タンザニア国
包括的マラリア対策プロジェクト
第1次・第2次事前評価調査報告書

平成16年3月
（2004年）

独立行政法人　国際協力機構
医療協力部

序　　文

タンザニア連合共和国において、マラリアによる年間死亡者は10万人を超え、HIV／AIDSと並んで最重要疾患のひとつとなっています。

近年、世界のマラリア対策は、ロールバック・マラリア・イニシアティブに沿って進められていますが、そのうちの一戦略である「早期診断と治療」については、マラリア死を軽減するうえで、とりわけ重要となっています。

JICAは1993年から2002年11月まで、マラリア重篤患者の看護管理とアクリジン・オレンジ染色法（AO法）を使ったマラリア迅速診断法の２つについて、現地国内研修を中心としたマラリア対策プロジェクトを実施しました。タンザニア連合共和国政府はこのプロジェクトを高く評価し、AO法の第１次医療施設レベルへの拡大、マラリア重篤患者の看護管理を通じて、マラリア迅速診断・治療の強化に資することが期待されています。

かかる背景から現在、都市部で深刻化している都市マラリア対策と併せて、AO法の第１次医療施設レベルへの拡大、包括的小児疾患管理（IMCI）と連携したマラリア重篤患者の看護管理について、今般、我が国に対して技術協力の要請がなされました。

これを受け、JICAは、技術協力プロジェクトによるマラリア早期診断強化計画（仮称）プロジェクト実施の可能性について調査すべく、第１次事前評価調査団を2003年11月13日から12月３日、第２次事前評価調査団を2004年２月７日から３月４日までの日程で派遣しました。本報告書は、両調査団の調査結果を取りまとめたものです。

ここに、本調査にご協力を賜りました関係各位に対しまして、深甚なる謝意を表しますとともに、今後のプロジェクトの実施に向けて、一層のご協力をお願い申し上げます。

2004年３月

独立行政法人 国際協力機構
理事　松岡　和久

略　語　集

AO	Acridine Orange
AIDS	Acquired Immunodeficiency Syndrome
GFATM	Global Fund to Fight AIDS, TB and Malaria
CIPAC	Centre of International Parasite Control
DES	City of Dar es Salaam
DHMT	District Health Management Team
DMO	District Medical Officer
ESACIPAC	Eastern & Southern Africa Centre of International Parasite Control
HIV	Human Immunodeficiency Virus
ICTC	In-Country Training Course
IMCI	Integrated Management of Childhood Illness
ITN	Insecticide Treated Net
MOH	Ministry of Health
MSD	Medical Store Department
MelSAT	Medical Laboratory Scientiests Association of Tanzania
NMCP	National Malaria Control Programme
NIMR	National Institute of Medical Research
PCM	Project Cycle Management
PDM	Project Design Matrix
RHMT	Regional Health Management Team
RBM	Roll Back Malaria
RMO	Regional Medical Officer
STI	Swiss Tropical Institute
SP	Sulfadoxine-Pyrimethamine
TNG	City of Tanga
UMCP	Urban Malaria Control Programme
ZMCP	Zanzibar Malaria Control Programme
WHO	World Health Organisation

要　　約

2003年11月13日から12月3日、2004年2月7日から3月4日の2度にわたり、タンザニア連合共和国（以下、「タンザニア」と記す）における本プロジェクトの実施を踏まえた事前評価調査団を派遣した。調査方法は、初めに関係省庁及び関係機関からの聞き取り及びアンケート調査を実施。次に、関係省庁及び関係機関の参加によりプロジェクト・サイクル・マネージメント（PCM）ワークショップを行い、問題分析、目的分析、関係者分析調査を実施して、プロジェクト・デザインを行った。以下、調査の要約である。

タンザニアにおけるマラリア対策は、1989年から2002年まで断続的に実施された。そのなかでも1993年から2002年まで行われた検査・看護分野の現地国内研修は、同国におけるマラリア疾病対策に大きな功績を残したと同国保健省から評価されている。このような状況のなか、同国政府は、2003年に日本政府に対して新たなマラリア対策への支援を要請。この要請に基づき、前述の日程で調査団を派遣した。

要請は、アクリジン・オレンジ染色法（AO法）を使ったマラリア迅速診断の普及、包括的小児疾患管理（IMCI）との連携による重篤マラリア患者の看護、環境衛生面からの都市マラリア対策、の3点から成る。調査はその妥当性、実施の可能性から要請内容を検証した。

その結果、現地国内研修については前フェーズにて作成された研修カリキュラム、内容を改訂し、現地国内研修を実施し、その効果のモニタリング・評価を強化することとなった。

また、顕微鏡の修理体制、試薬・備品の供給体制の強化も行うこととした。

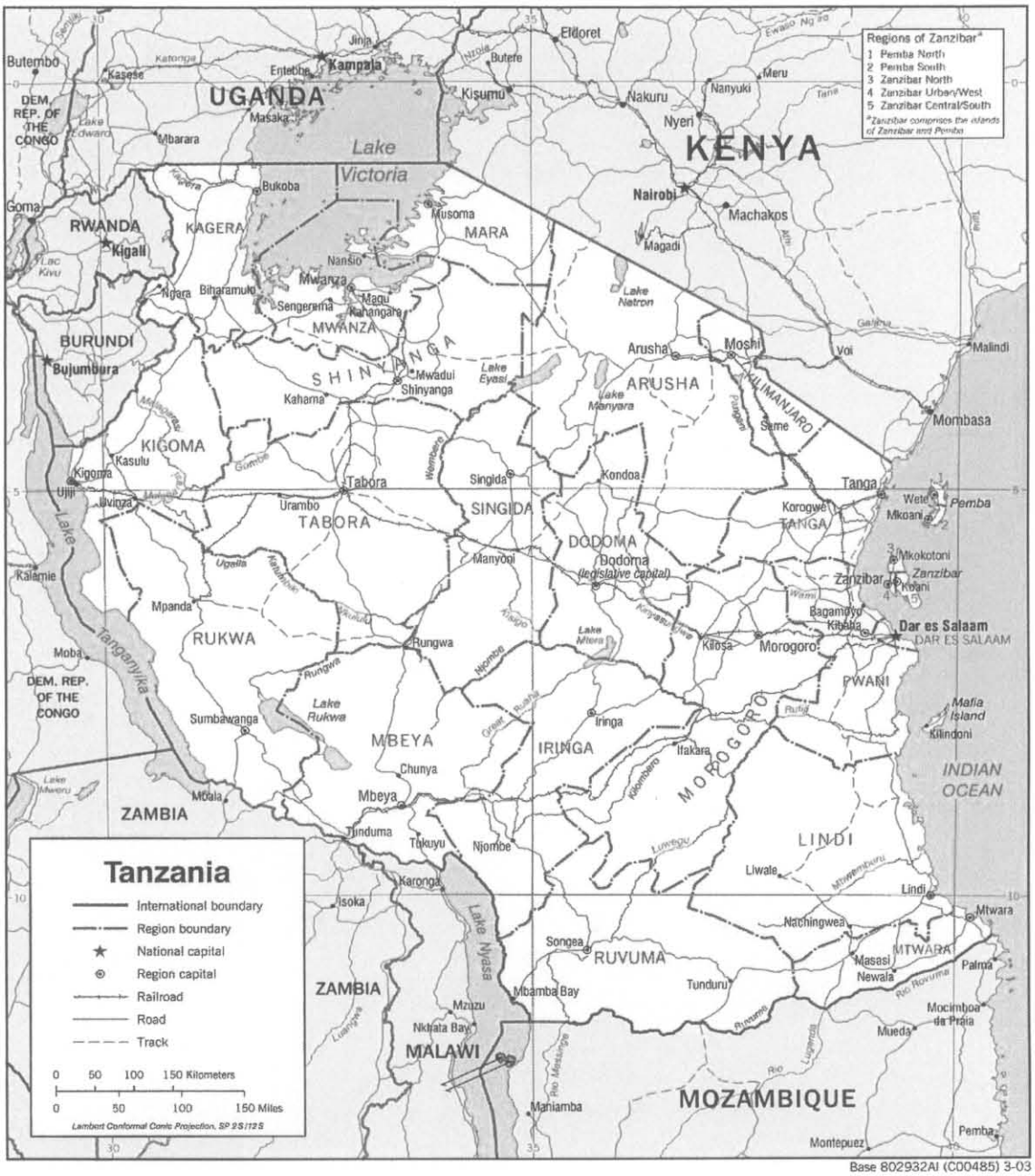
都市マラリア対策については、主たる活動を、住民参加型でダルエスサラーム市の既存マラリア排水溝の清掃・保全と限定し、実施することとなった。

日本側の投入は、長期アドバイザー1名と各分野への短期専門家の派遣、AO法顕微鏡の供与が主たる投入である。

以前のマラリア対策プロジェクトでは、対象地域をタンザニア全土としていたため、プロジェクトのインパクトが測りにくかったので、本期プロジェクトでは対象地域を絞って実施することとした。なかでも行政上の問題からマラリア対策が遅れていたザンジバルへの協力を行う。

3つの活動課題からの総合的なインパクトをモニタリング・評価するなど、2002年まで実施されていたマラリア対策プロジェクトの弱かった部分を地域及び戦略的に強化したプロジェクト・デザインとなった。

タンザニア地図


Regions of Zanzibar*
1 Pemba North
2 Pemba South
3 Zanzibar North
4 Zanzibar Urban/West
5 Zanzibar Central/South
*Zanzibar comprises the islands of Zanzibar and Pemba
UGANDA
KENYA
RWANDA
BURUNDI
ZAMBIA
MALAWI
MOZAMBIQUE
DEM. REP. OF THE CONGO
DEM. REP. OF THE CONGO
Lake Victoria
Lake Tanganyika
Lake Nyasa
Lake Rukwa
Lake Natron
Lake Eyasi
Lake Manyara
Lake Mtera
Lake Mweru
INDIAN OCEAN
Kampala
Nairobi
Kigali
Bujumbura
Dodoma
(legislative capital)
Dar es Salaam
DAR ES SALAAM
Zanzibar
Pemba
Mombasa
Arusha
Moshi
Tanga
Morogoro
Iringa
Mbeya
Songea
Mtwara
Lindi
Kigoma
Tabora
Singida
Mwanza
Musoma
Bukoba
Kisumu
Eldoret
Nakuru
Nyeri
Machakos
Malindi
Voi
Mafia Island
Kilindoni
KAGERA
MARA
MWANZA
SHINYANGA
ARUSHA
KILIMANJARO
KIGOMA
TABORA
SINGIDA
DODOMA
TANGA
MOROGORO
PWANI
RUKWA
MBEYA
IRINGA
LINDI
MTWARA
RUVUMA
Tanzania
International boundary
Region boundary
National capital
Region capital
Railroad
Road
Track
0 50 100 150 Kilometers
0 50 100 150 Miles
Lambert Conformal Conic Projection, SP 2S/12S
Base 802932AI (C00485) 3-03

調査中の写真

バーゼル、スイス熱帯研究所での協議

NMPC での協議（ダルエスサラーム）

MeISAT 総会（タンガ）

MSD に登録されている AO 試薬

臨床検査研修施設（タンガ）の視察

マラリア排水溝視察（タンガ）

ザンジバル、ナジモジャ病院検査室の視察

ミニッツ締結（第１回事前調査）

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第Ⅰ部
第１次事前評価調査

目　　次

第１章　調査概要

１－１　調査団派遣の目的／背景

タンザニア連合共和国（以下「タンザニア」と記す）におけるマラリアの年間患者数は1,400万人から1,800万人にものぼり、全医療施設の外来患者の40％を占める。うち110万人は入院による治療が必要な重篤な症例であり、年間約10万人がマラリアにより死亡している。マラリアはHIV／AIDSと並んで、タンザニアにおける最重要疾患のひとつである。タンザニア全土の80％以上は「マラリア浸淫地域」に分類され、マラリアで死亡する患者の大半が５歳未満児及び妊婦である。タンザニアでは熱性疾患に対し、臨床診断のみによるクロロキン投与や医師の診断なしに熱性疾患罹患者が市販のクロロキンを服用することなどが原因で、クロロキン耐性マラリアが増加したと予測される。そのためタンザニア政府は、2000年からSP合剤（商品名：ファンシダール）を第一選択薬として取り入れている（東アフリカ諸国では、クロロキン耐性マラリアの流行がみられるほとんどの国々で、いまだクロロキンが第一選択薬として用いられているのが現状である）。

タンザニア保健省は新たなマラリア対策として、国家マラリア対策プログラム（NMCP）2002-2007を策定して、実施を進めている。これには世界保健機関（WHO）の「ロールバック・マラリア・イニシアティブ（RBM）」の強い影響があり、RBMの基本である「早期診断、早期治療」が強調されている。JICAは国家マラリア対策プログラムを支援するため1993年から2002年まで、アクリジン・オレンジ染色法（AO法）を使ったマラリア迅速診断法及び看護師に対する重篤マラリア患者管理、早期治療法について現地国内研修（開始時の名称は「第二国研修」）を実施してきた。その結果、1999年にはAO法を使ったマラリア診断法が、タンザニア臨床検査技師会及び保健省よりマラリア標準診断法の１つとして認定された。タンザニア保健省はAO法を使った更なるマラリア迅速診断、及び包括的小児疾患管理（IMCI）に基づいた看護師によるマラリア患者看護法の地方への普及を図るため、日本に対して「AO法マラリア診断」と「マラリア疾患管理」の現地国内研修、並びに都市マラリア対策への技術協力の要請があった。都市マラリア対策については、1996年までダルエスサラーム市とタンガ市でJICAの技術協力が実施されていた経緯があり、その後スイス熱帯研究所（STI）・プリンストン大学などの国際ドナーに引き継がれている。

ついてはタンザニアのマラリア対策プログラムを支援するため、日本の地域的な寄生虫対策協力を考慮し、どのような協力方法、内容が最も適切であるか、具体的に検討・評価することを目的として、調査団を派遣した。

１－２　調査団構成

	団員氏名	担当業務	所　属　先
1	高橋　央 Dr. Hiroshi Takahashi	総　括 Leader	国際協力機構国際協力総合研修所 国際協力専門員 Senior Advisor, Institute For International Cooperation (IFIC), Japan International Cooperation Agency (JICA)
2	山形　洋一 Dr. Yoichi Yamagata	マラリア対策 Malaria Control	国際協力機構国際協力総合研修所 国際協力専門員 Senior Advisor, Institute For International Cooperation (IFIC), Japan International Cooperation Agency (JICA)
3	天野　皓昭 Dr. Hiroaki Amano	国際寄生虫対策 International Parasite Control	ケニア国　国際寄生虫対策プロジェクト チーフアドバイザー Chief Advisor, International Parasite Control Project
4	石島　久裕 Mr. Hisahiro Ishijima	保健協力 Health Cooperation	国際協力機構医療協力部医療協力第二課 ジュニア専門員 Associate Expert, 2nd Medical Cooperation Division, Medical Cooperation Department Japan International Cooperation Agency (JICA)
5	Dr. Charles Mwandawiro	地域寄生虫対策 Regional Parasite Control	ケニア国　国際寄生虫対策東南アフリカセンター所長／プロジェクトカウンターパート Director/Project Coordinator, Eastern and Southern Africa Centre of International Parasite Control (ESACIPAC)

１－３　調査行程

2003 年 11 月 13 日から 12 月 3 日まで、ダルエスサラーム、タンガ、ザンジバルを中心に本調査を実施した。なお、往路でスイス・バーゼルに立ち寄り、STI で協議を行った。調査行程の詳細は、下記のとおりである。

Day	Date	Itinerary	Sojourn
1	2003/11/13（Thu）	移動　成田⇒チューリッヒ⇒バーゼル LX 4281　10:00 － 14:35 － 17:14	Basel
2	2003/11/14（Fri）	STI で協議	Basel
3	2003/11/15（Sat）	移動　バーゼル⇒アムステルダム⇒ダルエスサラーム LX 708　7:25 － 9:00　KL 571　10:55 － 23:25	Dar es Salaam
4	2003/11/16（Sun）	休日　調査団事前打合せ 天野・ムワンダウィロ団員　ケニアより参団	Dar es Salaam
5	2003/11/17（Mon）	AM JICA タンザニア事務所との打合せ、在タンザニア日本大使館表敬 PM 保健省診断局表敬、予防局環境担当官との協議、WHO との協議	Dar es Salaam
6	2003/11/18（Tue）	AM NMCP 表敬、国立医学研究所（NIMR）との協議 PM タンガに移動	Tanga
7	2003/11/19（Wed）	AM タンザニア臨床検査技師会（MelSAT）総会出席 PM タンガ AO 法研修センター視察・調査 AO 法利用医療施設視察・調査	Tanga
8	2003/11/20（Thu）	AM MelSAT 総会出席 PM 山形団員による AO 法についての基調講演とグループ討議（出席者を選抜）	Tanga
9	2003/11/21（Fri）	AM MelSAT メンバーとの意見交換	Tanga
10	2003/11/22（Sat）	AM ダルエスサラームに移動 PM 団内会議	Dar es Salaam
11	2003/11/23（Sun）	休日　天野・ムワンダウィロ団員　離タンザニア 高橋団長、山形・石島団員　ザンジバル　移動	Zanzibar
12	2003/11/2（Mon）	ザンジバル　マラリア対策プログラムとの協議 ザンジバル　保健省との協議 ザンジバル　WHO との協議	Zanzibar
13	2003/11/25（Tue）	ザンジバル　フィールド調査、ダルエスサラームに移動	Dar es Salaam
14	2003/11/2（Wed）	ラマダン休日　フィールド調査（排水溝視察ほか）	Dar es Salaam
15	2003/11/27（Thu）	ラマダン休日　フィールド調査（発生源視察ほか）	Dar es Salaam
16	2003/11/28（Fri）	Medical Store Department（MSD）との協議 ダルエスサラーム市都市マラリア対策関係局との協議 JICA タンザニア事務所との協議	Dar es Salaam
17	2003/11/29（Sat）	休日　資料整理	Dar es Salaam
18	2003/11/30（Sun）	休日　簡易報告書作成	Dar es Salaam
19	2003/12/01（Mon）	AM 保健省とのミニッツ締結、JICA タンザニア事務所報告 PM 大使館表敬、 WHO との協議 移動　ダルエスサラーム⇒チューリッヒ LX 293　23:45 － 8:00（+1）	Plane
20	2003/12/02（Tue）	移動　チューリッヒ⇒成田 LX 168　13:05 － 8:55（+1）	Plane
21	2003/12/03（Wed）	成田着　8:55	

１－４　主要面談者

Institute	Name	Position
スイス熱帯研究所（STI）	Dr. Marcel Tanner	Professor & Director, Swiss Tropical Institute
在タンザニア日本大使館	平山一等書記官	First Secretary, Embassy of Japan in Tanzania
タンザニア保健省（MOH）	Ms. M. J. Mwaffisi	Permanent Secretary of Tanzania MOH
	Dr. Mzige	Director of Preventiveservices, MOH
	Dr. Magoma	Head of Sanitation and Environment, MOH
世界保健機関（WHO） タンザニア事務所	Ms. Ritha John A. Njau	National Professional Officer, Malaria Control
	Dr. Cornelia A. Atsyar	EPI Country Epidemiologist
国立医学研究所（NIMR）	Dr. Mwece Malesela	Director of Research Coordination & Promotion
	Dr. Leonard Mboera	Malaria Alart Officer
タンザニア国家マラリア対策 プログラム（NMCP）	Dr. A. Mwita	Programme Manager, NMCP
	Dr. W. Marero	NMCP Officer
タンザニア臨床検査技師会 （MelSAT）	Mr. G. Kisyomb	MelSAT President
	Mr. T. C. Mshana	MelSAT Secretary General
タンガ地域医療局	Dr. Muhando	Regional Medical Ofiicer
	Mr. Murogo	Regional Chief Laboratory Technologist
Vector Control Training Centere	Dr. Mugenda	Director, Vector Control Training Centere
NIMR ムヘザ支所	Dr. Robert Malima	Station Ofiicer
タンガ市医療局	Mr. Minja	Acting Health Officer, Tanga Municipality
ガラノス高等学校	Mr. Kinal	School Master, Galanos Secondary School
ザンジバル国家マラリア対策 プログラム（ZMCP）	Mr. Mwinyi Issa Msellem	Health Laboratory Scientific Officer
	Mr. Ali	Assistant Health Laboratory Scientific Officer
	Mr. Mucha	Malaria Control Programme Officer
ザンジバル保健省	Mr. Juma Rajob Juma	Director of Preventiveservices
世界保健機関（WHO） ザンジバル事務所	Dr. F. R. Zawaira	Public Health Advisor
Medical Store Department （MSD）	Dr. Jay A. Drosin	Director General
	Mr. Per Kronslev	Senior Logistical Advisor
ダルエスサラーム市 都市マラリア対策	Mr. Thomas C. Mshana	Municipal Laboratory Technologist, Ilala District
	Mr. Mohamed S. Mkunba	Senior Public Health Engineer, DES City Council
	Mr. George Wiliiam	Malaria Control Coordinator, Temeke District
	Mr. Abraham Mwanbona	Malaria Control Officer, Ilala District
	Ms. Khadija Kannady	HMIS Coordinator, Ilala District
	Dr. Mauylad Ntiro	Ilala MMOH
	Ms. Fatums Maduha	Senior Health Officer, Ilala District
	Mr. Michel Kiama	Health Planning Coordinator, Ilala District

１－５　調査方法

現地JICA事務所と協議のうえ、下記の点について調査を行った。南東アフリカにおける日本の寄生虫対策協力の方針を本プロジェクトへも反映させるため、ケニア国国際寄生虫対策プロジェクトの天野チーフアドバイザーとケニア国国際寄生虫対策東南アフリカセンター（ESACIPAC）所長でプロジェクトカウンターパートのムワンダウィロ博士が現地参団し、ESACIPACとの連携の可能性について調査した。

① 2003年11月19日から21日に開催されたMelSAT総会への参加を通じ、MelSAT及び保健省に対してAO法の位置づけについて聞き取り調査を実施。

② MelSAT総会のなかで行われたワークショップにおいて、AO法実施と普及に係る問題点について協議。またその改善法について参加者と意見交換、アンケート調査を実施。

③ 新規プロジェクト開始に係る協力内容及び先方からの要請事項（現地国内研修、都市型マラリア対策ほか）について先方政府、関係機関と協議。またESACIPACとの連携の可能性について団内で協議。

④ 国連機関、国際ドナーのマラリア対策への支援状況について調査し、連携可能な案件について協議。

⑤ プロジェクトの円滑な遂行のために必要となる後方支援内容、及び留意事項について、現地JICA事務所と協議。

第２章　スイス熱帯研究所

スイス熱帯研究所（STI）は、国際保健プロジェクトの実施、疫学調査、熱帯感染症の研究と教育等を行っており、スイス北部バーゼルにある。STIはタンザニアにおいてマラリア対策に長らくかかわっており、多くの経験を有している。またダルエスサラーム市のマラリア対策は、JICAが実施してきた技術協力の実績を基に活動を展開している。現在、タンザニアにおいてSTIが実施している研究、事業との連携の可能性について協議を行った。

タンザニアのマラリア対策に関して、JICAは他のドナーとは違うアプローチをしているユニークなプロジェクトを10年にわたり実施し、マラリア診断について貢献しているとの意見があった。STIの次期プロジェクトでは、都市マラリア対策への協力を計画しているが、これに関係してSTIはダルエスサラーム市におけるマラリアの棲息地、媒介蚊の習性を調査し、環境衛生面での研究を進めている。STIの研究成果や情報を共有して、日本のプロジェクトを実施することは、有効な手段と考える。また、各種サーベイの委託先としても非常に信頼できる機関の１つであり、現地での情報共有やJICAプロジェクトのモニタリング・評価についても、協力を検討すべきと考える。

今日までの日本の技術協力に対して、STIは敬意と興味を抱いており、ターナー所長自らが長い時間を割き、ほかにも多くの関係者が協議に応じてくださった。

第３章　タンザニア臨床検査技師会総会

タンザニア臨床検査技師会（MelSAT）は、高学歴の臨床検査技師（Medical Technologists）が中心会員となっており、医療従事者職能団体のなかでも最も有力な団体の１つである。MelSAT総会は毎年開かれており、2003年はタンガ市にあるムコンゲホテル・カンファレンスホールにて、2003年11月19日から21日の３日間開催された。今回のテーマとして「Early Laboratory Diagnosis of Malaria」が取り上げられ、JICA現地事務所が共催者となって、AO診断法についての特別セッションも設けられた。

３－１　AO法についての発表と意見交換

2003年11月20日、AO法について①検査精度、②供与機材の利用、③AO法の検査／診断システムへの貢献などについて発表があった。これらの発表についてMelSAT総会参加者からは質問やコメントが出され、AO法について大変活発な意見交換が行われた。

1994年にAO法が紹介されて以来、AO法を導入した全施設のうち、約60％の施設で迅速かつ正確、簡便なマラリア診断が行われるようになった。しかしその他多くの施設では、いまだ臨床診断のみによる抗マラリア薬の処方が行われており、SP合剤に対する耐性も出現している。このため、タンザニア政府はマラリア治療ガイドラインを改定し、２剤併用治療に変更しつつある。このような状況のなか、MelSATとして、検査診断に基づく適切なマラリアの治療が重要であり、他の鏡検法に比べて安価で迅速かつ正確なマラリア診断が可能なAO法を拡充していくことが必要であるとの決議がなされた。一方でAO法を使用しての診断に関し、顕微鏡の修理ができない、試薬や備品の供給がされない、などの問題点があげられた。また研修受講者からは、リフレッシュメント研修の実施を望む声が多く聞かれた。これに対してMedical Store Department（MSD）代表から、試薬、備品の供給体制は整っているとの説明があり、注文法の周知徹底を促す発言があった。現場でAO法を実践する彼らの意見は貴重であり、今般の本会への参加は有意義だった。またMelSAT会員からも、特別セッションへの賛辞があった。

本プロジェクトでは、MSD、医療機器保守管理部門と連携し、顕微鏡保守体制、AO法試薬／備品供給システムの構築と運営に技術協力を行うとともに継続的モニタリングを実施する必要がある。また、検査サイドで迅速に検査を実施するだけでなく、診療サイドの理解を深めるとともに、診療＝検査－診断－治療という一連の流れを円滑に行う体制を支援することが必要であると考える。

３－２　AO法についてのアンケート調査結果

2003年11月に開催されたMelSAT総会の参加者119名を対象に、AO法についてのアンケート

調査を実施した。調査結果については、付属資料６.を参照されたい。

３－３　AO 法顕微鏡稼働調査結果

2003年８月にJICA現地事務所がAO法顕微鏡稼働調査を実施した。これまでに供与された100台の顕微鏡の稼働状況の要約は以下のとおり。

・100 台のうち５台は盗難により紛失しており、状況を把握することができた顕微鏡は 95 台だった。
・調査で確認された 95 台の顕微鏡のうち、50 台は現場で使用されており、残りの 45 台は使用されていなかった。
・使われていない 45 台のうち、12 台は故障などの問題により使用できない状態であり、残りの 33 台は使用可能な状態であるが何らかの理由により使用されていなかった。

調査報告書[1]の要約（Executive Summary）を付属資料７.として添付した。

[1] JICA, Surveillance of AO Microscopes Usage : A Final Report, Dar es Salaam, August 2003.

第4章　要請内容

2002年3月10日、タンザニア保健省から在タンザニア日本大使館に、技術協力プロジェクトプロポーザルが提出された。プロポーザルの内容は、下記のとおり（原文は付属資料4.を参照のこと）。

4－1　基本方針

①　早期診断、迅速かつ正確な治療

②　迅速、正確かつ効率的なマラリア検査診断

③　環境衛生面からの都市マラリア対策強化

④　AO法の第1次医療施設への拡大に伴う問題分析などの調査

4－2　プロポーザル概要

プロポーザルは3つのサブプロジェクトから構成されており、社会経済発展の障害となる一大原因であるマラリアの脅威を軽減することをプロジェクトの上位目標とする。

・サブプロジェクトA：重篤マラリア患者の看護管理〔包括的小児疾患管理（IMCI）を基本とする〕

・サブプロジェクトB：AO法によるマラリア検査診断の末端医療施設での実施

・サブプロジェクトC：都市部におけるハマダラカ棲息地の減少

上記3サブプロジェクトへの具体的な方策としては、①研修を通じて看護師の重篤マラリア看護についての技術・知識を向上させる、②機材の導入と研修による末端医療施設へのAO法の拡大、③都市計画技術者のマラリア対策に係る技術と知識の向上、現存マラリア排水溝の保守・整備、州・県行政レベルへのマラリア対策支援などがあげられる。

本プロジェクトには、マラリア対策アドバイザー（長期専門家）、AO法技術（短期専門家）、看護研修カリキュラム開発（短期専門家）、医療機器保守管理（短期専門家）の日本人専門家が要請されている。協力期間は3年間とし、国家マラリア対策プログラム（NMCP）をメインカウンターパート機関としてプロジェクトを実施し、第三機関にモニタリング、評価を依頼するかたちとなっている。主な活動としてはサブプロジェクトA及びBに係る現地国内研修、研修に必要な教材の開発、サブプロジェクトCに必要な機材供与、セミナーの開催、住民参加の排水溝整備などである。

第５章　調査結果

５－１　AO法の地方展開

これは基本的に、タンザニア保健省下の国家マラリア対策プログラム（NMCP）が中心となって決めるべき事項である。新たな顕微鏡及び光源の優先供与先は、研修修了者がいるにもかかわらず、顕微鏡及び光源が設置されていない施設となろう。臨床診断だけに頼らない検査診断をできるだけ多数実現するためには、より末端の保健医療施設への導入を検討するのが合理的である。一方、検査スタッフの配置状況や当該施設の社会インフラ（特に電気）の充足状況も考慮することになる。前フェーズ終了時評価の聞き取り調査では、２次医療レベルに相当するDistrict Health Centreでは１次レベルからの紹介患者が全受診者の１～２割にとどまっていた。その点からみれば、全国に600か所あまりある２次医療レベル施設への顕微鏡供与が引き続き進められる可能性が高い。一方、早期診断・治療を実現するためには、より末端の１次医療レベル施設への導入も検討されるべきである。特に近隣に２次医療レベル施設がない地域が優先的に選ばれる必要性がある。JICA事務所が実施したコンサルタントによる評価では、安定した電気供給がない施設では小規模水力発電を利用した顕微鏡利用が報告されていた。このほか太陽光発電の利用、乾電池による代用などの案（Earl、CDCによる）も出ている。このような取り組みも、一部で実験的に実施されるべきである。

AO法の普及にあたって、前フェーズまでは臨床検査技師を主体に唱道してきたが、特に院長を含む他の保健医療職にも広げるべき、との意見が聞かれた。顕微鏡診断によるマラリアの早期治療を実現するためには、医療従事者全体の協力が必要であり、今後の活動を進めるうえで重要な指摘と考える。

新規の顕微鏡供与にあたっては、留意すべきことが３点ある。１つは顕微鏡の安全な保管である。JICA事務所が雇用したコンサルタントの調べによると、前フェーズに供与した顕微鏡のうち５台が盗難に遭っている。新たに顕微鏡を設置するにあたっては、保管体制の完備がより重要な条件となる。２点目は、顕微鏡の耐用年数を超える施設がいくつか出てくるため、そこへの補充の必要性である。３点目は、ザンジバルへの顕微鏡供与が前フェーズ終了時評価の時点で１台にとどまったため、タンザニア本土との保健行政システムの独立度を考慮した日本側の対応が必要である。

消耗品の注文体制は、Medical Store Department（MSD）と協議を重ね、AO染色液のほかにハロゲン電球など主要な物品がMSDのカタログに収載されたので、相当改善されている。ただ、MSD側としては、AO法に特化した消耗品や部品の注文票は受け付けられないとのことだったので、MSDが取り扱っている関係物品をハイライトしたカタログの配布や、インターネット注文の活用などを検討する必要がある。

故障した顕微鏡の補修については、地域の修理工場（あるいは病院内の修理工場）の機能強化が必要となる。タンザニア側の努力だけでは改善は難しく、携行機材供与を含めた短期専門家の派遣が検討されるべきである。

５－２　マラリアなど小児重篤疾患の看護研修

前フェーズ終了時評価では、研修の効果が十分に評価できなかった。その理由として、研修修了者が全国の医療施設間で広く移動したため、短期間の調査では研修修了者のその後の動向を十分につかめなかったことがある。

しかし、数人からの聞き取り調査で共通していた問題が２点浮かび上がっている。１つは、職場の同僚への伝達講習が、所属施設の長や地域の医療チームから理解と支援を得られなかったため、開催が難しかったこと。２つめは、職場で伝達講習を実施する際の教材（ポスターや一覧表など）がなかったことと、教える術を学んでいなかったことから、伝達講習自体も容易でなかったことがある。次フェーズでは、前フェーズ終了時評価で研修参加者から指摘されたこれらの問題点を考慮した研修計画づくりが必要となる。

具体的に改善するため、１点目については、Regional Health Management Team（RHMT）及びDistrict Health Management Team（DHMT）へ本研修の重要性を唱道し、研修修了者の活動を支援、及びモニターするように計画すべきである。２点目については、研修計画段階からムヒンビリ大学を中心とした看護教育及び小児科学教育の専門家を動員して、研修受講者に伝習教育法の基礎を教えること。さらに、伝達講習に必要な教材を、合わせて開発することを計画すべきである。これには日本側から短期専門家の派遣が求められよう。

なお、本研修は今後もマラリアを含む小児主要疾患の包括的な治療方式、すなわちIntegrated Management of Childhood Illness（IMCI）の概念にのっとって実施されるべきだが、前フェーズ終了時までに作成されたスワヒリ語の教材には、既に内容が古くなっている部分があるため、次フェーズではその点を改訂していく必要がある。

５－３　都市マラリア対策

JICAはダルエスサラーム並びにタンガにおいて、都市マラリア対策プロジェクト（UMCP、1988-1996）を実施した。その成果のひとつは、「都市はハマダラカにとって住みにくい」ことの証明である。すなわち航空写真と地形図による地理学的解析と、野外調査とを組み合わせた結果、都市環境におけるハマダラカの発生源が「都市化から取り残されたハマダラカのオアシス」に限定され、制圧可能なことが明らかになった。

旧プロジェクトの第２の成果は、市内のハマダラカ発生源に対して、英国統治時代に建設されたマラリア対策用排水溝が、しゅんせつすれば現在でも機能することの証明である。「マラリア

対策排水溝（Antimalarial Drains)」は幅１～２ｍの小規模なもので、Ｖ字型の断面の底部にスリットがあり、地下水位を下げて湿地を干拓することを目的とする。

これらの成果に基づきダルエスサラーム市では、JICA プロジェクト終了後もスイス援助の Dar es Salaam Urban Health Project などを通じ、断続的かつ断片的に排水溝清掃活動を行ってきた。

2002 年には世界エイズ・結核・マラリア対策基金（GFATM）によるマラリア対策の一環として、ダルエスサラーム市、スイス熱帯研究所（STI)、プリンストン大学の共同パイロットプロジェクトが始まり、都市マラリア危険地図作成、住民組織による環境整備、疫学・昆虫学的評価が計画されている。この計画には排水溝の整備に関して具体的計画が欠けているので、ダルエスサラーム市としては特に JICA の技術支援を必要としている。

保健省においても環境衛生に対する関心が高まり、国家マラリア対策中期戦略（2003-2007）では、ダルエスサラーム市の環境管理に関して一項が設けられた。

５－３－１　タンザニア保健省からの要請

2003 年 3 月 10 日付で保健省より要請のあったサブプロジェクトＣの内容概略は、以下のとおりである。

プロジェクト目標：発生源の減少、湿地の減少、イエカの減少

成　果：ハマダラカ密度の減少、マラリア伝搬の減少、マラリア患者の減少、停滞水の減少、都市部でのマラリア消滅

活　動：

- 都市環境対策に関与する職員への研修（都市地理学、ハマダラカ発生源のパターン、マラリア対策用排水溝の形態と機能）
- 生態調査と都市地理学教育
- 排水溝建設のための機材供与
- 既存の排水溝の修繕と新排水溝の建設
- ハマダラカ発生水域の除去
- 都市で実施するマラリア対策用排水溝設計と予算化への支援
- 蚊の種類と発生源に関する住民教育
- 地方自治体幹部に対するマラリア対策環境整備の重要性に関する情報提供、並びに予算確保のための助言
- Council に対する条例見直し支援
- 住民参加型マラリア対策実施のための Council 支援

以上のように「活動」が多岐にわたり、かつ JICA の権限を超える部分や、STI など他のパー

トナーがカバーする予定の部分も含まれるので、協力内容を特定する必要が認められた。具体的な対応については次項を参照のこと。

５－３－２　ダルエスサラーム市の要望

2003年11月28日、イララ県保健事務所における協議で、ダルエスサラーム市3ディストリクトの環境衛生担当者から口頭で提示された要望は、以下のとおり。

①　市内のハマダラカ発生源並びに排水溝の管理に関する現状調査
②　環境衛生にかかわる市職員への訓練
③　既存の排水溝の清掃及び修繕
④　違法建築などにより機能しなくなった排水溝の改修（ルート変更を含む）
⑤　新たに都市化もしくは宅地化された地域における排水溝の設計及び建設
⑥　住民参加による排水溝保守並びに環境整備
⑦　市並びにディストリクトの政策決定者への唱道（advocacy）

これに対して本調査団は、以下のとおり回答をした。

・上記①、②、③、⑥に関して、日本からの小規模な技術協力で対応することは可能。ただし市やディストリクトが相互調整を行い、主体的に推進することを条件とする。また現在、STI、プリンストン大学が行っている研究協力や、2004年からスイスからの援助が予定されている「都市マラリアプロジェクト」との協調が必要。
・上記④、⑤については、多額の投入と、住民立ち退きなどの強制措置を必要とするため、JICAとして当面関与することは難しい。
・上記⑦は本来、市やディストリクトの技官の任務であり、自助努力に期待する。

本協議を通じて、ダルエスサラーム市関係者の企画能力や実施体制について、以下のように不明な点が残った。

・STIとの研究協力について、具体的な言及がなかった。
・保健省からJICAへの要請内容について、市担当者が承知していなかった。
・市並びに市下3ディストリクトの業務連絡が明確に説明されなかった。
・住民参加が進展しているとの説明はあったが、具体的な件数、内容、資金フローについて言及がなかった。

５－３－３　サブプロジェクトの内容

プロジェクトの上位目標、目的、成果、活動、投入に関しては、付属資料３.のプロジェクト・デザイン・マトリックス（PDM）を参照のこと。その規模については、以下が概要である。

・対象地域は旧市街地とし、1996年以降新しく都市化された地域を含まない。

・日本からの大規模投入を前提とせず、市、ディストリクト担当者の通常活動を強化する範囲にとどめる。
・機材は短期専門家携行機材の範囲とする。
・専属の長期専門家を置かず、他のサブプロジェクトと兼任のマネージメント支援で対処。その他、必要に応じて短期専門家派遣で対処する。
・現状分析並びにモニター・評価は、関係パートナーを含む第三者に大幅に委託する。
・住民参加については、市、ディストリクト担当者と協議のうえ、可能な限り現地 NGO や CBO を通じて支援する。

５－４　ザンジバルでのマラリア対策の現状と協力の方向性

今般の調査では、ザンジバル・マラリア対策プログラム（ZMCP）の現状、対策実施能力、評価・モニタリング実施能力について調査を行った。ZMCP からは、最近ザンジバルでも SP 合剤耐性マラリアが増加したため、２剤併用療法を開始した。耐性増加の理由としては本土と同様、熱性疾患患者に対して検査を行わずに抗マラリア薬を投与する傾向が強いためと説明があった。ZMCPとカロリンスカ大学の共同調査の結果、検査未実施の熱性疾患患者200人が抗マラリア治療薬を投与され、そのうち10人が真性のマラリア患者（陽性率５％）であったとの報告があった。ZMCPではこのような状況を打開するため、迅速かつ正確な検査法の導入により、抗マラリア薬の不適切な投薬を減らすことを目標としている。ザンジバルは2003年にGFATMからの支援承認を受け（1,300万米ドル／３年間)、マラリア対策のためのインフラ整備、人材育成、（２剤併用療法のための）抗マラリア薬の購入を中心に、資金を活用している。

JICAプロジェクトへは2002年に、ザンジバル、ペンバを合わせて10人の検査技師と看護師が現地国内研修に参加した。しかしAO法対応顕微鏡が首都Stone Townのナジモジャ病院に１台供与されただけであり、更に４～５台の供与が望まれている。2003年度供与予定のAO法対応顕微鏡（25台）の中からザンジバルに対して数台の顕微鏡を供与し、稼働状況や治療への貢献などについて評価・モニタリングを行うことは地理的にも容易であり、実施を検討するべきと考える。

保健省をはじめとするマラリア対策関係機関では、マラリア検査の精度管理実施を検討中である。実際に精度管理が行われれば、マラリア診断の質的向上に役立つであろう。

５－５　橋本イニシアティブにおけるケニア中央医学研究所、ESACIPAC との連携

国際寄生虫対策東南アフリカセンター(ESACIPAC)へ派遣中の天野チーフアドバイザーより、次期プロジェクトへの連携の可能性として、以下の点が報告された。

５－５－１　本プロジェクトにESACIPACの活動を通じて協力できること

（1）マラリア研修でAO法を加える

現在ESACIPACの研修で、直接マラリアの研修ができる状況にはないが、今後分野別の研修コースの開設が求められることが予想される。その際に、AO法を加えることは可能である。しかし、それに先立ち、タンザニアでのデータが整理され、何が利点であるかを明確に説明できるようにしておくことが前提条件である。

（2）マラリア研修で都市マラリア対策としての衛生環境整備を加える

都市マラリア対策としての衛生環境整備は、非常に関心をもてるところである。一般的に、環境整備を開始するには膨大な資金を必要とするが、タンザニアの本プロジェクトは既存の施設を利用し、その整備による環境整備であり、限られた資金内では非常に有効である。ただ、そのために範囲も限定されその有効性を科学的に証明することはなかなか困難かもしれないが、このようなデータが揃った段階では、研修への反映は大きな効果が期待できる。

（3）マラリア対策プログラムの人材の養成に協力する

タンザニア保健省内で、NMCPからの人材の派遣推薦があれば、可能である。

５－５－２　次期マラリア対策プロジェクトに対して、ESACIPACで直接協力できること

（1）検査室レベルの向上のなかに、マラリアのみならず土壌伝播寄生虫などの項目が含まれるのであれば、ケニアからの講師派遣あるいはタンザニアの該当する人の紹介は可能と思われる（human networkの活用）。

（2）衛生環境整備事業を展開する場合に、その対策の基礎的な研究が必要な場合、昆虫学者などの研究者を短期派遣することは可能かもしれない。

５－５－３　ESACIPAC／JICAプロジェクト（IPCP）として、次期プログラムに求めること

我々がESACIPACのプロジェクトを運営するにあたって、世界保健機関（WHO）や世界銀行などの国際機関やドナー団体との協調が何よりも大切であると考え、そのための会議も開催している。そのような席上で、橋本イニシアティブは日本の海外での寄生虫対策協力の窓口としての役割を果たしているものとして考えられている。

そのため、それぞれの地域での日本の動向（JICAに限定したことではないが）をCIPACs（CIPAC：Centre of International Parasite Control）が把握していることが海外ドナーより期待

されている実情をご理解頂き、協力をお願いしたい。しかし現状は、かなり隔たった状況にあるといわざるを得ない。

もちろん、寄生虫分野といえども広範囲に及ぶため、我々 CIPACs のみで対応しきれないことは自明である。しかし、情報の交換は必須であり、それによりプロジェクトへの協力も可能になるものと考える。

5－6　ESACIPAC からの調査結果報告

ESACIPAC所長ムワンダウィロ博士より、次期プロジェクトへの連携の可能性として、以下の点が報告された。

Introduction

Two Officers from the Eastern and Southern Africa Centre of International Parasite Control (ESACIPAC), Professor Teruaki Amano (Chief Advisor, ESACIPAC/JICA Project) and Dr. Charles Mwandawiro (Director, ESACIPAC) joined the preparatory study team for early malaria diagnosis from Japan comprising Dr. Yoichi Yamagata, Dr. Hiroshi Takahashi and Mr. Hisahiro Ishijima, on a fact-finding tour of Dar-es-Salaam and Tanga. This was in relation to the proposed project on 'malaria case management training and control of malaria breeding sites in urban centres', the proposal for which has been submitted by the Ministry of Health of the United Republic of Tanzania.

In Dar-es-Salaam, we visited the Embassy of Japan, the JICA Office, WHO Office, Ministry of Health Headquarters, National Institute of Medical Research (NIMR) and the National Malaria Control Programme Office. While in Tanga we visited the Vector Control Training Centre, the NIMR Centre in Muhenza, various health facilities in Tanga, Galanos Secondary School, and attended the 19th Annual Scientific Conference and General Meeting of the Medical and Laboratory Scientists Association of Tanzania (MelSAT) at Mkonge Hotel, whose theme was 'early laboratory diagnosis of malaria is the challenge of the district'

Throughout the various offices we visited, the study team from Japan explained the proposed project activities as outlined in the Ministry Proposal. This project proposal seeks to cover the following aspects of malaria control:

1. Early diagnosis, prompt and correct treatment through capacity building of health providers involved in the care of malaria patients, including microscopic diagnosis in all peripheral

health clinics.

2. To undertake a health system research and development to sustain and scale-up the use of Acridine Orange (AO) method of malaria diagnosis as an alternative diagnostic tool that is reliable, accurate, cheap and fast.
3. Environmental management (management of drains and land reclamation) for urban mosquito control
4. Operational research to identify the problems related to the use of the AO method in the district and regional hospitals.

Three sub-projects are outlined in the proposal as follows:

a) Improve the quality of nursing care of malaria and other common severe childhood illnesses
b) Promote the AO method in hospitals and scale it up to the peripheral health facilities, particularly health centres
c) Reduce mosquito breeding sites in urban centres

A lot of discussion took place in all the offices we visited and a frank exchange of views and experiences occurred at the MelSAT conference, particularly on the use of the AO method and its merits and demerits. A questionnaire was dispatched to receive more information on the use of AO from the technologists attending, who included some of the 400 previously trained on its use. Visits to the health facilities in Tanga were meant to look at the laboratory conditions and see how or whether AO is in use. At Galanos we were shown the drains that were cleared by students in the previous phase of the project to discourage mosquito breeding.

Observations:

Following this extensive tour, we wish to make the following observations:

- The term 'early malaria diagnosis' is not clearly explained in the proposal or by the presenters at the conference. Early diagnosis means detecting an infection before the parasitaemia is large enough to present serious symptoms to the victim. In our opinion, the AO method is a rapid, prompt technique. It cannot be for early diagnosis since literature shows that its sensitivity decreases with lower parasite densities. The term should be used very carefully to avoid misinformation.
- Promotion of the AO method can achieve better results if the clinicians (doctors, clinical officers etc) who make the diagnostic requests are also involved. Promoting it with only technologists

and technicians without the officers who make prescriptions before laboratory results are out, and who authorize the purchase of the AO requirements (including microscope parts) is inadequate.

- The AO method has a good potential of expanding as long as the obstacles to its use, particularly in the peripheral health facilities, such as luck of electricity, maintenance of microscopes, provision of reagents etc. are seriously addressed. 'Who will be responsible for what' should be known right from the beginning.
- Operational research on the AO method does not state what factors will be assessed or monitored. Is it the number of trainees, the number of slides examined using the method per duration of time, the number of facilities using the method and the rate of using it or what? This method (AO) should be given another try.
- Environmental management for mosquito control is not always an attractive option due to cost. The proposal should indicate how the method will be made cost-effective and what role the community is expected to play. It should also be explained what entomological parameters will be measured, in baseline survey and subsequently (post-intervention), to provide evidence that environmental management reduces the threat of malaria. Environmental management efforts should be focused in order to produce the desired impact. It is worth trying if a well-designed study can be developed. It should be tried on a small scale.
- The Ministry proposal only offers guidelines. We expect that detailed proposals on the three sub-projects will be developed outlining the methodology, monitoring procedures, time frame for the activities and budget before the actual work commences.

Potential areas of collaboration with ESACIPAC

ESACIPAC is a Centre established to coordinate parasite control activities in the region and undertake capacity building (human resource development) through training and operational research. There is a network of contact persons in all the 8 countries (Kenya, Uganda, Tanzania, Zanzibar, Malawi, Zambia, Zimbabwe and Botswana) and the Centre provides a forum of communication and experience-sharing among officers working on parasite control in these countries. Although the Centre addresses malaria, filariasis, schistosomiasis and soil-transmitted helminths (STH), we have decided to make the last two the entry-point diseases to be tackled through the school-based approach.

Since this malaria project is in one of the ESACIPAC member countries and it is on one of our

target diseases, ESACIPAC is interested in the project particularly with regard to how it will be run and the results it will produce. Potential areas of ESACIPAC's collaboration/interaction with this project are:

1. If the AO method is shown to be acceptable and popular as a rapid diagnostic tool for malaria in Tanzanian health facilities, ESACIPAC will help promote it to the other 7 members of the Centre. It should be given a try following a carefully designed study that gives the users the freedom to use it, criticize it and improve on the limitations related to it. We could invite some officers on this project to our training sessions to make presentations on their findings on AO to our trainees.
2. We have established a working relationship with WHO/AFRO in which we will collaborate in our training activities, including the WHO initiated Integrated Vector Management (IVM) courses. This project can indirectly collaborate with ESACIPAC by working within the IVM framework in Tanzania in its environmental management sub-project. They could develop a joint proposal or carry out joint environmental manipulation activities if possible.
3. The proposal for this project can include elements of health education on malaria in schools, particularly if environmental activities will be done by school children. In this way, we can develop health education materials and teaching aids on malaria together. Tanzania has a well-established school-health programme (Dr. Nyandindi who has good links with ESACIPAC), which could collaborate with this project.

We believe that with good design, useful lessons can be learnt from this project that can be of benefit to other countries in the region covered by ESACIPAC. The project should be supported and allowed to take off. Close contacts between this project and ESACIPAC Secretariat in Nairobi should therefore be maintained.

第6章　団長所感

タンザニアにおけるマラリア対策への日本の協力は、1988年より途絶えることなく実施されており、今日まで先方政府からは高い評価と強い期待が寄せられている。前フェーズでは国内研修にとどまっていた活動内容を、次フェーズでは再び技術協力プロジェクトとして技術協力を実施することが検討されている。

過去15年間の実績には、環境衛生、感染予防、早期診断、及び適正看護など、様々な分野での技術協力が含まれている。同時にこの期間は、世界のマラリア対策でDDTの残留噴霧によるマラリア撲滅計画が実現困難と分かり、それに代わる有効な公衆衛生活動が模索されてきた。そういう意味で、タンザニアにおける日本のマラリア対策への技術協力の歴史は、その縮図の態をなしている。この間の実績と教訓は包括的にまとめられていないため、これからの技術協力のために至急実現する必要がある。

今日ではRoll Back Malaria戦略の下、より現実的な方策が実施されている。これらの多くは、実地のoperational researchあるいはmanagement scienceによって、科学的な根拠を基に進められているのが、15年前と は大きく異なる。今回の事前調査では、適正看護、早期診断、環境衛生の各活動について、プロジェクト・デザイン・マトリックス（PDM）によってしっかりとモニター・評価できるように段取りを整えた。また、科学的な評価をプロジェクトのなかできちんと取りまとめられるよう心がけた。

近年、世界エイズ・結核・マラリア対策基金（GFATM）の投入で、マラリア対策への財源は以前より潤沢となっている。一方で、疾病対策面でより深刻な公衆衛生上の問題となっているAIDS対策に多くの人材と資材が取られ、マラリア対策への人的・物的な投入が疎かになっている傾向が散見される。環境衛生対策など比較的大きな介入を必要とする技術協力には、JICAの過去の実績が国際ドナー間で利用されている。これら機関とのフィールドレベルによる連携が、これからのマラリア対策には欠かせないことを強調したい。

日本政府は世界的なマラリア対策に関して、1998年に提案された「橋本イニシアティブ」と、2000年に発表された「沖縄感染症イニシアティブ」を戦略的な拠り所としている。今回の調査団には、国際寄生虫対策東南アフリカセンター（ESACIPAC）よりムワンダウィロ所長と天野チーフアドバイザーに、ケニアより参加頂いた。ムワンダウィロ所長からは本プロジェクトへの支持と、ESACIPAC対象国へのプロジェクト成果の拡大を念頭に置いた協力推進が表明された。天野チーフアドバイザーからは、特にAO法のこれからの普及と連携について、具体的に留意点が示された。これらを今後の計画づくりに生かしながら、タンザニアにおける技術協力を引き続き進めていくべきであろう。

第Ⅱ部
第２次事前評価調査

目　　次

第１章　調査概要

１－１　調査目的

第１次事前評価調査において、タンザニア連合共和国（以下、「タンザニア」と記す）のマラリア対策プログラムを支援するために地域的な寄生虫対策を考慮し、どのような協力方法が適切か、要請が適切であるかを中心に調査した。第２次調査では具体的な協力の内容、実施体制について先方政府と協議し、プロジェクト開始に必要な情報収集、書類の作成〔プロジェクト・デザイン・マトリックス（PDM）、プロジェクトドキュメントほか〕を主たる目的として調査団を派遣した。

１－２　調査団構成

	団員氏名	担当業務	所　属　先	派遣機関
1	山形　洋一 Dr. Yoichi Yamagata	総　括 Leader	国際協力機構国際協力総合研修所 国際協力専門員 Senior Advisor, Institute For International Cooperation (IFIC), Japan International Cooperation Agency (JICA)	Feb.14 - Feb.28
2	金森　将吾 Mr. Shogo Kanamori	計画分析 Project Planning	アイ・シーネット株式会社 コンサルティング部 Health Sector Consultant, Consulting Dept., IC Net Limited.	Feb.7 - Mar.4

１－３　調査行程

2004年２月７日から３月４日まで、ダルエスサラームを中心に第２次事前評価調査を実施した。詳細は下記のとおりである。

Day	Date	Itenerary	Sojourn
1	2004/02/07（Sat）	移動　成田⇒アムステルダム KL 862　11:00 － 15:05	Amsterdam
2	2004/02/08（Sun）	移動　アムステルダム⇒ダルエスサラーム KL 862　10:55 － 15:05	Dar es Salaam
3	2004/02/09（Mon）	JICA タンザニア事務所協議	Dar es Salaam
4	2004/02/10（Tue）	保健省政策・計画局、国家マラリア対策プログラム（NMCP)、環境衛生担当官との協議	Dar es Salaam
5	2004/02/11（Wed）	ダルエスサラーム市マラリア対策関係者との協議	Dar es Salaam
6	2004/02/12（Thu）	マラリア対策関係ドナー〔世界保健機関（WHO)、スイス熱帯研究所（STI）ほか〕との協議	Dar es Salaam
7	2004/02/13（Fri）	プロジェクト・サイクル・マネージメント（PCM）ワークショップの準備、保健省との打合せ	Dar es Salaam
8	2004/02/14（Sat）	PCM ワークショップの準備 総括　ダルエスサラーム着（KL 571　23:25 着）	Dar es Salaam
9	2004/02/15（Sun）	PCM ワークショップの準備、団内打合せ	Dar es Salaam
10	2004/02/16（Mon）	PCM ワークショップの準備、JICA タンザニア事務所との協議	Dar es Salaam
11	2004/02/17（Tue）	PCM ワークショップ開催	Dar es Salaam
12	2004/02/18（Wed）	PCM ワークショップ開催	Dar es Salaam
13	2004/02/19（Thu）	PCM ワークショップ開催	Dar es Salaam
14	2004/02/20（Fri）	PCM ワークショップ開催	Dar es Salaam
15	2004/02/21（Sat）	PCM ワークショップ取りまとめ、PDM 作成	Dar es Salaam
16	2004/02/22（Sun）	フィールド調査	Dar es Salaam
17	2004/02/23（Mon）	フィールド調査	Dar es Salaam
18	2004/02/24（Tue）	ミニッツ締結（JICA タンザニア事務所、タンザニア保健省）	Dar es Salaam
19	2004/02/25（Wed）	フィールド調査 総括　離タンザニア（TC7936 DAR 7:30 － NBO 8:40）	Dar es Salaam
20	2004/02/26（Thu）	フィールド調査	Dar es Salaam
21	2004/02/27（Fri）	フィールド調査	Dar es Salaam
22	2004/02/28（Sat）	フィールド調査 総括　帰国　KL 861 NRT 9:20（+1）着	Dar es Salaam Plane
23	2004/02/29（Sun）	フィールド調査	Dar es Salaam
24	2004/03/01（Mon）	フィールド調査	Dar es Salaam
25	2004/03/02（Tue）	JICA タンザニア事務所報告	Dar es Salaam
26	2004/03/03（Wed）	移動　KL 571 DAR 0:30 － AMS 8:20 KL 861 AMS 14:10 － NRT 9:20（+1）	Plane
27	2004/03/04（Thu）	成田　9:20 着	

１－４　主要面談者

Name	Title, Organization	Contact
Mr. Fabian J. Magoma	Head, Environmental Health and Sanitation Section (Principal Health Officer), MOH	Mobile：0744-277341
Dr. Agoipr J. Mgama	Health Planner, Ilala Municipal Office of Health, DSM	Mobile：0744-545836
Mrs. Fatuna T. Maduhu	Senior Health Office/Acting Malaria Control Coordinator, Ilala Municipal Office of Health, DSM	Mobile：0744-841197
Mr. Ally, J. R.	Director of Customer Sales & Services, Medical Stores Department	Mobile：0748-347451 E-mail：jally@msd.or.tz
Mr. Abdul M. Mwanja	Quality Assurance Officer, Medical Stores Department	Mobile：0744-284142 E-mail：amwanja@msd.or.tz
Dr. M. W. Marero	Public Health Specialist, MOH-NMCP	Mobile：0741-492950
Dr. Gerry Killeen	City Malaria Research Coordinator, City Medical Office of Health/Ifakara Health Research and Development Center/ STI	Mobile：0748-477118 E-mail： gkilleen@ifakara.mimcdm.net
Mr. Michael G. Kiama	City Malaria Control Coordinator, Ilala Municipal Council/ Urban Malaria Control Project - DSM	Mobile：0744-478265
Dr. Elizeus Kahigwa	National Program Officer - Malaria, WHO	Mobile：0744-481965 E-mail：ekahigwa@who.or.tz
Mr. Samuel A. Bubegwa	Municipal Waste Management Officer, Ilala Municipal Council	Mobile：0744-363627 E-mail： bubergwasam@hotmail.com
Mr. John Byarugaba	Head of Lab-hospital Equipment Workshop, Muhimbili National Hospital	
Dr. Bushiri S. Tamin	Manager of SPL, Pediatric Department, Muhimbili National Hospital	
Mr. Fred Munema	Managing Director, Omjaga Environmental Services Co. Ltd.	Mobile：0741-297626
Dr. Alex Mwita	Program Manager, NMCP	Mobile：0741-339713
Mr. Makono Andrew	Health Officer, NMCP	
Mrs. Ritha J. A. Njau	National Officer - Malaria, WHO	
Dr. Renata Mandike	Deputy Manager, NMCP	Mobile：0744-295323
Dr. Deo M. Mtasiwa	City Medical Officer of Health, DSM City Council	Mobile：0744-474346
Dr. Marcia Cacoas de Castro	Research Associate, Princeton University	
Mr. Mwinyi I. Msellem	Health Laboratory Scientific Officer, Zanzibar Malaria Control Programme	E-mail：mmwinyi@hotmail.com
Mr. Haji Khatib Fakih	Health Laboratory Scientific Officer, Zanzibar Malaria Control Programme (Pemba Office)	
Mr. S. Mrina	Health Laboratory Technologist of Registrar - Private Laboratories, Diagnostic Department, MOH	Mobile：0744-596856
Mr. David Whiting	Data Manager, Department of Medicine, University of Newcastle Upon Tyne	Tel：022-2153388 E-mail：dave@ammp.or.tz
Mr. Hassan Petrobas	Laboratory Technologist, Amana Hospital, Ilala Municipal Council	
Dr. Dafrosa C. Lyimo	Medical Officer Incharge, Amana Hospital, Ilala Municipal Council	Mobile：0744-565568 E-mail：dafrossa27@hotmail.com
Dr. Felista Kwai	Medical Officer Incharge, Mnazi Mmoja Health Center, Ilala Municipal Council	

１－５　調査方法

(1) 国際ドナーや国連機関のタンザニアにおけるマラリア対策への支援を調査し、我が国の協力の方向性を、現地 JICA 事務所を含めて先方政府と協議する。

(2) 参加型プロジェクト・サイクル・マネージメント（PCM）ワークショップを開催し、プロジェクト実施に係る問題分析、目的分析ほかを行い、次期プロジェクトの基本となるプロジェクト・デザイン・マトリックス（PDM）を作成する。

(3) タンザニアのプロジェクト実施体制を確認する。

第２章　調査結果

２－１　関係者からの情報

政府関係者やドナー関係者、医療従事者などを中心に聞き取り調査を実施し、プロジェクト実施計画作成に必要な情報を得た。聞き取り調査の議事録を付属資料１.として添付した。

２－２　国際ドナーや国連機関によるマラリア対策の動向

保健省では、ドナーやその他の機関の支援に関する情報が一元管理されていない。そのため、この調査では、関連資料から抽出した情報と関係者からの聞き取り結果を集約し、国際ドナーや国連機関によるマラリア対策への支援状況をまとめた。

保健セクター改革の流れから、ドナーの拠出先はコモンバスケットに移行する傾向にあり、現在マラリア対策に限定して協力を進めているドナーは多くない。現在コモンバスケットに拠出しているドナーは英国、オランダ、デンマーク、アイルランド、スイス、ドイツ（英国は最近財政支援に移行）の６か国である。国家マラリア対策（NMCP）にはコモンバスケットファンドから110万米ドル（2003年６月～2004年６月、給与分は除く）の経常予算が割り当てられている。

マラリア対策へのプロジェクト型支援に関しては、ほとんどのドナー・NGOが蚊帳の普及に焦点を置いている。現在実施されている蚊帳の普及に関する主なプロジェクトは以下のとおりである。

・世界エイズ・結核・マラリア対策基金（GFATM）：タンザニア本土を対象としたプロジェクトが、2003年に承認された（拠出額は５年間で1,980万米ドル、最初の２年間で1,200万米ドル）。妊婦にクーポンを配って蚊帳を普及させ､特に妊婦や乳児をマラリアから守ることを目的としている。NMCPのプログラムマネージャー（ムイタ博士）がプロジェクトマネージャーを兼任。

・国連児童基金（UNICEF）：GFATMを利用したプロジェクトの前段階として、2003年４月にキロサとキバハでクーポンによる蚊帳の普及のパイロットプロジェクトを実施。

・スイス政府（SDC）：NMCP内への蚊帳普及部門（ITN Cell）設置の支援。

・英国（DfID）とオランダ大使館：SMARTNET（Strategic Social Marketing for expanding the Commercial Market of ITNs in Tanzania）Projectの実施。プロジェクトは蚊帳のソーシャルマーケティングを目的としている。

その他、CARE、World Vision、AMREF、PSI、Plan International、IHRDC、Africare、IRCなどのNGOが蚊帳の普及に関連した活動を実施している。国家マラリア対策中期戦略の中間評価報告書（2003年）[1]では、蚊帳の普及に関する活動は国内で十分に展開されており、現在のところ

[1] “MTSP2002-2007 Implementation and Achievements 2003”, NMCP, Tanzania

資金の不足はないと報告している。

蚊帳の普及以外の分野へのドナーの拠出は現在のところ非常に限られている。ザンジバルでは、グローバルファンドがマラリア治療薬のガイドライン支援と治療薬の供与を行っている(拠出額は5年間で120万米ドル、最初の2年間で78万米ドル)。ダルエスサラームを対象とした都市マラリア対策プロジェクト（UMCP）には、STIとビル・メリンダ・ゲーツ財団が拠出している。また、国家マラリア対策中期戦略2002-2007のモニタリングを強化するために、イタリア政府が技術支援を行っており、NMCPにアドバイザーを配属している。世界保健機関（WHO）に関しては、ロールバックマラリア事務所が国内のマラリア対策全般を支援している。

2－3　PCMワークショップ

2004年2月17日から2月20日にかけて、現地関係者の参加によるPCMワークショップを実施した。ワークショップは「看護・治療」、「顕微鏡診断」、「環境マネージメント」のテーマで、3つのグループを対象として以下の要領で実施した。

		看護・治療	顕微鏡診断	環境マネージメント
日　程		2月17日	2月18～19日	2月20日
参加者数		7人	13人	9人
中心問題		“Malaria patients are not properly treated.” （マラリア患者が適切に治療されない）	“Conventional laboratory diagnosis of malaria takes time.” （現行の顕微鏡診断によるマラリア検査は時間がかかる）	“There are many *Anopheles* mosquitoes in urban centers.” （都市部に多くのハマダラカが生息する）
手法	問題分析	参加型で実施	参加型で実施	参加型で実施
	目的分析	な　し	参加型で実施	参加型で実施
	アプローチの選択	な　し	モデレーター主導。選択されたそれぞれのアプローチについて参加型で議論。	モデレーター主導。選択されたそれぞれのアプローチについて参加型で議論。
	PDM作成	参加型で実施	参加型で実施	な　し

それぞれのテーマでワークショップを通して明らかになった問題点､必要とされる対策について、特筆すべき点を以下にまとめた。ワークショップの詳細については、付属資料2.を参照のこと。

（1）看護・治療

・不適切なマラリア治療薬の使用により､患者が適切に治療されない。薬を処方する医療従事者を対象としたマラリア治療薬の新しいガイドラインの研修が必要。農村部では､看護師が薬を処方する場合も多いため、研修の対象として含める必要がある。

・重篤マラリアの治療についての知識が不十分であり、患者が適切に治療されない。研修に加え、県病院より下のレベルの医療施設への巡回指導を強化する必要がある。
・看護師が患者に対して不適切な態度や言葉を使うことがあり、そのためマラリア患者が医療施設を利用しなくなるという問題がある。看護師の意識向上についても研修に加える必要がある。

(2) 顕微鏡診断
・熱性疾患の顕微鏡診断に時間がかかるため、結果を待たずにマラリア治療薬を処方してしまう例が多い。マラリアの治療薬の無駄使いによる経済的な負担は、保健セクターの限られた資源を更に圧迫する。ザンジバルでは治療薬不足に陥っており、事態は更に深刻である。
・診断に時間がかかるため、患者が医療施設を利用するのを躊躇し、その結果、自分の間違った知識で治療してしまう。
・ギムザ法は時間がかかる方法であるため、特に混雑している医療施設ではAO法を採用することが望まれる。
・顕微鏡の故障、消耗品の不足、電気の供給不足が理由で、効率よく顕微鏡診断を行えない場合がある。こうした問題に対処するには、顕微鏡修理や消耗品供給の体制を確立する必要がある。電気の供給が不十分な施設には、代替の方法（ソーラーパネルなど）を検討する必要がある。

(3) 環境マネージメント
・ハマダラカ棲息地は様々な要因で発生する。サツマイモなどの作物の栽培や建設地の窪みにたまった水などもその一因となる。問題の解決には、保健セクターだけでなく、他のセクター（農業セクターや建設セクター）も交えた話し合いが必要である。
・ダルエスサラームにはマラリア対策用排水溝が存在するが、ゴミなどで詰まっており、機能していないものも多く、清掃が必要である。既存の排水溝は老朽化していたり、設計が適切でないものがあり、それらのリハビリテーションが必要である。
・ハマダラカ棲息地への殺虫剤散布も、マラリア排水溝の整備と並んで効果的な方法である。

2－4　タンザニア側との協議

2004年2月24日に調査団と保健省が協議を行い、調査団が作成したプロジェクト・デザイン・マトリックス（PDM）の内容とその他プロジェクトに関連する事項を確認したうえで、山形団長とウプンダ氏（保健省長官代理）が調査団議事録に署名した（付属資料9.）。

第３章　プロジェクト実施計画

３－１　プロジェクト・デザイン・マトリックス（PDM）

次期プロジェクトの枠組みとなるPDMを付属資料３.として添付した。

３－２　プロジェクト実施計画・実施体制の概要

プロジェクト実施計画に関しては、調査団議事録への署名や政府関係者との協議を通して、日本側･タンザニア側双方の共通認識が確認された。実施計画の大枠は、以下に示したとおりである。

・プロジェクトのタイトルは「包括的マラリア対策プロジェクト（Integrated Malaria Control Project)」とする。

・プロジェクトの協力期間は３年とする。

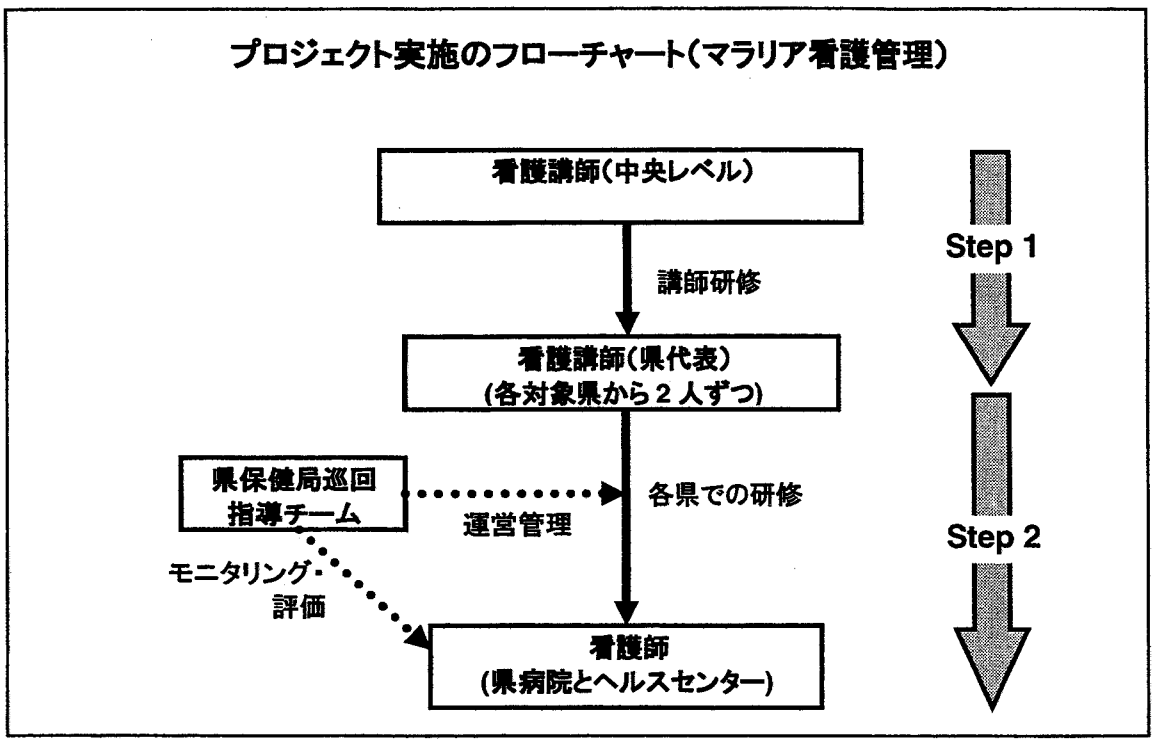
・プロジェクトは、①マラリア看護管理、②AO法によるマラリア診断、③ハマダラカ棲息地の環境マネージメントーの３つのサブプロジェクトを含むこととする。

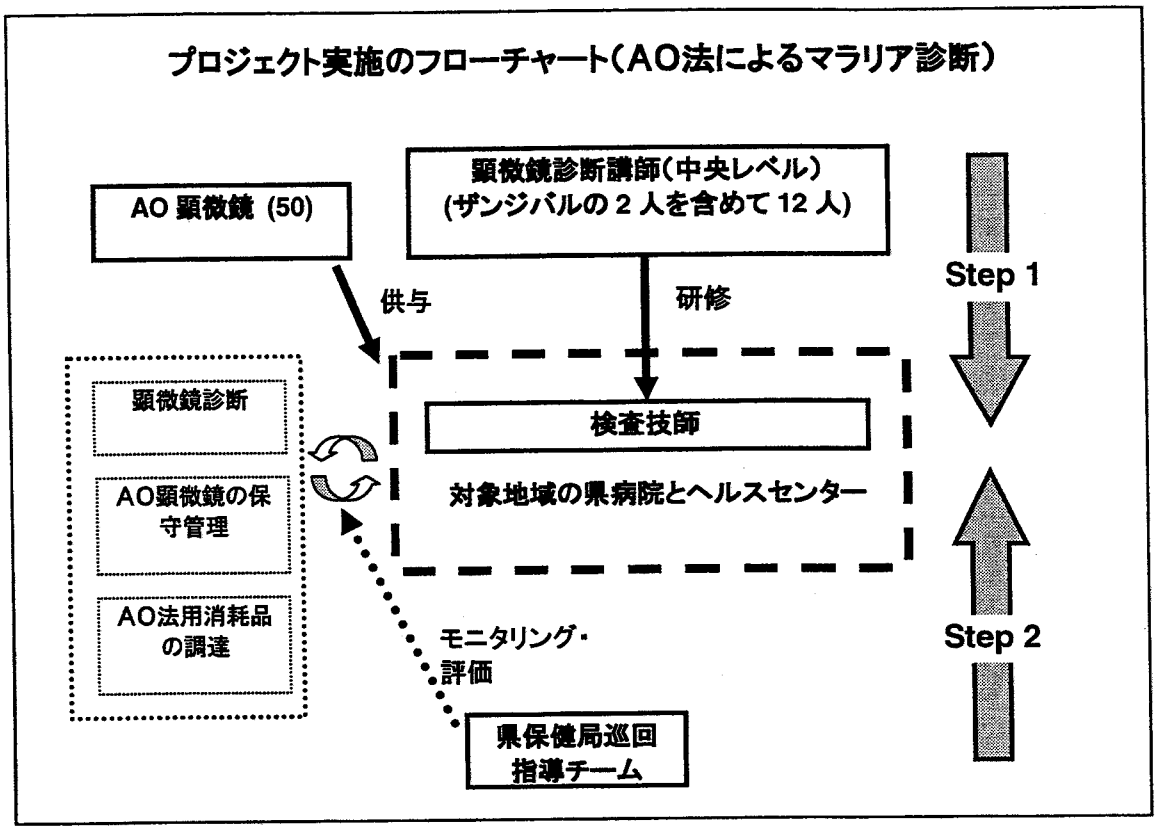
・NMCPがプロジェクトのカウンターパートとして、プロジェクト全体の運営管理を主管する。

マラリア看護管理、AO法によるマラリア診断、ハマダラカ棲息地の環境マネージメントの３つのサブプロジェクトに関して、双方で合意した実施方針や実施体制について、以下に説明を加える。

(1) マラリア看護管理とAO法によるマラリア診断

マラリア看護管理とAO法によるマラリア診断の実施方針を以下に図式化して示した。





実施方針、実施体制について特筆すべき点、留意すべき点を以下に示した。

・マラリア看護管理とAO法によるマラリア診断については、全国展開はせず6～10の県を対象とする。対象県にはダルエスサラーム市の3つの県[2]とザンジバルを含む。プロジェクトの1年目は3～5県を対象として活動を始め、2年目に残りの3～5県を加える。

・これは前現地国内研修が広く浅く実施された結果、そのインパクトが計測しにくかったことの反省による。ただし保健省からは政治的理由により、全国10州に対して均等に裨益する姿勢を堅持したい旨、強い要望があった。最終的に上記折衷案で合意。すなわちマクロには最終的に全州をカバーする方針をとるが、ミクロにはプロジェクト・モニタリングやインパクト評価がしやすい県を選んで詳細にモニタリング評価を行う。遠隔の州についてはモニタリングの方法を簡略化することもあり得る。

・マラリア看護管理とAO法によるマラリア診断については、医療施設全体のケースマネージメントの向上という観点から、可能な限り同じ県を対象とする。

・プロジェクトの対象となる県は、プロジェクトが始まってから決定する。ただし、①対象医療施設に電気があるかどうか、②ダルエスサラームからのアクセス、③マラリアによる被害の深刻さ、④プロジェクトチームがモニタリングできる限界、⑤対象医療施設

[2] ダルエスサラーム市内の行政区分について、本報告書では、県（municipality）、区（ward）と訳す。

に検査技師がいるかどうか、⑥その県でのインパクト調査に興味をもつドナー、NGO、研究機関があるかどうかーといった点を選定の際に考慮する。

・プロジェクトの２年目には、電気が来ていない（もしくは状況が悪い）ヘルスセンターをいくつか選び、ソーラーパネルと充電池を導入して、AO法適用のモデルを確立する。

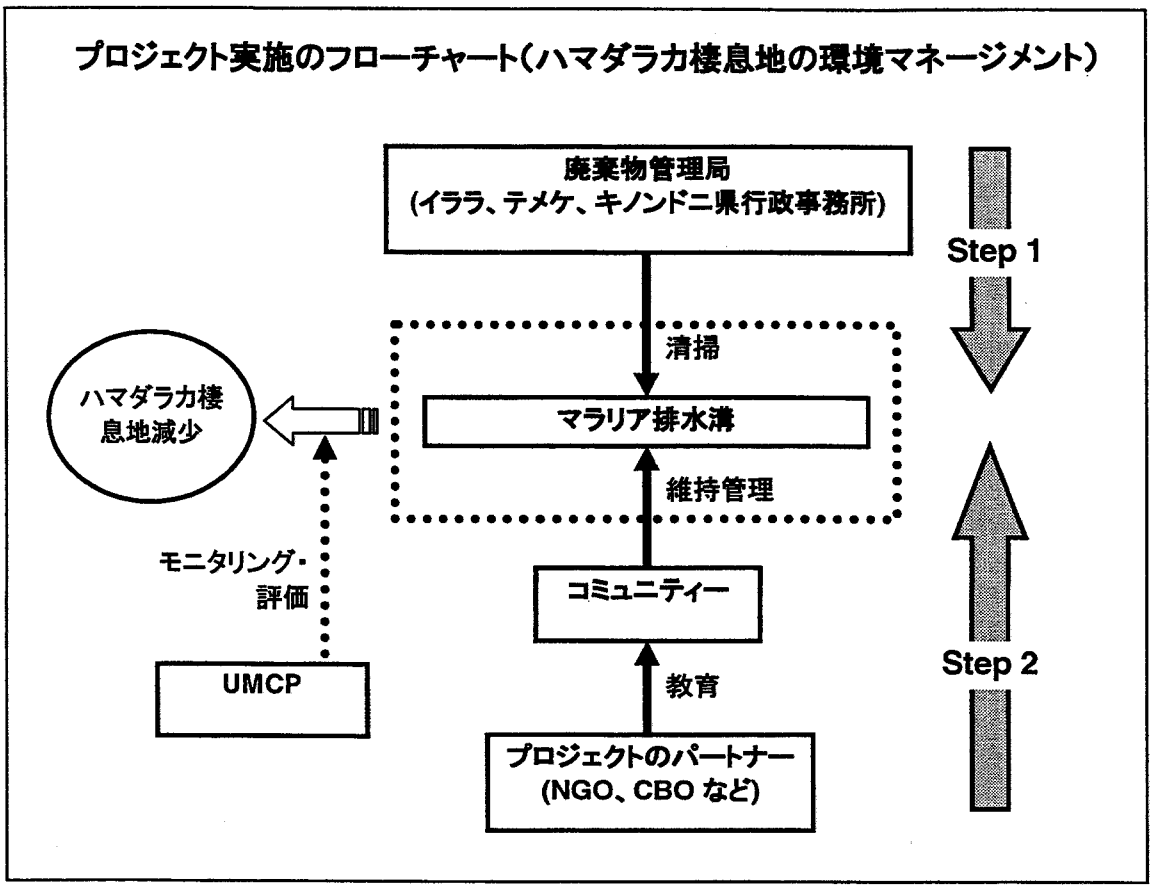
・実施体制は前フェーズを踏襲し、NMCPが全体の活動を統括する。マラリア診断については、保健省の診断サービス部門が対象地域への指導を担当する。県レベルでの研修やモニタリングについては、各県の保健局巡回指導チームが主導する。

・地方での活動の円滑な実施のためには、県保健局長（DMO）への啓発が必要であることを留意する必要がある。

・プロジェクトの進行に関するモニタリングのほかに、AO法普及によるインパクトを保健システム向上、並びにサービスの質と量における向上で計測するためのパイロット県を設ける。パイロット県の選定にあたって、調査機能のあるドナー、NGO、研究機関などが技術支援をしている県を優先し、プロジェクトと共同研究体制をとる。

(2) ハマダラカ棲息地の環境マネージメント

ハマダラカ棲息地の環境マネージメントの実施方針を、以下に図式化して示した。



実施方針、実施体制について、留意すべき点を以下に示した。

・ダルエスサラームの３県を対象とする。３県のなかでマラリア排水溝の清掃、コミュニティー活動を実施する区については、プロジェクトが始まってから決定する。

・ダルエスサラーム市のハマダラカ棲息地の環境マネージメントについては、スイス熱帯研究所（STI）の都市マラリア対策プロジェクト（UMCP）と連携して進める。UMCP のデータ収集と合わせた形で本プロジェクトが清掃を進め、その効果を相乗化する。

・ダルエスサラーム市の保健行政事務所が、活動全体を統括する。マラリア排水溝とコミュニティーでの教育については、各県の保健局と廃棄物管理局が主導する。各コミュニティーでの実際の活動については、現地 NGO や各区の行政事務所と連携して進める。

・マラリア対策の一環として進められる活動であるが、予算配分の構造上、実際の活動は保健局ではなく廃棄物管理局が監督することになる。そのため、関係者がマラリア対策としての目標を見失わないように配慮する必要がある。

第4章　総括所感

第2次事前調査の眼目はプロジェクト・サイクル・マネージメント（PCM）ワークショップにあった。正味4日で3つのサブプロジェクトを議論したため、それぞれについてフルコース実施することはできなかったが、保健省だけでなく地方自治体（ダルエスサラーム市）職員、Medical Store Department（MSD）、民間業者、研究機関などから成る多様な参加者が、積極的かつ協力的に参加した。その結果、既に第1次事前調査で作成したプロジェクト・デザイン・マトリックス（PDM）に近い内容で合意されたことは、立場の異なる参加者の間での問題意識が共有された結果だと思われる。合意形成のためのワークショップとして成功したといえる。

本プロジェクトの名称がIntegrated Malaria Controlとなっているのは、基本的に独立した3つのサブプロジェクトを統合したからで、プロジェクト自体は自己完結的なものではない。タンザニアのマラリア戦略に基づいた国家プログラムの一部分をモザイク状に補填する形となった。このような協力要請がタンザニア側から提示されたことは、1988年以来長期にわたるJICAのマラリア分野における技術協力が、タンザニアの事情を考慮した適正なものであり、広い支持と理解を得てきたからだと考える。

本プロジェクトは参加型で計画されただけでなく、今後の実施やモニタリングも参加型で行われることになる。単にプロジェクトの進捗をモニターするだけでなく、周辺の仕組み（機材保守、消耗品調達、現任研修制度、地域保健行政、衛生環境行政など）を広く調査し、必要なアクションをとりつつ、その成果・インパクトをできる限り定量的に把握することをめざす。特にAO法に関して、マラリア診療サービスにいかなる変化をもたらすかについて、事実に基づいた説得が必要となっている。

近年マラリア対策は援助の本流になってきたが、Insecticide Treated Net（ITN）一色の観がなくもない。タンザニアは貧困削減に向けて保健行政の地方分権が本格化している。このような環境にあって本プロジェクトが開発パートナーから孤立しないためには、日常的に幅広い交流が必要となろう。他のパートナーが集中するITNとは一線を画し、適正診療システムの開発と、その有用性の検証に徹するべきだろう。プロジェクト実施にあたっては技術協力プロジェクトの柔軟性を駆使した創造的なアプローチを期待する。

付　属　資　料

1．第2次調査団聞き取り調査の議事録
2．PCMワークショップの詳細
3．プロジェクト・デザイン・マトリックス（PDM）
4．タンザニア政府からの技術協力プロジェクト要請書
5．第1次調査団議事録（Minutes of Meeting）
6．タンザニア臨床検査技師会（MelSAT）総会参加者を対象とした
AO法についてのアンケート
7．AO法顕微鏡稼働調査結果（Executive Summary）
8．2004～2007年タンザニア国家マラリア対策計画（抜粋）
9．第2次調査団議事録（Minutes of Meeting）

１．第２次調査団聞き取り調査の議事録

マラリア早期診断強化計画第二次事前評価調査

保健省（MOH）との協議

日　時	2004 年 2 月 10 日　10:15 ～ 11:15
場　所	タンザニア保健省マゴマ氏のオフィス
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. Fabian J. Magoma	Head, Environmental Health and Sanitation Section (Principal Health Officer), MOH	Mobile：0744-277341

今回の調査に関して：

・（今回の調査の目的とスケジュールをマゴマ氏に伝えた。）2 月 24 日の午後にプロジェクト・デザイン・マトリックス（PDM）ドラフトの協議、3 月 2 日に署名ということで特に問題ない。ただし、2 月 15 日から 29 日まで不在のため、24 日の協議は代理を送る。

プロジェクトの内容について：

・AO 法の部分に関しては、① In-Country Training Course（ICTC）は全国展開、②いくつかの県ではヘルスセンター（HC）レベルに顕微鏡を供与し、対象県全体の修理や消耗品供給の体制を整備する－といった形でよいのではないか。対象となる県については、ダルエスサラーム、ザンジバルのほかに① Tanga Rural、②キバハ、③モロゴロ Urban を候補としてあげたい。①と②については、マラリアが多く、ダルエスサラームからモニタリングが可能という理由から。③については、マラリアはそれほど多くないが、ダルエスサラームから離れている割にはアクセスが容易であること、地方の Urban Area ということから候補としてあげる。

・民間の施設でも AO 法を始めたいという施設があり、できれば研修の対象にしたい。ただ、JICA のプロジェクトで民間を対象にする（つまり費用を負担する）のが問題であれば、民間からの参加者は自費ということも、ひとつのオプションとして可能ではないか。

・看護研修の部分に関しては、あまりよく知らないので、国家マラリア対策プログラム（NMCP）の Marero 氏と話し合ってほしい。

・都市マラリアについては、最も重要なコンポーネントであり、この部分に力を入れてほしい。①パンフレットの配布などによる市民の教育、②マラリア排水溝の掃除と修理－という内容を考えている。排水溝の掃除については、プロジェクトに関連する範囲内で“waste

management”も入れてほしい。

・都市マラリアの対象地区としては、ダルエスサラーム全体を対象とすべきである。イララ地区だけでは不十分。（この点については持ち帰り検討とする旨を伝えた。）

・都市マラリアの活動にはローカルNGOの協力が不可欠である。都市マラリアの活動をしているNGOはたくさんあるが、具体的には知らない（これはDSMのオフィスで確認する必要あり）。

・ザンジバルを対象に入れることについては全く問題ない。むしろ、ザンジバルを入れることはMUSTである。

以　上

マラリア早期診断強化計画第２次事前評価調査

イララ地区保健事務所との協議

日　時	2004 年 2 月 11 日　11:15 ～ 12:30
場　所	イララ地区保健事務所
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. Agoipr J. Mgama	Health Planner, Ilala Municipal Office of Health, DSM	Mobile：0744-545836
Mrs. Fatuna T. Maduhu	Senior Health Office/Acting Malaria Control Coordinator, Ilala Municipal Office of Health, DSM	Mobile：0744-841197

今回の調査に関して：

・（今回の調査の目的とスケジュールを伝えた。）２月 17 日～ 20 日のワークショップについては、まだ招待状は受け取っていないが是非参加したい。

プロジェクトについて：

・（プロジェクトの３つのコンポーネントについて説明した。）イララ地区が対象となった場合には協力できる。

・都市マラリアの指標としては、蚊の生息地の数だけでなく、蚊の密度を測定するのがよいのではないか。機材があれば、測定は可能。

・スイス熱帯研究所（STI）の活動については、よく知らない。

・同地域でマラリア対策の活動をしている NGO としては CARE がある。ただ、CARE の活動は主に Insecticide Treated Net（ITN）と Health Seeking Behavior であり、22 地区のうち２地区での活動に限られている。環境マネージメントの活動をしている NGO についてはよく知らない。環境マネージメントに関する NGO は、Waste Management Department（これは Ilala Municipal Office の中の１つの Department で、Health の Department とは別）の Mr. Samual（Sawage Management Officer）に聞いたら分かるのではないか。

・イララ地区を対象として HC まで AO 顕微鏡を導入し、消耗品の供給や顕微鏡の修理の体制を整備するという活動については良いと思う。

・イララ地区保健事務所でプロジェクトにかかわるのは、以下の方々と想定される。

－プロジェクト全体：Mr. Michael Kiama (Head of Planning Services Section)

－都市マラリア：Mr. Michael Kiama, Mrs. Fatuna Maduhu (Acting Malaria Control Coordinator),

Mr. Samuel (Sawage Management Officer, Waste Management Department)

－ AO 法：Mr. Thomas Mshana (District Laboratory Technologist)

－看護：Ms. Frida Lucas (Nurse in Charge; IPD/OPD)

（イララ地区保健事務所の組織図を入手した。）

以　上

マラリア早期診断強化計画第２次事前評価調査

NMCP マレロ氏との協議

日　時	2004 年 2 月 12 日　8:40 ～ 10:00
場　所	NMCP
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. M. W. Marero	Public Health Specialist, MOH-NMCP	Mobile：0741-492950

プロジェクトのスコープについて：

・タンザニア側からのプロジェクトプロポーザルは基本的にマレロ氏が書いたので、内容については非常によく理解している。

・（４つの県をモニタリングの対象とするという提案に対して）４県というのはプロジェクトの効果を期待するうえでは少なすぎる。全国で 120 県あるので、せめてその 10％の 12 県くらいを対象にすべき。２つの州（10 県ほど）とダルエスサラーム１県、ザンジバル１県というのが妥当ではないか。モニタリングの制約を考えて、モロゴロ州、タンガ州、コースト州あたりを対象にするのが良いのではないか。ただ、コースト州については、雨期にはアクセスできなくなる地域があることを留意しなければならない。

・モニタリングについては、スポット的に少数の県を対象にするのではなく、州全体を対象にすることにより、Regional Medical Officer（RMO）の協力を得ることができる。RMO が会議に出て AO 法のプレゼンを自分でするということが実現すれば、結構な Advocacy になると思われる。

・看護研修の Cascade については前フェーズではうまくいかなかった。これは県レベルでの予算に上限があること、また予算を割り当ててもほかの事に使われてしまうこと、が原因。

・次のプロジェクトでは、District Trainers of Trainers（DTOT）というのを各県で２人くらい任命して、その人たちが Cascade を促進するというのが良いのではないか。ただ、その場合はもちろん余分な予算が必要になるので、工夫が必要。

・プロジェクトで研修の対象とすべき看護師は、①Nurses in children ward、②Nurses in female ward、③ Nurses in medical ward といったところ。３年間で 300 人くらいを対象にするのが現実的。

・看護師の研修については、米国国際開発庁（USAID）が 2003 年からアルーシャ、マニャラ、イリンガを対象に実施している。規模はアルーシャとマニャラで 550 人、イリンガで 450 人。内容は、主に Pregnancy を対象とした Care について。

・都市マラリアについては、イララだけを対象にするのは好ましくない。タンザニアのほかの都市も含めるか、せめてダルエスサラームの３県すべてを対象にするべきである。イララ地区政府はお金に固執するところがあり、あまり良い印象はない。

（マレロ氏は２月９日から３月14日まで不在とのこと。）

以　上

マラリア早期診断強化計画第2次事前評価調査

世界保健機関（WHO）との協議

日　時	2004年2月12日　10:45 ～ 11:30
場　所	WHO Tanzania
JICA側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. Elizeus Kahigwa	National Program Officer - Malaria, WHO	Mobile：0744-481965 E-mail： ekahigwa@who.or.tz

得られた情報：

・JICAのマラリア対策プロジェクトにはWHOもできる限り協力していきたい。

・2003年6月に都市マラリアのセミナーがあり、環境マネージメントも多少取り扱ったが、メインのトピックではなかった。

・WHOの今年度の予算割りは既に決まっている。National Malaria Strategic Planに従って、Case Management、Vector Control、Malaria in Pregnancy、Epidemic Controlのそれぞれに予算を配分している。ただ、環境マネージメントについては、優先課題となっていないため、今年度は予算を組んでいない。この分野については、JICAのプロジェクトが始まってもWHOが協力できることは限定的。この分野でJICAが成果をあげて、効果が証明できれば、次年度以降は予算を入れて、JICAのプロジェクトとも協力していくことは可能である。

・一方で、診断と治療に関しては予算を入れているので、JICAのプロジェクトと協力して何かをすることは十分可能である。

・環境マネージメントの分野のNGOはよく知らないが、NGOのなかではCAREが一番信頼できてキャパシティーも高いので、あたってみてはどうか。また、環境マネージメントについては、タンザニア政府のVice President Officeが積極的に取り組んでいる。

以　上

マラリア早期診断強化計画第２次事前評価調査

Medical Store Department（MSD）との協議

日　時	2004年2月12日　13:00 ～ 14:00
場　所	MSD本部
JICA側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. Ally, J. R.	Director of Customer Sales & Services, Medical Stores Department	Mobile：0748-347451 E-mail：jally@msd.or.tz
Mr. Abdul M. Mwanja	Quality Assurance Officer, Medical Stores Department	Mobile：0744-284142 E-mail： amwanja@msd.or.tz

供給の流れ：

１．保健省の各部署が毎年必要な量の医薬品や消耗品をMSDにリクエストし、相当分の資金を振り込む。

２．それぞれの部署がDistribution Listを MSDに送る。

３．Distribution Listに従ってMSDが地方への分配を始める。Zonal MSDを経由して、RMO、District Medical Officer（DMO）、HCへと流れていく。

・Zonal MSDは現在は７つ。ムベヤ、イリンガ、モシ、タンガ、ムトワラ、タボラ、ムワンザにある。近い将来にダルエスサラームにもZonal MSDが作られ､コースト州とモロゴロ州を管轄する予定。

・National AIDS Control Program（NACP）などは地方レベルで必要な試薬の量を本部が集約し、実際のニーズに従ってMSDに注文を出しているが、NMCPは本部が適当に見積もって注文をしている（改善の必要はあるが、プロジェクトで対応するのは困難)。近い将来、オンラインで注文できるようになれば､NMCPでも現場のニーズを反映した形での供給が可能になる（かもしれない)。

AO法の関連：

・AO試薬については既にカタログに入っていて、注文があればいつでも供給が可能な状態。

・AO法用のハロゲン電球はカタログに入っていない。正確な型番と年間にどのくらい必要かという正確な情報が分かればカタログに入れることは可能(これはプロジェクトが始まってから対応すべき)。

・顕微鏡用のパーツについても同様、正確な型番と必要な頻度が分かればカタログに入れるこ

とは可能。

・ただ、カタログにないからといって注文ができないというわけではない。型番と量が分かれば随時注文は受け付ける。

・AO 法用の顕微鏡については、カタログには入っていない。この手の大型機器はカタログ注文ではなく、Special Order として扱っている（消耗品などは MOH からの注文しか受けていないが、機器については医療施設から直接注文を受けることも可能）。供給先と正確な型番が分かれば、注文に応じるのは問題ない。ただ、あくまでも Public の施設からの注文しか受けていないので、Private の施設からの注文は受けられない。

・AO 試薬や電球については、NMCP の購入リストに入るが、顕微鏡のパーツについては MOH の Diagnostic Service Section（Mgaya 氏のところ）のリストに入ることになる（プロジェクトは 2 つのセクションと仕事をしなければならないことになる）。

プロジェクトについて：

・前フェーズの失敗は MSD を Involve しなかったことだった。新しいプロジェクトでは是非 MSD も含めるようにしてほしい。

その他：

・JICA などのドナーから供与される医薬品や消耗品と MSD の扱っているものでは UNIT が違うため、扱いに困ることがある。

・JICA の供与器材の通関手続きは MSD に任せてほしい。MSD が空港に行って免税手続きをした方が簡単に済む場合が多いため。

（MSD のカタログを入手）

以　上

マラリア早期診断強化計画第２次事前評価調査

STIとの協議

日　時	2004年2月12日　15:30 ～ 16:30
場　所	DSM City Council (DSM Malaria Control Office)
JICA側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. Gerry Killeen	City Malaria Research Coordinator, City Medical Office of Health/Ifakara Health Research and Development Center/STI	Mobile：0748-477118 E-mail： gkilleen@ifakara.mimcdm.net
Mr. Michael G. Kiama	City Malaria Control Coordinator, Ilala Municipal Council/Urban Malaria Control Project - DSM	Mobile：0744-478265

（STIのキリーン氏を訪れたところ、キヤマ氏が同じ部屋にいたので、同席してもらった。）

DSMの都市マラリアコントロールプロジェクト：

・キヤマ氏を中心に、DSMの都市マラリアコントロールプロジェクトが来月（2004年3月）から始められる予定。拠出は、STI／Bill Gates Foundationが30万米ドル、ダルエスサラーム大学が11万米ドル、NMCP 8万米ドル。5年間継続して実施する予定。

・プロジェクトは、データ収集とベクターコントロールの両方を含む。ベクターコントロールについては、2年目から始め、Larvacideを使って蚊の数を減らすことを目的とする。データ収集に関しては、来月（2004年3月）より始め、Mosquito Density（Weeklyのデータが取得可能）、Breeding Sites（Weeklyのデータが取得可能）、Prevalence and Incidence（6か月ごとのデータ、Household調査を実施）を取得するデータの対象とする。最終的には、環境マネージメントのマラリア対策への有効性を実証し、世界に発信できるようにしたい。

・DSMの73区域（Ward）のうち、15区域を最初の2年間の活動で対象とし、3年目からは73区域全部に広げる。15区域は、DSMの中でも比較的データがとりやすいところで、イララ、テメケ、キノンドニそれぞれの地区から5区域を選ぶ。

JICAのプロジェクトについて：

・JICAが都市マラリアのプロジェクトを始めるのであれば、DSMのプロジェクトと共同で進めてもらいたい。JICAがマラリア排水溝の清掃を対象にするというのであれば、シナリオとしては完璧である。Larvacideと排水溝清掃の両方が重なれば効果は倍増するに違いない。

・プロジェクトで必要なベースラインデータやインパクトのデータはほぼリアルタイムで取る

ことができる。既にDSMのプロジェクトでデータ収集の予算は付いているので、特にJICAから余分に拠出する必要はない。

・DSMのマッピングについても既に終わっているので心配ない。

・排水溝の清掃に加えてJICAに期待するのは、排水溝の建設ではなく、そのためのガイドラインのようなものをつくること。どのような場所にどのような形で建設するのが望ましく、どのような投入が必要かといった類のもので、将来的にタンザニア政府が自分で実施計画をつくる指針となるもの。

（DSMの都市マラリアプロジェクトの電子ファイルを入手）

以　上

マラリア早期診断強化計画第２次事前評価調査

Ilala Municipal Waste Management Office との協議

日　時	2004 年 2 月 13 日　10:30 ～ 11:30
場　所	Ilala Municipal Waste Management Office
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. Samuel A. Bubegwa	Municipal Waste Management Officer, Ilala Municipal Council	Mobile：0744-363627 E-mail： bubergwasam@hotmail.com

Waste Management Office について：

・Waste Management Office はイララ政府の９つある部署のうちの１つ。以前は Health Department の中にあったが、1995 年より独立した。そのため、Health Office との協力関係はうまくいっている（現に私の面会中にキヤマ氏が現れた）。

・Waste Management Office は３つのセクションに分かれる。Solid Waste Management Section、Air Pollution Management Section、Liquid Waste Management Section があり、排水溝の清掃などは Liquid Waste Management Section が担当する。Liquid Waste Management Section には、Principal Environmental Officer が１人、Foreman が２人おり、Foreman が清掃の作業を監督する。

・実際の清掃については、民間に外注している。現在のところ、12 の契約業者があり、ゴミの清掃、排水溝の清掃、草刈りなどをやってもらっている。

・費用は、１人のワーカーにつき１日当たり 1,600 シリング（1.6 米ドル）を支払い、排水溝であれば200ｍを掃除することになっている。ゴミが非常に多かったりするときはもう少し短い距離でも良いことにしている。清掃には道具が必要なので、通常は人件費に10％上乗せして支払っている。

・排水溝の清掃に割り当てられる予算は、2004 年１～６月までで 500 万シリング（5,000 米ドル）。これは 15 人のワーカーを雇うのに相当する額（1,600 シリング× 15 人× 30 日× 6 か月× 1.1 ＝ 475 万 2,000 シリング）。ただし、これはマラリアの排水溝だけでなく、道路などの排水溝もすべて含んでいる。これだけの予算では全部をカバーすることはできない。（計算すると、マラリア排水溝をすべて掃除するには十分な予算である。ただ、あとで契約業者から聞いたところによると、予算はほとんど大きな道路の排水溝の掃除に割り当てられていて、マラリア排水溝にはほとんど割り当てがないとのこと。）

・道路の清掃に関しては、上述した契約業者に頼んでいるが、マラリアの排水溝に関しては、ほとんど Casual Labor（個人委託と思われる）に頼んでいる。

JICA のプロジェクトについて：

・JICA が都市マラリアのプロジェクトを実施するのであれば、Waste Management Office も含めることは不可欠であり、是非とも協力したい。

・Waste Management Office が 15 人のワーカーの費用を負担するのに対して、JICA が 25 人分くらいを負担してもらえるとありがたい。

・２月 20 日のプロジェクト・サイクル・マネージメント（PCM）ワークショップにも参加する。

その他：

・清掃を委託している業者のうち、精力的に活動しているのは Omjaga Environmental Services Co Ltd. である（代表の Mr. Fred Munema 氏の電話番号を入手）。

以　上

マラリア早期診断強化計画第２次事前評価調査

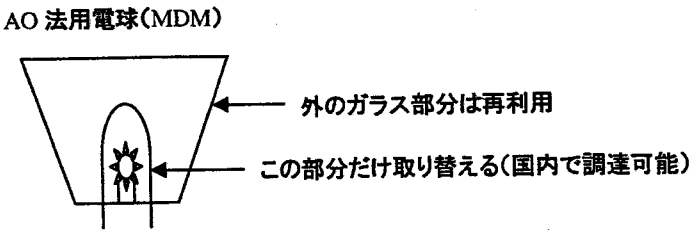
ムヒンビリ医療機器修理工場との協議

日　時	2004年2月13日　14:00～15:30
場　所	ムヒンビリ医療機器修理工場
JICA側の同席者	金森団員（コンサルタント）、細井専門家

氏　名	地位／所属	連絡先
Mr. John Byarugaba	Head of Lab-hospital Equipment Workshop, Muhimbili National Hospital	
Dr. Bushiri S. Tamin	Manager of SPL, Pediatric Department, Muhimbili National Hospital	

AO法顕微鏡に関する技術的なこと：

・AO法用の電球は、切れても再利用できることがあまり知られていない。外のガラス部分はとっておいて、中のハロゲン電球部分だけを取り替えればよい。ハロゲン電球部分はタンザニア国内でも簡単に買うことができる。



・対物レンズについては、メンテナンスのときにちゃんとしたオイルを使わないのが問題。これが壊れる原因のほとんどを占めている。

・４か月に１回くらい分解して掃除をするようにすれば、顕微鏡は半永久的に使える。もちろん、分解して掃除をするのはある程度のスキルが必要なので、ワークショップに持ち込む必要がある。

ムヒンビリ修理工場について：

・職員は４人。（細井専門家によると、非常にキャパシティーは低く、あまりあてにならないとのこと。）

・周辺７州の医療施設からの機器を取り扱うことになっているが、実際のところは予算もないため、ムヒンビリ病院の機器に限られている。

・周辺州の機器のメンテナンスは、MOH（Technical Department）の６人の職員が各州を巡回して実施している。詳細はよく知らないので、Technical Department のムレイ氏に聞くとよい。

全国の修理工場について：

・ワークショップは現在４つある（ムトワラ、ムベヤ、ムワンザ、ダルエスサラーム)。もうすぐタボラにもできる予定。それぞれのワークショップの詳細についてはよく知らない。

以　上

マラリア早期診断強化計画第２次事前評価調査

民間清掃業者との協議

日　時	2004年2月13日　16:00 ～ 17:00
場　所	Omjaga Environmental Services Co. Ltd.
JICA側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. Fred Munema	Managing Director, Omjaga Environmental Services Co. Ltd.	Mobile：0741-297626

会社について：

・Omjaga Environmental Servicesはイララ地区のBuguruni区域にオフィスを構える民間の清掃業者。イララ地区のWaste Management Officeの仕事を請け負っているほかに、コミュニティーでの活動も行っている。会社では105人のワーカーを雇っている。

・代表のムネマ氏は、コミュニティーレベルでの環境マネージメントによるマラリアやコレラの防止を積極的に進めている。実際に自分でアドボカシー用のビデオを作製している（彼が作成したビデオCDを入手した）。

（ムネマ氏の活動を以下の３つに分けて説明する。）

１．イララ政府の委託による清掃業務

・105人のワーカーのうち、100人ほどを割り当てている。１人当たり１日1,600シリングをもらう（Waste Management Officeで得た情報のとおり）。ただし、委託されるのは大通りの排水溝の掃除のみで、小さな路地の排水溝やマラリア排水溝の清掃は委託されない。他の業者がやっているわけでなく、イララ政府に予算がないためにそこまでカバーできていないだけ。

２．マラリア排水溝の清掃

・105人のワーカーのうち、マラリア排水溝の清掃に割り当てられるのは５人ほど。ボランティアの形で掃除をしている。ただし、清掃作業をした場合には、その地域に住んでいる人々から１人当たり１か月につき700シリングを徴収することができるというMunicipal Law（？）があり、清掃をしたあとに１軒ずつ回って資金を回収している。Municipal Lawでは１人１月700シリングということになっているが、これは高すぎるので、１軒（通常は５～10人が住む）につき１か月1,000シリングということにしている。これまでの資金の回収率は42％。

清掃の効果が見えるようになって、人々の意識が向上すれば、回収率は更に上がるだろう。

・これまでの１年間でBuguruni区域（６万7,280人が住んでおり、状況はかなり悪い）にあるマラリア排水溝５～６kmのうち、1.9～２kmを清掃した。非常に遅いペースだが、５人しか割り当てられないので仕方ない。やはり資金がないので大規模に進めることは難しい。

３．市民の教育

・タンザニアでは、10軒の家（80人くらい）につき１人のWajumbe（単数はMjumbe）と呼ばれるリーダーが存在する。週末には、Wajumbeを集めて環境マネージメントについての教育セミナーを実施している。１回のセッションにつき６人のWajumbeを集め、1回の週末に３～４セッションを実施している。

・Wajumbeが参加するためのインセンティブとして、１回の参加につき2,000シリングを支払っている。そのほか、コーラなどの飲み物なども用意する。関連する本も無料で配る。

・必要な経費は、上述した排水溝の清掃で市民から徴収した金で賄っているが、一部は自己負担している。

・教育セミナーに参加したWajumbeは、自分の担当する10軒の住民に対して教育をし、清掃活動を推進する。

・これまでのところ、住民の活動はゴミ拾い程度にとどまっており、マラリア排水溝の清掃までにはなっていない。ただ、実際に道などのゴミが少なくなっており、効果は出ている。

JICAのプロジェクトについて：

・プロジェクトで市民レベルの活動を促進したいのであれば、自分（ムネマ氏）のようなRight Personに当たるべきだ。プロジェクトが資金を投入してくれれば、イララ地区だけでなくダルエスサラーム全体に活動を広げる自信がある。

・その場合でも、プロジェクトの自立発展性のためには、イララ政府が主管しモニタリングをすることが必要であり、民間業者が勝手に活動をするというのは良くないのは理解している。

・可能な活動としては、市民にビデオを見せる、パンフレットを配る、セミナーを開くといったあたりが想定される。

以　上

マラリア早期診断強化計画第２次事前評価調査

NMCP ムイタ氏との協議

日　時	2004 年 2 月 16 日　12:30 ～ 14:30
場　所	NMCP
JICA 側の同席者	山形総括（専門員）、金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. Alex Mwita	Program Manager, NMCP	Mobile：0741-339713
Mr. Makono Andrew	Health Officer, NMCP	
Mrs. Ritha J. A. Njau	National Officer - Malaria, WHO	
Dr. Renata Mandike	Deputy Manager, NMCP	

プロジェクトについて：

・顕微鏡を導入する HC としては、ザンジバルについては 2 か所くらい。最大３～４か所が限界だろう。

・ダルエスサラームの HC についても対象にするが、最初の年に入る顕微鏡（2003 年度申請分）が 25 台と限られているので、2004 年度申請分が入ってからということにして、少し遅く始めてもよいのでは。

・モロゴロ Rural は Tanzania Essential Health Intervention Project（TEHIP）が入っていた関係でカスケードシステム（県が HC を監督し、HC が Dispensary を監督するというシステム）がうまく機能しているので、良いのでは。ただ、HC は電気がないところがほとんどだろう。

・電気がある HC となると、都市部に限られる。

・ドドマ、ムトワラ、リンディあたりも候補として考える。

・いずれにしても、電気があるところにしか顕微鏡が入れられないということなので、候補となった州に電話で問い合わせて、電気のある HC の状況を明日までに把握して調査団に連絡する。

・完全に壊れてしまった顕微鏡の数はそんなに多くないはず。ほとんどは修理可能か、光源のみの取り替えで済むと思われる。2003 年度の 25 台のうち、壊れたものと取り替えるのは３台くらいでよいと思われる。あとは上述したプロジェクトの候補地に回してよい。

・2003 年度の 25 台については、電気のあるところに入れるということしかできないが、2004 年度の申請分は、ソーラーパネルとバッテリーも合わせてパッケージで送ってもらえれば電気のない HC にも顕微鏡の導入が可能。

・AO 法のモニタリングの指標としては、①作ったスライドの数（現状では臨床診断だけでス

ライドを作らない場合が多いため。顕微鏡診断が使われているという指標)、②時間当たり何人の患者を診断したか(迅速診断の指標)、③発熱患者のうち、マラリア治療薬を処方された割合(現状では必要量の3倍くらいの薬が消費されている。経済的効果の指標)

NMCPに関連して:

・NMCPの職員は15名。

・2003年6月から2004年6月までの(Non-wage)予算は、1,100万米ドル。これはコモンファンド(中央分)から出ている。

Global Fundについて:

・NMCPはGlobal Fundの事務所も兼ねている。Global Fundのマネージャーはムイタ氏。

・タンザニア本土のプロジェクトは始まったばかりで、まだほとんど進んでいない。妊婦を対象としたITNで、Voucherを配って広めるという戦略。

・ザンジバルのプロジェクトは、マラリアのCombination Therapyに関する支援。

他のドナーの活動:

・最近は多くのドナーがコモンバスケットに移行してしまったため、マラリアという枠組みをもって支援しているドナーは少ない。WHOはマラリア対策を包括的に支援、アイルランドはITNの普及を支援している。英国国際開発省(DfID)はPopulation ServiceというNGOを通してITNの支援をしている。

(ドドマ州で電気が使える医療施設の数について情報を入手)

Dodoma Urban	2HCs
Dodoma Rural	1HCs, 1Hosp
	(Muuni Hospital ー この病院にはLaboratory Assistantの学校がある)
Kangwa	2HCs, 1Hosp
Mpwapwa	1HC, 1Hosp
Kondoa	1Hosp
合計:	6HCs + 4Hospitals

以　上

マラリア早期診断強化計画第２次事前評価調査

DSM City Council との協議

日　時	2004 年 2 月 16 日　15:30 ～ 16:30
場　所	DSM City Council
JICA 側の同席者	山形総括（専門員）、金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. Deo M. Mtasiwa	City Medical Officer of Health, DSM City Council	Mobile：0744-474346
Dr. Gerry Killeen	City Malaria Research Coordinator, City Medical Office of Health/Ifakara Health Research and Development Center/STI	Mobile：0748-477118 E-mail： gkilleen@ifakara.mimcdm.net
Mr. Michael G. Kiama	City Malaria Control Coordinator, Ilala Municipal Council/Urban Malaria Control Project - DSM	Mobile：0744-478265
Dr. Marcia Cacoas de Castro	Research Associate, Princeton University	

（協議内容は、２月 12 日の STI との協議と重なる部分が多かった。新たな情報のみ記述する。）

JICA のプロジェクト（特に都市マラリアの部分）に関して：

・STI のプロジェクトと組んでやるというのは非常に歓迎。

・Municipality にも Engineer はいるが非常に忙しく、プロジェクトに時間をとるのは困難。都市マラリアのボランティアを派遣してもらえるのであれば、土木か都市工学のバックグラウンド（Engineer）がほしい。土木の人に蚊の生態について教えることは比較的容易だが、逆は困難。ということで昆虫学者よりも Engineer を希望する。

・青年海外協力隊（JOCV）は可能であれば各 Municipality に１人ずつ（合計３人）を希望する。STI-IFAKARA の昆虫学 PhD の学生と JOCV が組んで仕事をするというのもひとつの案。ちなみに PhD 学生を使うのは１人当たり１年間１万 8,000 ドルと設定されている。

・STI のプロジェクトで足りないものはツールの類（清掃の道具からコンピューターに至るまで）。そういったところを JICA で負担してもらえると助かる。

その他：

・DSM の３つの Municipal から、タンガの Vector Control Training Center に Health Officer を送る予定。２年間のコースで Environmental Engineer を学ぶ。

以　上

マラリア早期診断強化計画第２次事前評価調査

MOH 診断部門のムリナ氏との協議

日　時	2004 年 2 月 23 日　9:00 ～ 10:00
場　所	MOH 診断部
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. S. Mrina	Health Laboratory Technologist of Registrar - Private Laboratories, Diagnostic Department, MOH	Mobile：0744-596856

組織について：

・MOH の Diagnostic Section には３つの Sub-section がある。

－ Laboratory Service Sub-section（Head は Mr. Mgaya；全部で４人）

－ Health Care Equipment Sub-section（Head は Mr. Emlay；全部で４人）

－ X-ray Sub-section（Mr. Boyi；１人だけ）

顕微鏡のメンテナンスについて：

・診断機器のメンテナンスについては、Healthcare Equipment Sub-section の４人が巡回指導をしている。１年に４回くらい行くことになっている。

・ワークショップはムベヤ、ムワンガ、ムトワラ、ムヒンビリにあり、それぞれに MOH の Service Technician が１人ずついる。Healthcare Equipment Sub-section の４人と合わせると、全部で８人。

・ただ、上記のワークショップは通常は Referral Hospital に併設されており、MOH の Service Technician のほかに病院が雇っている Service Technician が多数おり、管轄地域の医療施設からの注文を請け負っている。Kilimanjaro Christian Medical Centre（KCMC）にもワークショップはあり、MOH の Service Technician はいないが、KCMC が雇っている Service Technician は何名か働いている。

・MOH の８名に加えて、病院が雇っている Service Technician もプロジェクトの対象とすることに関しては、MOH としては問題ない。

・Laboratory Equipment のユーザー用のメンテナンスチェックリストが存在し、使われている（“Check List for Laboratory Technicians”を入手）。これを基に AO 顕微鏡用のユーザーメンテナンスリストも作成することは可能。

診断サービスについて：

・HC のなかには Laboratory Technician がいないところもあるので、そういったところに AO 顕微鏡を入れてもあまり意味がない。AO 顕微鏡を導入するサイトの選定には、電気の有無のほかに Laboratory Technician がいることを考慮する必要がある。もしくは、Laboratory Technician を配置するといった条件を課すこともひとつの手である。Laboratory Technician の雇用は、基本的に DMO と県の Councilor が決定する。

・AO 法の診断レポートは毎月各医療施設が NMCP に提出することになっているが、実際にそれが行われているかどうかは不明（多分行われていない）。報告フォーマットは、“Practical Guidelines on Acridine Orange Method in the Laboratory Diagnosis of Malaria and Other Haemoparasites, November 1997, MOH”の 15 ページに載っている（フォーマットのコピーを入手）。

・診断サービスの巡回指導は、基本的に Laboratory Service Sub-section を中心としてチームを組んで実施する。

・巡回指導では、①Laboratory がスタンダードを満たしているかのチェック、②オンザジョブ・トレーニング（OJT）、を行う。（Private 病院用のチェックリストを入手。Public 病院用のチェックリストもあるとのこと。）

プロジェクトについて：

・AO 法の研修については、①診断技術、②ユーザーメンテナンス、③月報の書き方、といった内容で良いと思う。

・プロジェクトが始まった場合は、ムリナ氏が診断部門では連絡役になる可能性が高い。

その他の背景情報：

・Laboratory Technician は 3 種類：① Laboratory Assistant、② Laboratory Technician、③ Laboratory Technologists。

－ Laboratory Assistant －高校卒業後 2 年間の Certificate コースを終了すると資格が得られる。学校は Shigida Hospital（Shingida）、Mvumi Hospital（ドドマ）、Bugando Hospital（ムワンザ）の 3 つ。

－ Laboratory Technician －高校卒業後 3 年間の Diploma コースを終了すると資格が得られる。学校はムヒンビリ（DSM）、Kilimanjaro Christian Medical Center（Kilimanjaro）、Ikonda Hospital （イリンガ）の 3 つ。

－ Laboratory Technologists － 3 年の Diploma コースの後、2 年間の Advanced Diploma コースを終了すると資格が得られる。学校はムヒンビリのみ。

・ギムザ用の顕微鏡の値段は800米ドルくらい。AO顕微鏡も市場でそのくらいの値段になれば普及する可能性は高い。

以　上

マラリア早期診断強化計画第２次事前評価調査

DSM City Council キヤマ氏との協議

日　時	2004 年 2 月 25 日　10:30 ～ 11:00
場　所	DSM City Council
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. Michael G. Kiama	City Malaria Control Coordinator, Ilala Municipal Council/Urban Malaria Control Project - DSM	Mobile：0744-478265

（ダルエスサラームのヘルスセンター訪問のアレンジをお願いに行ったついでに、NGOについての情報を得た。）

コミュニティーへの衛生教育を委託できる可能性のあるNGOについて：

・CARE Internationalについては、確かにマラリアの活動をしているが、City Councilとはけっこう問題があり、あまり好ましくない。以下のNGOを候補として考えてはどうか。

－Plan International－大型の国際NGO。Bugruni地域のヘルスセンター建設や学校建設、コミュニティー活動など、いろいろと手がけている。

Contact : Mrs. Kawawa (mobile：0744-381428)

－ Water Aid －国際NGO。衛生教育を中心にコミュニティー活動をしている。

Contact : Mrs. Kayeta (tel：2700776)

－ ENVITEC －ローカルNGO。コミュニティー活動が中心。

Contact : Glaciana (mobile：0744-264185)

・マラリア排水溝の清掃については、NGOではなく、CBOやOmjagaのような民間業者に委託すべきである。

以　上

マラリア早期診断強化計画第２次事前評価調査

AMMP との協議

日　時	2004 年 2 月 25 日　11:30 ～ 12:00
場　所	Adult Morbidity and Mortality Project (AMMP) Office
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. David Whiting	Data Manager, Department of Medicine, University of Newcastle Upon Tyne	Tel: 022-2153388 E-mail：dave@ammp.or.tz

AMMP について：

・DfID のプロジェクトの１つ。1991 年に始まり、2004 年の７月に終わる予定。

・病気ごと、年齢ごと、性別ごとの罹患率や死亡率を特定するというのが意図。最初は Diabetes などの Non-communicable Disease の調査を目的にしていたが、途中から、Communicable Disease も入れるようになった。

・Demographic Surveillance と死亡ケースの Verbal Autopsy を実施している。

・データ取得の対象は以下のとおり：

－ダルエスサラーム－６万 5,000 人。Demographic Data は半年ごとに取得。Verbal Autopsy は適宜。地方政府側の担当者は、Dr. Mashombo（テメケ）と Dr. Marry Lewanga（イララ）。キノンドンは対象としていない。

－ Hai District（Killimanjaro）－ 16 万人。これは District の 75％をカバーしていることになる。Demographic Data の取得は１年ごと。Verbal Autopsy は適宜。地方政府側の担当者は、Dr. Masuki。

－モロゴロ Rural District（モロゴロ）－ 12 万人で人口の 20％をカバー。１年に１回 Demographic Data を取得。Verbal Autopsy は適宜。政府側の担当者は、Dr. Machibya（District Medical Officer）。

・これまでの 10 年間で、Verbal Autopsy については、合計５万件を対象とした。

・1997 年に出版したレポートは、www.ncl.ac.uk からダウンロードできる。2004 年７月に新しいレポートが出ることになっており、現在執筆中。

・プロジェクトは、データ収集を政府のシステムに組み込むというのが目的。ダルエスサラームと Hai District については、すでに District が独自に活動を進められるようになっている。モロゴロ Rural については、前者２つよりキャパシティーは低いが、一応保健システムに組み込まれている。

・地方レベルではかなりキャパシティーは上がり、自立発展が見込まれる。実際に過去3年間、これらのDistrictはAMMPの技術支援なしで独自に活動を進めている。データ解析のプログラムについてもタンザニア人が自分で作成している。
・ただ、中央政府の組織的な問題が残っている。具体的には、データ取得を取り扱う部署が保健省に存在しないため、今後地方への予算の分配がされるかどうか定かでない。DfIDがそのような活動の予算を確保するようにMOHに働きかけているが、今のところ改善が見られない。
・カナダ政府の支援によるTanzania Essential Health Intervention Project（TEHIP）とは、第1フェーズの活動は一緒に進めてきたが、1998年からの第2フェーズは別にやることになった。TEHIPはRufisiを対象としており、やっていることはAMMPと似ている。

JICAのプロジェクトについて：

・3つのDistrictでは、データ取得のシステムができあがっているので、プロジェクトのインパクトのモニタリングに使うことは十分可能と思われる。
・JICAのプロジェクトがそれらのDistrictを対象にするのであれば、Verbal Autopsyの項目にマラリアに特化した質問項目を加えてモニタリングデータを取得するということも可能。現在の質問項目は、Febrile Diseaseとして作られており、マラリアについて得られる情報は限られている。Demographic Surveyについては、お金もかかるしJICAのプロジェクトのスコープ内ではないので、できることは限られていると思う。

その他の情報：

・タンザニアのCensusは10年に1回ということになっている。最近では2002年に行われており、非常に精度の高いデータが得られている（www.tanzania.go.tz/census）。

以　上

マラリア早期診断強化計画第２次事前評価調査

NMCP マンディケ氏との協議

日　時	2004 年 2 月 27 日　13:00 ～ 14:00
場　所	NMCP
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Dr. Renata Mandike	Deputy Manager, NMCP	Mobile：0744-295323

・プロジェクトの候補となりそうな県について、電気の供給状況を調べた。アシスタントに電話で確認させたため、検査技師がいるかどうかまでは調べられなかった。また、モロゴロ Rural と Rufiji については、まだ回答が返ってきていない。

・電気が供給されている医療施設（HC と Dispensary）の状況は以下のとおりである。

Morogoro Urban：

－ Masiga HC

－ Uhuru HC

－ Sabasaba HC

－ Kinguruwila Disp.

－ Konga Disp.

－ Mbete Disp.

Dodoma Urban：

－ Makole HC

－ Hombolo HC

－ Makole Disp.

－ Kikuyu Disp.

Dodoma Rural：

－ Mundewu HC

－ Bwigiri Disp.

－ Izava Disp.

－ Mende Disp.

Kinondoni (DSM)：

－ Mbweni Disp.

－ Kiluvya Disp.

－ Kibamba Disp.

Temeke (DSM)：

－ Kigamboni HC

－ Mbagala Kizuiani Disp.

－ Rangitata Disp.

Ilala (DSM)：

－ Mnazi Mmoja HC

－ Bugruni HC

－ Vingunguti Disp.

以　上

マラリア早期診断強化計画第２次事前評価調査

民間清掃業者との協議

日　時	2004 年 2 月 27 日　14:00 ～ 14:30
場　所	Peacock Hotel
JICA 側の同席者	金森団員（コンサルタント）

氏　名	地位／所属	連絡先
Mr. Fred Munema	Managing Director, Omjaga Environmental Services Co. Ltd.	Mobile：0741-297626

〔Omjaga Environmental Services（民間の清掃業者）のムネマ氏からマラリア排水溝清掃の見積りをもらった。〕

Variable cost (daily rate; cleaning 2.5km/day)				
Labors (cleaning 50m/day)	2,500	50	125,000	
Vehicle hire	70,000	1	70,000	
		Total	195,000	Tsh

Fixed cost (initial cost)				
Gloves	4,500	50	225,000	
Spades	3,500	50	175,000	
Gum boots	9,000	50	450,000	
Masks	500	50	25,000	
Wheel barrow	50,000	20	1,000,000	
Panga	2,000	10	20,000	
Tupa	2,000	5	10,000	
		Total	1,905,000	Tsh

（以上に業者の取り分 10％を加えると、清掃費用は以下のようになる。）

Cleaning　25km	4,240,500	Tsh
Cleaning　50km	7,458,000	Tsh
Cleaning 100km	10,675,500	Tsh
Cleaning 200km	19,255,500	Tsh

*1USD ＝ 1,100Tsh ＝ 108JPY (As of 27 Feb 2004)

以　上

PCM ワークショップの詳細（2004 年 2 月 17 日～20 日）

1. 看護・治療(2 月 17 日)

ワークショップ参加者

Name	Title	Department/Agency
Dr. Alex Mwita	Program Manager	NMCP, MOH
Mrs. Ritha J. A. Njan	National Professional Officer - Malaria	WHO
Hassan M. M.	Nursing Officer	Department of Mnazi Mmoja Hospital, Zanzibar
Mr. Suleiman M. Muleane	Nurse psychiatrist and nurse tutor	College of health sciences, Zanzibar
Fanuei Raphael Kipesha	Municipal Medical Officer of Health Kinondoni (Health Officer)	Kinondoni Municipal Council
Dr. Senkoro, DDS, MPH	Senior Dental Officer	Hospital Services, MOH
Mr. Makono Andrew	Health Officer	NMCP, MOH

問題分析

中心問題を"Malaria patients are not properly treated"と設定し、問題分析ワークショップを実施した。ワークショップで作成した問題系図を別紙に添付した。

2. 顕微鏡診断(2 月 18 日～19 日)

ワークショップ参加者(2 月 18 日)

Name	**Title**	**Department/Agency**
Kipesha, FR	Medical Officer of Health	Kinondoni Municipal Council
Alex Mwita	Program Manager	NMCP, MOH
Mwinyi Msellem	Health Laboratory Scientific Officer	Zanzibar Malaria Control Program
Linda F. Swai	Engineer	Muhimbili National Hospital
Abdu Mwansa	Quality Assurance Officer	Medical Stores Department
Makono Andrew	Health Officer	NMCP, MOH
Hasi Khatis	Health Laboratory Scientific Officer	Zanzibar Malaria Control Program
Donat P. Mlay	Kinondoni Municipal Laboratory Coordinator	Laboratory Department Kinondoni
Renata Mandike	Deputy Program Manager	NMCP, MOH
Sabas Mrina	Health Laboratory Technologist of Registrar – Private Laboratories	Ministry of Health Diagnostic Section
Michael G. Kiama	Malaria Control Coordinator – DSM	Dar-es-Salaam City Council
Thomas Mshana	Municipal Technologist	Ilala Municipal
Prof. B. S. Lembariti	Registrar	MUCHS

ワークショップ参加者(2 月 19 日)

Name	**Title**	**Department/Agency**
Alex Mwita	Program Manager	NMCP, MOH
Mwinyi Msellem	Health Laboratory Scientific Officer	Zanzibar Malaria Control Program
Linda F. Swai	Engineer	Muhimbili National Hospital
Abdu Mwansa	Quality Assurance Officer	Medical Stores Department
Makono Andrew	Health Officer	NMCP, MOH
Hasi Khatis	Health Laboratory Scientific Officer	Zanzibar Malaria Control Program

Donat P. Mlay	Kinondoni Municipal Laboratory Coordinator	Laboratory Department Kinondoni
Renata Mandike	Deputy Program Manager	NMCP, MOH
Sabas Mrina	Health Laboratory Technologist of Registrar – Private Laboratories	Ministry of Health Diagnostic Section
Michael G. Kiama	Malaria Control Coordinator – DSM	Dar-es-Salaam City Council
Thomas Mshana	Municipal Technologist	Ilala Municipal
Prof. B. S. Lembariti	Registrar	MUCHS
Chacha Mungaho	Tutor	Muhimbili School of Hygiene

問題分析・目的分析

中心問題を"Conventional laboratory diagnosis of malaria takes time"と設定し、問題分析ワークショップを実施した。問題分析ワークショップの結果を基に、目的分析ワークショップを実施した。ワークショップで作成した問題系図と目的系図を別紙に添付した。

アプローチの選択と集団討議

作成された目的系図から中心問題を解決するのに有効と思われるアプローチを抽出し、それぞれのアプローチについて討議した。それぞれのアプローチについての討議内容を以下に記述する。

① 検査技師の適正な配置と技術の向上

- 検査技師の不足は問題であるが、検査技師の採用は地方行政事務所(council)が決定しているため、プロジェクトで取り扱うのは困難と思われる。
- 検査技師を監督する体制に関しては、県保健局巡回指導チーム(CHMT)を強化することによって改善が可能である。
- 現在の保健セクター改革の中では、地方行政事務所が医療従事者を研修することになっている。
- 地方行政事務所、臨床検査技師会(MelsSAT)、保健省診断サービス部門、ザンジバル保健省を含めて活動を計画・実施していく必要がある。

② ユーザーを対象とした顕微鏡保守管理の研修

- ユーザーを対象とした顕微鏡保守の研修は、実地研修もしくは中央での研修として実施できる。
- 検査技師養成学校のカリキュラムに顕微鏡保守管理を入れることも一つの有効な手段であると思われる。
- 保健省診断サービス部門が、顕微鏡保守管理のチェックリストを何年か前に作成している。このリストを現状に即したものに改訂して使うことは可能である。
- 保健省診断サービス部門、Melsat、CHMT、ムヒンビリ大学検査技師養成学校、医療機器修理技術者、ザンジバル保健科学大学などを含めて活動を計画・実施していく必要がある。

③ 顕微鏡パーツの供給システムの改善

- JICAからの顕微鏡の供与は、パーツと合わせた形にすることが望まれる。
- 各医療施設のパーツの購入を容易にするために、MSD が顕微鏡のパーツを販売カタログに入れる必要がある。ただし、そのためには、どのようなパーツが必要かということを保健省と医療機器修理工場がまとめて MSD に報告する必要がある。
- パーツについては、医療施設が備蓄するものと、各地の医療機器修理工場が保管するものに分けられる。それらを区別して調達・管理することが必要である。
- 医療機器修理工場、保健省診断サービス部門、MSD を含めて活動を計画・実施していく必要がある。

④ 顕微鏡診断に必要な消耗品の供給システムの改善

- 顕微鏡診断に必要な消耗品は、スライドグラス、染色液・粉末、ハロゲン電球などである。
- パーツと同様に、保健省(NMCP)がMSDに必要な消耗品と年間消費量を報告する必要がある。
- MSD のカタログに記載されていれば、各県の医療施設が消耗品を注文し、調達することができる。消耗品購入の資金は中央レベルで一括して MSD に前払いしているので、各県が個別に支払う必要はない。

⑤ 医師や看護師の教育と啓発

- 迅速な顕微鏡診断法を検査室に導入するのと同時に、医師や看護師に対する教育と啓発も必要である。
- 迅速な診断についての啓発については、各医療施設が実施している月例会議を利用するのも一つの方法である。合わせて啓発用教材も作成する必要がある。
- 迅速な診断についての啓発に関しては、医師の養成学校を対象とするのも長期的には効果的と思われる。
- 大きな会議で迅速な診断方法を紹介するのも効果的と思われる。例えば 4 月 25 日はアフリカ・マラリアの日とされており、1 週間の会議に約 100 人の関係者が出席する。そのような機会を利用するのも一つの方法である。
- 国内の様々な学会に対して啓発活動を行うのも有効的である。医師会(MAT)、看護師会(TARENA)、歯科医師会(TDA)などが可能性のある団体として挙げられる。

⑥ 医療機器修理技術者の増員・技術向上

- 現在のところ、医療機器修理技術者を養成する学校は国内に存在しない。検査技師の養成学校で修理技術者養成のための短期コースを設置するというのは一つの方法である。

- 既存の大学の工学部に修理技術者養成コースを新設するという方法もある。
- 医療機器保守管理チームリーダーを各州で任命し、州保健局巡回指導チーム(RHMT)の一員として各県を巡回指導する体制の確立が望まれる。チームリーダーは必ずしも技術者である必要はなく、医療機器修理の技術よりもむしろマネジメント能力が求められる。ダルエスサラームに関しては、既にチームリーダーが任命されており、巡回指導が進められている。
- ダルエスサラーム科学技術大学(DIT)と連携して活動を進めるのも一つの方法である。
- ケニアのモンバサで医療機器修理技術者の養成学校が設立されたので、参考にすると良い。

⑦ 電源供給の改善

- 農村部での安定した電源の供給には、電圧安定期、発電機、ソーラーパネル、充電池などが必要である。
- 老朽化した施設では、施設内の電線の交換などが必要となる。

⑧ AO法普及

- AO 法の普及は、独立したアプローチとしてでなく、上述した全てのアプローチを合わせた形で実現される。
- AO 法用顕微鏡については、現状では市場で購入できないため、JICAからの供与が必要である。
- 安定した電源が供給されない農村部でも AO 法を使うことが出来るというモデルを作ることが出来れば、更なる普及が見込まれる。

3. 環境マネジメント(2 月 20 日)

ワークショップ参加者

Name	Title	Department/Agency
Alex Mwita	Program Manager	NMCP, MOH
M. Kimaro	Head of Solid Waste	Waste Management Department
Fred Mnema	Director	Omjaga Environment Co. Ltd (Contractor/Solid Waste at Ilala – Bugruni)
Noah L Mwasabujonga	Health Officer – Port Health	MOH – Port Health Service DSM
Abraham, M.	Malaria Control Coordinator	MMOH – Ilala
George William	Malaria Coordinator	Temeke Municipal
Gerry Killeen	Research & Training Coordinator	UMCP Dar es Salaam (IHRDC, STD)
Swai, Mary	Environmental Health, MOH	Head, Water, Sanitation, Hygiene, MOH
M. G. Kiama	Malaria Control Coordinator – DSM	Dar es Salaam City Council

問題分析・目的分析

中心問題を"There are many *Anopheles* mosquitoes in urban centers"と設定し、問題分析ワークショップを実施した。問題分析ワークショップの結果を基に、目的分析ワークショップを実施した。ワークショップで作成した問題系図と目的系図を別紙に添付した。

アプローチの選択と集団討議

作成された目的系図から中心問題を解決するのに有効と思われるアプローチを抽出し、それぞれのアプローチについて討議した。それぞれのアプローチについての討議内容を以下に記述する。

① ハマダラ蚊生息地への殺虫剤噴射

- UMCPがダルエスサラームのハマダラ蚊生息地への殺虫剤噴射によるマラリア対策を計画している。この活動は、ハマダラ蚊に関するデータ収集と平行して実施される。

② マラリア排水溝の修繕・建設

- マラリア排水溝の建設は今回のプロジェクトで対象とすることは困難だが、将来の改善計画を作成することは視野に入れても良いと思われる。手順としては、(1)建設コストの分析、(2)既存の排水溝修繕と新たな排水溝建設の計画書の作成ーが想定される。
- マラリア排水溝の建設については、長年国内で実施されていないので、技術が既に失われてしまっている。昔の文献などを調査し、技術を取り戻す努力も必要である。

③ コミュニティーの教育と啓発

- コミュニティーの教育と啓発は廃棄物管理局が主管する。ワジュンベと呼ばれるコミュニティーリーダーを対象とした教育セミナーの実施が有効的であると思われる。ただし、実施においては、参加したワジュンベに多少の報酬を与えるなどの工夫が必要である。
- ダルエスサラーム各区の行政事務所のコミュニティー教育担当職員と協力して活動を進める必要がある。
- 活動はNGOやCBO、民間の清掃業者などを含めて計画・実施するべきである。

④ マラリア排水溝の清掃・管理

- マラリア排水溝の清掃については、プロジェクトが最初の清掃費用を負担し、その後の維持管理についてはコミュニティーと行政事務所が協力して行うというのが現実的といえる。
- ゴミなどを排水溝に捨てた場合に罰金を課す法律はあるが、罰金の額が数年前の通貨基準であり、全く意味を成していない。法的規制の見直しも必要である。
- プロジェクトが排水溝の清掃を実施するのであれば、UMCP のデータ収集、殺虫剤噴射の活

動と同調するように進めるべきである。

⑤ 政策決定者への啓発

- 政策決定者にマラリア排水溝の効果や、維持費用、建設に必要な投入など、具体的な情報を与えることにより、実施へと結びつく可能性が高まる。
- プロジェクトがマラリア排水溝の環境マネジメントに関するセミナーを開催し、政策決定者を教育・啓発するのは効果的と思われる。

⑥ 農業セクターと保健セクターの合意形成

- サツマイモなどの農作物の栽培がハマダラ蚊生息地を増やす一因となっている。ハマダラ蚊の発生に配慮した農業を都市部で推進するためには、保健セクターと農業セクターの関係者の間での話し合いと合意形成が必要である。

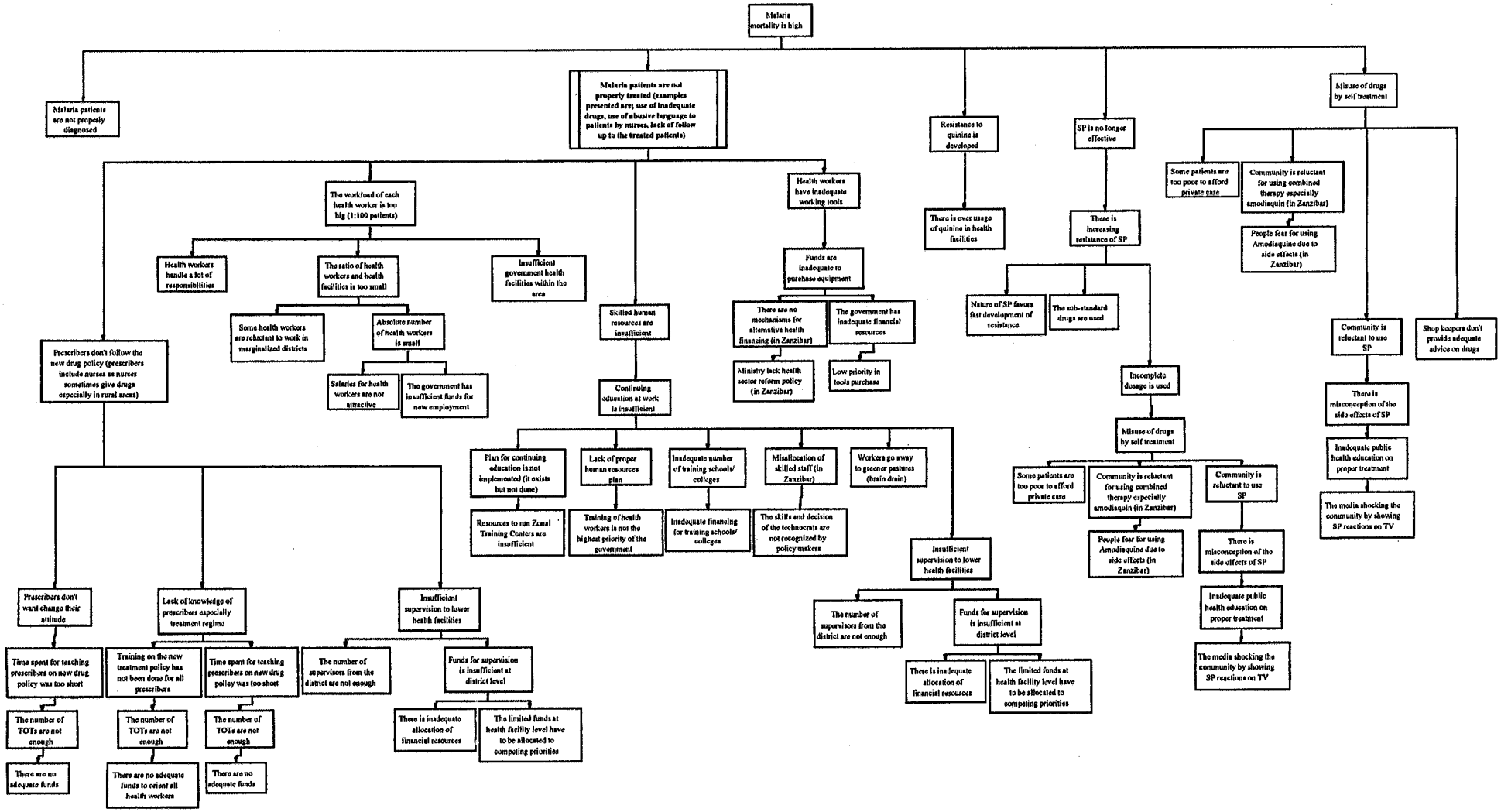
⑦ 建設地の水溜りへの対策

- 建設地に作られる水溜りはハマダラ蚊生息地となる。対策としては、生息地への殺虫剤噴射などが挙げられる。これに関しては、建設地の窪みを減らすことは現実的には不可能であり、仮に法的規制を作ってもあまり効果は見られないと思われる。

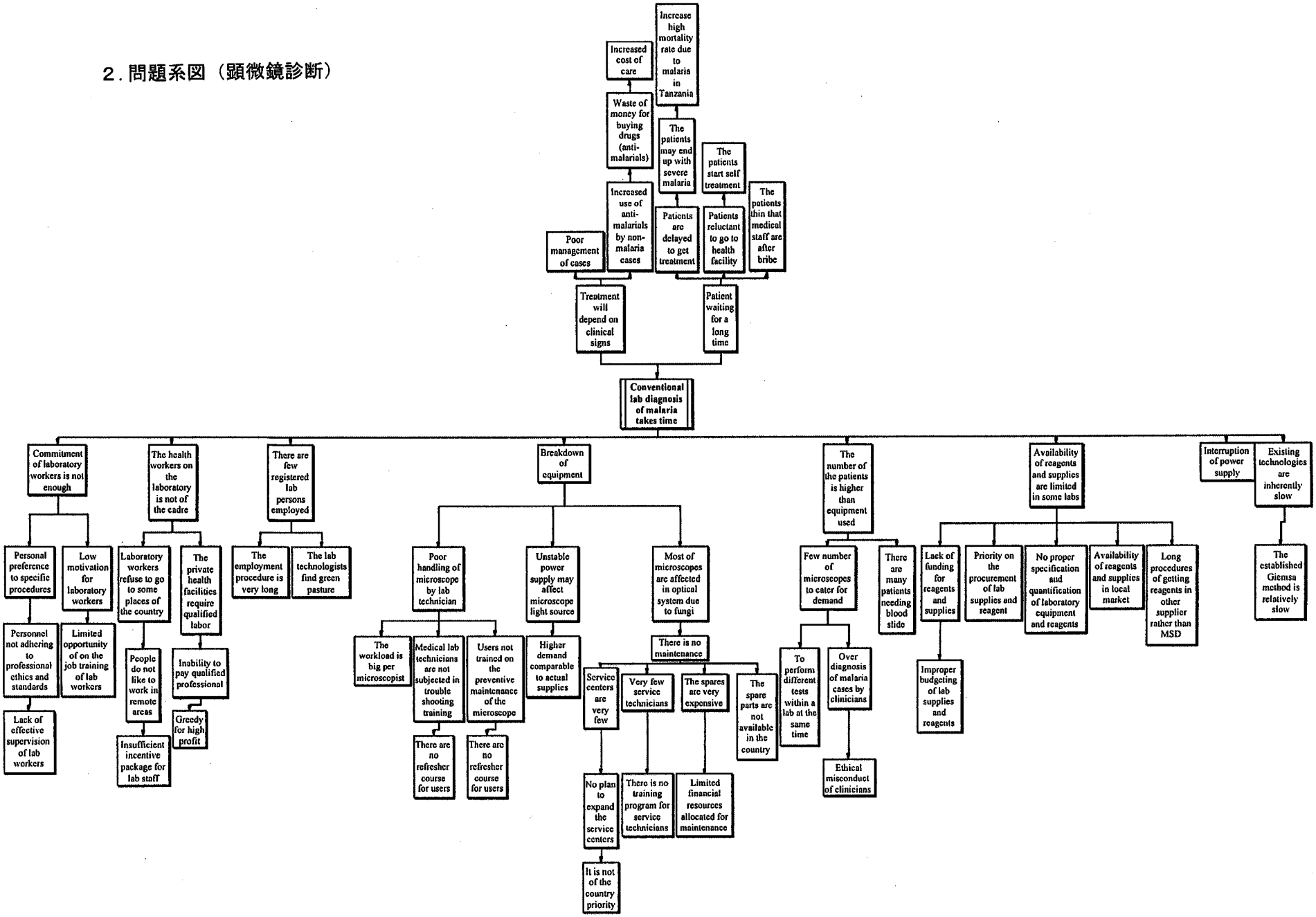
⑧ 都市化への配慮

- 都市計画の段階で、マラリア対策に配慮する必要がある。そのためには、政府の都市計画担当者に対する啓発が必要である。プロジェクトの啓発セミナーに担当者を招待するのは効果的と思われる。

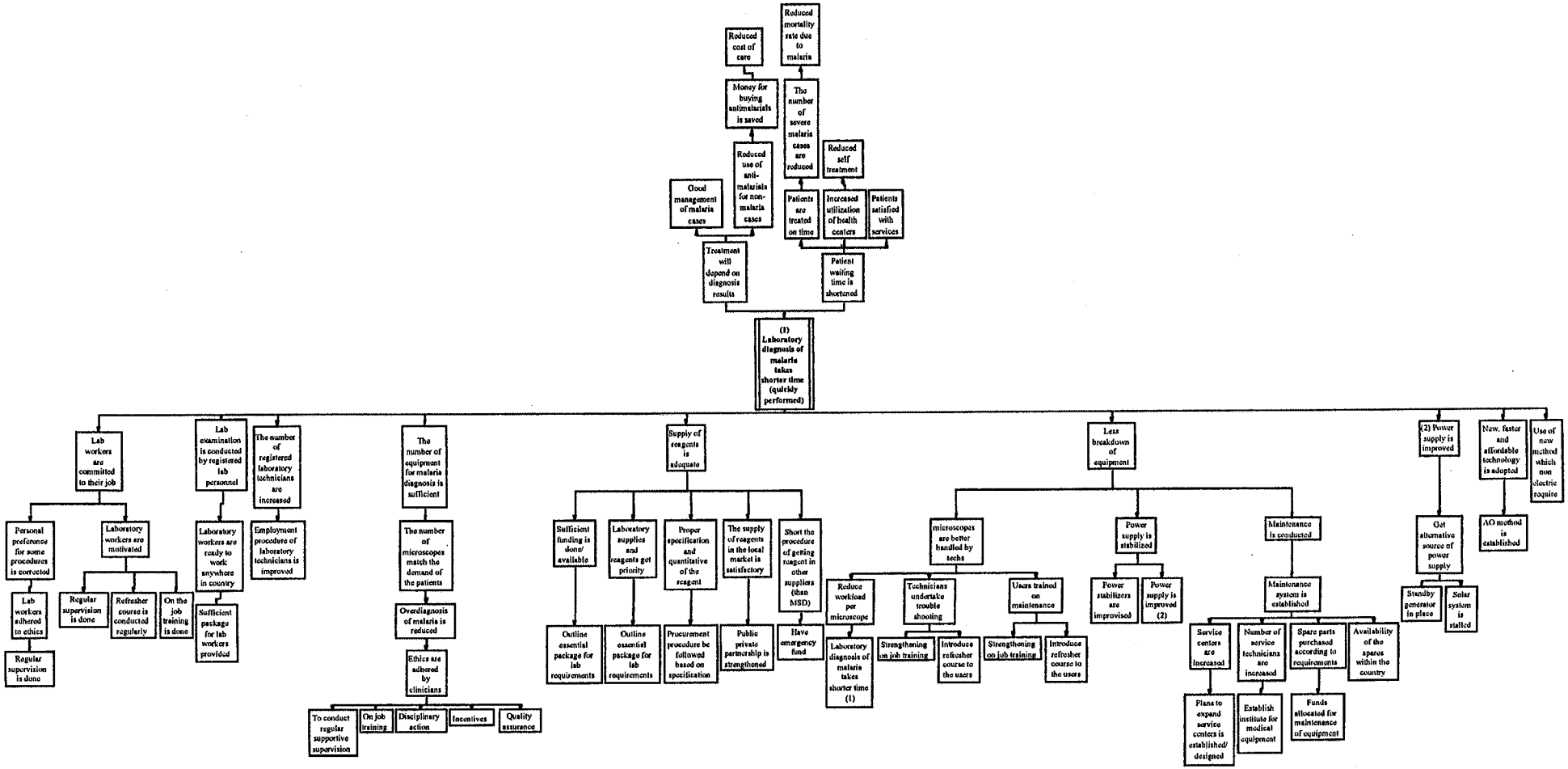
1．問題系図（看護・治療）


Malaria mortality is high
Malaria patients are not properly diagnosed
Malaria patients are not properly treated (examples presented are; use of inadequate drugs, use of abusive language to patients by nurses, lack of follow up to the treated patients)
Resistance to quinine is developed
SP is no longer effective
Misuse of drugs by self treatment
The workload of each health worker is too big (1:100 patients)
Health workers have inadequate working tools
There is over usage of quinine in health facilities
There is increasing resistance of SP
Some patients are too poor to afford private care
Community is reluctant for using combined therapy especially amodisquin (in Zanzibar)
People fear for using Amodisquine due to side effects (in Zanzibar)
Health workers handle a lot of responsibilities
The ratio of health workers and health facilities is too small
Insufficient government health facilities within the area
Funds are inadequate to purchase equipment
Nature of SP favors fast development of resistance
The sub-standard drugs are used
Some health workers are reluctant to work in marginalized districts
Absolute number of health workers is small
Salaries for health workers are not attractive
The government has insufficient funds for new employment
Skilled human resources are insufficient
There are no mechanisms for alternative health financing (in Zanzibar)
The government has inadequate financial resources
Ministry lack health sector reform policy (in Zanzibar)
Low priority in tools purchase
Community is reluctant to use SP
Shop keepers don't provide adequate advice on drugs
There is misconception of the side effects of SP
Inadequate public health education on proper treatment
The media shocking the community by showing SP reactions on TV
Prescribers don't follow the new drug policy (prescribers include nurses as nurses sometimes give drugs especially in rural areas)
Continuing education at work is insufficient
Incomplete dosage is used
Misuse of drugs by self treatment
Some patients are too poor to afford private care
Community is reluctant for using combined therapy especially amodisquin (in Zanzibar)
People fear for using Amodisquine due to side effects (in Zanzibar)
Community is reluctant to use SP
There is misconception of the side effects of SP
Inadequate public health education on proper treatment
The media shocking the community by showing SP reactions on TV
Plan for continuing education is not implemented (it exists but not done)
Lack of proper human resources plan
Inadequate number of training schools/ colleges
Misallocation of skilled staff (in Zanzibar)
Workers go away to greener pastures (brain drain)
Resources to run Zonal Training Centers are insufficient
Training of health workers is not the highest priority of the government
Inadequate financing for training schools/ colleges
The skills and decision of the technocrats are not recognized by policy makers
Insufficient supervision to lower health facilities
The number of supervisors from the district are not enough
Funds for supervision is insufficient at district level
There is inadequate allocation of financial resources
The limited funds at health facility level have to be allocated to competing priorities
Prescribers don't want change their attitude
Lack of knowledge of prescribers especially treatment regime
Insufficient supervision to lower health facilities
Time spent for teaching prescribers on new drug policy was too short
Training on the new treatment policy has not been done for all prescribers
Time spent for teaching prescribers on new drug policy was too short
The number of supervisors from the district are not enough
Funds for supervision is insufficient at district level
The number of TOTs are not enough
The number of TOTs are not enough
The number of TOTs are not enough
There is inadequate allocation of financial resources
The limited funds at health facility level have to be allocated to competing priorities
There are no adequate funds
There are no adequate funds to orient all health workers
There are no adequate funds

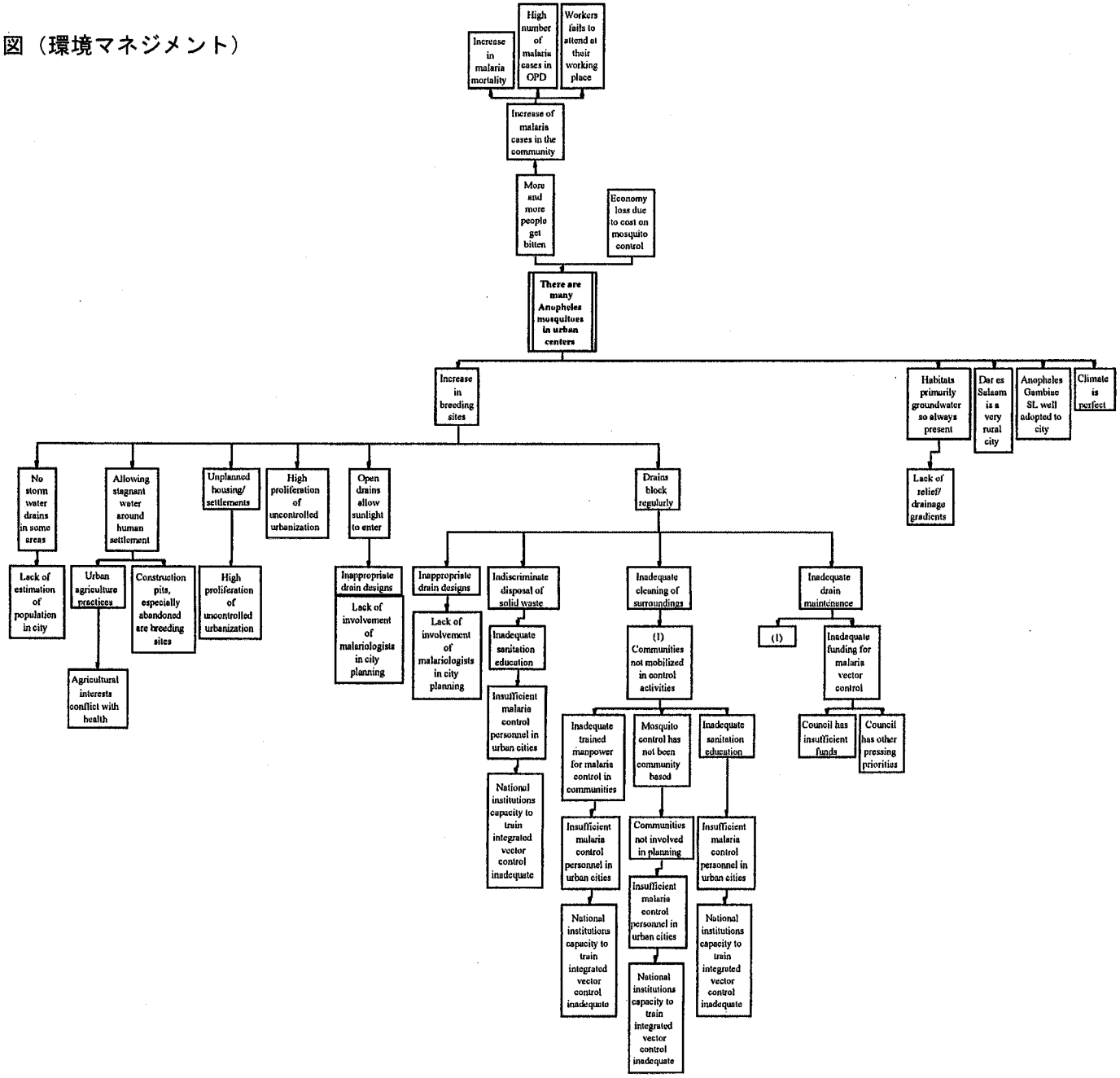
2. 問題系図（顕微鏡診断）


Increase high mortality rate due to malaria in Tanzania
Increased cost of care
Waste of money for buying drugs (anti-malarials)
Increased use of anti-malarials by non-malaria cases
The patients may end up with severe malaria
Patients are delayed to get treatment
The patients start self treatment
Patients reluctant to go to health facility
The patients think that medical staff are after bribe
Poor management of cases
Treatment will depend on clinical signs
Patient waiting for a long time
Conventional lab diagnosis of malaria takes time
Commitment of laboratory workers is not enough
Personal preference to specific procedures
Low motivation for laboratory workers
Personnel not adhering to professional ethics and standards
Limited opportunity of on the job training of lab workers
Lack of effective supervision of lab workers
The health workers on the laboratory is not of the cadre
Laboratory workers refuse to go to some places of the country
The private health facilities require qualified labor
People do not like to work in remote areas
Inability to pay qualified professional
Insufficient incentive package for lab staff
Greedy for high profit
There are few registered lab persons employed
The employment procedure is very long
The lab technologists find green pasture
Breakdown of equipment
Poor handling of microscope by lab technician
The workload is big per microscopist
Medical lab technicians are not subjected in trouble shooting training
Users not trained on the preventive maintenance of the microscope
There are no refresher course for users
There are no refresher course for users
Unstable power supply may affect microscope light source
Higher demand comparable to actual supplies
Most of microscopes are affected in optical system due to fungi
There is no maintenance
Service centers are very few
Very few service technicians
The spares are very expensive
The spare parts are not available in the country
No plan to expand the service centers
There is no training program for service technicians
Limited financial resources allocated for maintenance
It is not of the country priority
The number of the patients is higher than equipment used
Few number of microscopes to cater for demand
There are many patients needing blood slide
To perform different tests within a lab at the same time
Over diagnosis of malaria cases by clinicians
Ethical misconduct of clinicians
Availability of reagents and supplies are limited in some labs
Lack of funding for reagents and supplies
Priority on the procurement of lab supplies and reagent
No proper specification and quantification of laboratory equipment and reagents
Availability of reagents and supplies in local market
Long procedures of getting reagents in other supplier rather than MSD
Improper budgeting of lab supplies and reagents
Interruption of power supply
Existing technologies are inherently slow
The established Giemsa method is relatively slow

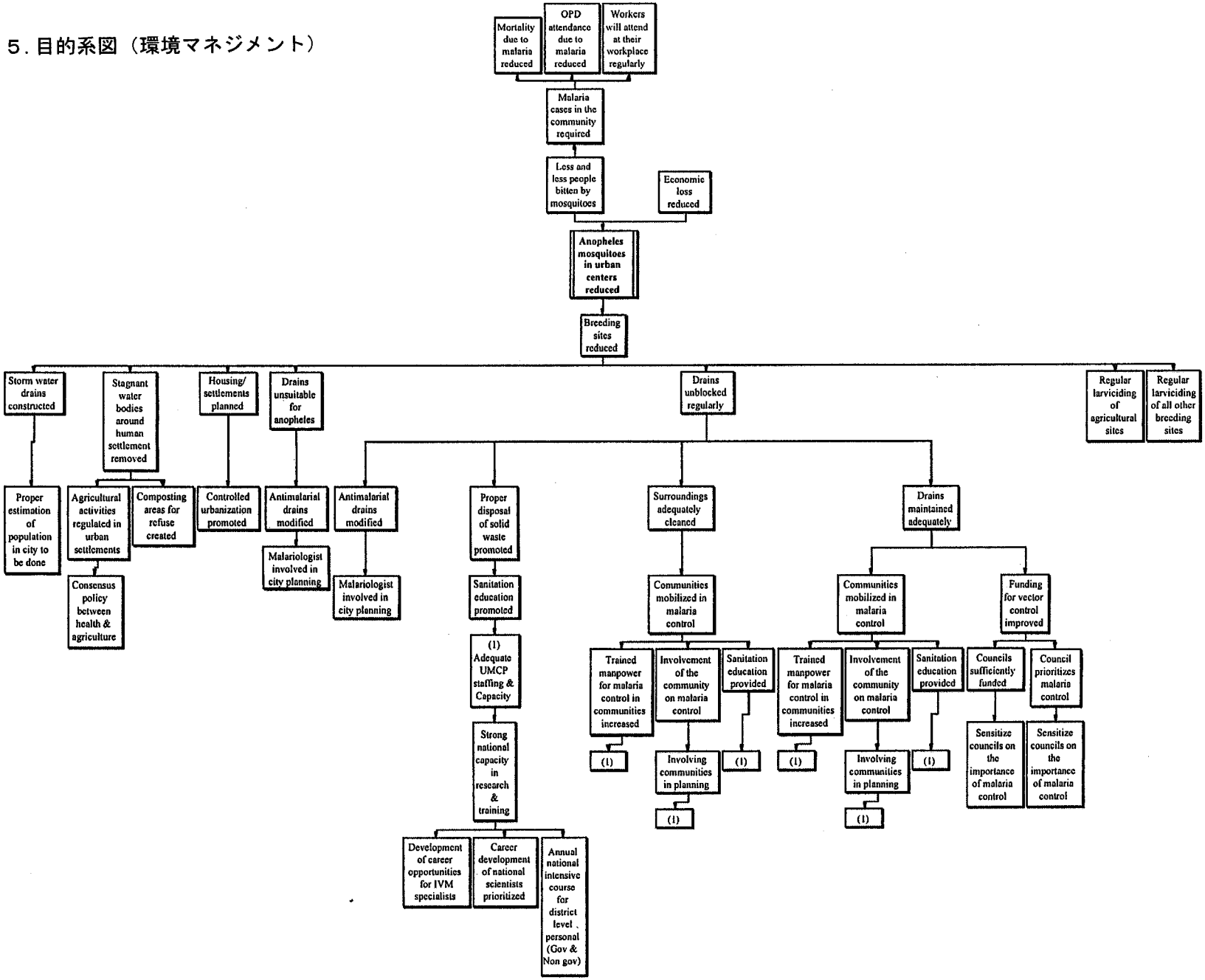
3．目的系図（顕微鏡診断）


Reduced cost of care
Reduced mortality rate due to malaria
Money for buying antimalarials is saved
The number of severe malaria cases are reduced
Reduced use of anti-malarials for non-malaria cases
Reduced self treatment
Good management of malaria cases
Patients are treated on time
Increased utilization of health centers
Patients satisfied with services
Treatment will depend on diagnosis results
Patient waiting time is shortened
(1) Laboratory diagnosis of malaria takes shorter time (quickly performed)
Lab workers are committed to their job
Lab examination is conducted by registered lab personnel
The number of registered laboratory technicians are increased
The number of equipment for malaria diagnosis is sufficient
Supply of reagents is adequate
Less breakdown of equipment
(2) Power supply is improved
New, faster and affordable technology is adopted
Use of new method which non electric require
Personal preference for some procedures is corrected
Laboratory workers are motivated
Laboratory workers are ready to work anywhere in country
Employment procedure of laboratory technicians is improved
The number of microscopes match the demand of the patients
Overdiagnosis of malaria is reduced
Ethics are adhered by clinicians
Sufficient funding is done/ available
Laboratory supplies and reagents got priority
Proper specification and quantitative of the reagent
The supply of reagents in the local market is satisfactory
Short the procedure of getting reagent in other suppliers (than MSD)
microscopes are better handled by techs
Power supply is stabilized
Maintenance is conducted
Get alternative source of power supply
AO method is established
Lab workers adhered to ethics
Regular supervision is done
Regular supervision is done
Refresher course is conducted regularly
On the job training is done
Sufficient package for lab workers provided
To conduct regular supportive supervision
On job training
Disciplinary action
Incentives
Quality assurance
Outline essential package for lab requirements
Outline essential package for lab requirements
Procurement procedure be followed based on specification
Public private partnership is strengthened
Have emergency fund
Reduce workload per microscope
Technicians undertake trouble shooting
Users trained on maintenance
Laboratory diagnosis of malaria takes shorter time (1)
Strengthening on job training
Introduce refresher course to the users
Strengthening on job training
Introduce refresher course to the users
Power stabilizers are improvised
Power supply is improved (2)
Maintenance system is established
Service centers are increased
Number of service technicians are increased
Spare parts purchased according to requirements
Availability of the spares within the country
Plans to expand service centers is established/ designed
Establish institute for medical equipment
Funds allocated for maintenance of equipment
Standby generator in place
Solar system is stalled

4. 問題系図（環境マネジメント）



5. 目的系図（環境マネジメント）



プロジェクト・デザイン・マトリックス（PDM_0）

プロジェクト名： 包括的マラリア対策プロジェクト
実施団体： タンザニア保健省
ターゲットグループ： (1) 看護師、(2) 検査技師、(3) ダルエスサラーム地区のコミュニティー
対象地域： タンザニア（パイロット地区を中心とする）
協力期間： 2004年4月～2007年3月（3年間）
作成日： 2004年2月24日

プロジェクトの要約	指標*	指標の入手手段	外部条件
上位目標 マラリアによる死亡率が減少する	• マラリア死亡率（国全体） • マラリア死亡率（ダルエスサラーム市）	• タンザニア保健省の統計 • ダルエスサラーム市都市マラリア対策プロジェクト（UMCP）の報告書	• WHOが提唱するマラリア対策の方針が大幅に変更にならない
プロジェクト目標 医療施設でマラリア疾患が適切に診断・治療されるようになり、かつダルエスサラーム市のハマダラ蚊生息地が減少する。	1. マラリア疾患のケースマネジメントの質が一定の基準を満たしている医療施設の割合 2. ダルエスサラーム市のハマダラ蚊生息地の減少数	1. ケースマネジメント調査報告書** 2. UMCPの報告書	• プロジェクトのアプローチがタンザニアの他の地域でも実践される
成果 1. プロジェクト対象地域が明確になり、関係者がプロジェクトへの協力を確約する 2. 看護講師（県代表）のマラリア看護研修を実施するための能力が向上する 3. 看護講師（県代表）の知識・技術が各県で現場の看護師に伝授される 4. 検査技師がAO法によるマラリア検査とAO法用顕微鏡の保守管理に関する知識・技術を修得し、CHMTへの定期的報告の項目・手順を理解する 5. 医療施設がAO法用顕微鏡を維持管理し、AO法用消耗品を調達するための体制が確立する 6. マラリアの診断と治療薬の処方が顕微鏡検査の結果に基づいて適切に行われるようになる 7. ダルエスサラーム市の既存のマラリア排水溝が清掃される 8. ダルエスサラーム市のコミュニティーがハマダラ蚊対策のための環境整備を実施する体制が確立する	1-1. - 2-1. 講師研修を受講した看護講師（県代表）の数 2-2. 講師研修でテストに合格した看護講師（県代表）の割合 3-1. 看護講師（県代表）が実施するマラリア看護研修を受講した看護師の数 3-2. マラリア看護研修でテストに合格した看護師の割合 4-1 研修を受講した検査技師の数 4-2 研修でテストに合格した検査技師の数 5-1. AO法を実施している医療施設の数 6-1. マラリアの診断に用いられた血液検査スライドグラスの数 7-1. プロジェクト期間中に清掃されたマラリア排水溝の距離 8-1. 保健・衛生教育セミナーに参加し、得	1-1. セミナー報告書 2-1. 保健省報告書 2-2. 保健省報告書 3-1. RHMT/CHMTの報告書 3-2. RHMT/CHMTの報告書 4-1. 保健省報告書 4-2. 保健省報告書 5-1. CHMTの検査室モニタリング報告書 6-1. ケースマネジメント調査報告書 7-1. ダルエスサラーム市（UMCP）の報告書 8-1. ローカルコンサルタントの報告書	• 研修を受けた看護師と検査技師の大部分が最低3年間は現在の職場に留まる • MSDの機能が大幅に低下しない • 医療機器修理工場の機能が大幅に低下しない

	た知識をコミュニティーに広げる活動を実施したコミュニティーリーダー(Wajumbe)の数・割合		
活動 1-1. プロジェクトセミナーを実施する 2-1. 看護講師(県代表)を対象とした講師研修のカリキュラムを作成する 2-2. 看護講師(県代表)を対象とした講師研修で使用する教材を改訂する 2-3. 看護講師(県代表)を対象とした講師研修を実施する 3-1. 各県で実施されるマラリア看護研修で使用する教材を作成する 3-2. 各県で看護講師(県代表)が実施するマラリア看護研修をCHMTを通じて支援する 3-3. マラリア(および熱性疾患)患者への看護サービスを評価するツールを作成する 3-4. マラリア看護研修の成功要因や教訓をまとめ、国内外に伝達する 4-1. 検査技師を対象とした研修のカリキュラムを作成する 4-2. 検査技師を対象とした研修の教材を改訂する 4-3. 検査技師を対象とした研修を実施する(AO法を主眼としたマラリア検査技術、AO法用顕微鏡の保守管理、CHMTへの定期的報告項目・手順) 4-4. 熱性疾患の診断サービスを評価するツールを作成する 5-1. 医療機器修理工場のAO法用顕微鏡修理技術を強化する 5-2. AO法用顕微鏡の修理とメンテナンスの手順・方法を確立し、医療施設で適用する 5-3. AO法用消耗品の調達手順・方法を確立し、医療施設で適用する 6-1. 適切なマラリア診断方法を普及するための教材・メディアを作成する(医師などマラリア治療薬を処方する医療従事者を対象) 7-1. ダルエスサラーム市のマラリア排水溝の現状を把握する 7-2. ダルエスサラーム市に存在するハマダラ蚊生息地の情報を収集する 7-3. マラリア排水溝の清掃を支援する 8-1. コミュニティーを対象とした保健・衛生教育セミナーの開催を、ダルエスサラームの地方政府とその他のパートナー(NGOなど)と共同で実施する	**投入** (日本側) 人員*** • 短期専門家(看護、医療機材保守管理、顕微鏡診断、環境マネジメント、ケースマネジメント) • 長期専門家 • ローカルコンサルタント(ケースマネジメント、環境マネジメント) 機材 • 研修機材 • AO法用顕微鏡(50) • ソーラーパネルと充電地(10) 資金 • 研修費用(日当・宿泊、教材作成、講師謝金、その他) • 現地業務費 • 現地活動費(NGO支援など)	(タンザニア側) 人員 • 看護講師(国代表) • 顕微鏡診断講師(国代表) • 研修員(県代表看護講師、検査技師) • 医療機器修理技術者 • プロジェクト業務調整スタッフ 施設 • 研修・セミナー施設 • プロジェクト事務所 資金 • 研修費用(日本側負担分以外) • 現地業務費(顕微鏡消耗品、顕微鏡パーツなどの購入)	• プロジェクトのパートナー(UMCP、地方政府など)が協力的な姿勢を変えない **前提条件** • タンザニア政府が国家マラリア中期戦略2002-2007に従って活動を進める • プロジェクトのパート名(UMCP、地方政府など)が協力を確約する

* プロジェクトが始まった時点で指標の見直しを行い、可能な限り各指標の現在値と目標値を数値化する。

** プロジェクトの早い段階でケースマネジメント調査のためのツールを作成する。

*** 部分的に国際寄生虫対策東南部アフリカセンター(ESACIPAC)と連携して技術支援を行う。

THE UNITED REPUBLIC OF TANZANIA
THE MINISTRY OF HEALTH

PROPOSAL

FOR THE PROJECT-TYPE TECHNICAL COOPERATION

ON

MALARIA CASE MANAGEMENT TRAINING

AND

CONTROL OF MALARIA MOSQUITO BREEDING SITES IN

URBAN CENTERS

NOVEMBER, 2002

Dar es Salaam

APPLICATION FORM FOR JAPAN'S TECHNICAL COOPERATION

1. **Date of Entry:** Day 16TH Month November Year 2002

2. **Applicant:** The Government of the United Republic of Tanzania

3. **Project Title:** Malaria case management training and control mosquito breeding in Urban Centers

4. **Implementing Agency:** Ministry of Health

Address: Plot No.36/37, Samora Avenue
P.O. Box 9083, Dar es Salaam, Tanzania.

Contact Person: Permanent Secretary

Facsimile: +255-22- 2120261/7
+255-22-2130770

5. **Background**

In Tanzania, malaria is assuming prominence in the minds of the common man, government and political leaders as the resurgence of malaria is increasingly causing more and more distress among people. In 1999/2000, the disease accounted for 40% and 30% of all outpatients' diagnosis in children and adults respectively. Recorded deaths due to malaria are between 100,000 and 200,000 persons annually.

In face of this major disease, coupled with economic burden, control operations to prevent malaria morbidity and mortality have to date been inadequate. The envisaged approach to address this problem is for the Government and partners to consolidate their efforts for effective utilization of resources in order to obtain a meaningful scale of malaria control in the country.

In line with the health sector reform, a renewed emphasis on malaria control in urban centers as well as provision of quality health care services to malaria patients is among the priority activities now advocated for by the Ministry of Health.

Early diagnosis, prompt and correct management of malaria cases is the main strategy of malaria control programme. This entails giving quality of care to malaria patients in all health facilities. Training of health personnel involved in the nursing care of malaria cases and strengthening microscopic diagnosis of malaria are key activities in this strategy.

Since 1993 up to 2002, the Government of Japan through JICA has supported the In-Country Training Course (ICTC) aimed at developing capacity to health personnel involved in Malaria case management at the district and regional level only. Health personnel from the periphery health facilities have not been exposed to such training.

The proposed Project-Type Technical Cooperation projects are therefore aimed at strengthening the capacity of health personnel in the provision of quality of malaria case management by doing cascade training as well as scaling up use of Acridine Orange method to the periphery health clinics. The other proposed project is to reduce malaria transmission in urban centers though environmental management/source reduction measures.

6.This project proposal seeks to cover the following:-

(i) Early diagnosis, prompt and correct treatment

Malaria case management remains the basic of malaria morbidity and mortality control. This strategy depends largely on early diagnosis and correct case management. However malaria case management is frequently characterized by inadequate and/or inappropriate diagnosis leading to improper case management particularly in the periphery health clinics. For this reason health providers are required to do correct diagnosis (preferably by laboratory support), in order to provide correct treatment including nursing care in accordance with national guidelines. Also they have to educate patients about drug compliance, follow-up and be able to refer patients when necessary.

One of the major problems in malaria case management faced by majority of health providers particularly at the periphery health facilities is diagnosis and correct treatment. Therefore capacity building of health providers involved in the care of malaria including microscopic diagnosis in all periphery health clinics is fundamental in order to achieve prompt diagnosis and correct case management including nursing care of severe malaria patients.

(ii) Laboratory Diagnosis of Malaria

Malaria diagnosis in the majority of periphery health clinics is essentially clinical. However because of similarity in the clinical presentation of malaria and other febrile illnesses, laboratory confirmation is highly required to avoid mismanagement of patients. Where microscopic examination is available, the tradition is to do laboratory diagnosis of malaria by examining thick blood smears stained with Giemsa stain technique. Although this technique is reliable, in skilled hand and accurate, it is time consuming. In a clinical set up where patients with

fever are many, it is not cost-effective (time wise) to refer all patients for blood slide examination. In addition when there are too many blood slides to examine the accuracy level decreases too. Giemsa stain technique is more often hampered by the relative long time it takes to give back the results to the clinician. As a result of this, some patients don't wait for treatment.

In comparison, the Acridine Orange (AO) method (which was introduced in the Tanzania since 1994) is simple to perform, it is fast (takes less than five minutes to get the results), it is reliable, accurate, cheap, fast thus making patients to get treatment without delay. The advantage of the superiority of AO method is that it drastically improves the quality of care to malaria suspected or febrile patients if this method is fully operationalised in all health facilities. Its reliability, accuracy and cost-effectiveness have benefited the district, regional and referral hospitals in the country were this method is used in diagnosing malaria patients.

There is therefore a need to undertake a health system research and development for sustaining the AO method as well as scaling-up the use of the AO method to health centers in the country. The AO method will enable prescribers to give appropriate treatment as well as identifying early treatment failures.

Health provision in Tanzania is nearly shared between public and private sectors. Hence, the National Malaria Control Programme (NMCP) through the Ministry of Health (MOH) will work in partnership with private sector to promote AO methods in its health facilities too.

(iii) Environmental Management for Urban Malaria Control

An Urban area is essentially a man-made environment, encroaching on, and replacing a natural setting leaving large sections of their population is squalid conditions. The existing lack of coordination among town planers, engineers, vector officers and health personnel has created an enabling condition favouring mosquito-breeding sites in most urban set-ups. Malaria is now a public health problem in all urban centers in the country and that urgent renewed efforts best approached through intersectoral cooperation are needed and justified to fight the disease through good planning, management of drains, land reclamation and use of mosquito control by-laws.

In implementing the recommended vector control measures in urban set-ups, health engineers, planners, health officers and biologists have to work together in all aspects of the this proposed project of environmental management of malaria control.

Such an approach will reduce or eliminate vectors and are usually more efficient and more ecologically sound. Also enforcement of the existing legislation related to mosquito control in urban centers need to be revived as through that a strong impact is anticipated.

(iv) Operational Research

It is proposed that the National Malaria Control Programme of the Ministry of Health in collaboration with JICA will conduct research to identify problems related to the use of AO method in the district and regional hospitals where they are now performing this technology. Also the study shall work on modalities of scaling up the use of the method at the health center level including private health clinics. Also operational research identifying cost-effective ways of involving the local communities in environmental management of malaria control in urban centers will be conducted.

7. Outline of the projects

The project will comprise of 3 sub-projects A, B and C as shown below.

8. Overall goal

The overall goal of the 3 sub- projects is to reduce malaria to a level where it is no longer a serious health problem and obstacle to socio-economic development.

9. Strategy

1. Up-date knowledge and skills on nursing care of malaria and other common severe childhood illnesses to all health service providers to ensure quality health service delivery
2. Strengthen the capacity of all nursing tutors in the nursing training institutions on new malaria policy
3. Strengthen laboratory diagnosis of malaria by scaling up of AO method to the periphery health facilities
4. Up-date knowledge and skills of Town planners, engineers, vector/health officers on feasible and cost effective malaria environmental measures in urban centers.
5. Rehabilitation of drainage system in urban centers to eliminate sources for breeding sites for mosquitoes
6. Develop tools for research and quality control pertaining to case management as well as other malaria control measures
7. Strengthen CHMT and RHMT in providing technical and supervisory maters to increase their ability to perform their duties
8. Advocacy and sensitization of Regional and Local Government leaders on the projects activities and their support in budgetary allocation

9. Development of appropriate I.E.C. materials and messages crafting, thereafter disseminating it to people through different media
10. Strengthening of communication networking to facilitate smooth implementation of the projects activities in the country

10. Expected Output

The overall project outputs are:
1. The quality and delivery of health services improved at all levels of health delivery
2. The diagnosis of malaria microscopically improved and AO method scaled up to periphery health facilities.
3. Malaria transmission in urban centers reduced

11. Sub-Project (A)

Improve quality of nursing care of malaria and other common severe childhood illness.

11.1. Project Purpose

To reduce morbidity and mortality due to malaria.

11.2. Outputs

- Febrile patients seek early treatment
- Malaria diagnosis is confirmed microscopically
- Malaria patient get effective anti-malarial drugs
- Severe malaria patients are managed as per policy guideline
- Severe malaria patients from the periphery clinics get immediate referrals

11.3. Project Activities

- Hormonise and develop of nursing curriculum and teaching materials on malaria nursing care
- Train Trainer of Trainers (TOTs) on nursing care of severe malaria cases and common severe childhood illnesses
- Trained nurse tutors who will train pre-services nursing personnel
- Support TOT's to do cascade training to both public and private health facilities
- Conduct post-training follow-up of the trained nurses to ascertain their performances.

All the above activities will ensure a sustainable production of trained nurses and hence improve the quality of malaria nursing care as a whole.

12. Sub-Project (B)

Promote the Acridine Orange (AO) method for malaria diagnosis in hospitals and scaling up of the method to the periphery health facilities particularly the health centers

12.1. Project Purpose

To increase specificity and consequently reduce over-diagnosis and over-treatment of malaria with accompanying misuse of drugs as well as missed alternative treatment for other febrile illnesses.

12.2. Outputs

- Febrile causes are correctly diagnosed.
- Malaria patients get appropriate treatment
- Urban and rural population will benefit from quicker and more accurate AO method in diagnosing malaria than Giemsa stain
- Laboratory units in hospitals and health centers will be less congested as patients will spend shorter time to get their results

12.3. Project-Activities

- To introduce AO method to health centers and provide equipments, materials and reagents
- To train laboratory personnel at the health centers, regional and zonal levels
- Train tutors in the laboratory training institutes in the country
- To provide Zanzibar and the new districts and region with AO equipments, materials/reagents for malaria diagnosis
- Set up five workshop centers in the country equipped with AO spare parts to repair AO microscopes
- Develop relevant curriculum and teaching materials (from the existing) to laboratory personnel of different levels of health facility
- To promote usage of AO method to health facilities in the country
- To analyse and improve supportive health system
- Advocacy to RHMT and CHMT on AO method to familiarize them
- Advocacy to Regional and Local Government leaders on AO method
- Operational research on AO method conducted involving research bodies/institutions aimed at scaling up the technology
- Support consultancy for management and technical matters related to AO method
- Conduct supervision and Quality assuarence of the AO technology
- Establish a net work with other partners aimed at strengthening health laboratory services
- Monitor and evaluate performance of AO method in the country

13. Sub-Project (C)

To reduce mosquito breeding sites in urban centers

Environmental management of malaria vectors breeding habitats can dramatically reduce insecticides use and associated costs while contributing to sustained disease reduction in urban set-ups. Environmental management besides being safe and friendly to the environment is an effective approach in the urban centers in controlling the larval population hence reducing mosquito densities.
Prior to the execution of the rehabilitation of drainage, the ecological and urban geography and mapping malaria-breeding sites in each urban center have to be done.

13.1 Project Purpose

- To reduce malaria vector breeding sites resulting to low transmission and hence reduction of morbidity and mortality due to malaria
- To reduce mosquito breeding sites by removing water bodies
- To reduce mosquito nuisance of frequent bites and annoyance

13.2 Outputs

- Malaria mosquito densities are reduced
- Reduced malaria transmission resulting from reduced human-vector contact
- Reduce malaria cases
- Reduced/removal of stagnant water bodies
- Urban centers become free from malaria

13.3. Project – Activities

- To train the urban environmental personnel (who includes Health Officers/Vector Officers; Town Planners and Town engineers) on the types of mosquito breeding sites, urban geography, land survey, structure and function of anti-malarial drains and their construction
- Ecological research and education on urban geography
- Provide the urban authorities with tools and machines for construction of anti-malaria drains
- Rehabilitation of existing and or construction anti-malarial drains
- Elimination of water bodies likely to harbor malaria mosquitoes
- To support urban centers to design and budget for construction of malaria drains

- Educate community on different types of mosquitoes and their preference of breeding sites
- Conduct advocacy and sensitization meetings/workshops to Regional and Local Government leaders on the importance of malaria environmental activities and support the budget allocation
- Support the council authority to revive and if necessary to review by-laws and regulations to control mosquitoes in urban set-ups
- Support the councils to mobilize communities to conduct community based malaria control activities in their localities.

14. Project Counterpart

The National Malaria Control Programme (NMCP) Manager will be the primary project counterpart to the Japanese side. One NMCP staff will be attached to the Japanese expert in their day today activities. The project, however, maintains direct contact with the Director of Preventive Services where appropriate and necessary. The Permanent Secretary of the MOH and all partners (donors, NGO's private organization working towards the same principle) are other participants of the project.

15. Government of Tanzania in puts

- Human resources (Remuneration and Other costs)
  Project office space at the National Malaria Control Programme
- Other necessary supports and inputs from central level.

16. Resource requirement

16.1. Long term Japanese expert

Chief Advisor Malaria Control on Japanese aided projects.

16.2. Short-term Japanese experts

- Diagnostic system to work with other partners to do a research on AO method, weaknesses, opportunities and challenges if the method is extended to the periphery clinics.
- Nursing education to coordinate curriculum development based on job analysis
- Management of medical equipment and maintenance

16.3. Financial support for the following

- Equipments including microscopes, light sources, maintenance tools, equipment for land survey, tools/machines for drainage construction, land survey tools/machines and supervision vehicle.
- Consumables including: materials and reagents for AO method; bulbs for light sources etc.

- Costs for different trainings, workshops, seminars, supervisions, survey and research studies mentioned in the proposed projects.
- Running costs including: editing, printing, training, meeting, research, monitoring, evaluation, papers, etc.
- Other necessary support where required.
- Training in Japan-Support short courses in Japan in fields of urban planning, drainage work, equipment maintenance, parasite administration and health planning.

17. Implementation Schedule

This proposed schedule is to begin in the Japanese Fiscal Year 2003/2004 for the period of 3 years.

18. Implementing Agency

The National Malaria Control Programme (NMCP) will be charged with implementation of the proposed projects in collaboration with districts. The Ministry of Health is responsible for overall co-ordination and supervision of the project. The Ministry of Health in collaboration with JICA will assign an institute (public or private) to monitor and advise performance of the project.

19. Related Activities

The respective districts will be responsible in implementing the related activities.

- Strengthening of CHMT and council in the implementation of the project activities to ensure that they are carried out per schedule
- Ensure that project activities are in the district/council plans including adequate resource
- Development of project indicators to track down project activities
- Development of schedule and format of regular liaison with MOH and feed back to districts
- Conduct post training follow-up in the districts
- Establish and/or strengthen partnerships with councils in the Malaria Control Measures

20. Beneficiaries

- Immediate beneficiaries of the project are the health services providers in the districts, regions and zones. The population of Tanzania will also be the direct beneficiaries.
- Project experience will also be shared with other partners towards the same principles.

Tanzania Malaria Resource Allocation: PDM (Log Frame)

Narrative Summary	Indicator	Means of Verification	Important Assumption
Overall Goal Malaria is no more a serious socio economical problem?			
Project Purpose To reduce morbidity and mortality due to malaria	Morbidity and mortality due to malaria	Hospital records	
Outputs 1. Febrile cases are diagnosed quickly and accurately 2. Malaria patients get proper medication. 3. Severe malaria cases are properly managed in hospitals. 4. Urban centers become free from malaria transmission.	No. and proportion of patients diagnosed. Sale of medicine. In-patient mortality. Area of wetlands.	QA reports. DSM records. Hospital records. Satellite imagery	
Activities	Tanzania Inputs	Japan Inputs	
1. To promote AO method 1.1. To analyze and improve supportive health system. 1.2. To introduce AO to Health Centers. 1.3. To provide Zanzibar and new Districts with equipment and 1.4. To train tutors of laboratory training schools.	National budget CHMT/RHMT budget National HR HR of local government.	Equip't/material Running cost Advisor Consultants	AO remains the most appropriate method for Tanzania
2. To train nurses on the new drug policy 2.1. Curriculum development 2.2. TOT 2.3. Cascade OJT 2.4. Training Tutors for nursing.	National budget CHMT/RHMT budget National HR HR of local government.	Equip't/material Running cost Advisor Consultants	Clinicians and pharmacies are trained.
3. To train nurses on case management of severe malaria & IMCI 3.1. Curriculum development 3.2. TOT 3.3. Cascade OJT 3.4. Training Tutors for nursing.	National budget CHMT/RHMT budget National HR HR of local government.	Equip't/material Running cost Advisor Consultants	Clinicians are trained elsewhere
4. To reduce breeding sites of Anopheles in urban centers. 4.1. To retrain the urban environmental health personnel 4.2. To rehabilitate existing malaria drains. 4.3. To support urban centers to design and budget for construction of malaria drains. 4.4. To educate people on different general of mosquitoes.	National budget CHMT/RHMT budget National HR HR of local government.	Equip't/material Running cost Advisor Consultants	Nuisance by Culex doses not hamper the project.

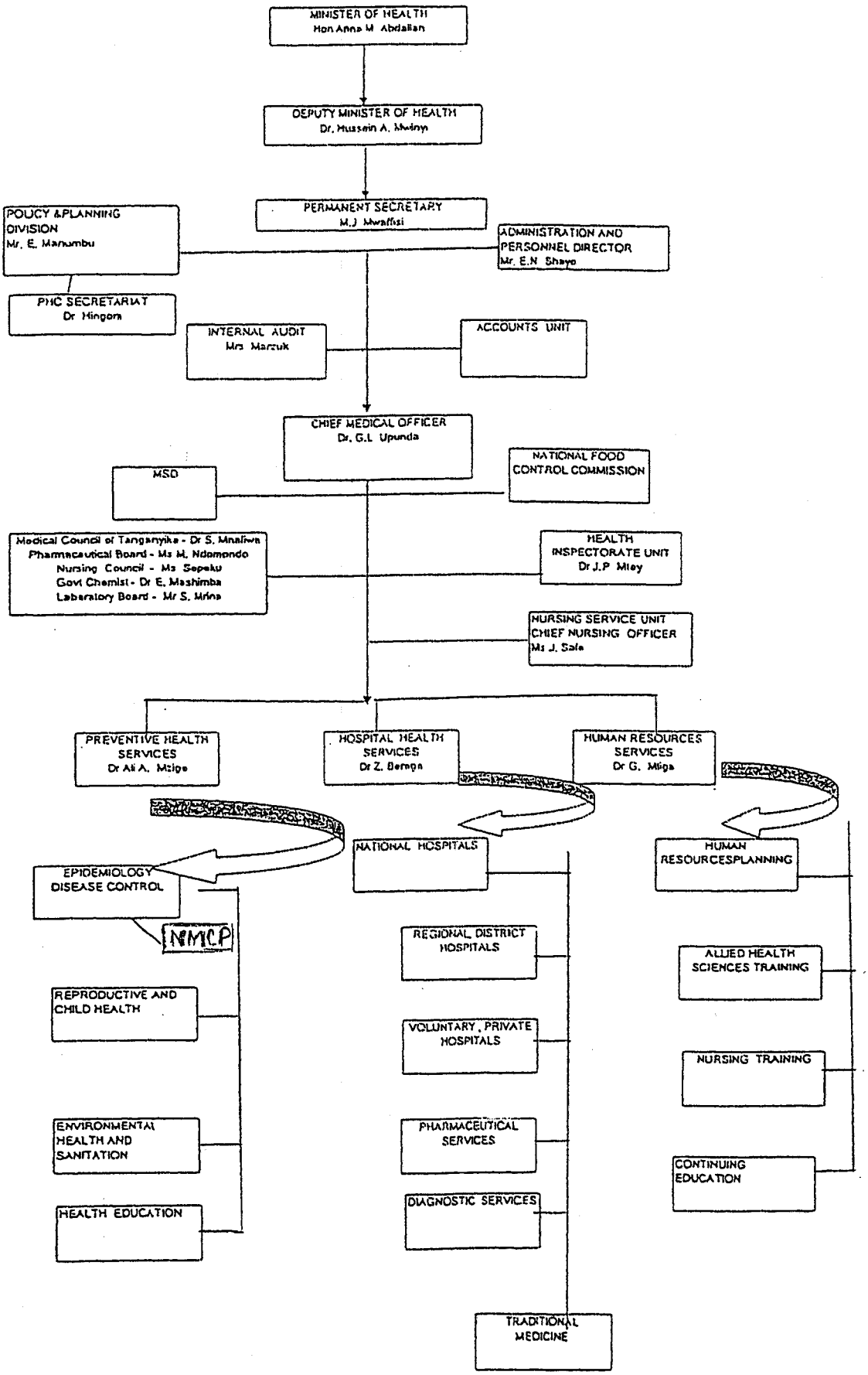
APPENDIX 1

TANZANIA

TZ/4R-236 15/15

APPENDIX 2

ORGANIZATIONAL CHART - MINISTRY OF HEALTH



MINUTES OF MEETINGS
BETWEEN THE JAPANESE PREPARATORY STUDY TEAM
AND THE AUTHORITIES CONCERNED
OF THE GOVERNMENT OF THE UNITED REPUBLIC OF TANZANIA ON
THE JAPANESE TECHNICAL COOPERATION IN TANZANIA

The Japanese Preparatory Study Team (hereinafter referred to as 'the Team') organized by the Japan International Cooperation Agency (hereinafter referred to as 'JICA') and headed by Dr. Hiroshi TAKAHASHI visited the United Republic of Tanzania from November 15th to December 1st, 2003, for the purpose of making a study of the request for the Japanese Technical Cooperation for Malaria Case Management Training and Control of Malaria Mosquito Breeding Sites in Urban Centers in Tanzania (hereinafter referred to as 'the Project').

During its stay in the United Republic of Tanzania, the Team exchanged views and had series of discussions with the authorities concerned of the United Republic of Tanzania.

As a result of the study and the discussions, the Team and the Authorities concerned of the United Republic of Tanzania confirmed on the matters referred to in the document attached hereto.

Dar es Salaam, December 1 , 2003

Dr. Hiroshi Takahashi
Team Leader
Japanese Preparatory Study Team,
Japan International Cooperation Agency

Dr. Z.A. Berege
PERMANENT SECRETARY
Ag. Permanent Secretary
Ministry of Health
The United Republic of Tanzania

The Attached Document

1. Background

In the United Republic of Tanzania, malaria is increasingly causing distress among people. In 1999 to 2000, the disease accounted for more than 30% of all outpatients diagnosis in children and adults respectively. Annually, it is estimated that 14,000,000 to 18,000,000 people are infected with malaria and 100,000 to 200,000 people are dying with malaria. Since 1993, on a basis of such situations, the Government of Japan and Japan International Cooperation Agency (hereinafter referred to as 'JICA') has closely worked with Ministry of Health, the United Republic of Tanzania and related authorities for fight against malaria. JICA supported In-Country Training Course (ICTC) that aimed at developing the capacity of health workers who were involved in malaria case management and malaria diagnosis at the district and regional levels. The project purposes were; 1) To improve and strengthen the capacity of health facilities for malaria diagnosis by using acridine orange (AO) staining method, 2) To improve and strengthen the capacity of health facilities for management of severe malaria cases and common severe childhood illnesses. In addition, environmental health management for the urban malaria control was conducted in Tanga and Dar es Salaam from 1988 to 1996.

During this technical cooperation period, more than 30 ICTC sessions have been conducted and several hundreds of nurses and laboratory technicians successfully completed the ICTC. JICA has donated medical and laboratory equipment, reagents, and teaching materials among others to support the ICTC. The Ministry of Health realized that it is very important to expand the ICTC in the whole country to better respond the malaria cases and to reduce the mortality rate due to malaria infection.

In the view of the above situation, the Government of Tanzania requested the government of Japan to scale up to a project type technical co-operation as "Malaria Case Management Training and Control of Malaria Mosquito Breeding Sites in Urban Centers"

According to the requests from the Government of Tanzania, the Japanese Preparatory Study Team, organized by Japan International Cooperation Agency, was dispatched for the project to discuss further technical assistance on malaria control.

2. Study Result

Based on the proposal (Ref.No.TYC/E/450/11), submitted to the Embassy of Japan on March 10, 2003, the Team investigated all the contents of the proposal during the stay in the United Republic of Tanzania from November 16 to December 01, 2003.

Some points on the proposal are necessary to be modified for the Project as follows:

Overall Goal of the Project (p.4, para 8)

- "To reduce malaria to a level where it is no longer a serious health problem and obstacle to socio-economic development" should be modified as "To reduce morbidity and mortality due to malaria"

Subproject (A)

- "Improve quality of nursing care of malaria and other common severe childhood illness" should be read as "Nursing training of complicated malaria in the context of IMCI".
- "Trained nurses tutors who will train pre-services nursing personnel" should be deleted from the Project scope.
- Cascade training to for-profit private health facilities should be deleted from the Project scope.
- Advocacy on prompt treatment of febrile illnesses including malaria should be much extended to medical professionals, e.g. physicians, medical officers etc.
- "Conduct Post-training follow-up of the trained nurses" should be further discussed due course of the Project.

Subproject (B)

- The number of the zonal workshops to be strengthened should be confirmed.

Subproject (C)

- "To train the urban environmental personnel, on the types of mosquito breeding sites, urban geography, land survey, structure and function of anti-malarial drains and their construction" should be understood as seminars and on-the-job trainings in collaboration with other development partners, and not as the ICTC in full scale.
- "Provide the urban authorities with tools and machines for construction of anti-malaria drains" should be deleted.
- "To support urban centers to design and budget for construction of anti-malaria drains" should be clarified as not including financial support for such construction

Short-term Japanese expert (p.8, para 16.2)

- An expert for environmental management should be included.

Financial support for the following (p.8, para 16.3)

- As to the request on "Equipment including land survey tools/machines, tools/machines for drainage construction, supervision vehicle", machines and vehicles will not be considered by JICA.
- Consumables for the AO method e.g. reagents, bulbs and other spare parts should be purchased by the Government of Tanzania. Other necessary support should be discussed when the issues come up.
- "Training in Japan-Support short courses in Japan in fields of urban planning, drainage work, equipment maintenance, parasite administration and health planning" should be understood that the training opportunities may be given to a part of the above listed areas.

The Team proposes to distinguish between "early diagnosis" and "quick/prompt diagnosis"; The AO method is a tool for "quick/prompt" diagnosis, while "early diagnosis" means detecting an infection before the parasitaemia is large enough to present serious symptoms to the victim. The AO method could contribute to "early" diagnosis, if it is extended to the peripheral health facilities, notably the health centers. Quick diagnosis by AO method could also contribute to "proper treatment", if the laboratory results are respected by physicians, who currently prescribe without waiting for the results of delayed diagnosis.

After the formal agreement on the above points, Project Design Matrix (Log Frame) for the Project will be developed.

3. Name of the project (tentative)

Project for Malaria Case Management Training and Control of Malaria Mosquito Breeding Sites in Urban Centers

4. Overall Goal of the project (tentative)

To reduce morbidity and mortality due to malaria

5. Purpose of the project

- Project (A): Nurses conduct timely and proper treatment for patients with febrile illnesses including malaria.
- Project (B): Greater numbers of febrile cases are treated properly.
- Project (C): Malaria transmission at the urban centers is minimized.

6. Outputs of the project

- Project (A): 1) Nurses who attend the ICTC will obtain appropriate basic knowledge and teaching skills on proper treatment for febrile illnesses including malaria, 2) Such knowledge and skills will be disseminated to the colleagues on-the-job basis using proper educational materials.
- Project (B): 1) The AO method will be fully recognized by all medical professionals working at health facilities, 2) The diagnosis system including maintenance and supply will be well developed, 3) Laboratory professionals can properly perform the AO method for malaria diagnosis.
- Project (C): 1) Existing drainage systems in the city of Dar es Salaam will be rehabilitated or maintained, 2) Community-based environmental management will be strengthened by coordination of relevant institutes.

7. Activities of the project

Details of the activities will be determined in the near future upon development of Project Design Matrix.

8. Responsible Organization

1) The Government of Tanzania through the Ministry of Health bears the overall responsibility for the successful implementation and effective coordination of the Project with the relevant departments and institutions for effective feedback of the Project outputs.

2) The National Malaria Control Programme, as well as the Local Government authorities will be the counterparts for the Project.

9. Duration of Cooperation

The duration of the Project will be Three (3) years. The exact commencement and termination dates will be determined in the Record of Discussions(R/D), which will be signed between the concerned authorities of the Government of Tanzania and The

Japanese authorities.

10. Measures to be taken by the Tanzanian side

1) To strengthen advocacy regarding the AO method at the regional and district levels and related medical institutions (e.g. NIMR, MUCHS).
2) To strengthen the capacity of the Medical Store Department, particularly consumable supply for the AO method.
3) To develop the repair, order, and recording system for the AO microscope.
4) To coordinate operational research on the AO method in routine medical services (i.e. time between Out Patient Department-Diagnosis-Treatment, increase in number of tests after installing the AO method, the rate of malaria treatment with microscopic diagnosis, etc.).
5) To provide adequate number of support staff (Administrative staff, drivers, etc).
6) To provide sufficient and suitable offices and laboratories for the Project.
7) To provide sufficient amount of budget for the implementation of the Project. The Government of Tanzania in particular commits itself to meet the followings:
   - ✧ National local personnel costs
   - ✧ Operational costs (water, electricity, postage, telephone, etc)
8) To supply or replace machinery, equipment, instruments, vehicles, tools, spare parts and other materials necessary for the implementation of the Project other than those provided by JICA.
9) Meet expenses necessary for the transportation of the equipment within the United Republic of Tanzania as well as for clearance, installation, operation and maintenance thereof.
10) Exempt from custom duties, internal taxes and any other duties imposed in the United Republic of Tanzania on equipment provided by JICA
11) Ensure that all research proposals and publications are approved by the relevant authorities.
12) To take on responsibility for any other matters that are necessary for the smooth running of the Project.

(End of the Minutes)

6．タンザニア臨床検査技師会（MelSAT）総会参加者を対象としたAO法についてのアンケート

AO Method Survey at MelSAT Meeting (November 2003)

Sample size: 119			
Breakdown by type of workplace			
Government: 49	Private: 25	Mission: 15	
Breakdown among government facilities			
National Referral: 5Regional: 12	District: 24	Health Center: 11	

Q1. Have you heard about AO method for malaria diagnosis?

Yes: 100　　No: 15　　N/A: 4

Q2. If yes, how did you come to know about AO method?

ICTC: 37

Health facilities (on the job): 11

From colleagues/friends: 16

At school/college: 6

Through literature: 3

Others: 7

Q3. Have you used AO method for malaria diagnosis?

Yes: 66　　No: 48　　N/A: 5

Q4. How did you learn AO method?

ICTC: 41

On the job training: 21

Others: 20

Q5: How do you use it at your working place?

Routinely: 36

Occasionally: 14

For out-patients only: 4

Others: 19

Q6: Please give the reason why you are not using AO method?

Problems associated with bulbs: 3

No microscope: 31

No Training provided: 7

Microscope breakdown: 3

Problems associated with electricity: 2

Cannot detect Borrelia Duttoni: 2

Stolen: 1

Q7. What is the reason why you are using AO method?

Readiness: 45

Easiness: 26

Accuracy: 37

Others: 8

Q8. Do you charge for malaria diagnosis at your laboratory?

AO method: Tsh 307 (among 30 samples; the highest charge: Tsh 800)

Giemsa Stain: Tsh 408 (42 samples; the highest charge: Tsh 2500)

Field stain: Tsh 415 (52 samples; the highest charge: Tsh 1700)

QBC: Tsh 1000 (6 samples; the highest charge: Tsh 2500)

(Average costs among those charging fees – facilities providing free services are excluded.)

Q9. Do you receive any requests to use AO method?

Doctors: 35

Patients: 11

Nurses: 3

Others: 10

Q10. What kind of microscope are you using for AO method?

Nikon: 25

MDM: 28

Others: 16

Q11. Do you have any problem using AO method at your working place?

- Yes. Maintenance and supplies.
- The microscope which was used for AO was broken down.
- Constant supplies of reagents. Replacement of damaged parts and general service of the microscope is another difficulty.
- Issue of the bulbs blowing up and difficulties in obtaining them.
- Only one AO microscope supplied is not enough.
- Occasionally getting problems with bulbs (frequently blow up)

- Yes. Occasionally due to shortage of cover slips.
- Yes, I have problem. Because I need more education hence I learn AO on the job training that is not able to know well.
- Matter of manpower
- 1.Spare parts inadequate, 2.AO supplies is so strain, 3.Maintenance of AO microscope, 4.Lack of knowledge among users and technical maintenance
- At the moment microscope fault.
- Yes. Facilities are not available, e.g. slide, cover slip and reagents.
- We are missing glycerin only.
- Shortage of trained staff on AO method.
- Slides and human resources.
- Not a single bulb has blown so far. Problem is unavailability of new quality slides and cover slips of x60 objective failure.
- The electricity problem due to low voltage.
- Yes. Problem is bulb and halogen lamps are burnt.
- Yes. It can not detect Borrelia Duttoni.
- Yes. We have problems of our microscope not detecting Borrelia Duttoni.
- Lack of bulb is the main problem. More knowledge is needed on how to use well.
- Yes. Lack of ingredients for solution preparation.
- Yes. Electricity not constant, new slide is also problem we cannot get it regularly.
- Yes. Less education on the job training course.
- Yes. I don't have enough skill to use it.
- The part of the parasite supposed to appear orange does not appear. Parasites sometimes not clearly shining as they should be.
- Shortage of cover slips/alcohol/slides. • Long time use Nikon microscope will cause eye ache.
- Yes. As I didn't attend the training and only the Lab assistant who went for ICTC is not able to train me on job.
- Frequent blow up of bulbs is a major problem when using this method in my working station.
- Yes. Inadequate supply of AO reagents and cover glasses.
- No. The former problem was bulbs, but it has been solved. Can be easily acquired from MSD.

Q12. Do you have any idea to solve the problem you have mentioned above?

- Training laboratory staff to perform minor maintenance.
- I need AO Microscope and training on how to use it.
- To seek the AO microscope which can resist a big load of slides.
- May be the use of table fan to reduce the heat could solve as the bulbs blow up due to prolonged heat.

- To be supplied with more than one microscope.
- Regular supply from the central level
- Yes. The hospital (mo1/4) assist a lot in buying the above said item, when there is shortage.
- I need more refresh course.
- The problem will be solved by the DLD and MOH.
- I need more education for this method.
- To have central/zone workshop where spare parts can be store/kept and be repaired by skilled personnel, 2.AO supplies be readily available, 3.To integrate AO technique into the school of medical syllabus.
- Technician (hospital equipment) to be assigned the task to alleviate the problem.
- Budgeting for new slides and cover slips but bureaucracy on purchases normally omits laboratory supply purchases.
- Electricity should be renovated in order to reduce problems due to low voltage.
- Yes. To buy the bulb through coupon.
- We must be given a microscope that detects Borrelia duttoni and other blood parasites.
- To solve the problem is through purchasing AO solution from KCMC Laboratory outreach program.
- Yes. MSD must provide us new slide regularly.
- 1.We use expired buffer tablets, so availability (easy) of proper tabs would stop this, 2.Because of the scarcity of cover slips and slides, we over recycle (rewash) cover slips -so if solved then it will stop.
- Hospitals buy cover slips/alcohol/slides.
- Yes. If I get an opportunity to undergo ICTC and also being provided with Nikon instead of MDM.
- The idea which I have to solve the problem mentioned above is that, it is essential to have another method instead of AO method in order to reduce the big workload of blood slides so as to make the machine relax.
- Yes, to get enough stock of reagents and cover glasses.
- Reagents used in AO method like AO powder glycerol, alcohol and cover slips, slides should be easily available in our zonal medical store department.

Q13. How is the support system for AO method from MOH?

- Reagents procured through MSD.
- Supportive
- Provision of reagents/chemicals through MSD.
- Through training directives and workshops.
- Done by H/C itself due to cost sharing that has been introduced since last 2 years.

- Provide funds for purchasing reagents.
- Not clearly defined
- We get our supply from central medical stores.
- Good. Through its workshop (medical equipments) centered at MNH they help us in checking the microscope when there is problem concerning the instrument.
- To employ more technician to assist on this lab diagnosis.
- Availability of glass slides, reagents and cover slips.
- Nothing is clear from MOH. Double standard.
- None
- Very good.
- MOH is supporting by supervision only.
- Support from MOH last 6 month ago we receive bulb, AO powder.
- Poor. They only visit centers for supervision when their pockets are empty.
- Not efficient!
- MSD is availing AO powder but there were no quality slides and cover slips.
- No support so far it is self initiative.
- MOH supports on reagents for AO.
- Support system for MSH is good.
- Very good.
- Well, there is no any support system to the VCTC, except during the teaching process.
- MOH is supporting by inspection supervision only.
- Poor. Regular supportive supervision from MOH needed.
- Very good.
- Very minimum indeed.
- Sometimes supply AO reagent.
- No support system because no service of microscope.
- The ministry supports this method by supervising us every time so as to know whether the machine is working properly.
- Very supportive by availing the reagents.
- None
- The Ministry of Health to conduct seminars so as every technologist and doctor to be familiar with this method.
- By having enough stock of material AO powder, glycerol and cover glasses at MSD.
- No support system because no service of microscope.
- Funds are at MSD where we can buy reagents and spare parts for AO microscope.
- The support system for AO method from MOH is to make sure this method available in all parts of the country especially at every Regional and District and health facilities (hospitals).

- Moderately satisfactory.
- Instruct our organization (MSD) to store Acridine Orange.

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JAPAN INTERNATIONAL COOPERATION AGENCY

JICA

SURVEILLANCE OF AO MICROSCOPES USAGE

A FINAL REPORT

By

Dr. Calista Simbakalia
Team Leader

Dr. Tengio Urrio
Consultant

Dar es Salaam,
August, 2003

EXECUTIVE SUMMARY

1.0 INTRODUCTION

In order to assist the Government of Tanzania to improve the diagnosis of Malaria, the Japanese government through its agency (JICA) provided microscopes in various hospitals in Tanzania mainland and one in Zanzibar.

JICA commissioned HealthScope Tanzania to physically visit all the facilities where microscopes were provided to determine the repair/maintenance level of each microscope, to assess the working environment in terms of laboratory staff, supplies, consumables, availability of electricity and water and the use of non AO methods for diagnosis of malaria.

In addition HealthScope Tanzania was required to assess the extent of support services provided by the 3 Zonal workshops (Mbeya, Bugando Medical Centre and Muhimbili National Hospital) and MSD in the provision of repair/maintenance services and supplies to the health facilities provided with the microscopes.

1.1 Methodology

To execute the task, ten Research Assistants were identified and trained on the methodology of interviewing and the use of the data collection instruments. Thus, primary data were collected using an instrument developed from an interview guide and secondary data were obtained from review of service statistics data and ledger books. Data collection was conducted simultaneously covering all the regions. During the visit, the main parts of the AO microscopes were examined to determine the microscope maintenance/repair status.

1.2 Limitations

Major limitations included difficulties in accessing the District Medical Officers and Laboratory staff in some districts due to bureaucratic procedures and thus delaying completion of the assessment. Lack of transport, long distances and difficult rural travel conditions, in some cases, also delayed the completion of the task.

1.3 Data analysis

Data were entered into the computer and analyzed using EPI INFO 6.

2.0 MAJOR FINDINGS

2.1 Microscopes found in the health facilities visited.

Findings show that 100 microscopes were distributed. Out of the total 100 distributed 5 had been stolen thus leaving 95 microscopes in the health facilities.

2.1.1 Discrepancies distribution list vs found in the Field

Although the distribution of the microscopes was done in accordance with the list provided by JICA there were slight variations: We identified sites that received more microscopes than were allocated in the distribution list while there were other places that did not receive the allocated microscopes.

2.1.1.1 Sites that received none or less (deficit) than were allocated

Kisarawe received one AO microscope instead of 2; Kibaha (Tumbi) Kibaha and Tumbi Hospital appear in the list to have received 3 microscopes but in reality only one site (Tumbi hospital) received one microscope. Dodoma Urban Health Centre, Lugalo TPDF, Iringa Urban Health center and Chunya (Mwambani Hospital) were supposed to be supplied with AO microscopes but they did not receive those AO microscopes. This was confirmed by checking their ledgers. These hospitals do have trained Laboratory staff.

2.1.1.2 Sites that received more than shown in the allocation list

Maswa, Tarime, Singida Regional Hospital, Mawenzi Hospital received 2 AO microscopes instead of one. Muheza Vector control Training center received 5 instead of the one shown in the list. Manyoni received one AO microscope though in the list it is shown not to have been allocated any.

2.2 The repair/maintenance condition and level of defectiveness of the microscopes

- Out of the 95 microscopes found in the field 12 (12.63%) were found to have technical deficiencies that need repair/maintenance
- Out of the 95 (100-5 stolen) microscopes found in the survey 50 (52.63%) were found to be functioning well and were currently being used while 45 (37%) were not being used because of various reasons.
- Out of the 45 AO microscopes found currently not being used 12 (26.67%) were found to have technical deficiencies that need repair/maintenance.
- The remaining 33 (73.33%) AO microscopes were not being used for various reasons that do not need repair/maintenance. These include 5 microscopes found at the Vector Control Training Institute
- Microscopes were stolen from the following hospitals: Geita, Magu, Njombe, Mkuranga and Maswa. (Maswa was provided with two microscopes of which one was stolen).

2.3 Efficacy of AO microscopes in the working conditions in the field

Various factors that influence the efficacy of the AO microscopes were examined. These included condition of laboratory rooms, capacity building, availability of electricity and water, capacity to prepare AO solution, availability of supplies and availability of resources for repair/maintenance. The perception of users and their recommendations on continuation of using the AO method were discussed with the users of the microscopes.

2.3.1 Conditions of Laboratory Rooms

Health facilities have provided adequate space for laboratory services and security measures to prevent theft are being installed. One district laboratory was an exception where space was adequate but the standard of cleanness and security was poor (Mafia Laboratory).

2.3.2 Perception of users

Perceptions of the laboratory staff show that the AO microscopy technology has been incorporated into the laboratory services. Laboratory staffs spoke positively about AO microscopes and were happy to use them; AO microscopy is a quick, rapid method and it saves time. Its sensitivity is high; therefore reduces number of false positives and negatives. Malaria parasites can be seen clearly and it is easier to perform than other methods. It is also easy to train staff to use it.

2.3.3 Capacity Building

89% of laboratory staff interviewed reported to have attended ICT course. Trainees recognized that the training gave them adequate skills to operate AO microscopes and enabled them (95%) to conduct on the job training for other laboratory staff.

However, 83% of respondents expressed their wishes to upgrade their knowledge by attending refresher courses and/or to have a forum where they could interact with other Laboratory staff with the aim of sharing experiences on the use of AO microscopes.

2.3.4 Availability of Electricity and Water

Use of AO microscopes depends on constant availability of electricity and water 87% of health facilities had electricity while 82% had water. For those facilities without electricity some used an alternative source of electricity (hydroelectric power e.g. Kasulu Kabanga while others e.g. Ludewa just kept the AO microscope unused.

As for water, those health facilities that did not have piped water they used alternative sources: shallow wells and deep wells.

2.3.5 Capacity to prepare AO solution

Not being able to prepare AO solution was found to be one of the reasons why AO microscopes were not being used. 82% of Health Facilitates could prepare AO solution while 18% cannot prepare.

Reasons for inability to prepare AO solution in the 16 facilities included: lack of centrifuge (1), lack of AO powder (10), Lack of skills (2).

2.3.6 Number of Bulbs used

Frequent blow up of bulbs is a major problem associated with the AO microscope. Results show that the majority of the AO microscopes (68%) have used only one bulb while the maximum number of bulbs used was 11. Thirty seven facilities reported to have had a total of 45 bulbs burnt.

The common reasons reported for bulb burn out were fluctuation of electricity and prolonged use of microscopes without interruption.
However, eleven facilities reported to have their original bulb in place.

All the facilities except 2 have a stock of bulbs ranging from 1 to 22. The maximum number of bulbs found in the stock was 20 in Sokoine Hospital (Lindi) and 22 in Singida Hospitals. In these two hospitals the AO microscopes were not being used since March 2003 (Lindi) and 1998 (Singida).

2.3.7 Resources for repair/maintenance

Results show that 50% of health facilities do get funds for repair/maintenance of AO microsocpes from cost sharing. Other sources of funding were reported to be Basket Funding, District Local Government Funds, and MoH. Christian Social Service Commission is the source of funds for the Faith Based Hospitals.

2.3.9 Hours per day of operating microscopes

51% of facilities operate the microscope for 6-10 hours while 17.8% operate for long hours (16-24hrs). Results of the survey show that facilities operating for long hours had more bulbs burnt than those sites where microscopes were used for shorter periods.

2.3.10 Estimated of AO tests in a month

In this survey efforts were done to record number of AO tests performed. However this was difficult because record keeping in many health facilities was poor. Among the 89 sites visited 48 (54%) were found to have a reasonable record.

Results show that the average number of tests per month range from 200 tests to 1000 tests per month: 22 (45.83%) facilities performed 200 tests per month, 8 performed between 201 and 400 tests per month, 6 facilities performed between 401 and 600 tests per month, 7 facilities performed between 601-800 and 5 facilities performed between 801-1000.

2.3.11 Use of non-AO methods

The alternative malaria tests used by the facilities were identified to be Giemsa and Field Stain. However results show that Field Stain method was more popular than Giemsa method. Results show that 47 (58.75%) facilities use Field Stain and 33 (41.25%) facilities Giemsa.

Reasons for using alternative methods include: Inadequate AO expendable supplies, when AO microscope is switched off to let it rest and when electricity is cut off. Other reasons include when blood film taken is thick and when the number of slides is too big for one AO microscope to cope.

2.3.12 Adequacy of supplies for non-AO methods

Results show that 58 (76.32%) facilities and 18 (23.68%) facilities receive adequate and inadequate supplies respectively for performing non-AO methods.

2.3.13 Problems encountered while using non-AO methods

Major problems identified included: unavailability of expendables that are essential for the methods e.g. glycerin, oil immersion.

2.4 Zonal Workshops

Zonal workshops were set up by the Ministry of Health with the aim of offering support services for medical equipment including the AO microscopes in their respective zones. The survey assessed the capacity of the workshops in terms of technical skills, working relationship between the Zonal Workshops and health facilities and support for repair/maintenance of AO microscopes.
The study revealed the following:

2.4.1 Capacity of the Zonal Workshop

Dar es Salaam Zonal Workshop had a better capacity than Mwanza (Bugando Hospital) and Mbeya in terms of staffing (6), skills and experience. The Mbeya Zonal Workshop was the least placed in terms of skills and experience while Mwanza Zonal Workshop is understaffed (has only one staff).

2.4.2 Working relationship: Zonal Workshops and Health Facilities.

Zonal Workshop staff rarely visit and offer services to the health facilities.

However, Zonal Workshop staffs are supposed to inspect medical equipment in the health facilities (in their respective zones) twice a year. Due to lack of funds inspection activities do not take place.

2.4.3 Communication between the Zonal Workshops

Results show that there is no communication and sharing of technical information and experience between the Zonal Workshops

2.5 MSD as a source of expendable supplies

The Medical Stores Department is the main source of medical equipment, drug and supplies for the public health facilities.

Results from the survey show that 60% of the facilities obtain their bulbs from MSD, 87.4% obtain their glass slides, 86.2% obtain their cover slips and 71.3% AO reagent.

2.5.1 Quality, quantity and frequency of obtaining expendables from MSD

Results show that generally the qualities of expendables from MSD are acceptable. However, results revealed that commodities were not regularly available - 57.5% facilities and the quantity was not sufficient - 44.2% of facilities.

Results show that due to irregularity of obtaining expendables, health facilities do search alternative sources. Respondents reported that alternative sources were not reliable neither sustainable as MSD. Alternative sources identified include referral hospitals and some regional hospitals, Malaria Unit (MoH) and JICA (supplies and consumables given after ICTC).

3.0 RECOMMENDATIONS

3.1 Non Functioning Microscopes

The survey found a high percentage of non-functioning microscopes (47.37%) among which 12 (26.67%) need repair.

We therefore recommend that remedial measures in terms of repair and provision of supplies and repairs/ maintenance should be done immediately to get the microscopes functioning

3.2 A prevention plan

A prevention plan to prevent any more microscopes going into non-function should be put into operation immediately.

3.3 Adaptation of the AO technique

It is recommended that as the technique has been found to have many advantages over other methods and as health workers have adopted and recommended it MoH/JICA to provide more AO microscopes and train more staff to use them.

3.4 Preference in microscope type

Nikon microscopes have been found to have problems that are mostly associated with the lighting system. It is therefore recommended that, future supplies of AO should be MDM Eliza instead of the Nikon.

3.5 Continuous education

Lab staff that attended ICTC have not had any refresher course to update their knowledge and so it is recommended that after an initial rapid training needs assessment, refresher courses be conducted on regular basis for those who attended ICTC.

3.6 Monitoring of AO microscopes

Monitoring of AO microscopes is inadequate due to lack of data collecting instruments for AO microscopes. It is recommended that an instrument for data collection on AO microscopy is developed and that Lab staff should be oriented on how to use it.

3.7 Supportive supervision

Supportive supervision from the National and Regional level is inadequate. It is recommended that National and Regional level should perform supportive supervision that is thorough by making physical checks of all microscopes. They should advise and ensure that Lab staff send mechanically deficient AO microscopes for repair to the Zonal workshop.

3.8 Availability of Supplies

Consumables/supplies for operating AO microscopes are inadequate. It is recommended that the Malaria Programme Manager (MoH) and MSD officials find out the root cause of having inadequate supplies/consumables for AO microscopes and ensure that all supplies and consumables are distributed to the Zonal MSD in a timely manner.

We also recommend that Laboratory staff be proactive in making timely requests for consumables for AO microscopy.

3.9 Maintenance and repair capacity of Zonal workshops

Maintenance and repair capacity of the zonal workshops especially the Mbeya and Mwanza Zonal Workshops are inadequate. It is recommend that capacity building be done to improve the skills of staff and provide the necessary tools for repair/maintenance of medical equipment including AO microscopes.

It is recommended to increase the number of staff so as to have a minimum of four staff for each zonal workshop.

SURVEILLANCE OF AO MICROSCOPE USAGE

1.0 INTRODUCTION

The health status of Tanzania is poor as shown by mortality and morbidity statistics. HIV/AIDS, diarrhea, and malaria are the leading causes of death. Malaria is the leading cause of death in under fives causing about 18.4% of the deaths in this age group (Malaria Program Annual Report, 2001).

In order to assist the Tanzanian government to curb the problem of Malaria, the Japanese government through its agency (JICA) provided microscopes in various hospitals in Tanzania. The microscopes were distributed to regional, district, Faith Based hospitals in mainland Tanzania and to the Mnazi Mmoja Hospital in Zanzibar (1 microscope).

Through its zonal workshops located in the referral hospitals in Mwanza, Mbeya and Dar es Salaam, the Ministry of Health provides support services to essential medical equipment including laboratory equipment e.g. the AO microscopes.

JICA commissioned HealthScope to conduct a needs assessment in order to assess the in depth-working environment of the provided microscopes with regard to malaria control in Tanzania. The needs assessment was to provide information on lessons learnt during this period of JICA/MoH cooperation. HealthScope was required to provide recommendations on the way forward.

In addition to assessing the status and the utilization of the microscopes on mainland Tanzania and if necessary the one in Zanzibar the needs assessment assessed the extent of the support services provided by the 3 zonal workshops that facilitate service provision using the provided microscopes.

1.1 METHODOLOGY

Ten Research Assistants (Laboratory technologists) were identified and trained on methodology of interviewing and the use of the data collection instruments. They were provided with skills in interviewing, how to collect data and information on the AO microscopes and on laboratory performance in diagnosing malaria. They were also required to look into the training and quality of staff deployed at the laboratories visited.

Primary data were collected using an instrument developed from an interview guide. Secondary data were obtained from review of service statistics data and ledgers.

To enhance rapid collection of data required, all regions were covered simultaneously using ten Research Assistants. Originally, 9 routes were identified; however, the route that covered Manyara, Arusha, Kilimanjaro and Tanga was found to be too long and therefore it was split into two routes. An

additional Research Assistant was assigned to collect data at KCMC and Tanga Region.

1.2 LIMITATIONS

Two consultants were assigned to supervise the 10 Research Assistants. The duration of the assessment was estimated to be 13 days. However, due to difficulties in logistics encountered in the field (e.g. lack of transport at an appropriate time and difficult in accessing District Medical Officers and Laboratory staff), Research Assistants were forced to return later than there were expected. In fact the last research Assistant reported back on Saturday 9th August after spending 17 days in the field instead of the planned 10 days. Despite the difficulties experienced, all the centers supplied with microscopes were visited, the instruments were filled accurately and good quality data was obtained.

1.3 TERMS OF REFERENCE

The Terms of reference for the consultancy were as follows:

1. *Physically visit*
   - Consulting hospitals: Mbeya Consultant hospital, Bugando Medical Centre, Muhimbili National Hospital
   - Regional hospitals except DSM and Manyara
   - Privately own hospitals
   - Faith Based hospitals
2. *Technically carry out an in depth evaluation of the AO microscopes to determine its repair/maintenance level of defectiveness (parts required for replacement)*
3. *Intensively carry out in depth study on the efficacy of AO microscopes in working conditions of Tanzania. Where the AO microscopes are not working effectively establish the cause both human and technical for improvement/abandonment*
4. *Determine weather there exists working relationship between the three Zonal Workshops and the surrounding hospitals and what support they offer to hospitals including repair and maintenance of AO microscopes.*
5. *Recommend in terms of logistics, what health facilities and zonal repair maintenance centers rank MSD for responding to their demands.*
6. *On the basis of above, prepare a report with recommendations including a Prevention Plan and submit to JICA and MOH for further processing.*

1.4 DATA ANALYSIS

Data was entered into the computer and was analyzed using EPI INFO 6.
Some photographs taken showing AO microscopes in use are being presented in this report.

2.0 FINDINGS

2.1 PHYSICAL VISIT TO HEALTH FACILITIES

All the health facilities that were provided with microscopes as shown by a distribution list provided by JICA were visited. They consisted of referral hospitals, regional and district hospitals, DDH, training institutions Faith Based Hospitals, special hospitals and urban health centers. All health facilities as listed in table 1 below were visited.

Table 1: Facilities Visited

Type of Facility	No.	%
Referral Hospitals	4	4.21
Regional Hospitals	19	20.00
District Hospitals	44	46.32
DDH	6	6.32
Training Institutions	5	5.26
Faith Based Hospitals	9	9.47
Specialized Hospitals	4	4.21
Urban Health Centers	4	4.21
Total	**95**	**100.00**

Table shows the type of facilities visited. The majority of them (46.32%) were District Hospitals. Manyoni District Hospital was not indicated in the list (Input II) to have been provided by AO microscope. However, during the survey one AO microscope was found to be at the hospital and it was functioning well.

2.2 THE REPAIR/MAINTENANCE CONDITION AND LEVEL OF DEFECTIVENESS OF THE MICROSCOPES

The main parts of the AO microscopes were examined carefully (Lighting source, lenses that include objective and eye piece, mechanical stage and stands). Other accessories that make AO microscopes work were also assessed: stabilizers, capacitators and bulb holders. The availability of electricity water and the necessary expendable supplies was also assessed including bulbs, cover slips; cover slides and Acrodine Orange reagent.

2.2.4 Status of the 95 microscopes

Out of the 95 (100-5 stolen) microscope found in the survey 45 were found to be currently not in use.

Annex 1 shows where the microscopes are located in the field, and their use or non-use status. Annex 2 shows the causes of non-use of the microscopes, the hospitals where the non-used were found and identifies those that need repair.

Out of 45 AO microscopes found currently not being used 12 of them were found to have technical deficiencies that need repair/maintenance (see annex 5)

Makorora and Sokoine Hospitals: Mechanical stage is out of order because the knob/screw is broken, Kilwa Kivinje: Electrical housing is faulty, Tarime hospital (2 AO microscopes) and Sekou Toure (Mwanza) Light does not enter the microscopes due to faulty fitting of the light box, Kyela hospital: the capacitator is out of order, Morogoro hospital: bulb holder melted out, Mafia hospital: Lighting box generator out of order, Bombo Hospital faulty fitting of AO microscopes, Maweni Hospital: Bulb holder and stabilizer burnt out, Shinyanga Hospital: Failure to focus.

The remaining 33 AO microscopes were not being used for various reasons that do not need direct repair/maintenance. These include 5 microscopes found at the Vector Control Training Institute that originally was reported to have been allocated only one microscope. It was reported that they are not being used as they are used only when ICTC is in session.

Some AO microscopes were found to have multiple problems e.g. Utete Hospital in Rufiji is not functioning because of three problems: unstable electricity, lack of cover slips and lack of AO solution. Tarime hospital has two problems: lack of stabilizer and light does not enter the microscope due faulty fitting.

Data revealed that all the AO microscopes in 4 regions are not being used: Tabora (3), Kigoma (3), Lindi (3), Mara (5).

Tabora

Kitete Hospital (Regional Hospital) – lack of AO solution
Nzega district – lack of AO solution
Igunga – there is no stabilizer.

Kigoma

Kigoma Regional Hospital – Bulb holder is burnt
Kasulu District Hospital – lack of cover slides
Kabanga Hospital – Lack of electricity.

Lindi

Sekoine Regional Hospital – mechanical stage is out of order because the bolt is broken.
Kilwa Kivinje District Hospital – electrical housing is faulty.
Nachingwea District Hospital – lack of AO solution.

Mara

Tarime District Hospital – 2 AO microscopes light does not enter the microscope due to faulty fitting
- there is no stabilizer

Butiama – lack of cover slips.
Musoma Regional Hospital – lack of AO solution.
Bunda – lack of AO solution.

However results also showed that in five regions including Zanzibar all AO microscopes without exception are currently being used: Kilimanjaro (7), Rukwa (2), Dar es Salaam (5), Mtwara (3), Arusha (2) and Zanzibar (1).

Five microscopes were stolen from the following hospitals: Geita, Magu, Njombe, Mkuranga and Maswa (Maswa was provided with two microscopes of which one was stolen.

We discovered that there were places marked in the distribution list as having an AO microscope but the survey found that AO microscopes were not distributed there. These included: Lugalo Hospital (Military Hospital in Dar es Salaam), Mwambani Hospital Chunya and Urban Health centers of Iringa and Dodoma.

2.2.1 Number of microscopes found in the health facilities

In the terms of reference document provided by JICA it is mentioned that 110 microscopes were provided to various districts/regional hospitals on Mainland Tanzania between 1998 and 2002. One AO microscope was provided to Zanzibar, thus making a total of 111 AO microscopes.

According to Input II document from JICA there were 97 AO microscopes supplied in Tanzania Mainland and one in Zanzibar i.e. a total of 98 AO microscopes. The survey found a total of 100 microscopes.

2.2.2 Discrepancies found in the field

Generally the distribution was done and guided according to the distribution list. However a few discrepancies were found as explained below and summarized in table 2.

Sites that received none or less (deficit) than was allocated in input II (annex 4)

Seven microscopes that had been allocated according to the JICA distribution list were not found at the 6 sites that they were allocated.

Coast Region

Kisarawe was supposed to receive two microscopes but instead received only one AO microscope.

Kibaha was supposed to have received one microscope but it was not specified as to where it was to be sent. (See original list-Input II).

Kibaha (Tumbi) and Tumbi Hospital that appear on the list as two sites with two microscopes is actually one site that was provided with one AO microscope. Thus, Tumbi Hospital, Kibaha and Kibaha Tumbi were probably treated as one site and provided with one microscope.

Dodoma Region

Dodoma Urban Health Centre was supposed to receive one microscope but did not receive any AO microscope.

Dar es Salaam Region
Lugalo TPDF did not receive the one microscope that was allocated.

Iringa Region
Iringa Urban Health Centre did not receive the one microscope that was allocated.

Mbeya Region
Chunya District Hospital did not receive the one microscope that was allocated.

Sites that received more (extra) than shown in the allocation list in input II (annex 4)
Some sites received more than what was shown on the distribution list.

Shinyanga
Maswa was supposed to be provided with one AO microscope, instead two AO microscopes were provided.

Musoma Region
Tarime received 2 instead of 1 allocated

Singida
Manyoni though on the list in input II was not marked as allocated a microscope. One microscope was found at the hospital.

Singida Region Hospital received 2 instead of 1 allocated.

Kilimanjaro Region
Mawenzi Regional Hospital received 2 instead of 1 allocated.

Tanga Region
Muheza Vector Control Training Institute had 5 microscopes instead of 1 shown in the distribution list.

In conclusion, the distribution list (Input II) from JICA shows that 98 AO microscopes were distributed: 19+78+ (1 for Zanzibar). The findings in the field as above show that those 7 microscopes were not distributed to the sites indicated in the distribution list while at the same time 9 extra AO microscopes were distributed as additional microscopes or to additional sites i.e. 2 extra microscopes were provided. Therefore the actual number of AO microscopes is now 98+2=100.

Table 2: Discrepancy in the Distribution

SITE	SUPPOSED TO RECEIVE*	RECEIVED (FOUND)	+ (EXTRA)	− (DEFICIT)
Kisarawe	2	1	-	1
Lugalo	1	0	-	1
Kibaha	3	1	-	2
Dodoma Urban	1	0	-	1
Iringa Urban	1	0	-	1
Tarime	1	2	1	-
Chunya	1	0	-	1
Maswa	1	2	1	-
Manyoni	-	1	1	-
Vector Control Institute Muheza	1	5	4	-
Mawenzi Regional Hospital	1	2	1	-
Singida Regional Hospital	1	2	1	-
TOTAL			**9**	**7**

***According to JICA distribution list Annex 4**

2.2.3 Microscopes stolen

Findings in the field show that out of the 100 AO microscopes distributed (5%) 5 were stolen leaving 95 microscopes (refer to annex I).

2.3 THE EFFICACY OF AO MICROSCOPES IN WORKING CONDITIONS OF TANZANIA

AO microscopes were provided between the years 1995 and 2003. The largest numbers were provided in 1996 (16) and 1999 (20). A total of 100 microscopes were found in this survey and their working environment investigated. This section looks into the perception of the users, enabling factors i.e. staff deployed, capacity building, availability of electricity and water, capacity to prepare AO solution, availability of funds for repair and maintenance; use of alternative methods of diagnosis of malaria in comparison with AO.

The AO microscope has been adopted in all the facilities where the microscope was provided except in one facility where the trained personnel has not adopted it and in one facility where the microscope has not been used due to lack of electricity. In all the other facilities it was adopted and either continues to be used or has been stopped due to various problems as the report shows.

The AO method has gained popularity and is now the most used method of malaria diagnosis. Among 89 centers with AO microscopes surveyed 44.71% were using AO method.

2.3.1 Laboratory Rooms

Except for Mafia Laboratory room all Laboratory rooms were found to be reasonably clean. The space was found to be adequate. Security measures are being taken: The majority of Laboratory rooms have been secured by using grills to reinforce laboratory doors and windows.

2.3.2 The perceptions of the users

The perception of the users of the AO microscopes is as follows:

- Sensitivity is high, accurate, more accurate and reliable, reduces number of false positives and negatives
- It is quick, a rapid method, a time saver.
- Easy to perform and easier than other methods
- Resources saver, saves stain, needs only one reagent, reagent lasts longer.
- Easy to train staff to use it.
- Malaria parasites can be seen clearly.
- Can examine a wide field of the film.
- We need more AO microscopes: the technique should continue
- Respondents acknowledge that the NIKON microscope is more sensitive to continuous use than the MDM Eliza and bulbs burn out more easily than MDM Eliza microscope.

2.3.3 Capacity Building

The MOH in collaboration with JICA organized ICTC to train laboratory staff on the AO technology.

The survey looked at attendance at ICTC of the interviewees, attendance at ICTC of all laboratory staff in the facilities visited and on the job training conducted by the participants at the ICTC course.

2.3.4 Interviewees attendance at ICTC

Of the 89 stations visited and the laboratory staff interviewed 89% have attended the course (see table)

The ICT course provides skills for conducting the AO method. 77 (94%) of 82 interviewees said that the training provided them with adequate skills for conducting the AO. The few who said that the course did not provide them with adequate skills said that this was because the course was too short.

Table 3: Interviewees' attendance at ICTC

	NO	%
Attended	78	88%
Did not attend	11	12%
Total	**89**	**100**

2.3.5 Staffing of Laboratory Services

The total number of Laboratory staff found in the Health Facilities during the survey was 253: Laboratory Technologists (56), Laboratory Technicians (52), Laboratory Assistants (78) and Laboratory Attendants (67). Laboratory Assistants (77%) are the majority cadre who provide Laboratory services in Tanzania.

2.3.6 Attendance at ICTC of all laboratory staff in the facilities visited

The first training was in 1995 where ten regional laboratory technicians were trained. Since then the course has been a source of capacity building in the laboratory services in Tanzania and has been extended to District Laboratory Technicians and other staff working in hospital laboratories. e.g. Laboratory Assistants and Laboratory Attendants. Those trained conducted on the job training for those that were not trained. Since the training of the staff at ICTC a total of 226 laboratory staff underwent on the job training.

Table below shows the number of laboratory staff available in the facilities surveyed and their attendance at the ICTC

Table 4: Staff Attendance at ICTC

Staff	No	No attended	%	Yrs large Numbers	No	%
Laboratory technologist	56	51	91.07	, 96 (11)	50	89.29
Lab Technician	52	33	63.46	2002 (11)	37	71.15
Lab Assistant	78	60	76.92	2002 (27)	60	76.92
Lab Attendant	67	18	26.87	-	15	22.39
Total	**253**	**162**	**64.03**		**162**	

2.3.7 On the job training conducted by the participants after the ICTC course

After the training the trainees returned to their work places to do on the job training for staff who have not attended the course. 79 (95.18%) of interviewees indicated that the course enabled them to train others. (Table 5)

Those who could not train others after the training gave the reasons as: the course was too short, the training was not enough and they needed additional training.

Table 5: ICTC enabling to train others

	Respondents	%
Course enabled to train others	79	95.18
Were not enabled	4	4.82
Total	**83**	**100.00**

Results show that majority of Laboratory staff (95.18%) agreed that the ICT course enables them to train others.

2.3.8 Need for additional training:

82.89% of respondents feel the need for additional training (see table 6). The reasons are given as to upgrade skills on counting malaria parasites, to upgrade skills on how to use the microscopes, to upgrade knowledge and skills and as a refresher and a forum for exchange of experiences.

Table 6: Need for additional training

	No	%
Feel the need	63	82.89
Do not feel the need	13	17.10
Total	**76**	**100.00**

Results show that majority of Laboratory staff feel the need for additional Training (82.89).

2.3.9 Availability of Electricity.

Use of the AO microscope depends on constant availability of electricity. Out of 89 centers visited 12 (13.48%) reported that electricity was not constantly available. Unavailability of electricity is one of the causes of the microscopes not being used. This was identified in Ludewa hospital where there is no electricity and in Kasulu Kabanga Hospital where the power supply is irregular and hydro electric power is used as a supplement to the regular electricity supply.

Table 7: Availability of Electricity

	No of facilities	%
Electricity constantly available	77	86.52
Electricity not constantly available	12	13.48
Total	**89**	**100.00**

Table 7 show that majority of health facilities had electricity in place. However, 12 facilities did not have constant supply of electricity. This state of affair led to irregular or non use of AO microscope.

2.3.10 Availability of Water:

Availability of running water is essential for laboratory services. 81.81% of the facilities surveyed had constant water supplies as shown in table 8.

Table 8: Availability of Water

	No of facilities	%
Constant availability of water	72	
Water not constantly in available	16	
Total	**88**	**100.00**

Table 8 shows that the majority of health facilities, water was available. For facilities where water was not constantly available staff obtained water from other sources e.g. deep and shallow wells. Data from one site was missing.

2.3.11 Capacity to prepare AO solutions:

Facilities have capacity to prepare AO solutions 82.02% have capacity to prepare AO solution.

Table 9: Capacity to prepare AO solution

	No of facilities	%
Can prepare AO solution	72	82.02
Can not prepare AO solution	16	17.98
Total	**89**	**100.00**

Table 10: Reasons for inability to prepare AO solutions

Reasons	No of facilities
Lack of centrifuge	1
Lack of AO powder	8
Lack of skills	6
Other reasons: • Lack of glycerin • Lack of weighing machine • Do not have the buffer	10

Lack of AO solution is a cause of non-functioning of 10 microscopes (annex 5) out of the 45 non-functioning microscopes.
Lack of AO powder is the most common reason for not preparing AO solution.

Table 11: Reasons for not preparing AO

	No
Centrifuge out of order	0
AO powder not available.	8
Skills	6
Other	2

Reasons for stopping using AO as found in this survey were as shown in table 11.

Table: 12: Reasons for stopping using AO same as Annex II

Reasons	*No*
Inadequate skills and knowledge	3
Microscope broken down or stolen	7
Bulb burnt out	10
Lack of AO solution	20
Lack of cover slips	9
Lack of slides	4
Staff transferred or died	1
Use of ther methods	18

2.3.12 Bulbs

Some of the problems found by the survey are the frequent blow up of bulbs. However the majority of the microscopes (49) had used only one bulb (see table) while the maximum number was 11

Table 13: Number of Bulbs used

No of bulbs	Facilities	%
1	49	68.05
2	8	11.11
3	2	2.78
4	6	8.33
6	2	2.78
10	3	2.4
11	1	1.4
Total	**72**	**100.00**

The facilities maintain a stock of bulbs. 2 facilities did not have a single bulb in stock while 17 had only one. The maximum number of bulbs found in stock was 22 bulbs. There is therefore overstocking of bulbs in some facilities considering that some have stocks up to 22 bulbs (Singida Hospital) and 20 in Sokoine Hospital in Lindi although the survey shows that in both hospitals AO microscopes are not being used.

Respondents were not able to estimate the lifetime of bulbs. However among 35 respondents 23 (66 %) indicated that they last for months while 14 (40 %) indicated that they last for years. For those indicated that bulbs last for months it ranged from 3 month to 8 months, while those who mentioned years the range is from one year to 6 years (Kisarawe Hospital).

Number of Halogen bulbs burnt

The Number of Halogen bulbs burnt are shown in the table below:

Table 14: No of halogen Bulbs burnt in 37 facilities

No burnt	No of facilities	%
0	11	29.73
1	10	27.03
2	2	5.41
3	3	8.12
4	4	10.81
6	2	5.41
7	1	2.70
10	3	8.12
12	1	2.70
45	**37**	**100.00**

37 facilities had burnt 45 bulbs. The maximum number of burnt bulbs was 12 in one health facility. The 12 bulbs were burnt due to various reasons. The common reason identified was fluctuation of electricity though the stabilizers were being used. Another reason was found to be: prolonged use of microscopes without interruption.
Eleven facilities (29.73%) still had the original bulb in place. In these facilities electricity is being used intermittently while using AO microscopes.

2.3.13 Resources for repair/ maintenance:

The majority of respondents have funds for repair maintenance. 74.70% (table 15). Almost half of the facilities get the funds from cost sharing. The other sources of funds are: Basket funding, DLGF and MOH. CSSC is mentioned as a source of funds in the Faith Based Hospitals. 18.07% of facilities indicated that they do not have funds for repair/maintenance.

Table 15: Availability of funds for repair and maintenance

	No of facilities	%
Funds available	62	74.70
Funds not available	15	18.07
Do not know	10	12.05
Total	**83**	**100.00**

Table 16: Sources of funds for repair/maintenance

	No of facilities	%
Cost sharing	41	49.4
Others	20	24.1
Do not know	22	26.5
Total	**83**	**100.00**

35 Facilities (39.77%) mentioned that they have had their microscopes serviced. 43.7% paid from cost sharing and 56.3% paid from other sources of funds that included basket funding, CSSC, MOH and funds allocated to zonal workshops.

The AO microscope as other laboratory services are sources of revenue for the health facilities as patients pay user fees. Payment for AO test range from 200 to 600 Tshillings. In the facilities provided with AO microscopes, the majority (45.83%) i.e. District hospitals charge 200Tshillings, regional hospitals (27.08%) charge 300 Tshillings while referral hospitals charge 400-600 Tshillings.

Table 17: Hrs/day of operating microscope

Hours/day	No of facilities	%
0-5	23	27.38
6-10	43	51.19
11-15	3	3.57
16-20	2	2.38
21-24	13	15.48
Total	**84**	

The remaining 5 facilities could not estimate the number of hours/day of operating microscope.

2.3.14 Estimated number of AO tests in a month:

48 facilities provided estimates of AO tests performed per month the majority of facilities did less than 200 tests in a month (Table 17).

Table 18: Estimates of AO tests in a month

No of tests	No of facilities	%
-200	22	45.83
201-400	8	16.67
401-600	6	12.50
601-800	7	14.58
801-1000	5	10.42
Total	**48**	**100.00**

2.3.15 Problems/ Constraints:

Introduction of the AO method has had some problems including microscopes getting out of order, for various reasons: bolt for mechanical stage missing, lack of or unstable electricity and inadequate supply of equipments and expendable supplies. In some cases the method had to be abandoned after it had been started.

The technical problems of the AO microscopes:

Although the perceptions and findings are generally positive the microscope was found to have these problems:

- The bulb is delicate and gets burnt easily.
- The bulb requires frequent rest due to overheating.
- Depends on continuous supply of special expendables that sometimes are not available.

Stabilizers
There were no technical problems found when stabilizers were examined. However at Tarime, Igunga and Sekou Toure stabilizers were not supplied.

The staff with microscopes that were out of order indicated the following as necessary conditions for reusing the AO method in addition to addressing the specific problem that is responsible for the nonuse of the microscopes

- Frequent supplies of expendable supplies especially glass slides and AO reagent, bulbs and cover slides.
- Maintenance and repair services that are accessible.
- Regular availability of stable electricity.

2.3.16 Use of non-AO methods:

The alternative malaria tests used by the facilities surveyed are Giemsa and field stain the later being more popular than the former. The table below shows that field stain is more popular than Giemsa stains.

Table 19: Use of other methods

Methods	No. of Facilities	%
Gimsa	33	41.25
Field Stain	47	58.75
Total	80	100.00

The reasons for using multiple methods or alternative methods:

- After the AO microscope was out of order or expendable supplies were not available.
- Used when electricity is cut off.
- When AO microscope is switched off to let it rest.
- Staff find field stain easy to prepare and easy to use.
- When the film taken is thick.
- When the number of slides is too big for one AO microscope to cope.

Table 20: Methods of malaria diagnosis

AO	**38**	**44.71**
Giemsa	11	12.94
Field	36	42.35
Total	**85**	**100.00**

For those health facilities that use other methods the reasons are as above and are related to non-functioning of the AO microscope. Thus if proper functioning environment for AO microscopes were present e.g. electricity and expendables and a functioning microscope, the preferred method is by far AO.

The health facilities receive near adequate quantities of expendables for performing non-AO methods. (See table 21) as perceived by respondents in 76 facilities.

Table 21: Adequate or inadequate supplies for non-AO methods

	No of Facilities	%
Receive adequate	58	76.32
Receive inadequate	18	23.68
Total	**76**	**100.00**

2.3.17 Problems of non-AO methods:

Respondents said that non-AO methods have some problems that are similar to the ones associated with AO methods e.g. availability of expendable for preparing the stains. i.e. glycerin, availability of oil immersion.

2.4 THE ZONAL WORKSHOPS

The zonal workshops are located in Mbeya, Dar es Salaam and Mwanza. The workshops were set up by the MOH for the purpose of offering support services for medical equipment including laboratory equipment e.g. the AO microscopes. The survey examined the working relationship that exists between the health facilities and the zonal workshops, the support the workshop offers to the facilities and support for repair of AO microscopes

2.4.1 Capacity of the workshops

The Dar es Salaam zonal workshop has 5 staff of whom 2 are engineers and 3 are technicians.

Their skills are graded from high to moderate. The engineers have high skills in repair of the AO microscopes while the technicians have moderate skills. Those who have repaired and maintained the microscopes report that repair and maintenance of the AO microscope is not complicated.. "It is a straight forward equipment when it comes to repair/maintenance." The Dar es Salaam zonal workshop staff goes out frequently to the city districts to repair medical instruments.

The Mwanza Zonal Workshop has only one a medical equipment technologist who is rated as having high experience and skills. It is therefore understaffed. The zonal workshop staff provides technical advice in proper handling of the microscope, advice to avoid dust and humidity. He also provides general servicing of the microscopes. In Mwanza, they reported on the general problems experienced at the zonal workshop.

- Maintenance tools are inadequate.
- Spare parts e.g. bulb holders, capacitator etc are not in place at the zonal workshop.
- Training: No program set for continuous education for zonal workshop staff

In Mwanza, the zonal workshop staff are supposed to go out x 2 yearly but do not go out because of lack of funds.

The Mbeya Zonal Workshop has three staff: 2 medical equipment maintenance/repair engineers and one electrical engineer. Their skills and experience are rated as high but they do not have experience in repair and maintenance of AO microscopes.

Table 22: Capacity of the Zonal Workshops

Zone	Staff	No.	Skills	Exp.	Skills in repairing/ maintenance AO	Recommended Additional Staff
Mbeya	Medical Equipment maintenance Engineer	2	High	High	Nil	-
	Technician	1	Moderate	Moderate	Nil	1
DSM	Engineers	2	High	High	Yes	-
	Technicians	3	Moderate	Moderate	Yes	-
Mwanza	Medical Equipment maintenance Engineer	-	-	-	-	2
	Medical Equipment Technician	1	High	High	Yes	1

2.4.2 Working Relationship Zonal workshops and health facilities

The existence of working relationship between the zonal workshops and the health facilities was demonstrated by investigating whether or not there was any communication between the workshops and the health facilities and the extent of the support offered by the zonal workshop to the facilities as shown below:

The technical staff is supposed to go out twice a year to inspect medical equipment but due to lack of funds they do not go out. They go out if requested by the facilities and when that happens the facilities are supposed to pay for the expenses. It happens very rarely that the facilities can afford to call in staff from the zonal centers to offer repair/maintenance services.

2.4.3 Support offered to facilities

Support by the Zonal Workshops can be demonstrated by the frequency of visits and inquiries at the health facilities as from where they obtain repair and maintenance services. 44 (57.89%) out of the 76centers interviewed indicated that they do not get support from the zonal workshops (see table below)

Table 23: Facility Support from Zonal Workshops

	No	%
Receive Support from Zonal workshop	32	42.10
Do not receive Support from Zonal workshop	44	57.89
	76	**100**

Majority of health facilities (57.89%) responded that they did not get any support from zonal workshops. The remaining 13 health facilities were not sure. This is because some respondents were junior staff in the Laboratories; they did not want to commit themselves by giving what could be wrong information.

2.4.4 Sources of repair maintenance:

76.67% of facilities utilize the zonal workshops for maintenance and repair services. The Dar es Salaam Zonal workshop was mentioned by more than a quarter of the facilities.

Table 24: Sources of repair maintenance

Where they obtain services	No of facilities	%
Dar es Salaam zonal workshop	16	26.67
From zonal workshop	22	36.67
Do not know	9	15.00
Own workshop	3	5.00
Mwanza zonal workshop	8	13.33
From VA hospital	2	3.33
Total	**60**	

The Dar es Salaam and Mwanza workshops are better staffed in terms of technical skills and better equipment than the Mbeya workshop. Respondents mentioned more Dar es Salaam (26.67%) than Mbeya (13.33). However 36.67% mentioned Zonal workshop without being specific. Mbeya was not mentioned by any respondents.

2.4.5 Support for repair/maintenance of AO microscopes

The zonal workshops are being utilized for repair and maintenance of the AO microscopes. However the Mbeya workshop staff report to have no experience with the AO microscopes. The one engineer experienced with the AO microscope who repaired the Kyela Hospital microscope at one time is no longer at the station. 21.92 % of facilities sent their AO microscope for repair/maintenance at the zonal workshop (table below.)

Table 25: Facilities sent AO microscopes to Zonal Workshops

	No. of Facilities	%
Sent AO microscope	16	21.91
Did not send	57	78.08
Total	**73**	

2.4.6 Communication between the Zonal Workshop

Findings show that there is no communication and sharing of technical information and experience between the Zonal Workshops.

2.5 MSD AS A SOURCE OF EXPENDABLE SUPPLIES

The Medical Stores Department is the main source of medical equipment, drug and supplies for the public health services. Thus the success of a program that depends on availability of drugs, equipment and supplies is enhanced by their availability at MSD for easy access. The microscopes required expendable supplies in terms of glass slides, cover slips and AO solution or powder. Equipment notably bulbs were also needed for replacement. Availability of these at MSD would facilitate the use of the AO microscopes in the country. When expendables are not available from MSD, facilities search for other alternative sources. These alternative sources often do not provide regular and sufficient quantities of supplies.

2.5.1 Facilities obtaining expendables from MSD

The table below shows the percentage of facilities that obtain the specific commodities from MSD. Except for bulbs, a large number of facilities obtain their expendables to operate the AO microscopes from MSD. A large proportion of facilities obtain glass slides and cover glass from MSD. Almost three-quarters of facilities indicated that they obtain AO reagent from MSD

Table 26: Proportion of facilities that obtain expendables from MSD

Supplies	% Facilities obtaining from MSD
Bulbs	60
Glass slides	87.4
Cover glass	86.2
AO reagent	71.3

2.5.2 The quantities, quality and frequency of obtaining expendables from MSD:

The quality of expendable supplies from MSD is generally acceptable. More than 80% of facilities rank the quality of bulbs, glass slides, cover slips and AO solution as of good quality.

Bulbs

Although the quality is generally good, the commodity is not regularly available and is not available in sufficient quantities. 57.5% of facilities responded that it is available in enough quantities and 44.2% responded that it is available regularly.

One of the causes of non-use of the microscopes is lack of bulbs after one had blown up. This was found in 3 facilities(Mzinga-Morogoro, Kolandoto and Bariadi). Respondents also indicated that there was frequent blow up of the bulbs. While some facilities had no bulbs in stock others were found to have an overstock of up to 22 bulbs.

Glass slides

Generally MSD provides enough quantities and at a regular frequency.

Cover slips
69.0% of facilities showed satisfaction with the quantities of cover slips supplied by MSD.The commodity appears to be regularly available with 72.4% of respondents mentioning that it is regularly available.

AO Solution:
While the quality has been ranked as acceptable (87.2%) the commodity is not available in sufficient quantities and frequency of supplies is irregular. 66.3% of facilities indicated that it is available in sufficient quantities and 64.4% reported that its frequency of supplies is regular.

Table 27: The quantities, quality and frequency of obtaining expendables from MSD

	Enough quantities (%)	Quality acceptable (%)	Frequency regular (%)
Bulbs	57.5	82.8	44.2
Glass slides	75.6	88.4	73.3
Cover slips	69.0	81.4	72.4
AO solution	66.3	87.2	64.4

2.5.3 Alternative sources of expendables
The alternative sources of expendables are not as reliable and sustainable as the MSD (see table 28). These sources stock the items for their own use i.e. the regional and referrals hospitals and would issue them to the lower facilities only if they have excess. Supplies from JICA and at the ICTCs were brought in for the training to enable facilities start the program after which they were expected to procure their own supplies.

Table 28: Alternative sources of expendables

Expendable	Other sources
Bulbs	AO Seminar Imported from Kenya JICA Malaria Unit MNH Regional Hospital Zonal Workshop
Glass slides	Imported JICA Local Purchase Malaria Unit
Cover slips	Local Purchase Malaria Unit The Morogoro training workshop

3.0 PREVENTION PLAN

Problem	Solution	Prevention	Time Frame
• Technical deficiencies of AO microscopes that need repair/maintenance	To be reported and sent to the ZW for repair.	• Regular check up by Regional Laboratory Technologists and RHMT supervisory Team • Timely reporting by Lab staff of any technical defect to the DMO and Zonal workshop • MoH to Support Zonal workshop staff in terms of materials and logistic so that they can visit the facilities on regular basis	Immediately
• Inadequate supplies to make AO microscopes function. i.e. AO reagents, bulbs, slides and cover and slips.	Malaria Program Manager/JICA to collaborate with MSD to ensure adequate supplies for AO microscopes.	• Provision of supplies on regular basis by MSD. • Lab staff should order AO related supplies in a timely manner. • Malaria Program Manager to provide estimates of yearly requirement to MSD.	2003/2004

Problem	Solution	Prevention	Time Frame
• Lack of refresher courses for those who attended ICTC	Rapid training needs assessment and organize refresher courses for Lab staff who attended ICTC	• Regular on the Job training while performing supportive supervision. • Organize workshops to share experiences on AO microscopes and to disseminate the findings of this survey.	Immediately
• Unavailability of electricity	MoH through Malaria Programme to advocate for installment of electricity by the District council.	• Use alternative source of electricity e.g. solar energy. The Malaria Program to request through their Annual Budget the installation of solar energy in areas where Electricity is not connected.	Annual plan 2004/2005
• Zonal workshops not sharing information	Encourage Zonal workshops to share information on repair maintenance and information on AO microscopes.	• Provide communication facilities e.g. telephone, radio call, computers, Internet to facilitate inter zonal communication as well as communication with health facilities.	Annual Plan 2004/2005

Problem	Solution	Prevention	Time Frame
• Lack of data collecting instrument for tracking AO microscopes	Develop an instrument for reporting to the malaria unit the usage of AO microscopes.	• Orient Regional and District staff on the use of the instrument for reporting on AO microscopes.	Immediately
• Currently data collected are not disaggregated according to methods	Use registers for reporting malaria tests in a disaggregated manner.	• Orient and follow up Lab staff so that they report malaria tests disaggregated by methods.	Immediately
• Stolen AO microscopes	Increase security at laboratory facilities	• MoH to advise District Council and CHMT to secure Laboratory Rooms by installing grills to prevent theft. • Districts to be required by MoH to report immediately when theft occurs to the police and MoH. (Malaria Programme Unit).	Immediately

4.0 RECOMMENDATIONS

Issue 1:
The survey has shown that 45 of the 95 microscopes (47.37%) currently in the field are not functioning for various reasons. The causes of non-functioning have been identified in this survey.

Recommendations

- **Remedial measures in terms of repair and provision of supplies should be done immediately to get the microscopes functioning.**

- **The 8 microscopes that need repair should be sent to the zonal workshops soon for repair. When repairs cannot be done in Mwanza and Mbeya microscopes should be sent to Dar es Salaam where they have more experience with AO microscopes.**

- **A prevention plan (pg 31) to prevent any more microscopes going into non-function should be put into operation.**

Issue 2:
The AO technique has many advantages over the non-AO technique.

Recommendations

It is recommended that MoH/JICA to provide more AO microscopes and train more staff to use them.

Issue 3:
Many of the Nikon microscopes had problems with the lighting system.

Recommendations

Future supplies of AO should be MDM Eliza instead of the Nikon.

Issue 4:
Lack of refresher courses for those who attended ICTC: Lab staffs who attended ICTC have not had any refresher course to update their knowledge and acquire new skills.

Recommendations

We are recommending that refresher courses be conducted on regular basis for those who attended ICTC. Normally they should attend such courses every two to four years. Rapid training needs assessment of those already attended the ICTC should be done before the first re-training course.

While being supervised, they should be updated by conducting on job training (supportive supervision).

Issue 5:
Monitoring of AO microscopes inadequate due to lack of data collecting instruments for AO microscopes. Currently data collected are not disaggregated according to methods.

Recommendations

We are recommending that an instrument for data collection from AO microscopes be developed and that Lab staff should be oriented on how to use it. Constant follow up by Regional Lab Technologists will ascertain constant use of the AO microscope instrument.

Issues 6:
Inadequate supportive supervision from the National and Regional level that is evidenced by unresolved chronic problems concerning AO microscopes e.g. lack of AO reagents since 2002, AO microscopes not being used since 1998! (Tarime) due to failure of light entering the microscope.

Recommendations

National and Regional level should perform supportive supervision that is thorough by making physical checks of all microscopes. They should advise Lab staff to send mechanical deficient AO microscopes for repair to the Zonal workshop.

Issues 7:
Inadequate consumables/supplies to make AO microscopes function i.e. AO reagents, bulbs, slides slips, cover slips etc.

Recommendations

We are recommending that Malaria Programme Manager (MoH) should dialogue with MSD officials to find out the root cause of having inadequate supplies/consumables for AO microscopes and get a commitment from MSD that all supplies and consumables will be distributed to the Zonal MSD in a timely manner.

We also recommend that Laboratory staff to be proactive and start requesting consumables and supplies before the occurrence of stock out at their sites.

Issues 8:
Inadequate maintenance and repair capacity of Zonal workshops and specifically the Mbeya and Mwanza Zonal Workshops where they have few staff and inadequate tools for repair of equipment including AO microscopes.

Recommendations

We recommend that capacity building be done to improve the skills of staff working at Zonal workshop and provide the necessary tools that will enable them to repair/maintain equipment including AO microscopes.

The zonal workshops need additional staff. We recommend a minimum of four staff for each zonal workshop. Thus for Mwanza Zonal workshop, we recommend that staff be recruited - one Medical Equipment repair engineer and two Equipment Technicians.

For Mbeya Zonal Workshop we recommend an addition of two Equipment Technicians.

STRATEGIC APPROACHES

CHAPTER FIVE

5.1 Strategy I: Malaria Case Management

5.1.1 Policy Issues

- In 2001 the MoH produced new national guidelines for malaria diagnosis and treatment.
- Sulfadoxine / Pyrimethamine (SP) became the recommended first line treatment for uncomplicated malaria with Amodiaquine for second line treatment or where SP is contraindicated.
- The new policy defines at what level of health care delivery, including households, specific anti-malarial drugs should be made available at all times
- The anti-malarial drug policy provides guidelines for management of severe malaria cases in health centres and dispensaries
- The MoH is committed to ensuring high quality health service delivery to the public. The current MoH strategies encompass staffing needs, enhanced availability of drugs, laboratory equipment, diagnostic reagents and quality assurance.
- Strengthening district health services to address key public health concerns is a priority issue for the government to be tackled through HSR.

5.1.2 Rationale

The effective management of malaria cases is key to the successful reduction in the burden of disease, especially mortality. For the intervention to be effective the following issues must be addressed:

- Early recognition and proper management of febrile episodes in children at household level is vital.
- IEC strategies will be developed to create awareness among communities and sustain compliance and safe drug self-administration by consumers.
- The acquisition of adequate skills by health service providers is required if case management is to be improved. Up to date guidelines for malaria diagnosis and treatment have been developed. These will be updated regularly and made available to all cadres within the health sector.
- The introduction and application of IMCI protocols provides an excellent opportunity to reduce mortality and morbidity from malaria and anaemia in children.
- The availability of essential supplies at all times and at all levels of the health delivery system is required if the number of severe cases and the consequent morbidity and mortality is to be reduced.
- Monitoring of the therapeutic efficacy of anti-malarial drugs is important. Current data and trends of parasite resistance are required to inform decisions on treatment protocols and recommendations for first and second line anti-malarials.
- Quality assurance of pharmaceuticals is needed if adequate clinical cure is to be achieved when patients take recommended drugs. A robust registration procedure for pharmaceutical products, manufactured in the country or imported, and routine quality assurance monitoring, backed by effective legislation, must be guaranteed in order to protect consumers against counterfeit or substandard drugs.
- Data on adverse drug reactions must be collected routinely and disseminated in a timely manner in order to protect patients from unpredicted dangers and damaging rumours.
- Quality assurance of laboratory services is required if clinicians are to have confidence in laboratory results and start to base their treatment decisions on the evidence of laboratory tests. The role of the laboratory in the management of severe malaria cases and the detection of early treatment failure must be emphasised.
- Home management of fever is common. The cooperation of health care providers from the informal sector is therefore required if early case management is to be successful.

5.1.3 Current Situation

Sulfadoxine / Pyrimethamine (SP) is the recommended first line treatment for uncomplicated malaria. In cases where SP is contraindicated or where SP treatment failure is suspected Amodiaquine should be used as second line treatment. Quinine remains the treatment of choice for severe and complicated malaria. Where Amodiaquine treatment failure is suspected oral quinine is recommended as the third line drug for uncomplicated malaria.

The National Guidelines for Malaria Diagnosis and Treatment 2000[16] were adopted in August 2001 as a response to the rapidly developing resistance of malaria parasites to chloroquine. Failure rates for chloroquine averaging 52%[17] were unacceptable given the potentially fatal nature of malaria infections. Implementation of the new policy has been largely effective; all districts are now being supplied with adequate stocks of SP and Amodiaquine. Prescribers from the public and private sectors have been introduced to the policy, training guidelines have been distributed and a public information campaign has been launched. Posters, magazines and flyers are accessible throughout the country and are displayed even in some of the remotest of drug outlets. Initial independent assessments however suggest that availability is patchy. Perceived fears of rare side effects from SP[18] and speculative media reporting continues to threaten confidence in the new policy.

Anti-malarial drug resistance remains a threat to the effective control of malaria in the country. SP is an interim solution pending the availability of more effective drug combinations that will be less likely to provoke resistance and thus have longer effective therapeutic life time[19]. A network for monitoring the efficacy of anti-malaria drugs is in place (EANMAT). These sentinel sites will provide data for monitoring the effectiveness of SP which is expected to fall, in time, from the current average level of 85% [20]. Evaluations of new drugs, particularly artemisinin-based combinations with existing and novel drugs, are on going. A further policy review, to explore the options for combination therapies, has been recommended by the National Malaria Advisory Committee[21] in anticipation of the need to update the National guidelines within the next five years[22].

The NMCP collaborates with The Pharmacy Board on issues related to the introduction of new anti-malarial drugs and the national reference laboratory for drug quality assurance.

Data collected by AMMP in three districts (Hai, Morogoro and Temeke) and by NMCP in nine districts (Rufiji, Morogoro, Chunya, Muleba, Magu, Lushoto, Tunduru, Iringa and Mpwapwa) have provided strong evidence for the new MTSP:

- Of those patients dying of suspected malaria, 56-80% had attended formal health services during their final illness. This indicates that measures focused on improving case management at health facilities are warranted.

[16] National Guidelines for Malaria Diagnosis and Treatment. Malaria Control Series. No.1.2000. Ministry of Health, United Republic of Tanzania, Dar es Salaam.

[17] EANMAT data - reports (www.eanmat.or)

[18] The use of Anti-malaria drugs. pp 52-53. WHO Informal Consultation Report; WHO Geneva 2000.

[19] White NJ. Delaying anti-malaria drug resistance with combination chemotherapy. *Parassitologia*. 1999; 41:301-308

[20] National Malaria Advisory Commitee meeting. Clinical Sub-Committee meeting, May 2002..

[21] National Malaria Advisory Committee meeting. Dar es Salaam, May 30 2002.

[22] Anti-Malaria drug combination therapy. WHO Technical Consultation; WHO Geneva,2001

- The majority of caretakers incorrectly treat their febrile children: only 11% of febrile children under-five years receive correct treatment within 24 hours of the onset of fever; there is also a delay (average of 2.5 days) in seeking care at health facilities.
- Only 50% of children under five years of age with uncomplicated malaria and 54% with severe malaria are correctly treated in health facilities; anti-malarial "stock-outs" have been frequent with 71% of public health facilities experiencing "stock-outs" of anti-malarials for at least one week in three months.
- Laboratory and blood transfusion services are inadequate; malaria parasitological confirmation occurs in only 5-7% of all reported malaria cases. Dispensaries and health centres lack equipment and facilities for the detection of anaemia and quality control of laboratory services is generally not available.
- Only 11% of health workers had received training on improved malaria case management in the last 2 years. About 75% of health facilities are implementing IMCI in the districts where IMCI has been introduced. CHMT members have supervisory skills but they lack specific tools for malaria control issues and few have been trained on malaria case management.

Tanzanians generally know about uncomplicated malaria but do not associate anaemia and other symptoms of severe disease with malaria. Anti-malarials for home treatment are available at drug stores, general shops and kiosks [23] but few shopkeepers (15%) are knowledgeable about anti-malarial treatment and none of the kiosk attendants surveyed knew the correct dosages for the anti-malarials they were selling. Some of the IEC materials on malaria disease management were available at the community level [24]. Provision for community owned resource persons, including village health workers, to treat malaria appropriately is limited. Only 10% of traditional healers shared current medical beliefs on malaria management.

5.1.4 Target

Target at Community level

Use of appropriate treatment for febrile episodes in children under five years of age, within 24 hours, will be raised from 19% to 60% by the year 2007

Target at Facility Level

By 2007 at least 80% of uncomplicated malaria cases in children under five years of age, in health facilities at all levels of health care, will be appropriately treated

By 2007 at least 80% of severe malaria cases in children under five years of age, in health facilities at all levels of health care, will be appropriately treated

[23] RBM 2000 Situation analysis.

[24] IMPACT preliminary results February, 2002.

5.1.5 Operational targets

(i) Early detection and appropriate treatment at community level (Operational Approach A)

Implementation of this approach will ensure that:

- 60% of children under five years of age, with fever / malaria, receive correct treatment according to national guidelines within 24 hours of fever onset
- 80% of households receive targeted IEC messages on severe malaria and appropriate actions to be taken at home, including referral, according to national guidelines
- Drug stores, retail shops and kiosks only sell high-quality first line anti-malarial drugs and that correct doses are dispensed
- proportion of shopkeepers that are knowledgeable about anti-malarial treatment is raised from 15% to 60%
- 50% of key community owned resource persons; including traditional healers and village health workers are able to provide correct advice on early detection and treatment of malaria in their communities.

(ii) Improved malaria diagnosis and treatment at health facilities (Operational Approach B)

Implementation of this approach will ensure that:

- 80% of uncomplicated malaria cases are managed according to the National Guidelines for malaria and IMCI
- 80% of severe cases of malaria are managed according to the National Guidelines for malaria and IMCI
- All public and private facilities are supervised on the correct application of the National Guidelines for malaria by knowledgeable CHMT staff
- A quality assurance system for laboratory services is established in all districts;
- Systems that ensure the availability of high quality anti-malarial drugs are strengthened
- Health facilities, districts and the NMCP operate an adequate and functional malaria surveillance and information system.

5.1.6 Interventions to improve malaria case management

To achieve these targets significant and consistent effort from National, Regional and District personnel will be needed. For communities to contribute as expected, they will require adequate information on how to recognize uncomplicated malaria, how to identify signs of severe malaria and the appropriate actions to be taken. High quality effective and affordable anti-malarial drugs will have to be available at all times close to the users. Public and private health providers, including the informal sector, will require access to the information, essential equipment and pharmaceuticals necessary for them to manage malaria correctly.

The following actions will be taken:

(i) National level

Leadership

The Case Management Technical Committee, of the existing Drug Policy Task Force, will oversee and advise the NMCP on anti-malarial drug policy matters. A Case Management Team, headed by a senior clinician, will be established within the National Malaria Control Programme. The team will be responsible to the programme manager for the co-ordination of all aspects of the national response to improve case management.

The NMCP Case Management Team, in collaboration with RBM partners, will:

- Undertake regular revision of guidelines, training modules, and reference materials on malaria diagnosis and treatment for dissemination to prescribers, nurses and laboratory staff
- Define the minimum standards of service delivery for malaria management at district and community levels required of CHMTs
- Work closely with the IMCI Section of the Ministry of Health to implement improved malaria case management in children under five years in line with current IMCI protocols
- Liase with the diagnostics unit of the MoH to define the role of laboratory services for malaria and establish a quality control mechanism for laboratory diagnosis to be implemented at all levels of health service provision.
- Define and establish mechanisms for collaboration and co-ordination between public and private health facilities
- Provide technical assistance and advice to districts on ways to improve malaria case management
- Liase with the Human Resource Directorate of the MOH to ensure that the pre-service and in-service curricula of health training institutions are consistent with national guidelines for malaria diagnosis and treatment
- Establish effective links with the private sector and the media to ensure that accurate and up to date information on anti-malarial drugs is disseminated to the public.

Availability of high quality, effective and safe anti-malarial drugs

The incidence of serious consequences of malaria infection will only decrease once effective anti-malarial drugs are used early in the course of an individualís illness. The collaboration of many stakeholders is therefore required to ensure such availability at all levels throughout the country.

NMCP will co-ordinate the national response to anti-malarial drug issues such as quality assurance, efficacy monitoring, adverse effect detection and the selection of new artemisinin-based combination therapies. It will collaborate closely with the following stakeholders whose roles have a direct impact on drug availability and acceptability:

- MSD and private sector manufacturers and importers; to ensure the supply of only high quality malaria treatment drugs
- Pharmacy Board; to ensure a continuous drug quality-control mechanism and the responsible registration of new anti-malarial drugs in line with anticipated changes in national policy
- Research institutions; to a) ensure adequate monitoring of the efficacy of malaria treatment drugs through routine surveillance at sentinel sites and b) verify the efficacy, safety and cost-effectiveness of alternative malarial treatment drugs.

Early diagnosis and appropriate treatment at household level

Effective early diagnosis and treatment at household level requires people living in all communities, however remote, to have a) knowledge of the appropriate actions to take when a child is sick and b) access to quality assured treatments when and where they are needed. Interventions will focus on improving the likelihood that timely action will be taken in non-life-threatening and emergency situations, in response to episodes of fever in family members, especially in infants and pregnant women.

The NMCP IEC team in collaboration with RBM partners and the private sector will :

- Develop appropriate and innovative information packages for the public to encourage behaviour change
- Undertake a national campaign for community sensitisation on the signs and symptoms of malaria, including the dangerous ones, involving all appropriate media solutions Contract out the development of appropriate training, information and intervention packages to improve private sector delivery of anti-malarial treatments.

- Monitor and evaluate the effectiveness of the campaign

(ii) District and Community Level

Public Health sector

Council Health Management Teams under the leadership of District Medical Officers (DMOs) are now responsible for planning and the allocation of resources within districts. Interventions to improve malaria case management at District and Community levels are therefore the responsibility of individual CHMTs and cannot be implemented by the National Programme. Activities will have to be planned and executed within the framework of the Comprehensive District Health Plans. DMOs will be required to ensure that all health workers have adequate and appropriate knowledge and skills for the diagnosis and treatment of malaria. Councils will be expected to comply with the minimum standards of care defined by the NNMCP and required by the Ministry of Health.

The CHMT must also now plan and budget for the provision and supply of sufficient quantities of anti-malarial drugs, other necessary supplies and equipment for malaria case management and laboratory diagnosis. The introduction of district budgeting tools, developed through the Tanzania Essential Health Intervention Project (TEHIP), to all districts in 2002 will greatly assist CHMTs in the successful performance of this task.

District councils will be responsible for taking decisions regarding contributions towards the cost of prescriptions for anti-malarial drugs, possible cost recovery schemes and Community Health Funds.

Private Health sector

CHMTs will need to involve private health sector actors in training and information dissemination activities if case management targets are to be reached. Private sector providers are expected to play a key role in malaria case management and they should adhere to the diagnostic and therapeutic standards defined by the MoH. The CHMTs will be required to make provision for collaboration with private health care providers in their CDHPs. DMOs will be expected to supervise service delivery and performance.

Household sensitisation

CHMTs will be expected to take a proactive role in sensitising their communities on early recognition and treatment of febrile illnesses in children. They will need to generate high levels of awareness about the danger signs of malaria in children and the appropriate actions required of the parents/caretakers. Key actors at community level will need to be mobilized.

The CHMTs in collaboration with district RBM partners and with technical support from regional and national bodies will be required to:

- Plan, fund, manage and implement activities to improve case management
- Create awareness about the signs and symptoms of malaria in children and the related actions to be taken by parents and caretakers
- Disseminate guidelines for diagnosis and treatment of malaria in all health facilities, including the private sector, and drug shops
- Enhance clinical skills for malaria diagnosis and treatment in health facilities through training and supervision
- Ensure smooth implementation of IMCI protocols in all health facilities
- Improve the performance of laboratory services to support the correct management of severe malaria cases and to detect malaria treatment failures
- Improve the referral system for severe malaria cases

- Ensure the rational use and availability of quality malaria treatment drugs in all health facilities
- Promote judicious anti-malarial drug dispensing practices from the informal sector through training and sensitisation
- Facilitate the monitoring of anti-malarial therapy and support trials on alternative / novel malaria treatment drugs

(iii) Research and Monitoring

The effectiveness of the approaches used for improving malaria case management will be constantly monitored. The key issues: anti-malarial drug efficacy and safety, IMCI implementation and impact, private and informal sector performance and epidemiological surveillance will be co-ordinated by the NMCP and contracted out as necessary. All NMCP partners will be expected to plan for adequate operational research and monitoring in their activities. The Network for effective monitoring and evaluation, due to be established as part of the Tanzania WHO Plan of Work, will provide the backbone for the required information gathering.

5.2 Strategy 2: Vector Control

Insecticide Treated Nets (ITNs) have the strongest evidence base for vector control effectiveness therefore the strategy will focus, for the period of this MTSP, on the implementation of the National Insecticide Treated Net Campaign (NATNETS programme), to substantially increase the use of ITNs nation wide. NMCP will continue to monitor evidence from other vector control interventions, for which there is currently little evidence of effectiveness, for possible inclusion in subsequent plans.

5.2.1 Policy issues

- The use of ITNs is one of the core interventions recommended by RBM. The goal is to increase ITN coverage to 60% of households in Africa over the next five years
- The government has committed itself, through the Abuja declaration 2000, to initiate appropriate and sustainable action to reduce the burden of malaria in Tanzania
- The Ministry of Health has adopted an implementation strategy to promote nation wide usage of Insecticide Treated mosquito Nets [25]
- A task force for the implementation of a National Insecticide Treated Materials scaling up process for Tanzania has guided the establishment of the National Nets Programme (NATNETS)
- A lean NATNETS Steering Committee will be established to provide oversight and scrutiny of the implementation of the scaling up process.

5.2.2 Rationale

The development of insecticide products for the treatment of mosquito nets and other domestic materials has provided a means of protecting vulnerable populations from malaria with a technology that is neither a drug nor a vaccine. Systematic reviews and metanalysis [26] of the data from ITN trials in Africa have shown that ITNs can reduce mortality in children under 5 years of age by 20% and the number of malaria episodes experienced by protected children by 50%. ITNs have been demonstrated to be one of the most promising and cost effective methods available for controlling malaria in Sub-Saharan Africa. In Tanzania, for children alone, these findings translate into the possibility of averting the deaths of 20,000 - 30,000 children under the age of five years each year [27]. Pregnant women who are exposed to the threat of malaria also benefit greatly when they sleep under an ITN. Initial concerns that ITNs might simply push the burden of malaria morbidity and mortality onto older children now appear to be unfounded [28].

5.2.3 Current Situation

Tanzania has had a culture of net usage for a long time. A national strategy for implementation of ITNs has been developed. There is an indigenous net manufacturing industry and a willingness among the manufacturers to increase the quantity of nets available in the country and support distribution networks. The private sector (shopkeepers, NGOs, CBOs) has shown interest to carry out commercial distribution of ITNs. Research institutions are ready to undertake operational research into ITN use.

[25] Taking Insecticide Treated Material to National Scale in Tanzania. MoH. November 2000

[26] Lengeler C. Insecticide treated bednets and curtains for malaria control (Cochrane Review). 1988. In: *The Cochrane Library*, issue 3, Oxford, UK.

[27] KINET Report, IHRDC Ifakara.

[28] Binka, F.N. Hodgson, A, Adjuik, M & Smith T (2002). Mortality in a seven and a half year follow up of a trial of insecticide-treated mosquito nets in Ghana. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 96,597-599.

Recent surveys show that there is already widespread use of mosquito nets especially in urban areas. In Tabora Urban and Mwanza Urban, 81% and 82% of households, respectively have at least one mosquito net [29]. But on average only 12% of households have at least one ITN. About 11% of children under five years old and 8% of pregnant women sleep under ITNs. The availability and use of mosquito nets in the country varies according to location (rural/urban), malaria transmission pattern and presence of an ITN project in the area. Recent experiences show that it is possible to significantly increase the coverage of mosquito nets across all socio-economic strata but that re-treatment of ITNs remains a challenge [30].

5.2.4 Target

By the year 2007 at least 60% of the children under 5 years of age and 60% of pregnant women will be sleeping under an insecticide treated mosquito net

5.2.5 Operational Targets

- 60% of children under 5 years of age sleep under an ITN, treated within the last twelve months or a Long Lasting Insecticide Treated Net (LLITN).
- 90% of the hamlets have at least one outlet for selling nets and insecticide for net treatment
- MCH clinic staff routinely give advice on the value of ITNs to pregnant women and carers of children under 5 years of age
- 60% of pregnant women sleep under an ITN, treated within the last twelve months or a Long Lasting Net (LLITN).

5.2.6 Interventions to increase use of ITNs

To achieve the mid term targets and build a national culture of ITN use it is necessary to massively increase demand for ITNs. An estimated 1,353,000 women will be pregnant during the year 2002 [31] and, over the next 5 years, on average 1.6 million infants will be exposed to the risk of malaria on any given night [32]. Once there are an average of 2 nets per household, that last for five years, in 80% of households, 2.3 million nets will need to be replaced annually. For nets to be treated at least once a year 12 million net treatments will also be required.

The Strategy to deliver these results will rely on three interdependent components;
a) the ITN Cell of the NMCP which will provide overall coordination and monitoring for the NATNETS ITN activities in Tanzania,
b) a contracted Social Marketing Campaign (SMARTNET) which will also manage delivery of insecticide treatment kits for ITNs and
c) an ITN Voucher Scheme, funded through the GFATM, to reduce the amount that pregnant women will have to pay for an ITN in the market place and to provide for free insecticide re-treatment kits for infants who complete DPT3 and measles vaccination.

[29] SMITN II End of project Survey - 2002

[30] Report on the Analysis of SMITN II End of project Household Survey. K. Hanson and E. Warrall. LSHTM April 2002.

[31] Assume a crude birth rate of 41 per thousand (DHS 1999 rural rate).

[32] Assumes 4.5% of the population are infants with estimated current population of 33.8 million, projected to be 39.9 million by year 2007 (2.8% annual growth rate)

(i) National level

Leadership

The NATNETS Steering Committee will be formed out of the existing ITN Task Force. It will be a lean management group headed by the Chief Medical Officer, tasked with oversight and scrutiny of the NATNETS programme and The National ITN Implementation Team. The Team will be embedded within the National Malaria Control Programme under the Malaria Control Programme Manager.

It will coordinate National ITN "demand creation", "facilitate the enabling commercial environment" required to increase ITN use and provide the strong management required to implement the ITN voucher scheme for pregnant women. A multi-stakeholder ITN Consultative Group will provide advice and advocacy support to the Implementation Team and the Steering Committee.

Demand creation

The government will invest significant resources to strengthen the existing public private alliance for the commercial distribution of ITNs. This is the most sustainable way of achieving its long-term ITN targets. Public funds, gathered from bilateral, multilateral and other donors will be used to procure high quality, dynamic promotion of ITNs at a national scale to drive demand creation.

A third phase of Social Marketing of ITNs (SMARTNETS) will be resourced to maintain the existing momentum for ITN demand and supply while core NMCP structures are established [33]. This new approach to social marketing will focus on the creation of commercial alliances for the distribution of nets bundled with insecticide kits as well as the introduction of Long-Lasting Net technologie (LLITNs). Bilateral donor funds have been committed for an expanded provision of low cost insecticide treatment kits for nets. Procurement and distribution of insecticide kits will be managed by PSI under the scrutiny of the ITN Implementation team and the NATNETS Steering Committee. This third phase of ITN social marketing will provide the principle short-term means of addressing the problem of low insecticide re-treatment rates. Long term, the problem of insecticide re-treatment will be eliminated through the introduction of effective LLITN technologies.

Provision of Demand creation will be in partnership with the commercial sector, social marketing organisations and community-based organisations. Persistent behaviour change requires concerted and sustained action at all levels, especially within rural communities, therefore the National Campaign will require support through integrated district, community and household activities that encourage adoption of new ideas.

Equity

Equitable protection of the most physiologically vulnerable groups will be encouraged through the implementation of a targeted ITN Voucher Scheme designed to simultaneously encourage commercial sector participation in ITN distribution and affordability to all pregnant women. Voucher distribution will be linked to utilisation of other essential health intervention packages, such as antenatal and EPI services. Co-ordination with and co-operation from the Reproductive and Child Health Unit and its service providers will be a corner stone in the successful implementation of the ITN Voucher Scheme. Co-ordinated development and planning of training materials for maternal and child health clinic staff has already begun.

The ITN Implementation Team

- Will provide technical support to District Councils and CBOs to enable them to plan effective activities that will increase net usage.

[33] Taking Insecticide Treated Material to National scale in Tanzania. MoH November 2000.

- Will act as a National ITN resource centre providing information, planning templates and training tools for ITNs activities.
- Will contract and manage the procurement of demand creation activities
- Will have responsibility for:
    - Development, updating and distribution of ITN policy guidelines and malaria planning tools tailored to district decision making
    - Assisting, in collaboration with the Zonal Training Centres, with capacity building based on identified needs, roles and use of ITNs
    - The generation of an enabling environment for demand creation e.g. targeted distribution of ITNs for marginalized groups
    - Overseeing that net manufacturers establish effective systems for delivery of nets and insecticides to customers
    - Coordinating regulatory and quality assurance issues
    - Monitoring and evaluation of the ITN strategy
    - Advocating for enactment of legislation that will require any mosquito net sold in Tanzania to be either; bundled with an insecticide treatment kit or pre-treated using long lasting insecticide technology
    - Development and execution of plans for increasing access to ITNs for Pregnant women through the voucher scheme funded from the GFATM.

To deliver these outputs an increase in the skill base and absorptive capacity of the NMCP is required. Through a combination of donor-funded appointments and MoH transfers or secondments, a Team leader, entomologist, social scientist, fund manager, data manager and team accountant will be recruited to the ITN cell.

(ii) District and Community Level

District Medical Officers will be encouraged and supported by the MoH to take the initial lead to sensitise councillors to the true impact of malaria and the benefits of ITNs. They will then be expected to take a proactive role in advocating, within the District Social Committee, for an integrated cross-sectoral district malaria plan that emphasises the critical importance of ITNs in reducing malaria morbidity and mortality. The CHMT with active support of the Social Committee of the Councils will be responsible for development, implementation and reporting on progress made to implement the MMTSP to the council. A sub committee of the Social Committee that has multi-sector representation will be required. It will handle crucial issues necessary for successful scaling up of ITNs and coordination of the MMTSP in the district.. The sub committee's membership should include influential local people who are in touch with local issues, possessing commercial, advertising, health and malaria control expertise.

DMOs will aim to generate sufficiently high levels of awareness and commitment, within their District Councils and Social Committees, to overcome the past prejudice and apathy related to malaria control. NMCP and the ITN Implementation Team will provide initial support to DMOs during the first year of implementation of the Malaria MTSP. District Councils should appoint a focal person to pioneer ITN interventions and, on an annual basis from 2002 to 2007, include community ITN advocacy and stimulation of private sector involvement in their comprehensive district plans, to ensure necessary budgetary allocations. Advice on locally appropriate advocacy will be available from the ITN implementation Team and marketing partners.

(iii) Research and Monitoring

Insecticide resistance

Insecticide resistance is a threat to long-term control of malaria vectors. Continued long term monitoring of the impact of large-scale use of ITNs on mosquito behaviour and insecticide resistance is essential. The Implementation Team will co-ordinate, where necessary contracting out, appropriate studies to monitor such impact.

Long Lasting Insecticide Treated Net Technology (LLITN) technology

Long lasting insecticide impregnation of materials offers major advantages of cost, convenience, environmental impact and donor engagement. The Implementation Team will, in collaboration with WHO and TPRI, assist and encourage development and adoption of this technology. It will aim to ensure equitable transfer of LLN technology to Tanzania in order to prevent monopoly and enhance local manufacturing capacity.

Market performance

The Tanzania ITN Implementation Plan builds on established partnerships with the private sector, but recognises the need for targeted subsidies. Collaboration with research institutions has been coordinated to:

- Track the continuing development of the commercial market
- Monitor systems of targeting subsidies (e.g. vouchers) for: effectiveness in reaching the target group; sustainability and equity; and the impact on the commercial market.

Monitoring and evaluation

The impact of the ITN component of the MMTSP will be assessed through national malaria monitoring instruments, market surveys and routine demographic and Health Surveillance data. Operational research is being supported through collaboration with national and international research institutions. Integrity of the voucher subsidy scheme and use of GFATM funds will be monitored through independent financial audit commissioned as part of the National Nets Programme.

The Household Budget survey completed in 2001 will provide baseline indicators, alongside the household surveys from SMITN I & II, the 1999 Reproductive and Child Health Survey and existing coverage data from DSS sites, against which to measure trends and monitor progress.

5.2.7 Vector control interventions in urban areas

Vector control interventions in urban areas of sub-Saharan Africa, employing environmental manipulation, have proved difficult to sustain so that in the long term they have been unsuccessful and not cost effective. The recent report of the Commission of Macroeconomics and Health has however emphasised the major economic losses that are inflicted on emerging sub-Saharan economies by malaria. This has prompted a reappraisal of the potential for moderate and large scale endeavours to remove breeding sites for malaria vectors from major urban conurbations.

Rehabilitation of pre-existing drainage systems and extensive land use changes has been suggested for Dar es Salaam. Where the principle strategies for malaria control have been achieved, and where additional revenue can be raised, work on repairing and maintaining pre-existing drainage infrastructure may be a cost effective additional activity that municipal authorities might adopt.

5.3 Strategy 3: Malaria Prevention In Pregnancy

5.3.1 Policy Issues

The MoH recommends that all pregnant women should attend antenatal clinics and receive a full dose of Sulfadoxine / Pyrimethamine (SP), at least twice during the course of their pregnancy. One dose administered during the second trimester and one dose in the third trimester of pregnancy as Intermittent Preventive Treatment (IPT). Pregnant women who are known to be allergic to sulphur drugs should not receive SP for malaria IPT or treatment; oral quinine should be used for treatment of uncomplicated clinical episodes when SP is contraindicated.

The use of ITNs by pregnant women will be strongly encouraged by MCH clinic staff through interactions at antenatal clinics.

5.3.2 Rationale

Pregnant women and under five children are the groups most vulnerable to malaria infection. Pregnancy suppresses some acquired immunity to malaria [34]. *P.falciparum* infection in pregnancy carries high morbidity and mortality for the foetus and the mother especially during the first and second pregnancy. The sequelae of malaria in pregnancy are principally anaemia and low birth weight. Premature labour, abortion and still-birth are also more common following malaria infection and pregnant women are at higher risk of progressing to severe forms of eh disease. Infant mortality rate is four times higher in low birth weight babies than normal babies so interventions that address low birth weight need to be encouraged [35].

Malaria infection during pregnancy is often covert. Research from Malawi [36] and Kenya [37] has shown that pregnant women, living in malaria endemic areas, who receive intermittent treatment doses of SP during their pregnancy enjoy better health and have bigger healthier babies than women from the same areas who have not had intermittent treatment. Providing routine IPT using SP to pregnant women will therefore be expected to improve the outcome of pregnancies in Tanzania.

5.3.3 Current Situation

Communities and health providers are generally not aware of the consequences of malaria in pregnancy in terms of morbidity and mortality. However, they are aware of the availability of malaria preventive measures in pregnancy. There is still low uptake of malaria chemoprophylaxis (29%) and use of ITNs (8%) in pregnancy. Antenatal attendance is high (more than 80%) and guidelines on IPT in pregnancy are available.

[34] Rogier C, Tall A, Diagne N et al. *Plasmodium falciprarum* clinical malaria: lesson from longitudinal studies in Senegal. Parassitogia 1999; 41:255-259.

[35] Guyatt HL & SNow RW. Malaria in pregnancy as an indirect cause of infant mortality in Sub-Saharan Africa. *Trans. Royal SOc. TropicalnMedicine & Hygiene* 2001; 95 (6): 569-76.

[36] Verhoef FH, et al, AN evaluation of the effects of intermittent SP treatment in Pregnancy on Parasite clearance and risk of low birth weight in ruarl Malawi. *Ann. Trop. med. parasitol* 1997

[37] Shulman CE et al. Intermittent SP to prevent severe anaemia secondary to malaria in pregnacy: a randomized placebo controlled trial. Lancet, 1999; 353: 632-636.

5.3.4 Target

By 2007 at least 60% of pregnant women will be effectively protected against malaria

5.3.5 Operational targets

- 60% of pregnant women will use IPT as recommended by WHO
- 60% of pregnant women will sleep under an adequately treated mosquito net
- 80% of pregnant women will be aware of the risks / consequences of malaria in pregnancy
- All health providers in MCH clinics will be aware of the risks and consequences of malaria in pregnancy and advise use of IPT and ITNs

5.3.6 Principles for malaria prevention in Pregnancy

Pregnant women will be advised to sleep under Insecticide Treated Nets (ITNs) at night and to take other personal protective measures to reduce contact with mosquitoes. Mothers will be encouraged to protect their infants with Insecticide Treated Nets (ITNs)

The Ministry of Health recommends that all Pregnant women attend antenatal clinics during their pregnancies and advises that, providing that they are not known to be sensitive to sulpha based drugs, all pregnant women, at risk of malaria, should take Sulfadoxine / Pyrimethamine for IPT.

Treatment of malaria in pregnancy will follow the same guidelines as for other patients. As SP is not recommended during the last month of pregnancy oral Quinine will be the treatment of choice from the 36th week up to delivery. Amodiaquine may be used in those facilities where quinine tablets are not available.

In areas of high malaria endemicity, if no other cause for a fever can be identified during pregnancy (for example a respiratory infection or a urinary tract infection), a woman who is pregnant and febrile will be assumed to have malaria. She will receive a treatment dose of SP (3 tablets) without delay. It should be noted that malaria parasites may be sequestered in the placenta so that blood smears can be reported as negative despite infection.

5.3.7 Interventions to increase protection in pregnancy

(i) National Level

The National Malaria Control Programme, in collaboration with the Reproductive and Child Health Unit of the Ministry of Health, will facilitate the necessary activities to support this strategy for IPT and ITNs. They will provide updated guidelines and secure, where necessary, resources to train staff to deliver IPT, recognise and treat anaemia and malaria in pregnancy and distribute ITN vouchers. The RCHU will oversee the service delivery of case management and preventive measures for malaria in pregnancy at all levels of care in public, private and NGO facilities.
Training on malaria case management and the use of IPT, tailored to needs of health providers at health facility level, will be essentially a responsibility of CHMTs. They will be encouraged to allocate resources for training and seek assistance to train their MCH clinic staff on new interventions.

Provision is made in the 2002 - 2003 MTEF for Government funds to procure sufficient SP for all pregnant women to be provided with free SP IPT. Delivery of free IPT through government run MCH clinics will be

relatively straight forward, using existing distribution mechanisms to ensure availability and audit. Delivery of malaria services for the large number of women who receive their antenatal care at NGO or private clinics, however, will require diligence and commitment from CHMTs and DMOs if targets are to be met.

The National Malaria Control Programme, in collaboration with regional staff and other relevant divisions / sections in the MoH, such as the Health Education unit, and other stakeholders, will promote IPT and ITN usage among pregnant women. They will also co-ordinate monitoring and evaluation and undertake operational research, in collaboration with the regions and districts, to optimise service delivery.

All pregnant women will be entitled to a subsidy, in the form of a voucher, towards the cost of an ITN. Vouchers will be issued, through antenatal clinics, early in pregnancy. They will be redeemable, at a commercial retailer, against part of the purchase price of an ITN. Qualification for a voucher will be linked to uptake of essential health interventions related to pregnancy.

(ii) Regions

The regional authorities act as an extended arm of the MOH. They will assist the national level to deliver activities assigned for the central level. They will in addition provide technical support to districts and monitor progress made during implementation.

(iii) District and Health Facility Levels

The district and Health facility levels will incorporate IPT and ITNs strategies in their comprehensive health plans and budget each year. They will be responsible for the implementation of IPT and ITNs interventions and oversee that IPT and ITN voucher delivery is integrated with other antenatal services within the district. CHMTs will distribute and audit use of SP for IPT and ITN vouchers against the antenatal returns from health facilities. CHMTs will also be responsible, using health sector basket funds, for the training of health facility staff and communities on IPT and ITNs. CHMTs will undertake supportive supervision, monitoring and evaluation. They will order and distribute necessary anti-malarial drugs and medical supplies to all health facilities. Sensitisation and advocacy for IPT and the use of ITNs will provide a key entry point for CHMT staff working with communities and non-governmental suppliers of essential health interventions. The need for pregnant women to seek prompt treatment when they have fever or malaria should also form a focus for messages delivered to communities through integrated district health education initiatives.

(iv) Community Level .

Key community people, extension workers (including village health workers), village advocates and opinion leaders, including faith based group leaders, should be actively recruited by CHMTs to sensitisation and support pregnant women and encourage rights based access to IPT and ITNs. Pregnant women will require education on the need to attend ANCs, including the benefits associated with health interventions provided during pregnancy for the mother and child; including immunization, micronutrients and attended deliveries.

Through the appointment, and remuneration by the district, of malaria coordinators CHMTs will be ideally placed to gain community trust and encourage the involvement and participation of communities. Through ward and village representatives men and husbands may also be encouraged to support their pregnant wives to seek antenatal care and IPT and to support their wives use of ITNs.

5.4. Strategy 4: Malaria Epidemics Prevention and Control

5.4.1 Policy Issues

The evolution of emerging and re-emerging diseases has put renewed pressure on health service delivery in the country. In response to the threat of epidemics, through training, re-tooling and improvements in infrastructure the MoH is strengthening its emergency preparedness capability. Instruments for multi-sectoral collaboration in the event of an epidemic have also been established.

5.4.2 Rationale

A malaria epidemic is defined as the occurrence of new cases of a disease clearly exceeding the number expected at that particular time and place. Generally there is an inverse relationship between the usual intensity of malaria transmission and the risk of epidemics. Unstable malaria transmission areas, often fringe highlands and semi arid zones, are prone to malaria epidemics. Factors associated with unexpected increases in malaria transmission may be man-made (environmental modification) or natural (climatic). Furthermore, population movements (refugees) and deterioration of health care services may contribute to the appearance of malaria epidemics.

High morbidity and mortality usually occurs during an epidemic. Early detection and immediate intervention with appropriate control measures can limit and contain the worst effects of an outbreak of malaria in an epidemic prone area.

Retrospective epidemiological information is required if potential epidemics are to be detected before they become established. The pattern of disease to be expected in a given area can be established form existing clinic and hospital data. Subsequently, if an unusual increase in the number of new cases is observed the possibility of an epidemic should be considered, the event notified and investigations started. If an epidemic is recognized, predetermined emergency measures, such as mass drug administration, may then be initiated. Other interventions to be considered should focus on the reduction of transmission through vector control measures.

Routine meteorological data collection that would detect, for example, unusually heavy rainfall or high temperatures in highland areas, can also provide an early warning for the prediction of malaria epidemics. On a longer time scale, long-range weather forecasts may also be useful, especially at national level, by providing advanced warnings of global climatic phenomena (e.g. el niÒo) that could affect local temperatures and rainfall.

5.4.3 Current Situation / background

Up to 25% of Tanzanians live in Malaria epidemic prone areas. Of these a third live in fringe highlands and the Rift Valley, while two thirds live in Semi arid districts. Ten districts have reported epidemics that occurred within their boundaries. Malaria epidemics have also been reported in refugee camps in north west of the country. In epidemics have been associated with high morbidity and mortality as well as the disruption of the social and economic infrastructure of affected communities. Epidemics have occurred in three to four year cycles in several of the affected districts. Additionally there are districts where malaria epidemics might have been expected but from which records are not available or report have not been made.

In the last 10 years malaria epidemics, when they have occurred, have always caught authorities and communities unaware. No prediction or detection mechanisms have been in place to provide warnings. Implementation of the strategy on epidemic control will lead to the prevention, and containment of outbreaks in epidemic prone areas. Enhanced early warning, early detection and preparedness are the keys to success.

5.4.4 Target

By the year 2007 all epidemic prone districts will have increased their capacity to detect malaria epidemics early and contain them.

Two approaches will be applied under this strategy:

- Establish early warning and detection systems in malaria epidemic prone districts.
- Establish adequate prevention and control responses to malaria outbreaks in epidemic prone districts

5.4.5 Operational targets

- A mechanism for collaboration with partners on early warning and epidemic control will be established at all levels, particularly at district level
- Key medical personnel in epidemic prone districts will have undergone training for early detection and control of epidemics
- All epidemic prone districts will have adopted an instrument for the early detection and reporting of unusual rises in the numbers of malaria cases
- All epidemic prone districts will have contingency stocks of essential equipment and supplies for the prevention and rapid containment of malaria outbreaks.
- In the event of an epidemic, districts will have the capacity to deliver effective control measures, such as mass drug treatment.

5.4.6 Interventions

The following interventions are required:

(i) National level:

The NMCP in collaboration with stakeholders will:

- Collect retrospective epidemiological data in all epidemic prone districts to establish district malaria profiles and define the thresholds at which district action plans will be triggered.
- Work with epidemic prone districts and regions to develop plans for epidemic control.
- Develop guidelines on malaria epidemic preparedness
- Develop guidelines for the management of severe malaria in emergency situations.
- Liase with the Tanzania Meteorological Agency to establish an early warning system.
- Facilitate networking, within and outside the country, between districts prone to epidemics to enable them to learn from each otherís experiences in epidemic control.
- Promote studies on associated contributing factors to malaria epidemics such as ecological, socio-economic and political changes.
- Work with MSD to assist districts to procure and distribute essential drugs, medical equipment (spray pumps, diagnostics kits, insecticides, protective gear and spare parts) and logistic support to epidemic prone districts

- Liase within the MoH to facilitate the integration of Malaria surveillance systems into the integrated disease surveillance system of the MOH
- By June 2003, develop with TPRI a policy and recommendations on the use of insecticides, including DDT, for epidemic control. The policy will define, for implementing districts, the types of responses and insecticides that are considered appropriate in specific circumstances. A ëmenuí of options and responses will provide technical and practical solutions for CHMTs to apply as required.

(ii) District Level Interventions

All epidemic prone districts will prepare a plan for epidemic prevention and control within their comprehensive district health plans. They will solicit resources for implementation with RBM partners. Plans should include the establishment of an early detection system for malaria epidemics in selected sites and a contingency stock of drugs, spray equipment and insecticides. Sensitisation and mobilization of all RBM partners in malaria epidemic prevention should be considered.

The CHMTs in collaboration with stakeholders and RBM partners at district level:
Will facilitate and activate key actors at community level to prevent, control and contain malaria epidemics.
Will sensitise the community on how to identify malaria and take appropriate actions
Will provide capacity building to health staff in epidemic prone areas

(iii) Community Level Interventions

Ward executive committee, village council, community-based organizations, community owned resource persons, village health committees and individuals will be encouraged to participate in activities designed to assist in the capture and reporting of increases in malaria case numbers. As epidemics are detected, Village Health Committees will be called upon to assist in the delivery of specified control interventions.

9．第２次調査団議事録（Minutes of Meeting）

MINUTES OF MEETING
BETWEEN
THE JAPANESE PRELIMINARY STUDY TEAM
AND
THE MINISTRY OF HEALTH OF THE GOVERNMENT OF
THE UNITED REPUBLIC OF TANZANIA
ON JAPANESE TECHNICAL COOPERATION
FOR THE INTEGRATED MALARIA CONTROL PROJECT

The Japanese Preliminary Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Dr. Yoichi Yamagata, visited the United Republic of Tanzania (hereinafter referred to as "Tanzania") from 8 February to 3 March, 2004 in order to elaborate a design of the proposed Integrated Malaria Control Project (hereinafter referred to as "the Project") and to appraise its scope and approaches.

The Team, during its stay in Tanzania, held a series of workshops attended by key stakeholders of the proposed Project in order to formulate a project outline. Based on outputs of the workshops, and in accordance with the Minutes of Meeting exchanged between the Japanese Preparatory Study Team and authorities concerned of the government of Tanzania on 1 December, 2003, the Team formulated the Project Design Matrix (PDM) of the said Project.

As a result of the dialogue between the Team and authorities concerned of the Ministry of Health of the Government of Tanzania, the both sides agreed to the matters referred to in the document attached hereto.

Dar es Salaam, 24 February, 2004

Dr. Yoichi Yamagata
Team Leader
Japanese Preliminary Study Team
Japan International Cooperation Agency

Dr. Gabriel L. Upunda
Acting Permanent Secretary
Ministry of Health
The United Republic of Tanzania

ATTACHED DOCUMENT

The PDM prepared by the Team was reviewed by the Ministry of Health (MOH) of the Government of Tanzania. Through a course of discussions between the Team and MOH, both sides accepted its contents.

In addition to the above agreement on the PDM contents, the following points were noted during the discussions, and confirmed by the Team and MOH at the meeting.

Project title:

1. The Project title reads "Integrated Malaria Control Project" as it better represents the project scope than the previously adopted "Project for Malaria Case Management Training and Control of Malaria Mosquito Breeding Sites in Urban Centres"

Project scope and sites:

2. The Project is largely divided into three components: (1) nursing care of malaria, (2) laboratory diagnosis of malaria by AO method and (3) environmental management of *Anopheles* breeding sites.
3. The component on nursing care of malaria aims at establishing a sustainable system to conduct cascade training in selected districts rather than providing training on nursing care countrywide.
4. The component on laboratory diagnosis aims at establishing a sustainable system to conduct proper laboratory diagnosis by AO method in selected districts rather than providing training and equipment of AO method at a large scale.
5. Dar es Salaam and Zanzibar will be included in the target sites of the above two components due to the needs addressed by these areas.
6. Other target districts of the above two components will be decided in consideration of (1) availability of electricity and water, (2) physical access from Dar es Salaam, (3) magnitude of malaria problem, (4) monitoring capacity of the Project team, and (5) existence of laboratory technicians, when the Project starts.
7. The target sites of the two components shall overlap as much as possible in view of improving the case management of malaria at health facilities.
8. The total number of target districts of the components (1) and (2) will be approximately 6-10.
9. The component on the environmental management of *Anopheles* breeding sites will focus on three municipalities in Dar es Salaam.
10. This component will be implemented alongside the Urban Malaria Control Project (UMCP) of the DSM City Council.

11. The wards targeted in this component will be decided in consideration of results of the situation analysis conducted at an early stage of the Project.

Project partners:

12. The Project will be implemented in collaboration with various local and international partners including Eastern and Southern Africa Centre of International Parasite Control (ESACIPAC) in Kenya.

Steps forward:

13. The Team will draft a project document and share it with MOH for comments by mid-March 2004.
14. A signing ceremony will be organized at the earliest convenience of both JICA and MOH upon agreement on the project document. The Project will thereby be launched officially.

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Project Design Matrix (PDM_0)

Project Title: Integrated Malaria Control Project
Executing Agency: Ministry of Health (MOH), Government of the United Republic of Tanzania
Target Group: (1) Nurses; (2) laboratory technicians; (3) communities in Dar es Salaam
Target Area: Tanzania (with geographic emphasis on selected pilot districts)
Duration: 3 years (April 2004 – March 2007)
Date of Preparation: 24 February 2004

Narrative Summary	Objectively Verifiable Indicators*	Means of Verification	Important Assumptions
Overall Goal The malaria mortality is reduced.	• The malaria mortality country wide • The malaria mortality in urban centres of Dar es Salaam	• Statistics of MOH • Reports of Urban Malaria Control Project (UMCP) of Dar es Salaam City Council	• The WHO's policy on malaria control does not change significantly.
Project Purpose Malaria cases are properly managed at health facilities, and mosquito (*Anopheles*) breeding sites in Dar es Salaam are reduced	1. Proportion of health facilities in which management of malaria cases (admission – checkup – diagnosis – treatment) is streamlined to a satisfactory level 2. Decrease in the number of mosquito (*Anopheles*) breeding sites in Dar es Salaam	1. Results of the case management surveys** 2. UMCP reports	• Project approaches and results are replicated in other areas of the country
Outputs 1. Project sites are clarified and key stakeholders are sensitized to cooperate with the project 2. District nurse trainers improve their training skills in nursing care of malaria by TOT 3. The knowledge and skills of the district nurse trainers are adequately transferred to nurses by means of cascade training 4. Laboratory technicians acquire adequate skills and knowledge to examine blood slides by means of AO method, to conduct user maintenance of AO microscopes and to report laboratory practices to CHMT 5. Health facilities can properly maintain AO microscopes and procure AO consumables 6. Prescribers utilize results of blood slide examination for proper diagnosis 7. Existing malaria drains in Dar es Salaam are cleaned 8. The communities in Dar es Salaam can properly manage their environment to control *Anopheles*	1-1. - 2-1. Number of the district nurse trainers who participate in the training courses 2-2. Proportion of the participants who pass the post-test at each training session for district nurse trainers 3-1. Number of the nurses trained by the district nurse trainers 3-2. Proportion of the participants who pass the post-test at each cascade training session for nurses 4-1 Number of the laboratory technicians who participate in the training courses 4-2 Proportion of the participants who pass the post-test at each training session for laboratory technicians 5-1. The number of health facilities performing AO method 6-1. Number and proportion of blood slides used for diagnosis of malaria at health	1-1. Seminar report 2-1. Reports of MOH 2-2. Reports of MOH 3-1. Reports of RHMT/CHMT 3-2. Reports of RHMT/CHMT 4-1. Reports of MOH 4-2. Reports of MOH 5-1. Monitoring reports of CHMT on laboratory practice 6-1. Results of the case management surveys 7-1. Reports of DSM City Council 8-1. Reports of local consultants	• Majority of trained nurses and laboratory technicians remains at the current workplaces at least for 3 years. • The MSD's functions in supplying AO consumables do not deteriorate significantly. • The functions of the central and zonal workshops in repairing medical equipment do not deteriorate significantly

	facilities 7-1. The distance of drains in Dar es Salaam cleaned during the project period 8-1. Proportion of Wajumbe (community leaders) who disseminate knowledge learned in seminars		
Activities 1-1. To organize project seminars 2-1. To design a curriculum of TOT courses for district nurse trainers 2-2. To review and revise materials used in TOT courses for district nurse trainers 2-3. To conduct TOT courses for district nurse trainers 3-1. To develop training materials used for cascade training at district level 3-2. To support CHMTs for their cascade training activities at each district 3-3. To develop tools to evaluate nursing care practices 3-4. To disseminate good practices compiled from the cascade training activities 4-1. To design a curriculum of training courses for laboratory technicians 4-2. To review and revise materials used in training courses for laboratory technicians 4-3. To conduct training courses for laboratory technicians (blood slide examination with the emphasis on AO method, user maintenance of AO microscopes and reporting of laboratory practices) 4-4. To develop tools to evaluate laboratory practices for diagnosis of malaria 5-1. To strengthen the existing workshops for repairing AO microscopes 5-2. To establish an adequate protocol for maintenance of AO microscopes and ensure its applicability at health facilities 5-3. To establish an adequate protocol for procurement of consumables for the AO method and ensure its applicability at health facilities 6-1. To develop materials to advocate proper diagnosis for prescribers 7-1. To identify the current status of the malaria drainage system in Dar es Salaam 7-2. To collect information on potential *Anopheles* mosquitoes breeding sites 7-3. To support cleaning of malaria drains 8-1. To facilitate community-based seminars on health and proper hygiene in collaboration with municipal offices and local partners	**Inputs** (Japan) *Personnel**** • Short-term experts (nursing care, medical equipment maintenance, laboratory diagnosis, environmental management, case management survey) • Long-term expert • Local consultants (case management survey, environmental management) *Equipment* • Equipment for the training courses • AO microscopes (50) • Solar panels and batteries (10) *Local cost* • Training cost (per-diem, accommodation, teaching materials and textbooks, honoraria for external Tanzanian lecturers, etc.) • Administrative cost • Local activity cost (NGO partnership, etc.)	(Tanzania) *Personnel* • National trainers (nursing care) • National trainers (laboratory diagnosis) • Trainees for the training courses (district nurse trainers and laboratory technicians) • Service technicians for medical equipment • Administrative personnel *Facilities* • Training and seminar facilities • Project office space and facilities *Local cost* • Training cost (except those covered by the Japanese government) • Local cost (microscope consumables and spare parts, etc)	• Project partners remain cooperative with the project during the project period. **Preconditions** • The government keeps track on the National Malaria Medium Term Strategic Plan 2002-2007 • Project partners (UMCP, local governments, etc.) commit cooperation with the project

* The baselines and targets of each indicator must be reviewed and quantified when the project starts.
** Evaluation tools on case management will be developed at an early stage of the project.
*** A part of technical support may be provided by Eastern and Southern Africa Centre of International Parasite Control (ESACIPAC) based in Kenya.