impeded government support. The realities of government financial support should be assessed over the long term (and periodically updated) with best and worst case scenarios prepared and contingency plans developed.
- E. **Investment in Management** - The success of any project depends on sound management. Inadequate management (on both sides) was the single most important factor impacting on performance of the ZMCP. Improving management goes beyond management training. Future USAID/T programs should consider strengthening management systems, in a broader sense, as an important objective in their portfolio.

- F. **Foundation at the Periphery** - Programs depend on a strong cadre of trained and dedicated personnel in the field. The ZMCP did not devote enough effort to involving peripheral staff and the community in the operation of the program. Future efforts in any sector should include attention to widening the understanding of program goals and emphasizing greater peripheral staff involvement in program activities.
- G. **Role of the Technician in Project Implementation** - Perhaps greater technical involvement by USAID/T could have made a difference, however, this is debatable. Close monitoring of LT-TA and ST-TA should be done by A.I.D. technicians in order to track project progress and to provide expert advice on project implementation.
- H. **Infrastructure Development Must Precede Implementation** - Sound implementation cannot proceed without firm infrastructure support. A "cart before the horse" analysis should be included in future project design to identify weaknesses in infrastructure. Although difficult in Agency programming, projects should include substantial attention to basic infrastructure development before embarking on approaches to sector-specific problems.
- I. **Party Involvement** - The Party is an important force in Tanzania. In the ZMCP, Party power was not optimally utilized. When applicable, Party involvement should be cultivated throughout a project's LOP.
- J. **Vertical Systems vs Integrated Systems** - Vertical systems are difficult to sustain by host governments and often diminish rather than promote interministerial cooperation. Clearly the ZMCP's verticality worked against its effectiveness in the long run. Although integration is exceedingly difficult, both operationally and politically, future programming should attempt to incorporate initial steps toward integrated action into project design and implementation.
- K. **Planning for Sustainability Well In Advance of PACD** - Sustainability is a elusive and possibility illusionary term, particularly in relation to five (or ten) year plans of action. However, components of sustainability should be rationalized within project designs and specific benchmarks should be established. Expecting too much too fast should be avoided and practical steps towards sustainability should be derived.

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PERSONS CONTACTED

1. Joe Stepanek, Director, USAID/Tanzania
2. Paula Tavrow, Project Manager, USAID/Tanzania
3. Kassim Maalim, Principal Secretary, Ministry of Health and Curative Services, Zanzibar
4. Dr. Uledi, Director, Preventative Services, Ministry of Health
5. Dr. Juma Muchi, Director, ZMCP
6. Dr. Haji Mwita Haji, Deputy Medical Superintendent, V.I. Lenin Hospital
7. Abddisalaam I. Khatibu, National Program Coordinator, UNDP/FAO, Irrigation Rice Project, Zanzibar
8. Dr. J. Muludiang, WHO PHA/Liason Officer, Zanzibar
9. Dr. Mario Mariani, Project Officer, Zanzibar, Nutritional Support Project, UNICEF
10. Carolyne Maxwell, Researcher In Mosquito Control, Dept. of Medical Entomology, London School of Hygiene and Tropical Medicine.
11. Sultan Muhamed Issa, Assistant Parasitologist/Entomologist, AMCP
12. Abu Makame Pandu, Mal'aria Control Officer/Administrator, ZMCP
13. Abdulla Muhamed Abdulla, Regional Malaria Supervisor, South Region, Unguja
14. Shalli Dadi Maalim, Supplying Officer/Transport Offier, ZMCP
15. Nassor Mananga Mataka, Malaria Health Officer
16. Khamis U. Ali, Health Educator
17. Mahed Mechena Haji, Health Educator
18. M.Y. Mkanga, Health Educator
19. Khams Hassen Mtema, Health Educator
20. Huseen Ali Huseen, Health Educator

21. Idi Mbaruk Uledi, Health Educator
22. Azze Nassor Mahmed, Health Educator
23. Asseye Sulami Ali, Health Educator

TABLE 1: SUMMARY OF EOPs (CONTINUED)

EOP ANTICIPATED	EOP OBSERVED	COMMENT
D. RESIDUAL SPRAYING COVERAGE IN TARGETED STRUCTURES IS NO LESS THAN 85% DURING ANY GIVEN ROUND OF SPRAYING	THE LAST RESIDUAL SPRAYING WAS DONE IN 1987 AND COVERAGE WAS BELOW 85%. IN SOME AREAS COVERAGE WAS BELOW 50% DUE TO REFUSALS.	AT BEST, THIS LEVEL OF CONTROL COULD NOT HAVE BEEN ACHIEVED. IN FEMBA, COVERAGE WAS INCOMPLETE. MALATHION ODER AND WRONG FORMULATIONS WERE PROBLEMS. DDT RESISTANCE CAUSED PUBLIC REFUSALS. ROUTINE SUPERVISION WAS A MAJOR PROBLEM.
E. THE OUT-PATIENT MALARIA ATTENDANCE RATES IN HOSPITALS AND HEALTH CLINICS SHOULD NOT EXCEED 10% OF TOTAL PATIENTS IN ATTENDANCE	IN 1987 INFATIENT MALARIA ACCOUNTED FOR 34.8% OF ALL DIAGNOSES. IN 1989, OUTFATIENT MALARIA ACCOUNTED FOR 30% OF ALL DIAGNOSES. IT IS REASONABLE TO INFER THAT MALARIA IS INCREASING IN ZANZIBAR.	THIS EOP OBJECTIVE WAS UNREALISTIC GIVEN THE RELATIVELY SHORT LOP. CHARACTERISTICS OF LOCAL EPIDEMIOLOGY WERE UNDERESTIMATED. LESSONS LEARNED FROM MALARIA CONTROL ELSEWHERE WERE NOT TAKEN INTO ACCOUNT.
F. THE MALARIA CASE FATALITY RATE (LABORATORY CONFIRMED) IN HOSPITALS AND HEALTH CLINICS SHOULD NOT EXCEED 0.4%	MALARIA CONTINUES TO BE THE LEADING CAUSE OF DEATH IN ZANZIBAR ACCOUNTING FOR 31.5% OF ALL DEATHS IN 1987. SAIDY, THIS STATISTIC DID NOT DECREASE DURING THE LOP.	THIS EOP OBJECTIVE WAS UNREALISTIC GIVEN THE RELATIVELY SHORT LOP. CHARACTERISTICS OF LOCAL EPIDEMIOLOGY WERE UNDERESTIMATED. LESSONS LEARNED FROM MALARIA CONTROL ELSEWHERE WERE NOT TAKEN INTO ACCOUNT.

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TABLE 1: SUMMARY OF EOPS (CONTINUED)

EOP ANTICIPATED	EOP OBSERVED	COMMENT
<p>G. 95% OF ALL HOUSES IN RURAL AREAS OF THE COUNTRY ARE VISITED BY MALARIA ACTIVE CASE DETECTION AGENTS AT LEAST ONCE EVERY MONTH</p>	<p>ACTIVE CASE DETECTION WAS NOT ACCOMPLISHED. APPARENTLY IT WAS DISCONTINUED ON THE RECOMMENDATION OF THE 1986 EXTERNAL REVIEW.</p>	<p>THE RECOMMENDED ACTION WAS VALID. HOWEVER, COULD HAVE CONTINUED TO LOCATE MALARIA CASES AND PROMOTE GREATER USE OF THE HSD SYSTEM. LACK OF GR CURTAILED OUTREACH. THE ROLE OF MALARIA AGENTS WAS UNCLEAR TO RURAL HEALTH WORKERS.</p>
<p>H. 100% OF ALL GOZ HEALTH INSTITUTIONS HAVE RECEIVED DIRECTIVES DESCRIBING APPROPRIATE DRUG TREATMENT AND ARE FULLY SUPPLIED WITH ANTI-MALARIALS</p>	<p>EOP OBJECTIVE MET IN THEORY. DIRECTIVES ISSUED, TRAINING CONDUCTED, MONTHLY DRUGS SUPPLIED BY EDP. FOLLOW-UP REMAINS POOR.</p>	<p>TREATMENT SCHEDULED NOT ALWAYS FOLLOWED BY HEALTH WORKERS. CONFUSION EXISTED ON TREATMENT SCHEDULES. POOR DX AND CQ RESISTANCE CAUSED CONFUSION. SEASONAL DEMAND RARELY CONSIDERED.</p>
<p>I. AN ADEQUATE SYSTEM OF TECHNICAL AND OPERATIONAL EVALUATION IS IN PLACE WITHIN THE PROGRAM WITH TRAINED SUPERVISORY STAFF</p>	<p>NEVER ACHIEVED.</p>	<p>POOR ANNUAL PLANNING, POOR TRAINING OF SUPERVISORS, INADEQUATE HANDLING OF TECHNICAL INFORMATION, FUEL SHORTAGES AND OTHER CONSTRAINTS WERE NOT ADEQUATELY ADDRESSED BY THE ZMCP OR USAID/T.</p>

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TABLE 2: SUMMARY OF USAID AND GOZ PROJECT INPUTS
(USAID INPUTS)

INPUT ANTICIPATED	INPUT OBSERVED	COMMENT
A. PROVISION OF APPROXIMATELY FOUR AND A HALF YEARS OF LONG-TERM TECHNICAL ASSISTANCE	A SENIOR MALARIOLOGIST WAS ASSIGNED TO THE PROJECT FOR ABOUT FOUR YEARS. A PCV WAS ASSIGNED FOR A SHORT TIME TO WORK WITH THE MOTOR POOL.	TWO LTA POSITIONS WERE ORIGINALLY ENVISIONED, BUT ONLY ONE WAS FILLED. UNFORTUNATELY THE MALARIOLOGIST SPENT MOST OF HIS TIME ON ADMINISTRATION AND PROCUREMENT. BETTER SUPERVISION OF THE COP WOULD HAVE BEEN DESIRABLE.
B. PROVISION OF 40 PERSON-MONTHS OF SHORT-TERM TA FOR SPECIFIC ACTIVITIES	ST-TA WAS UTILIZED IN PROCUREMENT, WAREHOUSE MANAGEMENT, SPRAYING, TRAINING, SUPERVISION, ENTOMOLOGY, AND ENVIRONMENT MANAGEMENT. TOTAL ST-TA EXCEEDED 30 PERSON-MONTHS. ADDITIONAL TA WAS PROVIDED BY WHO AND OTHER INSTITUTIONS.	WITH THE ADDITIONAL TA PROVIDED, A.I.D.-SUPPORTED TA WAS SUFFICIENT. WEARNESS CAME FROM A LACK OF CONSULTANT COORDINATION AND THE INABILITY OF THE ZMCP TO FOLLOW-UP ON RECOMMENDED ACTIONS.
C. SIX MSc LEVEL DEGREES FOR SENIOR PERSONNEL; SEVEN PARTICIPANTS FOR SHORT COURSES IN U.S.; 21 PARTICIPANTS FOR THRID COUNTRY TRAINING; SIX PARTICIPANTS FOR 3 MONTHS OF EPIDEMIOLOGY TRAINING.	MSc COURSES COMPLETED (4 STILL EMPLOYED WITH ZMCP); 6 ATTENDED SHORT COURSES IN THE USA AND A FEW OTHERS ATTENDED SPECIAL COURSES. 5 RECEIVED EPIDEMIOLOGICAL TRAINING AND 29 PARTICIPATED IN STUDY TOURS.	TRAINING WAS PROVIDED IN A WIDE RANGE OF AREAS, AND SUCCESSFULLY COMPLETED. ALTHOUGH SUFFICIENT, TRAINING WAS NEVER EVALUATED. OCCASIONALLY POOR CANDIDATES WERE SELECTED! FURTHERMORE, CIRCUMSTANCES OFTEN PREVENTED APPLICATION OF ACQUIRED SKILLS.

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TABLE 2: SUMMARY OF USAID AND GOZ PROJECT INPUTS
(USAID INPUTS CONTINUED)

INPUT ANTICIPATED	INPUT OBSERVED	COMMENT
<p>D. NINE STAFF STUDY TOURS OF 3-6 WEEKS EACH IN THIRD COUNTRIES - INTERNATIONAL CONFERENCE ATTENDANCE BY DIRECTOR, DEPUTY AND COP.</p>	<p>SIX SENIOR STAFF RECEIVED SPECIAL TRAINING IN P.M.C. ENTOMOLOGY AND MANAGEMENT. SENIOR STAFF ATTENDED INTERNATIONAL CONFERENCES IN MALANI, HAWAII, THE NETHERLANDS AND ARUSRA.</p>	<p>ATTENDANCE AT INTERNATIONAL CONFERENCES WAS ADEQUATE. THE APPLICATION OF THE KNOWLEDGE GAINED FROM THOSE CONFERENCES IS QUESTIONABLE.</p>
<p>E. 30 FOUR WHEEL VEHICLES PLUS REPLACEMENT OF 10 FWD VEHICLES; ONE 3-TON TRUCK AND 520 TWD VEHICLES</p>	<p>THREE 3-TON TRUCKS; 15 LANDROVERS; 6 ISUZUS; 14 PICK-UPS; 12 SCOOTERS; 18 MOTORCYCLES AND 350 BICYCLES WERE PROVIDED.</p>	<p>THE NUMBER OF VEHICLES SHOULD HAVE BEEN SUFFICIENT. PROBLEMS EXISTED IN MAINTENANCE AND GARAGE MANAGEMENT. FUEL SUPPLY AND SHORTAGE OF CRITICAL SPARES REDUCED EFFICIENCY. HOWEVER, ALTHOUGH PROBLEMS EXIST THE VEHICLE MAINTENANCE SYSTEM IS FUNCTIONING.</p>
<p>F. TWO COMPUTERS AND PRINTERS</p>	<p>TWO APPLE COMPUTERS AND PRINTERS PURCHASED. NONFUNCTIONAL DUE TO LACK OF STAGE PARTS.</p>	<p>COMPUTERS HAVE NOT FUNCTIONED SINCE 1988. THEY WERE IN ACTIVE USE PRIOR TO BREAKDOWN. REGRETTABLY PROBLEMS WITH PROCUREMENT PREVENTED THEIR TIMELY REPAIR.</p>

TABLE 2: SUMMARY OF USAID AND GOZ PROJECT INPUTS
(USAID INPUTS CONTINUED)

INPUT ANTICIPATED	INPUT OBSERVED	COMMENT
G. CONSTRUCTION OF GARAGE AND WAREHOUSE ON UNGUJA AND PERBA.	BOTH FACILITIES ARE PARTIALLY FINISHED WITH STRUCTURES COMPLETED, BUT WITH EXTERNAL AND INTERNAL FINISHING REQUIRED.	DESIGN AND CONSTRUCTION TOTALLY UNACCEPTABLE. USAID/T SHOULD HAVE WITHHELD PAYMENT UNTIL THE WORK WAS SATISFACTORILY COMPLETED. THE HIGH COST AND POOR PRODUCT IMPLIES POOR JUDGEMENT ON USAID/T AND THE GOZ.

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TABLE 2: SUMMARY OF USAID AND GOZ PROJECT INPUTS
(GOZ INPUTS)

INPUT ANTICIPATED	INPUT OBSERVED	COMMENT
A. RECRUITMENT AND SALARY SUPPORT OF ALL NATIONAL STAFF REQUIRED BY THE PROJECT AT HEADQUARTERS AND PERIPHERY, INCLUDING TEMPORARY STAFF.	DUE TO INTERUPTION OF SPRAY CYCLES MANY TEMPORARY STAFF RELEASED. MALARIA AGENTS ARE BEING SECONDED TO OTHER PROGRAMS SUCH AS UNICEF. FURTHER STAFF REDUCTIONS LIKELY. CORE HEADQUARTER STAFF RELATIVELY SECURE.	RELIANCE ON RESIDUAL SPRAYS NOT SUSTAINABLE IN TERMS OF SUPPLIES OR STAFF. SHIFTING PRIORITIES TO BETTER DX AND TREATMENT MAY REDUCE RECURRENT AND CORE COSTS. GOZ STAFF SUPPORT WILL BE REQUIRED IN THE FUTURE.
B. ANNUAL IN-SERVICE TRAINING OF SCHOOL TEACHERS AND HEALTH WORKERS. IN-SERVICE TRAINING OF MALARIA AGENTS, SPRAYMEN, LABORATORY TECHNICIANS AND ENTOMOLOGY ASSISTANTS.	ANNUAL TRAINING ONGOING EXCEPT FOR SPRAYMEN. SOME RETRAINING FOR MALARIA AGENTS. TEACHER TRAINING IS A JOINT EFFORT BETWEEN THE ZMCP AND THE HEU.	TRAINING LACKS EVALUATION AND FOLLOW-UP. SOME TRAINING MAY BE INADEQUATE - DIFFICULT TO ASSESS. COOPERATION BETWEEN ZMCP AND HEU IS GOOD. MANUALS ARE MISSING.
C. CHLOROQUINE, FUEL, SPARES FOR PROJECT MAINTENANCE	PURCHASE OF CQ CONTINUES WITH EDF SUPPLY TO PERIPHERY - MAY SUPPLY TO HOSPITALS IN FUTURE. FUEL SHORTAGE CONTINUES TO BE PROBLEMATIC. SOME LOCAL CURRENCY AVAILABLE FOR PARTS - HARD CURRENCY UNAVAILABLE.	CQ FLOW APPEARS SECURE (VIA GOZ, UNICEF, EDF). FUEL AND PARTS SCARCITY RESULT OF OVERALL ECONOMIC SITUATION ON ZANZIBAR. SHORTAGES WILL CONTINUE INTO FORESEEABLE FUTURE.

(YKB/INFUTS/5/8/90)

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