No.

JICA TANZANIA OFFICE

REPORT ON EX-POST EVALUATION STUDY ON MATERNAL AND CHILD HEALTH PROJECT

MARCH, 2006

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PREFACE

Japan International Cooperation Agency (JICA) supported the Technical Cooperation Project "Maternal and Child Health Project" of the Government of United Republic of Tanzania for five years from December of 1994 and for two years from December of 1999 as a follow-up term and finished this project in November of 2001.

More than three years have now passed after the end of the cooperation period of the project. JICA conducted an ex-post evaluation study for that project to evaluate the situation after the end of the project through the consultancy of Healthscope Tanzania Ltd. This report is hereby produced as a result of the study.

In this regard, I hereby express my great gratitude to those who cooperated in the study. My special thanks however go to the consultants from Healthscope Tanzania Ltd., Dr. Calista Simbakalia and Dr. Tengio F. Urrio. I hope that stakeholders for maternal and child health will extend and develop what this report implies for the good health for mothers and children.

Dar es Salaam
March, 2006
Toshihiro Obata
Resident Representative
JICA Tanzania Office

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ABBREVIATIONS

AFP	Acute Flaccid Paralysis
AMO	Assistant Medical Officer
ANC	Ante Natal Care
CCHP	Council Comprehensive Health Plan
CHMTs	Council Health Management Teams
CO	Clinical Officer
CPL	Central Pathology Laboratory
DMO	District Medical Officer
DRCH Co	District Reproductive and Child Health Coordinator
EPI	Expanded Programe on Immunization
FGD	Focus Group Discussion
HC	Health Centre
IEC	Information Education and Communication
IMR	Infant Mortality Rate
JICA	Japan International Cooperation Agency
LGAs	Local Government Authorities
MCH	Maternal and Child Health
MCHA	Maternal and Child Health Aide
MMC	Muhimbili Medical Centre
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MNH	Muhimbili National Hospital
MUCHS	Muhimbili University College of Health of Sciences
NID	National Immunization days
PHNA	Public Health Nurse A
PHNB	Public Health Nurse B
RCHS	Reproductive and Child Health Services
RMO	Regional Medical Officer
SDPs	Service Delivery Points
SPL	Specialized Paediatric Laboratory
TBAs	Traditional Birth Attendants
TOTs	Training of Trainers
UDSM	University of Dar es Salaam
VCT	Voluntary Counseling and Testing
VHWs	Village Health Workers
WHO	World Health Organization

EXECUTIVE SUMMARY

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1-1. Background of the Project

In 1993, the United Republic of Tanzania was promoting the enhancement of social service sector like Education, Health and Water resource under the Rolling Plan and Forward Budget for Tanzania 1993/94 - 1995/96. Nevertheless, due to the high economic depression, the Rolling Plan faced some difficulties even in the health sector. It caused significant shortage of medical staff and equipment and malfunction of the medical system, and the situation of primary health care like maternal and child health got worse. In 1994, being concerned with this situation, the Government of Tanzania requested the Government of Japan to provide a technical cooperation to improve the situation of maternal and child health at national level and rural level.

1-2. Project Overview

(1) Super goal

Maternal and infant mortality rates, and in Tanzania are decreased.

(2) Overall Goals

(1) Maternal and infant mortality rates in the pilot areas (Tanga and Korogwe Division) are decreased.
(2) EPI diseases are reduced and Polio should be eradicated in the United Republic of Tanzania.
(3) Paediatric services at Muhimbili Medical Centre (MMC, former Muhimbili National Hospital, MNH) are improved.

(3) Project Purposes

(1) Maternal and child health services in Tanga and Korogwe Districts are improved.
(2) Virology diagnostic capabilities of Expanded Programme for Immunization (EPI) diseases at MMC are strengthened.
(3) Laboratory Based Medicine by utilizing accurate lab-data for diagnosis is established.

(4) Outputs

(1-1) Implementation system for activities in Tanga is established.
(1-2) The present situation of health services is grasped.
(1-3) Traditional birth attendants can deliver babies safely.
(1-4) Village health workers can educate their villagers on health care.
(1-5) The competence of health service staff is strengthened.
(1-6) The function of health centres is strengthened.
(1-7) EPI activities in Tanga district are supported.

(2-1) Diagnostic capabilities of EPI diseases in MMC Virology Dept. are improved.
(2-2) Testing equipment to inspect viruses is installed in Virology Dept. of MMC and functions.
(3-1) The implementation system for activities in MMC is established.
(3-2) Basic medical information is firmly grasped.
(3-3) Diagnostic capabilities of medical staff in Paediatric Dept. of MMC is improved.
(3-4) Facilities and machinery in Paediatric Dept. of MMC are properly equipped.
(3-5) Clinical examination capabilities of laboratory technicians in Paediatric Dept. of MMC are improved.
(3-6) A laboratory in Paediatric Dept. of MMC is kept in good conditions.
(3-7) Management capabilities of a chief laboratory technician is improved.

(5) Inputs (as of the Project's termination)

Japanese side:

Long-term Expert: 17pp **Equipment:** 208,382,000 Yen
Short-term Expert: 24pp **Local cost:** 83,452,000 Yen
Trainees received: 23pp **Others:** Yen **Total:** 291,834,000 Yen

Tanzanian Side:

Counterpart: 27pp **Equipment** ____local currency (____Yen)
Land and Facilities____local currency (____Yen) **Local Cost**____local currency (____Yen)
Others ____local currency (____Yen)

2. Evaluation Team

Members of Evaluation Team	Dr. Calista Simbakalia, HealthScope Tanzania Ltd. Dr. Tengio F. Urrio, HealthScope Tanzania Ltd.	
Period of Evaluation	9th November, 2005 – 16th February, 2006	**Type of Evaluation:** Ex-post evaluation study

3. Results of Evaluation

The Project is composed of three components, Virology Laboratory at Muhimbili University College of Health Science (MUCHS), Traditional Birth Attendants (TBAs) / Village Health Workers (VHWs) in Tanga, and Paediatrics at MNH as mentioned above. Each item below is discussed in each of these components.

3-1. Summary of Evaluation Results

(1) Impact:

- Super goal

Statistics in Tanzania is as follow:

	1995 *1	1996 *2	1999 *3	2000 *1	2004 *2
Infant Mortality Rate (per 1,000)	100	87.5	99.1	88	68
Under 5 Mortality Rate (per 1,000)	159	136.5	136.6	141	112
Maternal Mortality Rate (per 100,000)	-	529	-	-	578

(*1) World Bank Database
(*2) Demographic Health Survey in Tanzania

(*3) Maternal and Child Health Survey in Tanzania

There is no morbidity data. The Infant Mortality Rate (IMR) and Under 5 Mortality Rate (U5MR) were decreased during the project term and after the project. However, the Maternal Mortality Rate (MMR) was not decreased even while the number of data was very a few.

Some of super goal of the Project was achieved.

- TBAs/VHWs in Tanga

(a) Achievement of overall goals

During the period of project implementation the MMR there fell from 392/100,000 in 1999 to 350/1000 in 2001. Thus it started rising again for the first 2 years after the end of the project before it started to decrease again. In 2004 it was still decreasing but has not reached the 2001 figure of 350/100,000

Korogwe also shows a decreasing trend 2002-2004. During the period of project implementation the MMR decreased from 254/100,000 in 1999 to 139/1000 in 2001. Thus it continued to decrease one year after the project before it started to rise and decreased again. In 2004 it was still decreasing but has not reached the 2001 figure of 139/100,000.

The fall of MMR a one of the overall goals was achieved somehow.

(b) Other positive effects

New TBA utilization guidelines came in place in 2001 after project implementation and evaluation. In these guidelines emphasis was put on Skilled Attendants (trained service providers) at delivery instead of TBAs. After the policy changed, the role of TBAs has therefore changed from conducting deliveries to early referral of pregnant women to health facilities. Service providers welcome the TBAs into the health facilities when they escort women and encourage them to stay with the women till they deliver or are referred to the next level of care. The roles of TBAs got limited.

Nevertheless, TBAs have continued to submit the reports of deliveries to the health facilities. There have been still some women who like TBAs to attend delivery at home. The health facilities have continued to encourage them to report every month. TBAs reported that individual women have requested them to deliver them in the village rather than go to the health facilities. Scarcity of health workers has necessitated TBAs to have increased work load for delivering women. Health workers get transferred and others go on training for upgrading. As a result, TBAs increasingly deliver women at home.

The trained TBAs are in the community and despite the change in policy and decrease utilization of TBAs in deliveries they are being used to deal with other community problems: Vitamin A distribution, Non obstetrical services, Outreach activities, National Immunization Days (NIDs), Malaria prevention and nutrition, and Post natal services.

The Local Government Authorities (LGAs) have not drawn out transitional strategies to move forward the policy. One of the strategies would be the gradual phase out of the TBA and increasingly Skilled Attendants.

Some health facilities were built or renovated through the Project. Community participation in health and in setting up health facilities has improved since the project ended and involved not only health but also the other sectors notably the education sector.

- Virology Laboratory:

(a) Achievement of overall goals

There has not been reported of any polio patients in Tanzania since 1996.

WHO Afro was about to declare in 2004 that Tanzania would be a polio free country.

The overall goal is almost achieved.

(b) Other positive effects

A great impact is shown on the surveillance of measles and rubella. Whenever there is an outbreak of measles / rubella specimen are sent to the Virology Laboratory for serological

investigations in order to confirm the diagnosis and thereafter appropriate treatment and investigation are undertaken based on accurate diagnosis.

In addition, serological investigations that test accuracy of HIV tests are also being performed at Virology Laboratory. This test is very useful because it assist to confirm the accuracy of tests performed elsewhere and therefore remove the doubt of false positives and negatives in the diagnosis of HIV.

The examination of the requests and results were that from 2000 to 2005 the following number of measles and rubella investigations were done 488(2000), 415(2001), 177(2002), 641(2003), 712 (2004) and 552(2005). All the requests are for measles investigations. Rubella investigations are performed only when the results of measles investigation are negative.

- Paediatrics

(a) Achievement of overall goals

A JICA Expert of a paediatrician had worked for the Paediatric Dept. of MNH after the Project in order to reduce the mortality rate of in-patients in the wards of the department. Therefore, it is difficult to measure the impact of the Project for reduction of this mortality rate.

(b) Other positive effects

Establishment of the Specialized Paediatric Laboratory (SPL) has developed capacity in performing advanced tests in various areas. Test results from the laboratory have contributed to the improvement in Evidence Based Medicine.

The laboratory also improved capabilities of medical staff (doctors, nurses, technicians and medical students) on laboratory based medical skills. The staff members of SPL trained during the project period have also continued to train Laboratory Technicians and Medical Students. To date, 250 medical students have been trained in Biochemistry, Microbiology, and Hematology. In addition 90 laboratory technicians who specialize in Hematology, Biochemistry and Microbiology have been trained at the SPL.

The SPL has been recognized by researchers as a Laboratory where research can be undertaken.

Due to its reliable equipment, water electricity and well trained staff the SPL has become a centre of Excellency for conducting Laboratory Based Research.

Currently, researchers are using SPL to study the followings: Metabolic syndromes, Sickle cell diseases, and Psychiatric, Traditional medicine and Pharmacology departments are conducting research in the SPL.

SPL assisted Central Pathology Laboratory (CPL) during its major renovation that took place from July 2004 to August 2005. During that period, SPL performed mainly 7700 Biochemistry tests and 1,281 Hematology tests. This performance was a great assistance to CPL that otherwise it would have been very difficult for CPL to handle these tests during renovation.

(2) Sustainability

- TBAs/VHWs in Tanga

a) Technical aspects

Due to the change of the policy, there has been change in the support being given to TBAs. The supervisory system that had been set up has been weakened.

After the project ended in 2001, the TBAs have submitted reports to the health facilities individually every month. They are encouraged to bring in reports even while they do not deliver. Thus the system of monitoring deliveries of TBAs has been sustained. The TBAs have continued to maintain contact with the health facility as they refer and escort women to the health facility.

TBAs are still active and doing deliveries in their villages. An example of an active group was seen at Kerenge ward. There is a total population of 6,485 and the number of deliveries by TBAs has been increasing from 75 in 2002, 90 in 2003 and 100 in 2004 showing that the TBAs are gaining popularity. In Korogwe District almost 20% of all deliveries are done by TBAs.

b) Financial aspects

This activity had not been incorporated into the Council Comprehensive Health Plan (CCHP). The supervision meetings are not being held due to not being budgeted for in the CCHP.

However, re-sensitization seminars were conducted in Tanga in the year 2002 and 2005. The cost of these seminars was funded by the Tanga City Council and co-funded by a Japan Overseas Cooperation Volunteer. In Korogwe the Council Health Management Team organized and funded a one day seminar in 2003 with the objective of discussing with the TBAs the new guidelines on utilization of TBAs and the responsibilities of the TBAs in this guideline

Tanga City Council and Korogwe District Council allocate a budget every year for renovation of health facilities which were built or renovated through the Project. All such health facilities were found staffed and operational during the post evaluation. This factor has increased ANC accessibility for pregnant women and therefore improved Maternal and Child Health. The community leaders appreciated the effects from renovation of health facilities.

Equipments that were provided during the project were used well but necessary to be replaced due to time decay. Even the bicycles which were supplied to the TBAs assist them in visiting their clients in the villages need spares and some require replacement.

After the end of the project, the revolving fund system that used to replace the expendables in the TBA kits is no longer in place in some of the facilities. In Korogwe for example only one of the four facilities visited continued to maintain the revolving fund. In the Antenatal Clinic (ANC), women are asked to buy and keep the supplies at home in preparing fo**r** delivery. The TBAs encourage them to do so.

c) Organizational aspects

At the end of the project, the LGAs had not taken over this activity. Staff members of LGAs think that supporting of TBAs is supporting deliveries by TBAs and thus working contrary to the policy.

- The Situation of VHWs

- Organizational aspects

In Tanga they started with 96 VHWs and now they have 37 after 59 had dropped out. These VHWs in Korogwe unlike in Tanga have been retained. Where they have dropped out by migration or getting gainful employment, the villages selected new VHWs for being trained.

They are a link between the community and the health facility; they encourage the villages to keep the environment clean. They visit the health facilities to collect statistics about diseases and deaths and send these to the community.

However the VHWs programme has faced the same problem that has been faced by the programme in other parts of the country where the programme has been run on voluntary basis. There has been a high drop out rate like Tanga municipality.

The VHWs leave the voluntary work and seek employment opportunities in the private sector.

- Virology Laboratory

(a) Technical aspects

The laboratory is kept clean and does not need any renovation for the time being. These

aspects of capacity building have facilitated the sustainability of the Virology laboratory after the project period.

(b) Financial aspects

The Government of Tanzania is still supporting and has an intention to continue to support the Virology Laboratory though MUCHS in terms of provision of recurrent commodities like reagents.

(c) Organizational aspects

All the four (4) of staff members trained in Japan still remain. 95% of the equipments are still in good condition.

- Paediatrics

(a) Technical aspects

Even after the project ended, the quality and quantity of services of the SPL have increased because the staff members are skilled well and they work in a conducive environment where modern equipments are available. The equipments facilitate the trained laboratory technicians to produce reliable results thus leading to efficiency in diagnosing and managing diseases.

(b) Financial aspects

The revolving-fund system of SPL established during the Project period is still functioning. Even though the revenues from patients are low, most of who are under five years children exempted of fees, the SPL staff came with innovative ideas of working with researchers. By being collaborate with SPL in a study, the research organization has to pay a fee to SPL. This is an Income Generating Activity that has assisted SPL to increase its revenue.

The Government of Tanzania has continued to support the SPL through MNH. The SPL Manager usually requests funds from MNH and funds are allocated as per the request without having failed to get funds from MNH upon request. MNH also allocated funds for maintenance and repair of equipment and it has been outsourced and is being performed by engineers from University of Dar es Salaam and Roche Engineers from South Africa.

(c) Organizational aspects

The SPL is managed well to maintain by one of the Doctors trained in Japan for managerial skills during the project period with assistance of the laboratory technician in charge trained in Japan for biochemistry.

Collaboration with CPL and other departments is being done through consultative meetings and through technical assistance.

3-2. Factors that have promoted project

(1) Impact

- TBAs/VHWs in Tanga

Rural Communities still demand TBAs rather than health facilities and TBAs use what they learned through the Project.

The villages participation in providing of labour and other contribution in building health facilities have stimulated the spirit of community participation.

- Virology laboratory

All of staff members, trained in Japan during the project period, have still worked for the laboratory. Appropriate machinery and equipments were provided and are used well.

The government treats crucially the laboratory as a reference laboratory.

- Paediatrics

All of seven staff members trained in Japan during the project period have worked for the SPL.

The staff has kept elaborating the capacity of SPL by themselves even after the Project.

The doctors in the Paediatircs also rely on the examination results put out by the SPL.

(2) Sustainability

- TBAs/VHWs in Tanga

Rural Communities still demand TBAs rather than health facilities. The health providers in health facilities like them to submit monthly reports and the reports have been continued to submit.

The villages participation in providing of labour and other contribution in building health facilities has stimulated the spirit of community participation.

- Virology laboratory

All of staff members, trained in Japan during the project period, remain.

The provided machinery and equipments are maintained well.

The government supports it with provision of recurrent commodities.

- Paediatrics

All of seven staff members, trained in Japan during the project period, remain.

The provided machinery and equipments are used carefully.

The revolving fund system was established.

3-3. Factors that have hindered the Project

(1) Impact

- TBSs/VHWs in Tanga

New TBA utilization guidelines came in place in 2001 after project implementation and evaluation. In these guidelines emphasis was put on Skilled Attendants (trained service providers) at Delivery instead of TBAs. The Ministry of Health (MoH) guidelines are in congruent with WHO guidelines on utilization of TBA. They are now allowed to deliver only in emergency situations.

The role of TBAs are limited solely to encouragement of delivery at a health facility and TBAs lost opportunity to use what they learned from the Project.

- Virology Laboratory

WHO has changed the plan of Polio reference laboratory network in Africa to spell out Tanzania from countries which have a Polio reference laboratory.

- Paediatrics

The management of Muhimbili National Hospital does not prioritize the Paediatrics or agree that the Paediatrics had its own laboratory now. However, the dialogue among MoH, MNH and the Paediatrics is continued to solve this issue.

(2) Sustainability

- TBSs/VHWs in Tanga

Due to the policy change mentioned above, the local government authorities in Tanga region quitted to support activities of TBAs. It caused to phase out the revolving system for TBA Kit. Thus the TBAs activities undertaken by JICA and the Municipality Medical Officer of Health in Tanga and the Korogwe District Council were not incorporated into the planning and budgeting systems of the LGAs when the project ended.

3-4. Conclusions

The Evidence Based Medicine is well-established and provided to a number of child patients in the Paediatrics of Muhimbili National Hospital. The Virology Laboratory keeps has sufficient capability for serological examination and work as the national reference laboratory for measles and the centre of excellency for research and academic purposes. Furthermore, both organizations are operated by their own staff and supported strongly by the government.

On the other hand, the policy change for TBAs spoils the output of the component of the

Project while TBAs are still active, motivated to renew their knowledge and skills and dependent of rural community.

3-5. Recommendations

- TBAs/VHWs in Tanga

The activities of TBAs in Tanga have been depressed due to losing supports from the government. The policy for TBAs should be reviewed to utilize TBAs for many aspects for improvement for maternal health at community level.

- Virology Laboratory

The Government of Tanzania and the management of Muhimbli University College of Health Science are strongly recommended to maintain financial support to this laboratory as the national reference laboratory to keep the same capability as of now. Furthermore, a financial amount should be prepared for replacement of decayed equipments in the laboratory. Recruitment for strengthening and/or taking over of the present personnel of the laboratory is also crucial.

- Paediatrics

The management of MNH should pay high consideration to the Paediatrics in order to contribute for reduction of the IMR and U5MR in this country as one of roles of responsibility of the top referral hospital in this country. Therefore, the hospital will allocate so sufficient human and financial resource as to maintain running of SPL and realizing of Evidence Based Medicine.

3-6. Lessons Learnt

To achieve the Goal 5 of the Millennium Development Goals in this country, it is recommended that JICA and the MOH develop and implement a comprehensive Reproductive and Child Health programme that covers a larger population where impact can be measured: e.g. Tanga and Morogoro Regions.

Projects for maternal health at community level should be designed in such a way that the implementation follows a continuum of care approach; i.e. all the community, including not only women but men and the youth, should be fully involved in prevention of maternal mortality and those people should be linked to a functional health facility (functional health facility has Skilled Attendants, appropriate and basic equipment to deal with Emergency Obstetric Care).

From the experience of the policy change after the end of the Project, a government should have a transitional strategy so as to let the outputs of the Project remain.

Adequate training to counterparts and preparation of the working circumstance to use the acquired knowledge and skills are necessary. Furthermore, training to counterparts for maintenance of working circumstance, management of facilities and equipments, will develop sustainability. The revolving fund system of SPL is a good example.

Support from the government is required. Virology laboratory and SPL cannot sustain if losing supports from the government. TBAs in Tanga is another example.

During implementation of a project, a government and funding partners should develop a mechanism of financial sustainability. The government will gradually take over the funding activities for the project activities in order to ensure that such funding activities become parts of the budgeting and planning systems of the government or local government authorities.

3-7. Follow-up Situation

In order to consolidate the capacity of the SPL and to strengthen relationship between the SPL and medical doctors in the Paediatrics for the enhancement of Evidence Based Medicine, one Japanese expert for Paediatrics was dispatched for May 2002 to June 2005.

1. INTRODUCTION

1.1 PROJECT BACKGROUND

The aim of the Rolling Plan and Forward Budget 1993/94-95/96 of the Government of Tanzania was to promote the enhancement of the social services sector i.e. education, health, and water supply. The rolling plan was not implemented as planned due to economic constraints. As a result, the improvements in the health sector that had been expected did not occur with a resulting continuation of the deficiencies in the health sector in terms of shortage in human resources, equipment and supplies and deterioration of the physical infrastructure. The quality of primary health care services and particularly maternal and child health services was not improving at a rate that was expected in order to impact on the health indicators. e.g. Maternal Mortality Rate and Infant Mortality Rate.

Since the 1970's the government of Tanzania has been implementing an EPI programme that raised the vaccination coverage of all the antigens. In 1995 the coverage of polio vaccine was 80%. In accordance with the 41st WHO General Assembly Resolution (1998) Tanzania aimed at eradicating polio by the year 2000 and undertook various activities related to that goal including having National Immunization Days (NIDs) and improved surveillance. In order to improve surveillance it was necessary to isolate and identify the polio virus from the stools of patients with Acute Flaccid Paralysis (AFP). This was a component of a comprehensive surveillance system in support of the polio eradication programme that the country was developing. Thus there was a need to support the Acute Flaccid Paralysis (AFP) surveillance system.

In 1994 the Government of Tanzania requested for technical assistance from the government of Japan to fund a project: The Maternal and Child Health Project that would be implemented at national and district level in order to improve maternal and child health.
The major inputs in the project included funds, equipment, trainings and experts. Thus the project had three components implemented at 3 sites:

- Muhimbili National Hospital -MNH- Pediatric department-- Evidence Based Medicine (EBM)
- Muhimbili University College of Health Sciences –MUCHS-Enhancement of microbiological laboratory for communicable diseases. A Virology laboratory was to be established at MNH to function as a national polio laboratory to support the AFP Surveillance System in Tanzania.
- Tanga Region: Training of TBAs and VHWs to improve the health status of pregnant women. The project sites are Magoma Division in Korogwe District and Pongwe Division in Tanga Municipality. The total population of Pongwe Division in 1994 when the project started was reported to be 42,460 living in 7 wards in 23 villages. The total population of Magoma Division was 35,086 living in 4 wards in 26 villages.

The project was completed in 1999 following which there was an extension of 2 years that ended in November 2001. It is now more than 3 years since the project was completed and evaluated in 2001. At this juncture, JICA commissioned external

consultants to conduct a post status study in order to ascertain the impact and sustainability of the project.
The post status study was conducted on the basis of the 2 modalities of project evaluation (Impact, and Sustainability) while at the same time taking note of the other modalities of project progress (Relevance, Effectiveness and Efficiency)

Impact looked into such issues as measurement of the achievements of the overall goal and specific objectives of the project and the effects on other health related issues like gender and the social structure. Sustainability looked at the continuation or further development of the outcomes and impact of the project after the completion of the project and after the end of project evaluation: i.e. to what extent has the recipient organization maintained the positive effects of the project after it was completed.
In addition, the post status study aims at deriving lessons learnt and recommendations for improvement in prioritizing, planning and implementation of country programmes.

1.2 Project Overview

The goals of the project were:-

- To improve maternal and child health services in Tanga and Korogwe Districts,
- To improve the virological diagnostic capabilities of EPI diseases at MNH,
- To strengthen capacity of the MNH in activities targeted at reduction of infant and child mortality rates.

The expected project outputs were:

- Capabilities of the TBAs in the project areas are improved,
- Referral system of high-risk pregnancy is established in the pilot area,
- Revolving system of TBAs services is applied throughout the pilot areas,
- Equipment installed in Virology Laboratory is well maintained,
- Concept of “Laboratory Based Medicine” is further understood by doctors, nurses and laboratory technicians,
- Revenue from cost sharing scheme at Pediatric Laboratory is increased,
- The SPL is efficiently managed by the Tanzanian personnel,

1.3 STUDY OBJECTIVES OF THE EX-POST EVALUATION STUDY OF MATERNAL ANDCHILD HEALTH

The overall purpose of the post project status study of the MCH project is to evaluate the project based on the 5 criteria for evaluation (efficiency, effectiveness, relevance, impact and sustainability) but putting more emphasis on impact and sustainability and to measure or assess the achievements of the overall goals of the project. The overall goal of the project is to contribute to the reduction of morbidity and mortality.

1.4 Scope of Work

The consultants have performed the following 4 tasks:

SN	Objectives	Tasks
A	**Preparation**	
1.	To study the documents related to the project, to grasp the overview of the project, to summarize the actual inputs to the project and to estimate the achievement of the overall goals	Study the documents related to the project, summarize the actual inputs to the project to estimate the achievement of the overall goals
2.	To prepare an evaluation grid for conducting this study, to identify the necessary activities and to schedule the activities. An evaluation grid is a table of study items and study methodologies based on the five view point of evaluation: relevance, effectiveness, efficiency, impact and sustainability.	Prepare an evaluation grid for conducting the study
3.	To prepare an inception report to clarify the direction of the study, work plan and methodology	Prepare inception report
4.	To prepare necessary materials like questionnaires for interviews and discussions	Prepare instruments for data collection
B.	**Field study**	
1.	To interview the people related to the project at each project site	Conduct interviews
2.	To facilitate the Focus Group Discussions	Conduct FGDs
3.	To observe the equipment and facilities provided or supported by JICA during the project period.	Observation of equipment provided or supported by JICA during the project period
4.	To summarize the results of the activities above and confirm the summary with the related people	Summarize the results
C.	**REPORT DRAFTING**	
1	To analyze the information collected in the field study above and to evaluate the project from the two view points, “impact” and “Sustainability” according to the check items on the evaluation grid	Analyze the information obtained and evaluate the project by emphasizing sustainability and impact according to the check items in the evaluation grid.
2	To analyze the reasons why the “impact” appears and/or why the “sustainability” is maintained.	Analyze as to why there is impact/no impact why the sustainability is maintained
3	To submit the final draft of the evaluation report of the study by the 15th of December,	Submission of the draft report on the 15th of December,

	2005	2005
D	**TO FINALIZE THE REPORT**	
	To finalize the draft of the evaluation report responding to comments from the related departments of JICA headquarters in Japan through the JICA Tanzania office before mid of February 2006.	Complete and submit final report

1.5 EVALUATION TEAM

Dr. Calista Simbakalia, HealthScope Tanzania Ltd.
Dr. Tengio F. Urrio, HealthScope Tanzania Ltd.
*Furthermore, two research assistants cooperated at the field study and a secretary helped to draft the report.

1.6 STUDY PERIOD

9th November, 2005 – 15th February, 2006
Field study: 28th November – 5th December, 2005

2. EVALUATION STUDY APPROACH

2.1 METHODOLOGY

Data collection
Primary and secondary data were collected and analyzed.

Primary: Primary data were obtained by administering questionnaires, filling check lists and conducting FGDs. To ensure the quality of FGDs responses, discussions were tape-recorded, transcribed and translated into English.
Primary data were analyzed manually in collaboration with a data analyst.

Secondary: Secondary data were obtained from review of documents on the MCH project e.g. project documents, annual reports, review and evaluation reports and other relevant documents e.g. training reports. The consultants reviewed several documents that had information on the project design and implementation. Project documents and implementation reports were obtained from JICA, MOH and the project sites. In addition the consultants reviewed background policy documents of the MOH that are related to the components of the project.

Data collectors

Data collectors were trained on the use of the instruments for two days and participated in preparation for the fieldwork. Research Assistants were recruited

on the basis of having a background on laboratory work and MCH especially on TBA and VHW training.

2.2 LOGICAL FRAMEWORK

See Annex V "EVALUATION GRID"

2.3 IMPLEMENTATION

2.4. LIMITATIONS OF THE STUDY

Records management was found to be inadequate: Data requested were not readily available and when available there were incomplete. This finding mainly applies to SPL.

Data from the Virology Laboratory (number of test performed: measles, rubella and HIV) could not be obtained because the computer that stored data was not functioning (had crashed) and there was no back up system where the data could be retrieved.

However, the examination of the requests and results that were filed revealed that from 2000 to 2005 the following numbers of measles and rubella investigations were done: 488 (2000), 415 (2001), 177 (2002), 641 (2003), 712 (2004) and 552 (2005). All the requests are for measles investigations. In case the result is negative the laboratory technician goes ahead and does rubella test. Rubella investigations are performed only when the results of measles investigation are negative.

There were 3 project sites with one super goal of reducing maternal mortality and child mortality rate. This presented the project with methodological problem in developing indicators for measuring achievement.
Measurement of achievement of the super goal (impact) could have been done in Tanga and Korogwe districts but this needed a community survey that the post evaluation study could not accommodate.

3. FINDINGS

3.1 VIROLOGY LABORATORY

Virology Laboratory was set up in June 1999, at the last stage of the first phase of the project. The WHO Inspectors were not able to incorporate the Virology Laboratory in the Network Africa and therefore accreditation did not take place. However, in terms of other EPI diseases, the laboratory constantly tested measles and Rubella as part of the surveillance activities. In addition, the laboratory has

undertaken up the task of confirming the accuracy of HIV tests that are being performed in other laboratories.

3.1.1 IMPACT

The Virology Laboratory has been shown to have a great impact on the surveillance of Measles and Rubella. Whenever there is an outbreak of measles/ rubella specimen are sent to the Virology Laboratory for serological investigations in order to confirm the diagnosis and thereafter appropriate treatment and investigation are undertaken based on accurate diagnosis.

In addition, serological investigations that test accuracy of HIV tests are also being performed at Virology Laboratory. This test is very useful because it assist to confirm the accuracy of tests performed elsewhere and therefore remove the doubt of false positives and negatives in the diagnosis of HIV.

Data to support the number of tests performed since the end of the project could not be retrieved because the computer that stored data crashed at the time of data collection. However, the examination of the requests and results that were filed revealed that from 2000 to 2005 the following numbers of measles and rubella investigations were done: 488 (2000), 415 (2001), 177 (2002), 641 (2003), 712 (2004) and 552 (2005). All the requests are for measles investigations. In case the result is negative the laboratory technician goes ahead and does rubella test. Rubella investigations are performed only when the results of measles investigation are negative.

The impact of Virology Laboratory has been facilitated by the input of modern equipment and skills improvement of the staff who have continued to maintain the equipment. (Annex I)

Constraints

The polio laboratory was not included in the Polio Laboratory Network in Africa in 1999. At the time of accreditation (1999) that was to include the laboratory in the Polio Network in Africa the Laboratory, had not been completed to meet the WHO inspectors' standards for accreditation.
The Virology Laboratory missed to be included in the network and therefore accreditation that was supposed to be done on yearly basis was not done. Specimen for suspected AFP continues to be sent to the Virology Laboratory in Lusaka (Zambia). EPI data show that from 1995 to 1997, 64 specimens were sent to Virology Laboratory in Lusaka, six were positive. From1998 to 2004, 1497 specimen were also sent to Virology Lab Lusaka and there were all negative (Annex II)

3.1.2 SUSTAINABILITY

Policy aspect

Post evaluation study confirms that the Government is still supporting the Virology Laboratory though MUCHS in terms of reagents and supplies.

Capacity building

Improvement of skills for staff

During the project from 1996 to the year 2000 four (4) Technicians from the MUCHS were trained (one each year). They were all trained in cell culture in Japan.

During the post project period, **t**wo staff members were trained in cell culture in the year 2004. One staff is the head of Virology Lab (Medical microbiologist) from MUCHS and the other staff works with MNH.

Equipments.

95% of the equipments are still in good condition. There were only two sets of equipment that were found not to be working. The two autoclaves (ASTELL) are irreparable.

Buildings

The Laboratory is still in very good condition. It is kept clean. Currently it does not need any renovation.
These aspects of capacity building have facilitated the sustainability of the Virology laboratory in the post project period.

Institutional aspects

Due to the support of the Microbiology Department and MUCHS, the institutional sustainability has been ensured. In addition, the staff members were trained during the project (4) and after the project (2). Modern equipments were supplied to enable the Virology Laboratory staff to perform their procedures efficiently and effectively. During the post-evaluation study 95% of the equipment supplied during the project were still in good condition and were functioning (Annex I).

The head of Virology Laboratory is a Medical Microbiologist who has also been trained in Cell Culture. He is been assisted by a Laboratory Technician who has also been trained in Cell Culture. The Laboratory is collaborating very well with the Microbiology and other MUCHS Departments. Consultative meetings are being conducted regularly where important issues are discussed and advice taken from the head of Department and staff from Microbiology department.

Financial aspect

Post evaluation study confirms that Government is still supporting the Virology Laboratory in terms of reagents and other expendables through MUCHS.

3.1.3 LESSONS LEARNT

Training adequate staff in the Virology Laboratory contributed to the sustainability of the Virology Laboratory especially the maintenance of equipment provided by the project.

Building the capacity and the capability of staff led to incorporate Measles, rubella serological investigations including testing for accuracy of HIV.

The Laboratory Virological Laboratory has responded to the relevant present needs of Virology i.e. ensuring quality testing in HIV and Measles diagnosis

3.2 PAEDIATRICS

The Project purpose: "Laboratory based Medicine by utilizing laboratory-data for accurate diagnosis is established." has been achieved. The modern and well equipped laboratory with modern equipment has developed capacity in performing advanced tests in immunology, biochemistry, hematology, bacteriology, ECG and ultrasonography. Test results from the laboratory have contributed to the improvement in laboratory based medicine and treatment of patients. The laboratory also improved capabilities of medical staff (doctors, nurses, technicians and medical students) on laboratory based medical skills.

3.2.1 IMPACT

The main clients of SPL are children admitted to Paediatric wards. In order to treat and manage patients with accuracy, the diagnosis is confirmed by undertaking various tests in the SPL.

Admissions and mortality in Pediatric wards

The Total admission for Paediatric wards (ward A, ward B, ward 17A, ward 17B and neonatal wards) was as follow:

- For 2001/02, there were 14,853 admissions. The overall mortality was 18.1%
- For 2002/03, there were 2,849 admissions. The overall mortality was 17.8%
- For 2003/04, there were 11,534 admissions. The overall mortality was 14.8%.

The above figures show a high mortality rate for children admitted in the Paediatric wards. In the year 2002/2003 the mortality rate was the highest. The reason could not be determined. Further study is needed to determine the cause of such high mortality that occurred in the year 2002/2003. However, the study

found that the major causes of death were as follow: Malaria: 31.5%, Pneumonia: 24.0%, Anemia: 10.8%, Septicemia: 8%, UTI: 8% and Malnutrition: 5.4%.

Skill improvement

Seven staff members were trained during the project period. All of them are still working in the SPL. Some of the staff work in SPL as well as in the CPL. They have also continued to train Laboratory Technicians and Medical Students
The courses attended were: Molecular microbiology (1), Biochemistry (2), Hematology (1) and Management course (1)
To date, 250 Medical students have been trained in Biochemistry, Microbiology, and Hematology- In addition 90 Laboratory technicians who specialize in Hematology, Biochemistry and Microbiology have been trained at the SPL. During training they acquire special skills and become efficient in using evidence based medicine that lead to efficiency in managing various diseases (medical doctors) and giving accurate results (Laboratory Technicians)

Equipment

During the study it was found that four out of seventeen modern equipment provided were not functioning during the period of the study and two 2 out the 4 that were found not functioning had not been functioning since they were supplied. The consultants were informed that those equipments that were functioning during the project period became irreparable. Those that have never functioned since they were brought to SPL were defective and therefore they have never functioned

Utilization of SPL

The SPL is being utilized by inpatients and outpatients.
Basically, the users of SPL are under five children but adults do also frequent SPL for investigations.

The MOH policy exempts under five for paying for laboratory services.
SPL data show that for those who underwent testing from 2001 to 2004 show the results as follow:

- For the year 2002/03, a total of 23,853 were tested: 15,427 were exempted and 8,426 were paid
- For the year 2003/04, a total of 19,728 patients were tested: 12,588 were exempted and 7,140 were paid

Utilization of SPL for research purposes

The SPL has been recognized by Researchers as a Laboratory where research can be undertaken.

Due to its reliable equipment, water electricity and well trained staff the SPL has become a centre of Excellency for conducting Laboratory Based Research.

Currently, researchers are using SPL to study the following:

- Metabolic syndromes,
- Sickle cell diseases, and
- Psychiatric, Traditional medicine and Pharmacology departments are conducting research in the SPL

Assistance of CPL

SPL assisted CPL during its major renovation that took place from July 2004 to August 2005. During that period, SPL performed mainly 7,700 Biochemistry tests and 1,281 Hematology tests. This performance was a great assistance to CPL that otherwise it would have been very difficult for CPL to handle these tests during renovation.

3.2.2 SUSTAINABILITY

Policy aspect

The government has continued to support the SPL through MNH. The SPL Manager usually requests funds from MNH and funds are allocated as per the request. The manager has never failed to get funds from MNH upon request.

Technical aspect

After the project ended, the quality and quantity of services from the SPL laboratory have been increasing because the staff are skilled and they work in a conducive environment where modern equipment are available. The equipments facilitate Laboratory Technicians to produce reliable results thus leading to efficiency in diagnosing and managing diseases.
Due to their quality training, there were able to handle MNH tests for more than one year while CPL was being renovated.
This is one of the evidence that Technical sustainability has been achieved.

Institutional aspects

Management

One of the Doctors working in the Pediatric department was sent to Japan for training in managerial skills.

He is now managing the SPL. He is being assisted by the Laboratory Technician in charge who has undergone training in Japan (Biochemistry).

The SPL is well managed with high quality services.
Collaboration with CPL and other departments is being done through consultative meetings and through Technical assistance.

Project financial support for maintenance and repair.

MNH allocated funds for maintenance and repair
Maintenance of equipment has been outsourced and is being performed by

- Engineers from UDSM
- Roche Engineers from South Africa

The services provided by Roche engineers from South Africa are of high cost.

SPL Revolving fund

As discussed earlier, the majority of patients is under five and is exempted from paying services rendered by SPL.
However, other patients who come for SPL services do pay (cost sharing). The funds obtained from cost sharing are minimal.
The SPL staff came with innovative ideas of working with researchers. By being collaborate with SPL in a study, the research organization has to pay a fee to SPL. This is an Income Generating Activity that has assisted SPL to increase its revenue.
The Head of Paediatric Department informed the consultants that at the end of the project SPL had around 40 millions shillings while this year they have 200 millions that have been generated from SPL activities.

3.2.3 LESSONS LEARNT

Provision of modern equipment coupled with improvement of technical skills motivated staff for production of high quality services.

Government financial support through MNH has facilitated the SPL to have high quality performance due to constant availability of funds.
Managerial skills imparted to the SPL Manager also facilitated the sustainability of SPL

3.3 TBAS AND VHWS IN TANGA REGION

The project post evaluation has found areas of impact and sustainability of the project in particular related to

- Capacity building that include: Training, improvement of physical infrastructure and provision of equipment and transport
- Presence of TBAs in the community

3.3.1 IMPACT

Policy aspect

New TBA utilization guidelines came in place in 2001 after project implementation and evaluation. In these guidelines emphasis was put on Skilled Attendants (trained service providers) at Delivery instead of TBAs. The MOH guidelines are in congruent with WHO guidelines on utilization of TBA. They are now allowed to deliver only in emergency situations.

Response to the policy change

The response to the policy change by the individuals in the community especially pregnant women has not been positive. The women have been used to be delivered by the TBAs. Individual women have requested TBAs to deliver them rather than go to the health facilities.
The community was supporting the TBAs during and after training. When there was policy change that required the TBAs to refer the pregnant women to the health facility the community continued to support the TBAs for home delivery. Some TBAs in their new role do escort pregnant women to the health facilities and stay with them till they deliver.
After the policy changed, the health facilities staff has encouraged the TBAs to refer women to the facilities and to deliver only if women come to them when advanced in labor. Service providers welcome the TBAs into the health facilities when they escort women and encourage them to stay with the women till they deliver or are referred to the next level of care.
The health facilities also have continued to receive the reports of deliveries from the TBAs. They have continued to encourage them to report every month.

The policy change has not affected the community preference for the place of delivery. They still want to be delivered at home i.e. by the TBAs. The community needs are that pregnant women are delivered safely at home. TBAs reported that individual women have requested them to deliver them in the village rather than go to the health facilities**.**

The LGAs have accepted and understood the policy change in that the country wants to encourage delivery by Skilled Attendants. However the LGAs have not drawn out strategies to implement the policy. One of the strategies would be the gradual phase out of the TBA and increasingly Skilled Attendants. Thus the LGAs need to draw out the strategies and activities that show how the TBAs will be supported until the availability of Skilled Attendants is adequate

The roles of TBAs have therefore changed from conducting deliveries to early referral.
Despite the new guidelines, TBAs are still active in the community as shown by data from Kerenge ward (table 1)

Table 1 TBA Deliveries Kerenge Ward 2001-2005

Year	TBA deliveries
2004	100
2003	90
2002	75
2001	20 in 3 months i.e. about 80

Figure 1

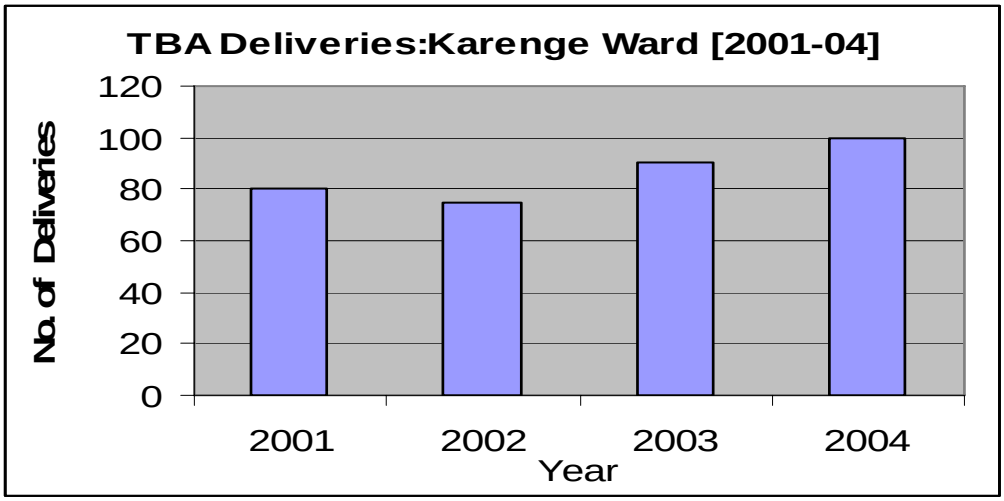


Figure 1 above shows that the number of deliveries by TBAs in Kerege ward has been on the increase 2001-2004

In Kerenge ward, the number of deliveries has been increasing steadily from 75 in 2002 to 100 in 2004. In some of the wards in the division, TBAs are doing more deliveries than the health facility as seen in Table 2 below

Tabe2: Number of deliveries by health facilities and TBAs 2004 in Magoma division.

Name of facility	Health facility deliveries	TBA deliveries	% by TBAs	Comment
Kilalani	13	0	0	Have only one TBA, a mining area, a migrant population
Kizara	30	17	36	36% deliveries by TBAs
Kwamkola	40	7	14	-
Kerenge	110	143	56	More deliveries by TBAs than health facility. TBAs very motivated: revolving fund still in place, TBA buy own notebooks to keep records.
Magoma	124	66	34	34% deliveries by TBAs
Marumba	22	81	78	TBA do 4 times as many deliveries as in health facility. The facility has no MCHA as was transferred, replaced and later went for training.
Mashewa	67	28	29	-
Komazandu	No report	No report	-	-

Figure 2

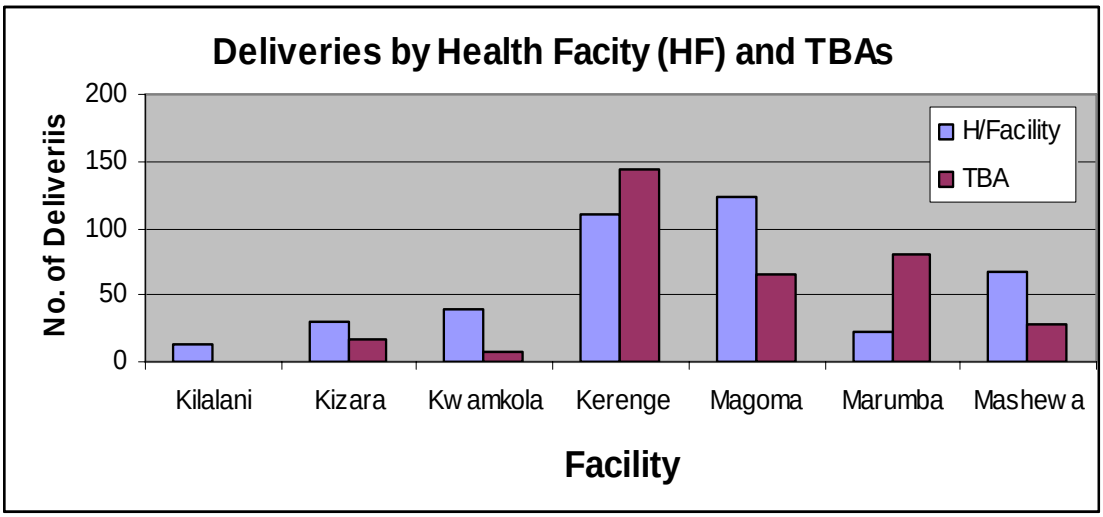


Figure 2 above shows that in Kerenge and Masumbi wards TBAs do more deliveries than the health facilities.

Tanga region Maternal Mortality Rate

The data has been compiled from annual returns from each district and region and discussed at the Annual RCHS evaluation meeting. The unit has computerized data from the year 2000. However this is hospital data and not community based data. The following are the maternal mortality figures for Korogwe and Tanga in 2000 to 2004.

Table 3 Maternal Mortality Rate Trend 2000-2004

District	Year	Live	Maternal deaths	MMR/100,000
Tanga*	2000	3712	13	350
	2001	4962	26	443
	2002	6205	29	467
	2003	6532	28	422
	2004	7192	30	417
Korog	2000	5017	7	139
	2001	5558	5	90
	2002	4116	16	384
	2003	3893	13	333
	2004	4616	8	173

Figure 3

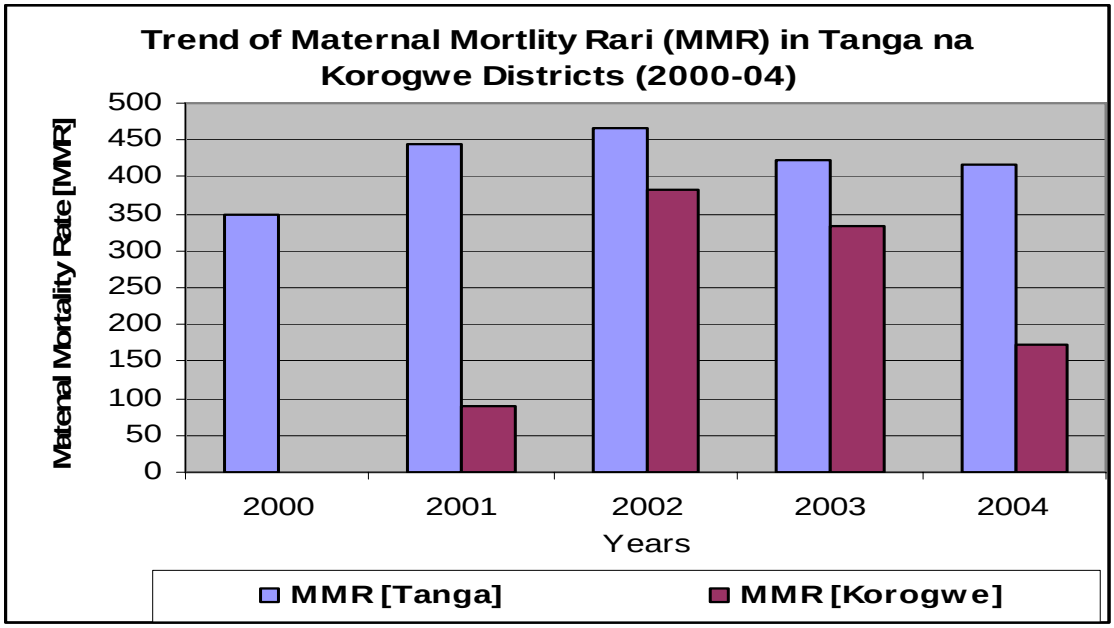


Figure 3 above shows Maternal Mortality Rate in the 2 districts 2000-2004. The rate in Tanga rose 2000-2002 and fell for 2 years 2003 and 2004. In Korogwe the rate has been falling for three years consecutively 2002 -2004

*Tanga shows a decreasing trend 2002-2004. The project evaluation report of 2001 reports that during the period of project implementation the MMR fell from 392/100,000 in 1999 to 350/1000 in 2001. Thus it started rising again for the first 2 years after the end of the project before it started to decrease again. In 2004 it was still decreasing but has not reached the 2001 figure of 350/100,000

**Korogwe also shows a decreasing trend 2002-2004. . The project evaluation report of 2001 reports that during the period of project implementation the MMR decreased from 254/100,000 in 1999 to 139/1000 in 2001. Thus it continued to decrease one year after the project before it started to rise and decreased again. In 2004 it was still decreasing but has not reached the 2001 figure of 139/100,000

Scarcity of health workers

Scarcity of health workers has necessitated TBAs to have increased work load for delivering women: Health workers get transferred and others go on training for upgrading. e.g. nursing staff go for upgrading courses from MCHA to PHNB and PHNA. As a result, TBAs increasingly deliver women at home.

Table 4 shows that two of the seven health facilities in the Magoma division in Korogwe District lack nursing staff. As a result, TBAs are doing deliveries in the communities.

Table 4 The Personnel position in Health facilities Magoma Division - Korogwe 2005

Health facility	Staff					Comment
	AMO	CO	PHNA	PHNB	MCHA	
Magoma HC	1	1	1	2	2	
Kizara dispensary		1			-	No nursing staff, transferred not yet replaced. There are 11 TBAs in the community
Kwamkole dispensary		1			1	
Kalalani dispensary		-			1	
Mashewa dispensary		1			1	
Makumba dispensary		1			-	MCHA went for training not yet replaced. Have 13 TBAs in the community
Kwemazandu dispensary		1		1	-	-
Kerenge dispensary		1			1	-

Capacity building

The senior staff that was trained in Japan has been promoted to higher positions or remains at their present positions with their improved skills. The Medical Officer trained in Japan for 6 months has been promoted to District Medical Officer, the laboratory technician and nursing officers remain at their positions in the districts. The Nurses who studied in Japan worked as project counterparts to the Japanese Public Health expert and were instrumental in sustainability of the project after it had ended in 2001.

Use of TBAs for other activities

The trained TBAs are in the community and despite the change in policy and decrease utilization of TBAs in deliveries they are being used to deal with other community problems

- Vitamin A distribution. In Tanga, in 2004, TBAs were trained in vitamin A. The training was funded by the Helen Keller Foundation. World vision in Korogwe has provided funds for one day training on vitamin A administration after delivery. Vitamin A administered during the postnatal period is a way of getting the vitamin to the infant as this is excreted in breast milk. The TBAs were trained on the importance of administering the vitamin A capsules to women after delivery and to refer women to the health care institutions to get the vitamins immediately after delivery. The TBA can go to the health care institution to get the vitamins for the woman who has just delivered.
- Non obstetrical services:. in health facilities that do not have enough health workers they use TBAs to weigh children e.g. in Korogwe Makumba dispensary in the child welfare clinic.

- Outreach activities. Outreach services are RCHS delivered by health workers from a health facility to far to reach areas where the population finds it difficult to come to the health facilities. Health workers depend on the local administration, TBAs and VHWs to organize the services and depend on the VHWs and the TBAs to assist during services delivery.
- During NIDs TBAs and VHWs are utilized to administer vaccines especially for polio and to assist in recording.
- Malaria prevention and nutrition In 2004 and 2005 the TBAs were retrained by the World Vision on malaria and nutrition.
- Post natal services TBAs are trained to sensitize women to attend post natal services 7 days after delivery to have the mother and baby checked. Postnatal attendance is low and so TBAs are key actors in raising the coverage of this service.

3.3.2 SUSTAINABILITY

The TBAs have been active and were found active and highly motivated during post evaluation. The motivation is evidenced by the fact that they have tried on their own to manage components of the programme that are experiencing reduced support due to the new guidelines on utilization of TBAs

Re-training and re-sensitization

Re-sensitization seminars were conducted in Tanga in the year 2002 and 2005 TOTs conducted the seminars. The cost of sensitization seminars were funded by the Tanga City Council and co funded by the Japanese Overseas, Volunteers Organization.
In Korogwe, the CHMT organized and funded a one day seminar in 2003 with the objective of discussing with the TBAs the new guidelines on utilization of TBAs and the responsibilities of the TBA in this guideline

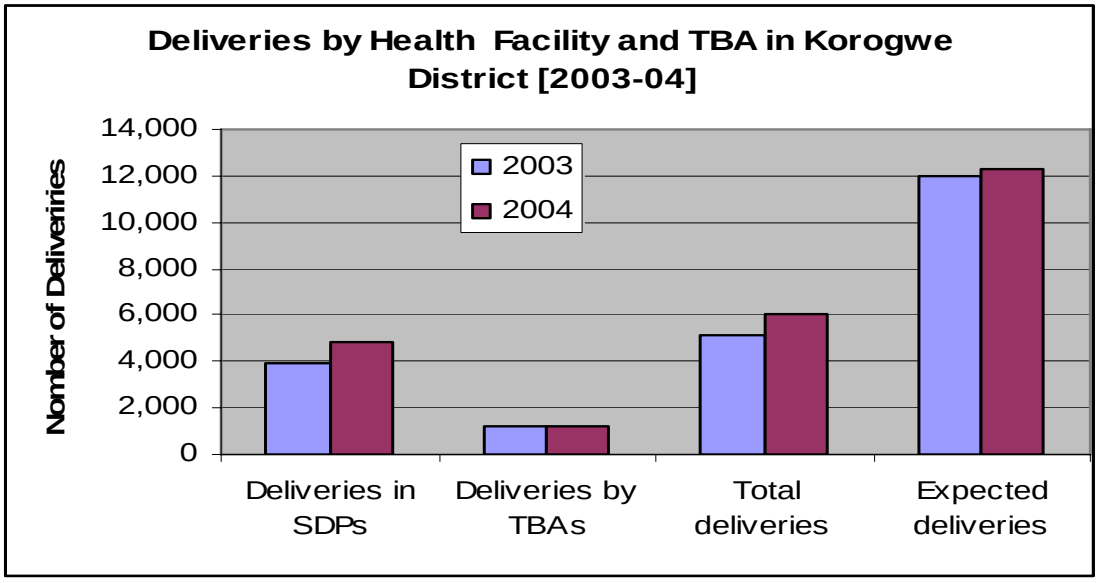
TBAs are still active and doing deliveries in their villages. An example of an active group was seen at the FGD at Kerenge Dispensary that serves a total population of 6,485. At Kerenge ward, the number of deliveries by TBAs has been increasing from 75 in 2002, 90 in 2003 and 100 in 2004 showing that the TBAs are gaining popularity (table below).

In Korogwe District almost 20% of all deliveries are done by TBAs (see the table below)

Table 5: Health Facility and TBA deliveries in Korogwe

Year	Deliveries in SDPs	Deliveries by TBAs	Total deliveries recorded	Expected deliveries
2003	3,952	1,168 (22.8%)	5,120 (42.6%)	12,006
2004	4,834	1,168 (19.4%)	6,002 (48.7%)	12,320

Figure 4



Improvement of physical infrastructure

Health facilities were built by the project (Marungu and Mapojoni in Tanga, and Tongoni in Korogwe).

Renovation work was carried out in Maweni dispensary and Pongwe HC in Tanga and almost all the facilities in Magoma Division in Korogwe (Kerege, Makumbako, Kwemazandu, Magoma, Kalalani Kizaro and Mashewa)

The villages participation in providing labor and other contribution in building health facilities has stimulated the spirit of community participation. Community participation in health and in setting up health facilities has improved since the project ended and involved not only health but also the other sectors notably the education sector. Marungu dispensary in Korogwe was built by community participation with the project providing equipment and the community providing the labour.

All these facilities were found staffed and operational during the post evaluation. This factor has increased ANC accessibility for pregnant women and therefore improved Maternal and Child Health.

The community leaders appreciated the renovation of Health facilities and recognized that its outcome is the improvement of quality of care for mothers and children.

Allocation of funds for renovation

Tanga City Council and Korogwe District Council allocate money every year for renovation of health facilities.

- This year Magoma health center is setting up a minor operation theatre.
- The district hospital at Korogwe is being renovated by assistance from KFW to put up a working sewage system, a theatre and a reception building,

- In Mapojoni dispensary a water bore hole was dug to provide water to the dispensary and to the community. The community maintains the pump and ensures that water is available for itself and for the health facility.

Provision of equipment and transport

Equipment that were provided during the project were inspected during post evaluation.
Delivery beds were provided to all the health facilities in the 2 Divisions i.e. in Tanga and Korogwe.

At the Regional hospital, a photocopier was old and needed replacement.
At the district hospital in Korogwe a television and a VCR was providing advocacy and IEC materials in the VCT clinic. Some of the delivery beds have been replaced

The two vehicles (Nissan vehicles) provided to the project are now over 10 years. They were on the road for 9 years, are grounded and need replacement.
The motorcycles are on the road as they are repaired by the local council or by the staff themselves.

The bicycles supplied to the TBA assist them in visiting their clients in the villages. They need spares and some require replacement.

TBA supervision system

TBAs used to hold monthly supervisory meetings during which they would bring in and discuss their monthly report, replenish expendables in the TBA kit and discuss achievements and problems. During the supervisory meeting the TBA kits were checked and supplies replenished from the revolving fund. During the supervisory meetings the TBAs bring reports and discuss problems, they experience in their areas.

After the project ended in 2001 the meetings are no longer being held and instead the TBAs bring in reports to the health care institutions individually. They are encouraged to bring in reports even if they do not deliver. Thus the system of monitoring deliveries of TBAs has been sustained.

With the change of the policy there has been change in the support being given to TBAs. The supervisory system that had been set up has been weakened. Staff is of the idea that supporting TBAs is supporting deliveries by TBAs and thus working contrary to the policy.
The second reason that the supervision meetings are not being held is that they are not being budgeted for in the CCHP. At the end of the project the LGAs had not taken over this activity. This activity had not been incorporated into the CCHP.
The lesson to be learnt is that during implementation of a project the government and the funding partners should work out mechanism of financial sustainability with the government gradually taking over the funding of the activities- ensuring that the activities are part of the budgeting and planning systems of the CHMT.

Thus the TBAs activities undertaken by JICA and the municipality Medical Officer of Health in Tanga and the Korogwe District Council were not incorporated into the planning and budgeting systems of the LGAs when the project ended.

Interaction with the Health Facilities

TBAs have continued to go to the health facilities individually every month to send reports of deliveries. The TBAs have continued to maintain contact with the health facility as they refer and escort women to the health facility.

The new roles of the TBAs of referral and escorting pregnant women to the health facility, instead of attending delivery unless necessary, have improved their contact with the health facility.

Revolving system of TBA services is applied throughout the pilot areas

A revolving fund for replenishing expendables in the TBA kit was started.
The revolving fund system that used to replace the expendables in the TBA kits is no longer in place in some of the facilities. In Korogwe for example only one of the four facilities visited continued to maintain the revolving fund.

The TBAs that live in villages where the health facility no longer maintains the revolving system buy supplies for their delivery kits. In the ANC, women are asked to buy and keep the supplies at home in preparing fo**r** delivery. The TBAs encourage them to do so.

The revolving fund therefore is an innovative system of cost sharing at the community level to facilitate the procurement and constant availability of supplies for doing deliveries. It is within the policy of the MOH and the Local Government reforms.
However, during the evaluation the revolving fund was not working. The reasons are to do with the TBA policy change. Again this was one of the TBA support activities. The TBAs say that the system was in support of their activities. It facilitated their work in that at the end of the month they brought in the money they had collected from clients they delivered and a list of supplies they had used. The health worker replenished the supplies and with the money she/he bought more supplies to replenish those that she had given out to the TBAs. After the end of the project the revolving fund was not sustained.

- Health workers see any activity that supports the TBAs as working against the policy.
- The system was not incorporated into the LGAs budgeting and planning system. Although it is a revolving fund still it had to be incorporated into the district budgeting and accounting system. This is a major problem that hindered its implementation. The revolving fund was a new system outside the regular supply system of the district. To have it being implemented continuously it had to be incorporated into the budgetary and accounting system of the district

The Situation of VHWs

In Tanga they started with 96 VHWs and now they have 37 after 59 had dropped out. In Korogwe, 52 VHWs were trained for 26 villages i.e. 2 in each village. The VHWs in Korogwe unlike in Tanga have been retained. The drop out rate has been small. Where they have dropped out by migration or getting gainful employment, the villages selected new VHWs for training.
The WHWs are selected by the community. They are among the best educated, good character and known to leaders in the community. Thus they have status in the community. After training their status improves further. They become more popular in the village, they do voluntary work and are liked and recommendable by the village leaders. Thus when they search for employment they are more marketable than other youths in the community.

The villages have seen the usefulness, the need to have the VHWs programme. They say the VHWs do a good job. They are a link between the community and the health facility; they encourage the villages to keep the environment clean. They visit the health facilities and collect statistics about diseases and deaths and send these to the community.

However the VHWs programme has faced the same problem that has been faced by the programme in other parts of the country where the programme has been run on voluntary basis. There has been a high drop out rate especially in Tanga municipality.
The VHWs leave the voluntary work and seek employment opportunities in the private sector.

3.3.3 LESSONS LEARNT

TBAs are liked by the community and in some localities women preferred to be delivered by TBAs instead of Skilled Attendants at the health facilities

TBAs are motivated and continue working despite decreased assistance from the support system

TBAs have been recognized by the health services and by other agencies as community resource that can be utilized in health programs at community level.

Phasing out of TBAs in the community will take time and has to be done strategically

The TBAs still require support during the period of being phased out in doing deliveries and acquiring their new roles.

4. RECOMMENDATIONS

4.1 OVERALL RECOMMENDATIONS

To facilitate achievements of the MDGs it is recommended that the MOH develop and implement a comprehensive RCH program that covers a larger population where impact can be measured e.g. Tanga and Morogoro Regions.
The project should be designed in such a way that the implementation follows a continuum of care approach i.e. The community should be fully involved in reducing MMR (men, women and the youth) and they should be linked to a functional health facility; a "functional health facility" is a health facility that have Skilled Attendants, appropriate and basic equipment to deal with Emergency Obstetric Care.
Baseline survey should be conducted and the data obtained should be used as a benchmark against measurable progress and indicators of health status improvement.

4.2 SPECIFIC RECOMMENDATIONS

4.2.1 PAEDIATRICS

There is a need for the SPL to employ a data entry clerk whose task will be to capture data, maintain and update it for use by the various stakeholders.
As it was recommended in the year 2001 SPL should initiate outreach services. These services will serve as on the job training for laboratory Technicians and Laboratory Assistants working in the periphery of Dar es Salaam
Refresher courses are needed for staff who trained during project period. The refresher training will enable them to update their knowledge and skills and therefore improve their performance
Equipment that have never functioned since its reception at SPL should be replaced (as it was recommended in the year 2001)

The SPL has been a success story. Therefore this success should be extended to the remaining three consultant hospitals. Basic needs assessment should be done before scaling up SPLs in the other consultant hospitals in Tanzania

4.2.2 VIROLOGY LABORATORY

It is strongly recommended that the MOH continue to have a dialogue with WHO to ensure that the MUCHS Virology Laboratory is accredited as the National Virology Laboratory in the Polio – Network of WHO.

MUCHS should facilitate refresher course for staff members who were trained in cell culture during the project period. Up date training (refresher course) on cell culture will put them in a better position to conduct stool examination for Polio once accreditation of the laboratory takes place.

MOH and MUCHS should equip the Virology Laboratory to enable it to diagnose the emerging viral diseases e.g. avian flu.

4.2.3 TBAS AND VHWS IN TANGA REGION

CHMTs should support the TBAs in the those particular communities that do not have health facilities until Skilled Attendants are deployed at those health facilities

CHMTs should continue to monitor TBAs activities as they still deliver a significant proportion of women.

A system should be devised to revamp the reporting system so that all the TBAs report monthly on their deliveries so that their activities are properly monitored.

CHMTs should continue to distribute the registers during this period of phasing out. This will allow a close follow up of TBA deliveries

In implementing the new guideline on TBA deliveries and strategy to increase the % of births done by Skilled Attendants, we recommend that the MOH conduct a study on why a large % of women deliver at home or by TBAs instead of delivering at heath facilities.

The MOH should embark in massive training of service providers in Life Saving Skills (Emergency Obstetric Care) and equip life saving equipments, in order to accelerate the achievements of the MDGs by 2015. So far only 7 out of 21 regions have trained their service providers in Life Saving Skills

Annex I

SITUATION OF PROVISED EQUIPMENTS

A. Wash room inventory

S/No	Item	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Ice Maker, SCOTSMAN	1	JICA	1999	Good/Functioning	No
2	Water distiller, Aquatron	1	JICA	1999	Good/Functioning	No
3	Water plant	1	JICA	1999	Good/Functioning	No
4	Exhaust fan	1	JICA	1999	Good/Functioning	No
5	Hot air oven	1	JICA	2000	Good/Functioning	No
6	Hot air oven, MEMMERT	1	MUCHS	2000	Good/Functioning	No
7	Autoclave, ASTELL	1	JICA	1999	Not functioning	Needs replacement
8	Air conditioner, window type	2	JICA	1999	Good/Functioning	No

B. Office room inventory

S/No	Item	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Desk top computer	1	JICA	1999	Good/Functioning	No
2	Hp Printer, LaserJet 2100	1	JICA	1999	Good/Functioning	No
3	Photocopier, CANON	1	JICA	1999	Good/Functioning	No
4	File cabinets	3	JICA	1999	Good/Functioning	No
5	Lap top computer, DELL	1	WHO	2000	Good/Functioning	No
6	Lap top computer, TOSHIBA	1	WHO	2003	Good/Functioning	No
7	HP Scanner, flat bed	1	WHO	2003	Good/functioning	No
8	Air conditioner, window type	1	JICA	1999	Good/Functioning	No

C. Serology Lab room inventory

S/No	Item	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Freezer,-80^{o}C, SANYO	1	JICA	1999	Good/Functioning	No
2	Freezer, -30^{o}C, SANYO	1	JICA	1999	Good/Functioning	No
3	Freezer, -20^{o}C, Electrolux	1	JICA	1999	Good/Functioning	No
4	Ultra water filtration unit	1	JICA	1999	Good/Functioning	No
5	Ph Meter, HANNAH	1	JICA	1999	Good/Functioning	No
6	Magnetic stirrer	1	JICA	1999	Good/Functioning	No
7	Reagent case	2	JICA	1999	Good/Functioning	No
8	Incubator, VWR	1	WHO	2000	Good/Functioning	No
9	Centrifuge, HEITCH	1	MUCHS	2000	Good/Functioning	No
10	ELISA Washer, Thermo Labsystem	1	WHO	2000	Good/Functioning	No
11	ELISA Reader, Multiskan	1	WHO	2000	Good/Functioning	No
12	ELISA Washer, Thermo Labsystem	1	SAREC	2001	Good/Functioning	No
13	ELISA Washer, Thermo Labsystem	1	CDC	2002	Good/Functioning	No
14	ELISA reader, Multiskan	1	MUCHS	2003	Good/Functioning	No
15	Fridge, General	1	THIS	2004	Good/functioning	No
16	Fridge, General	1	ITM	2004	Good/Functioning	No
17	Air conditioner, split type	1	JICA	1999	Good/Functioning	No

D. Cell lab room inventory

S/No	Item	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Safety cabinet, Class II, HeraSafe	1	JICA	1999	Good/Functioning	No
2	Fridge, Vestfrost	1	JICA	1999	Good/Functioning	No
3	Incubator	1	JICA	1999	Good/Functioning	No
4	Centrifuge, HITACHI	1	JICA	2000	Good/Functioning	No
5	Liquid Nitrogen tank, 35 Lts	1	JICA	2000	Good/Functioning	No
6	Liquid Nitrogen tank, 10 Lts	1	JICA	2000	Good/Functioning	No
7	Microscope, Standard, Zeiss	1	JICA	1999	Good/Functioning	No
8	Air conditioner, split type	1	JICA	1999	Good/Functioning	No

E. P2 Lab room inventory

S/No	Item	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Safety cabinet, Class II, HeraSafe	1	JICA	1999	Good/Functioning	No
2	CO2 Incubator, HeraCell	2	JICA	1999	Good/Functioning	No
3	Microscope, inverted, Olympus	2	JICA	1999	Good/Functioning	No
4	Centrifuge, Refrigrated, EIC	1	JICA	1999	Good/Functioning	No
5	Autoclave, ASTELL	1	JICA	1999	Good/Functioning	No
6	Air conditioner, split type	1	JICA	1999	Not functioning	Needs replacement
7	Fridge, Vestfrost	1	JICA	1999	Good/Functioning	No

Annex II

DATA ON AFP SURVEILLANCE

Year	No. Cases Reported	No. Specimen sent to Virology Lab. Lusaka	Positive	Negative
1995	14	14	3	11
1996	20	20	3	17
1997	30	30	0	30
1998	188	188	0	188
1999	360	360	0	360
2000	257	257	0	257
2001	184	184	0	184
2002	158	158	0	158
2003	150	150	0	150
2004	164	164	0	164

NB:

(i) No Correct data for the cases reported in 1994. But 6 cases were positive.

(ii) For the year 2005, up to 29th November 264 cases were reported and 264 specimens were sent to the Lab.

Annex III

SPL EQUIPMENT (POST EVALUATION,2005)

A: Equipment in the wards

S/No	Equipment	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Infusion pumps	2	JICA		Good/Functioning	No
2	Pulse ox meter	1	JICA		Good/Functioning	No
3	Function machines	2	JICA		Good/Functioning	No
4	Oxygen concentrator	1	JICA		Good/Functioning	No
5	Phototherapy machine	1	JICA		Never functioned since supplied by JICA	Needs replacement
6	Heating system	1	JICA		Good/Functioning	No
7	Internal telephone between SPL and Pediatric ward		JICA		Good/Functioning	No

B: Equipment in the SPL (post evaluation, 2005

S/No	Equipment	Quantity	Supplier	Year supplied	Condition year 2005	Needs repair/replacement
1	Cobas Core	1	JICA		Good/Functioning	No
2	Cobas Mira	1	JICA		Good/Functioning	No
3	Micros	1	JICA		Good/Functioning	No
4	Cobas Mira + 3	1	JICA		Not functioning	Needs replacement
5	Kone Lab	1	JICA		Good/Functioning	No
6	Helena	1	JICA		Not functioning since it was supplied	Needs replacement
7	Centrifuge KUBOTA	1	JICA		Good/Functioning	No
8	Deep freezer	1	JICA		Not functioning since it was supplied	Needs replacement

Annex IV

WORKPLAN/ITINERARY

Days/activities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**20**	**1**	**2**	**3**	**4**	**5**		
Month	**November**													**December**													
Date	**16**	**7**	**8**	**9**	**21**	**2**	**3**	**4**	**5**	**6**	**8**	**9**	**30**	**1**	**2**	**3**	**5**	**6**	**7**	**8**	**11**	**12**	**3**	**4**	**5**		
Place	Dar es salaam										Dar es Salaam and Tanga							Dar es Salaam									
Persons	C1C2								C1C2 RA1 RA2		C1RA1-Dar C2RA2-Tanga							**C1C2**									
Debriefing with JICA	X																										
Study documents	X	x	x																								
Prepare an Evaluation grid				x																							
Inception report					x	x																					
Prepare instruments							X	x																			
Write letters introduction									x																		

Select and train 2 research Assistants							x	x																		
Prepare for Fieldwork									x																	
MNH and MUCHS interviews, visits etc.										x	x	x	x	X	X	x										
Field work Tanga										x	x	x	x	X	X	x										
Summaries results																	x	x								
Data analysis &Report writing																			x	x	x	x	X	x		
Finalize the report																										

Annex V

EVALUATION GRID

A. TANGA and KOROGWE – MATERNAL AND CHILD HEALTH

	GENERAL OBJECTIVES	SPECIFIC OBJECTIVE	CRITERIA / METHOD	REQUIRED DATA	SOURCE	DATA COLLECTION TOOL
Efficiency	Increase the number of High-risk pregnancies referred	To train Training of Trainers (TOTs) to train TBAs	Interview TOTs Focus Group Discussion with trained TBAs	- Number of TOTs trained - No of TBAs trained	Project documents - Evaluation 1999 - Ext. 2001	Questionnaires
Effectiveness	Increased number of safe deliveries by trained TBAs	Increased number of safe deliveries by trained TBA	Interview TOTs Focus Group Discussion with trained TBAs	- Number of safe deliveries - Number of TOTs received refresher course, - Number of TBAs trained	Project documents - Evaluation documents 1999, 2001 - Project Ext	Questionnaires
Relevance	To improve maternal and child health	Acceptance of TBAs for safe delivery by the community	Focus Group Discussion with selected members of the community	Number of TBAs meetings with community leaders	Project documents - Evaluation documents 1999, 2001 - Focus Group discussion	Focus group discussion interview guide
Impact	To reduce MMR in Tanga Municipally	MMR in Korogwe reduced from 254/100,000 to	Review data at National (census, 2002), regional	- Adoption of TBA kits outside the project areas by	- Reports - Focus Group	Focus group discussion interview guide

	and Korogwe District	139/1,000,000 Tanga M. 392/100 to 350/100,000 MM reduced IMR U-5 mortality	district and Division level	other agencies e.g. GTZ - Baseline data on mortality - Present data on mortality	discussion with TBAs - Baseline data report - DMO, RMO	
Sustainability	Government to support project activities TBAs	Project activities to be financed by Basket Funds TBA activities appear in CCHP	Review national budget Review Council Comprehensive Health plans Review funds allocation to maternal and child health at the district level	- Number of active trained TBAs and VHWs - New trained TBAs/VHWs -TBA and VHW kits present among those supplied -New kits supplied after end of project. - TBA training and support included in the CCHP - Amount of funds allocated to TBA, view in the CCHP	-Project documents - CCH Plans - Interview guide - FGD - DMO, RMO - i/c RHCs	- Questionnaires - Checklists - FGD interview guide

B. MNH – PAEDIATRICS

	GENERAL OBJECTIVES	SPECIFIC OBJECTIVE	CRITERIA / METHOD	REQUIRED DATA	SOURCE	DATA COLLECTION TOOL
Efficiency	- To strengthen lab-based medicines - To improve the management function of the specialized laboratory	- To equip laboratory with modern diagnostic equipment - Input of Japanese experts who were able to coordinate and manage the SLP	Interview observation	- Type of equipment available - Type of equipment in use - Type of equipment not used (why)	- Observation of equipment - Registers - Project document	- Check list - Questionnaires
Effectiveness				-	-	-
Relevance					-	-
Impact	To improve the education of health personnel and students	Laboratory Based Medicine contributed to the education of the students and staff.	Interview students and staff	Number of students and staff who benefited from laboratory based medicine	- Training reports - Project documents	- Questionnaires
Sustainability	Government to support the laboratory	- To support clinical staff by providing refresher course - Maintain the quality of laboratory services - Laboratory service charges to support the running cost of the lab	- Interview - Diagnostic department MOH - Interview clinical lab staff	- Number of clinical staff who received refresher course - Number of services provided - Items charged at laboratory - Amount of money earned yearly - Amount spent on the lab yearly	- Project documents - Training reports - Cash books - Budget books	- Questionnaire - Check list - Questionnaire

C. MUCHS –VIROLOGY LABORATYORY

	GENERAL OBJECTIVES	SPECIFIC OBJECTIVES	CRITERIA / METHOD	REQUIRED DATA	SOURCE	DATA COLLECTION TOOL
Efficiency	To strengthen the technique of isolation/identification of polio virus	Transfer knowledge to Tanzanians on general virology and Techniques to isolate Polio virus	Interview Laboratory Technicians Observation of various technique	- No of staff , categories trained, when trained	- Observation - Registers - Project document - Lab staff	- Check list - Questionnaires - Interview guide
Effectiveness	Virological diagnostic capabilities of EPI strengthened	- To support diagnosis of EPI diseases: Measles, Rubella AFP by lab diagnosis - The virological laboratory to meet WHO standards	Interview Lab. Technicians	Number of tests to detect different types of viruses for relevant years	- Lab register - Lab staff	- Check list - Questionnaires - Interview guide
Relevance	To improve the testing of virus and reduce the cost of sending specimen outside the country	To establish virology laboratory that is line with health policy		Specification on virus isolated.	- Project documents - DHMI reports - Lab staff	- Questionnaires - Interview guide
Impact	To improve the accuracy of testing viruses including HIV	To establish a National virology laboratory that will be accurate in testing various viruses including HIV		AFP cases data by year Number of stool specimens per year	- Training reports - Project documents - Lab reports - Lab staff	- Interview guide
Sustainability	To enhance technical and financial	- To institutionalize sustainability, by		Equipment repair Equipment	Laboratory staff Laboratory	- Questionnaire - Check list

	capability for continuous service provision by the virology laboratory	ensuring accreditation of virology laboratory is done - The Government to provide funds for operational activities - The Government to train and re-train Lab Technicians to maintain standards		maintenance Staff retention Staff training Development partners assistance	documents Training reports Lab staff	- Interview guide

Annex VI

PEOPLE MET

S/N	PERSON	DESIGNATION	PLACE OF WORK
1	Dr. Kitundu	Head , Department of Pediatrics	MNH
2	Dr. Mwakagile D.	Head, Virology Unit	MUCHS
3.	Dr. Tamim	Manager, SPL	MNH
4	Dr.Nguli B.J.	Regional Medical Officer	Tanga Region
5	Ms. Muro P.R.	Regional RCHC	Tanga Region
6	Mr. Victor Kejo	Stores Officer	Tanga Regional Hospital
7.	Ms.Tamae Yamamoto	Formerly Public Health Expert	Tanga Project Site
8	Dr. Pilly Saidi	Acting MOH	Tanga City Council
9	Ms. Sara Fubusa	D-RCH Co	-do-
10	Mr. Ismail Banda	Health Officer	-do-
11	Dr. Michael Mwingira	Dr. in charge	Pongwe Health Center
2	Ms. Escheria Mkande	MCHA	-do-
13	Hamida MOHammed	MCHA	-do-
14	Ms. Mercy Semezigi	Clinical Officer	Dugi Dispensary
15	Ms. Alice Mgaya	-do-	Marungu Dispensary
16	Ms. Asha Hanaf	Nurse Midwife	-do-
17	Dr. Rashid Saidi	DMO	Korogwe District
18	Ms. Hanan Moshi	D –RCHCo	-do-
19	Dr. Suleiman Mgoya	Dr. in charge	Magoma HC
20	Ms. Zuura Akida	Clinical Officer	Kwemazandu Dispensary
21	Ms. Jane Salim	MCHA	Kerenge Dispensary
22	Mwinjuma R. Beleko	Wards Executive Officer	Kwemezandu Ward
23	Mene Fadhili A. Hasani	Chairman	Kwemezandu Village
24	Isa Kibula	Chairman	Kwemezandu Village
25	Abdala Lobo	Village Executive Officer	Kwemezandu Village
26	Lena Mfalila	SMI Coordinator	RCHS
27	Clement Kihinga	Statistician	RCHS

References

1. Gudeline on Utlisation of TBAs, (Swahili) MOH 2000
2 Gudeline on training of TBAs MOH 2000
3 Gudeline for TBAs Trainer of Trainers MOH 2000