Operational plan for HMIS rollout

To be read in conjunction with the MoH&SW Document of October 2007

Proposal to Strengthen Health Information Systems

Table of Contents

Prepared on behalf of the Ministry of Health for the Royal Norwegian Embassy

BY Arthur Heywood
Dar es Salaam
July 2008

Executive Summary

The MoH&SW, with a consortium of partners, in October 2007, developed a ***Proposal to Strengthen the HMIS in Tanzania***. This document builds on that proposal to develop a budgeted 6-month plan to kick-start implementation of the Revised MTUHA in one region and at national level, to develop a replicable model that can be scaled up to other regions as additional funds become available.

The overall HMIS revision process will ensure that, within a period of five years the HMIS will be functional in all 21 regions of the country, in a phased manner
1. **Phase 1**   Six months intensive systems and database development in Mtwara region
2. **Phase 2**   Eighteen months implementation in one region in each of the six zones
3. **Phase 3**   Within 5 years, National rollout to every region

The initial six months implementation process, described in depth in this document, will use action research and participatory development methodology that will integrate the six work packages in the HMIS document, in line with the HSSP III proposals for strengthening M&E. A number of dedicated teams will roll out the HMIS, develop a toolkit for implementation in other regions and produce a modern web based data warehouse.

The **project logframe** aims to provide quality routine data for monitoring MDGs and the NHSSPIII by producing five outputs – HMIS revision, HMIS implementation, Capacity development, the DHIS software and action research.

Terms of reference are developed for each of the HMIS teams, based on the activities in the logframe – Indicator and dataset revision, HMIS design, Database development and training team.

An action-based **budget of US$ 15 million** is provided for three years that envisages
- The model region will cost $1,25 million for the first year, including the rollout activities, the development of training material, adaptation of software etc.
- The other six regions will cost 1,05million for first year,
- All regions will reduce to $500,000 for the second year and $300,000 in the third year.
- National level costs will reduce from $700,000 to 500,000 a year as local consultants replace international technical assistance and Ministry takes over running expenses.
- Rollout for the other 14 regions will need a separate budgeting process after the six regions, but should be in the range of 1,8 million a year (or less if costs can be reduced).

The activities in the model initiation region will cost $1,2 million for the first year, including the rollout activities, the development of training material, adaptation of software etc.

	Year 1	**Year 2**	**Year 3**	**TOTAL**
Model Region	1,250,000	500,000	300,000	2,050,000
National	700,000	600,000	500,000	1,800,000
6 Regions	6,300,000	3,000,000	1,800,000	11,100,000
TOTAL	**8,250,000**	**4,100,000**	**2,600,000**	**14,950,000**

Budgeted costs for seven region rollout for three years

Other regions will cost just over $1million the first year and $500,000 and $300,000 a year for the subsequent two years (total $1,8m over 3 years), with the MoH&SW taking over an increasing share of the staffing and running costs as the HMIS is implemented.

Background

The MoH&SW, with a consortium of partners, in October 2007, developed a **PROPOSAL TO STRENGTHEN THE HMIS IN TANZANIA**[1], known as MTUHA. This proposal has been submitted to the Royal Norwegian Embassy for possible funding, in conjunction with other interested development partners (DPs).

This document does not replace the original proposal, but develops a budgeted 6-month action plan to kick-start implementation of the Revised MTUHA in one region and at national level. The regional process will develop a replicable model in one region that can be scaled up to other regions as additional funds become available.

The overall HMIS revision process as envisaged in the MoH&SW proposal will ensure that, within a period of five years the HMIS will be functional in all 21 regions of the country. This will be achieved in a phased manner
1. **Phase 1**Six months intensive development in one region and database development at national level
2. **Phase 2**Eighteen months implementation in one region in each of the six zones of the country
3. **Phase 3**National rollout to every region

The initial six months will use an in-depth research and development methodology that will integrate the six work packages in the HMIS document, in line with the proposals for strengthening M&E in the HSSP III.
- Implementation of revised HMIS (MTUHA) (WP1)
- Develop best practice sites and operational research (WP2)
- Revise HMIS indicator and data sets (WP3)
- Adapt the existing DHIS software and data warehouse according to Tanzanian needs at district, regional and National levels following the Health Metrics Network Framework (e.g. incorporating all available data) (WP4)
- Capacity Development, ongoing supervision, facilitation and training material refinement (WP 5)

The emphasis is on using the existing MTUHA to develop a simple yet comprehensive system that finds effective ways of working with all stakeholders, incorporates the needs of all priority programs for quality data, ensures mechanisms for information analysis and use at all levels and provides relevant feedback to all information users. The development process will, through a practical and participative district-level implementation process in one region, produce a "HMIS Toolkit" and a Data Warehouse that can be scaled up to other regions as funds become available for a national rollout.

---

[1] MoH&SW Proposal to strengthen HMIS October 2007

Expected results

The six month initiation process will show the added benefits of a strong routine HMIS through:

1   Implementation in one region

The MoH&SW proposal will be implemented initially in one region. The HMIS will be revised and made functional in all facilities and all districts, producing reliable and accurate data about the MDGs, the NHDP and priority programs. Staff will be trained and supported to use routine data in all phases of the information cycle and the DHIS data warehouse will be operating at regional and national level.

2   The HMIS toolkit

A toolkit will be developed that can be submitted to a broader coalition of DPs for a national rollout of the HMIS, in line with the proposals for strengthening M&E in the HSSP III.
The toolkit will be based upon the original HMIS (MTUHA) principles, refined by experience of the past 10 years of implementation and will draw extensively on lessons learned in Zanzibar, where a successful HIS project has been implemented over the past 3 years. There will be minimum disruption of the current system, maximum involvement of interested partners and mandatory use of data at all levels. Basic principles will be Decentralisation of authority, Action orientation, Responsiveness to the needs of local users and Transparency in all activities (DART). Emphasis will be on monitoring MDGs and local action plans to districts and appropriate decision making to take corrective action

The toolkit will consist of:

1. A set of core **indicators** for different levels, with tools for their analysis and use
2. **Data elements** and definitions
3. Data collection **tools** (client cards, registers, tally sheets) for communities, facilities and hospitals
4. **Reports** for upward reporting and feedback from each level
5. Guidelines for **data use** during supportive supervision, at data use workshops (at facility, district, regional and national level)
6. A training plan
7. **Training materials** for data collection, processing, analysis and use at facility and higher levels
8. Training materials for the DHIS software and data warehouse
9. Technical support needs for regions to implement the MTUHA

3   An integrated Data Warehouse

As described in the original proposal, a flexible database application called the District Health Information System (DHIS), already used in Zanzibar, will be adapted to local needs, customised and used at district, region, and national level. The DHIS is a free and Open Source software application which may be used as a web /Internet application or as a "stand-alone" application.

The DHIS will enable the integration of the various forms, data sets and other data sources that exist at the various levels. This software application will work as a "data warehouse" for integrated data and indicators, increasingly complex at higher levels. Information will be presented using maps (Geographical Information Systems), graphs and "pivot-tables" enabling users to analyse their own data. In facilities where systems for electronic patient records are implemented, data from these

systems will be aggregated and integrated with the DHIS according to the HMIS needs (e.g. ARV, TB patients, hospitals etc).

The consortium behind this proposal is working closely with Health Metrics Network and WHO on the development of appropriate software tools for contexts such as in Tanzania. Through this collaboration the project will draw on the global development of the "Public Health (software) Toolkit", while at the same time being in line with the Health Metrics Network Framework and be on top of international developments on, for example, low power computing technology options.

Regional Development process

During a six-month phase in one region a research and development process will work in collaboration with the MoH&SW and local partners to implement the revised HMIS, strengthen local capacity to use data and develop the DHIS database

HMIS revision

All activities will work with ongoing indicator development processes at national level and feed into a practical proposal for a minimalist HMIS revision that will simplify the existing MTUHA and link it to MoH&SW priorities at all levels. A key element of this will be a participatory adaptation of the existing indicator sets, data elements and sources to the needs of facilities and districts and feed into higher level information needs.

Existing tools will be adapted as needed for data collection, analysis, presentation and use in local planning and performance appraisal. These tools will ideally have the capacity to satisfy the needs of most donor and special program information needs.

Data collection and computerisation

The starting point for all activities will be the existing **12 MTUHA books** currently in use throughout Tanzania, with a minimum modification in order to ensure compliance of data with indicators for MKUKUTA and MDGs. This should not disrupt the existing dataset, but will ensure buy-in from major stakeholders, particularly when they start seeing concrete results.

All data reported from facilities (*form 2*) will be **computerised monthly** at district level, analysed monthly and discussed at district level data use workshops, after which it will be sent electronically to region (*form 4*). Building on the experience from Zanzibar and mainland, the DHIS database will be customised and used from the beginning and further modified as required. The database application will be translated to Kiswahili so that users can choose whether to use English or Kiswahili.

District Hospitals (public and private) will be included from the start, initially for PHC and OPD functions that are related to MDGs. Once processes are established, there will be incremental inclusion of MDG-related in-patient data and other functions. Regional, Referral and Specialist hospitals will be included in a later follow up phase.

Similarly, where appropriate and possible, **existing administrative data** such as Human Resources, Finances, Equipment and Transport will be incorporated as part of the process, in order to link infrastructure and resources to performance. These are different categories of data, currently on different systems and it may require complex processes to handle this data in an integrated way

Capacity Development

A **training needs assessment** will be conducted both during regular supervision visits and as a formal operational research process. Most staff has already been trained in MTUHA form filling, though often it has been done long ago and before the current modifications of tools.

There will thus be a short, basic introductory **classroom** based course held at regional training institutions, though the major emphasis will be on improving data quality by data use during **on-the-job training** in routine supervision, as well as more formal **data use workshops** (monthly at district and quarterly at regional level).

Trainers will be identified from existing supervisory and training cadres (HMIS national, zonal and regional training teams) as well as promising local management staff at all levels and staff at the Zonal health training institute. Where possible, local training institutions (such as those used for the UCC rollout of the LGA database) will be identified to provide training, particularly for the basic "Computer Drivers License". Computer laboratories may be set up at Zonal health training institutes (where appropriate) for DHIS training.

Based on this, existing **training materials** will be adapted (using Zanzibar and other materials as a model) for all levels
1. Training of trainers (supervisors and staff at training institutions)
2. Data collection, analysis, presentation, interpretation and use (facility and management levels)
3. Data use during supervision and at data use workshops
4. Computer use (Basic computer skills and DHIS use)
5. Pre-service training at health training colleges and zonal health training institutions

A **training plan** will be developed that can be replicated in other regions. In addition to formal class room in-service training (at zonal training centres where appropriate) it will emphasise regular and integrated field follow up through supportive supervision, data use workshops, short courses, and (eventually) higher level diploma or certificate courses in HIS

Data warehouse development

While routine data is being collected, collated and computerised at district level, at regional and national levels a data warehouse will be created that will incorporate all available electronic data

from relevant programs and make it easily available both on the web and on the LGA database.
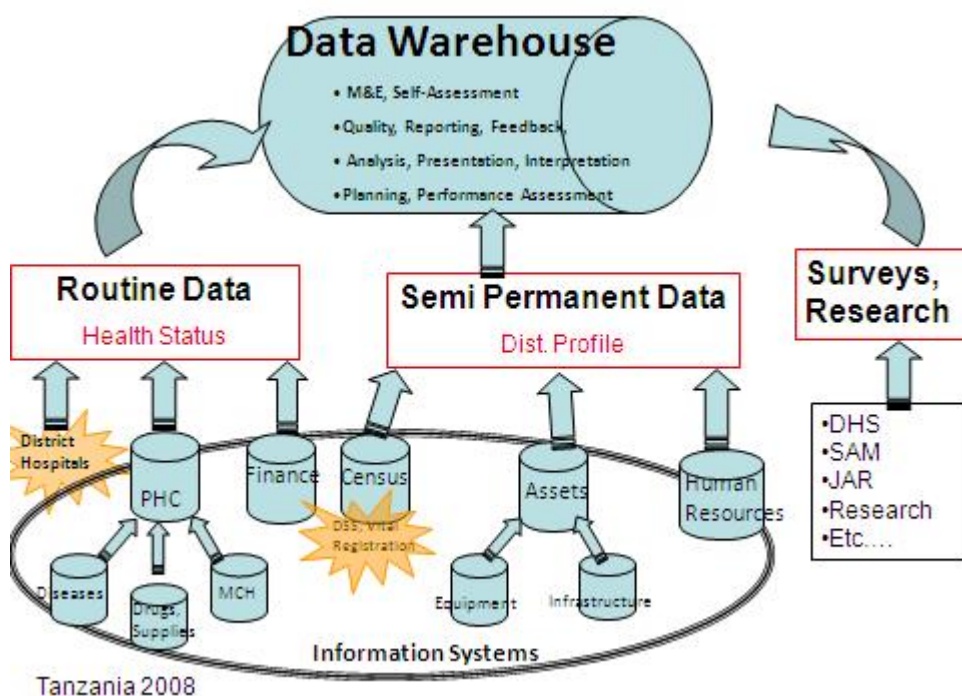

Figure 1: Data warehouse schematic diagram

The Data warehouse will include relevant data from:

1. All programs operating in the region, including disease surveillance, and where appropriate electronic patient records (TB, Hospital Management, Afia Pro, Care 2X) etc.
2. Census, demographic surveys, health facilities (SAM etc) and household surveys, local research
3. Semi-permanent data, Infrastructural and equipment data, administrative data (finance and human resources)

Program implementation and sustainable scaling up strategy

HMIS Implementation process

This document describes the project implementation as taking place in four processes
1. For the **first six months** simultaneously in two "locations";
   a. Process 1 in all districts of one region
   b. Process 2 in the MOHSW, i.e. National level.
2. Process 3 for the **next year** in six regions, as in the original proposal
3. Process 4 will be the final rollout to the remaining 14 regions, based on the results from this initiation process.

	Year 1	Year 2	Year 3	Year 4	Year 5
Mtwara Region	🟥	🟥	🟥		
National level	🟥	🟥	🟥	🟥	🟥
Six regions (one per Zone)	🟨	🟨	🟨		
Additional six regions		🟩	🟩	🟩	
Final 8 regions			🟩	🟩	🟩

Table 1 Gantt chart of HMIS Implementation

The aim of this document is to describe and specify the implementation in one region in such a way that it may be replicated and scaled up in other regions. The **national MOHSW** level need for capacity development, systems development, software development, leadership etc will be somewhat different from that of a region. Furthermore, as the MoH&SW takes increasing responsibility for M&E activities, outside support to the MOHSW level activities will have to continue more or less at the same level throughout the project The MOH&SW will need to build capacity to increasingly take over project management in a sustainable manner. The project would provide significant support the introductory stages: (model development, expansion to 7 regions), and later the MoH&SW would run it in a sustainable way.
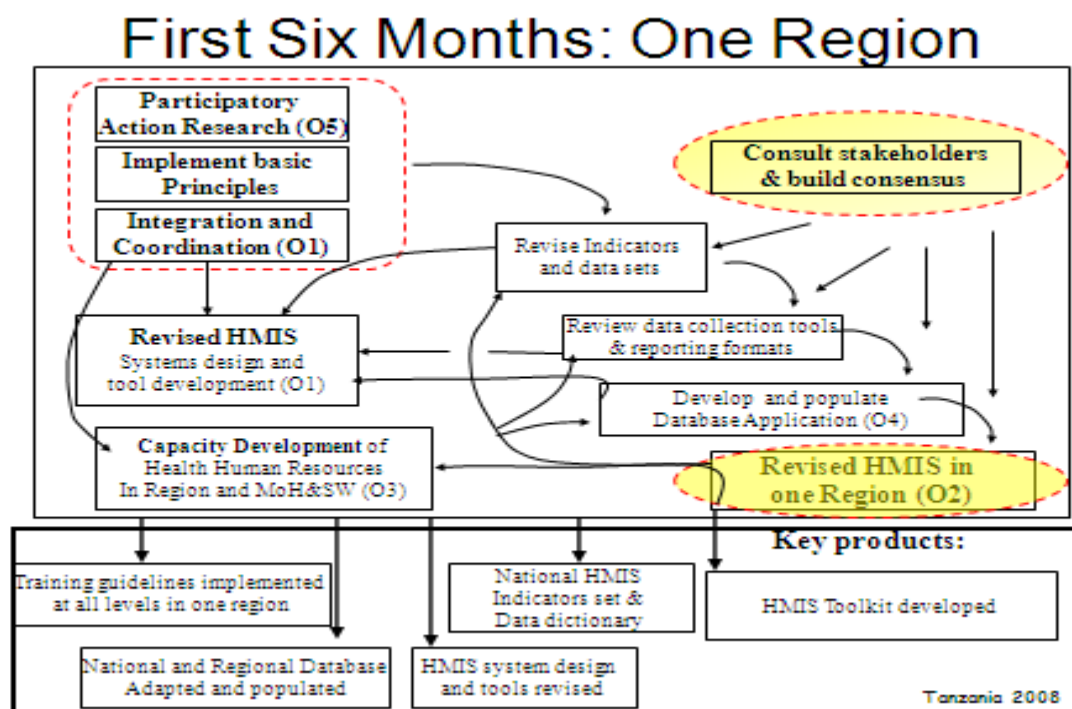

.

Figure 2: Activities and products from first six months of the project

Process 1:   Program development in one region

One proposal for the initial model development and implementation is the region of **Mtwara**, which is a relatively under-sourced region which already has some MDG activity by Ifakara and a few donors. The regional HMIS development process will work closely with all interested stakeholders in the region to build consensus on HMIS, identify possible areas of collaboration and synergistic activities, funding of parts of the process and other common HMIS-related activities.

This process is the major part of this document and is described in detail in the annexes, consisting of logframe, budget and job descriptions.

Process 2:   National MOHSW (data flow and database management)

The aim of this process is to strengthen the technical capacity of the MOHSW HIR section in such a way that it is capable of managing the **data reporting and data flow system** as well as the technical components such as data base software and networks. The MOHSW HMIS unit should be the operational base for the data management (e.g. feedback to regions on missing data and regular

feedback reports), DHIS software development and related technical support and facilitation of the regions.

In order to achieve this, the project needs to recruit additional regular MoH&SW staff, train existing staff and allocate skilled project staff to the HIR section.

Based at the UDSM and the NOMA Masters Programme, which is running courses on these issues, the project will engage in a wider national capacity development in this area, as well as targeting individual HMIS staff for training. It will also be necessary to target national consortium members' project staff for further specialisation. In doing this, the project will draw on the collaboration with the Health Metrics Network project in Sierra Leone, where international and regional "HISP-DHIS consultants" are engaged.

Four national and seven zonal DHIS experts will be trained. International and regional consultants will assist in the customisation of the national system in Tanzania and, through this joint effort they will assist in the practical training of the Tanzanian DHIS "super-users" and experts.

As part of the National rollout, the MoH&SW will develop further capacity to manage the training, Supervision and HMIS development processes.

Scaling up Strategy

The project will be scaled up as in the original proposal
- In six regions covering all zones in the country over 18 months (Process 3)
- As a national rollout within 3-5 years (Process 4)

Process 3   Implementation in SIX regions

After the first six months, an expansion to six willing and reform-minded regions (the best in each zone) will occur, as proposed in the MoH&SW proposal of October 2007, modified according to experience gained in the initiation process.

A detailed implementation plan will be developed (funded by donors who want to support this process), based on experiences gained in the initiation process, and conditional on approval by the MoH&SW and adequate funding being available according to an approved rollout plan.
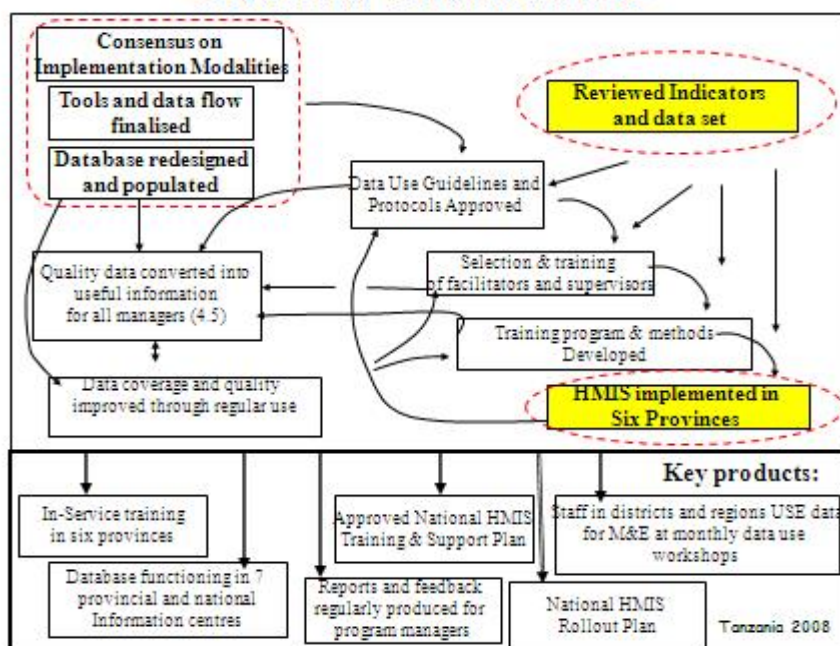
Figure 3: Activities and products from second six months of project

Process 4   National rollout

By 18 months from the start of the project, it is anticipated that the rollout in 7 regions will have generated sufficient practical results to guide a sustainable rollout to the rest of the country. This process will ensure that the entire country will have a functioning HMIS within 4-5 years of the start of the project.

It is essential that all regions use the same toolkit for implementing the routine HMIS, using principles, processes and software as defined in the regional initiation process. While this system is expected to adapt over time, regional implementation should follow clearly defined, but flexible MOH&SW guidelines and protocols to avoid duplication, gaps and confusion of multiple parallel systems. Similarly, "vertical" programs should buy into the MoH&SW system and use it, rather than developing parallel systems.

Funding

While the MOH&SW has committed itself to increasing financial and human resources to strengthening M&E in the country, the national rollout will need additional support and funding from development partners according to a clearly set out action plan and budget allocation. There is a clear need for DPs to work with the MoH&SW to develop a harmonised long term strategic plan for routine HMIS in line with the M&E chapter of the HSSP III.

Funding options will include (amongst others)
1. One donor funds the entire HMIS rollout process as a project, or at least to the end of phase 3, the rollout in 7 regions.
2. Regional implementation is funded by different DPs who have an interest in a particular region, following National guidelines
3. The SWAP process funds the implementation via earmarked funds from the district basket

The option that is chosen will need to be clearly negotiated and committed to by the time the initiation phase 1 is completed and the phase 3 rollout to seven regions is started. A clear action plan and funding mechanism for a national rollout must be agreed before phase 3 is completed, so that the roadmap is clear to all concerned.

Project management

There will be a **project manager** for the model regional phase from MoH&SW, contracted for the full 6 month duration of operations to supervise operations and provide liaison with national MoH&SW. (S)He will be based in the region and work in the field with regional and district teams and members of the consortium. The project will appoint a full time international consultant to provide technical support to the manager, focusing on the regional HMIS reform and implementation process.

The consortium, *if accepted as preferred service providers*, will provide team leaders and members for three teams of people who will be made available to work full time in the region according to agreed terms of reference as in the table below. A key role of team leaders will be to work with and build sustainable capacity in MoH&SW staff at regional and district levels.

Team	Position	Technical skills
HMIS revision and indicator development	• HMIS Team leader (MoH&SW)	HMIS developer
Capacity development and training	• Training Team leader (Ifakara)	Master Trainer
	• Training team member (MoH&SW)	DHIS Curriculum design and materials development expert
DHIS adaptation and database development	• DHIS Team leader (UDSM)	Experienced computer programmer and data warehouse expert
	• Database manager (MoH&SW)	DHIS 2 expert

Table 2: Team leaders and members from Consortium

If Tanzanian procurement rules preclude appointment of the consortium as preferred service providers, there may be a need for *international tender.* This would delay the entire process and the MoH&SW may lose the current momentum for change that has been achieved by the proposal development process.

Additional consultants (national or regional) will be contracted for specific additional terms of reference (to be developed) as need arises . These 500 person days of consultancies will complement the consortium partners and provide technical skills not available in the region.

The consortium members will conduct support and supervision of the full time field teams and provide technical backstopping for shorter periods. In addition, students from all institutes will be encouraged to participate in the regional DHIS development and conduct action research, playing an active part in the development process.

Role of consortium members

Each consortium member will have specific responsibilities within the implementation of HMIS, according to their existing skills:

- **The MoH&SW** will have overall responsibility for implementation as well as the HMIS revision process. This will require a considerable increase in policy development and

management activities related to HMIS development, M&E, supportive supervision etc. The ministry will need to strengthen skills and numbers at all levels to absorb this increased workload.

- **Ifakara Health Institute** will have particular responsibility for data analysis and use, as well as development of training manuals and guidelines

- **UDSM** and **University of Oslo** have specific skills in information communication and technology, and the development of the data warehouse. In addition, skills in education methods and innovative training methodologies should be harvested.

Budget Outline

Details of the budget and related activities are contained in a separate spreadsheet.

Model Region

The budget for the model initiation region will be approximately **750,000 US Dollars** for the initial 6 months (see budget justification and excel spreadsheet for details).

Activity	Budget (USD)
Training of Trainers	26,000
In-service HMIS training	232,000
DHIS Computer training	34,000
Computerisation of Information Offices	37,000
Supportive Supervision	30,000
Data use workshops	45,000
Regional Health Management Team staff	60,000
RHMT equipment, transport	72,000
Materials Development	32,000
Zonal training Institution support	40,000
National consultants	50,000
Administrative costs (15%)	90,000
TOTAL	**748,000**

Table 3: Budget for first six months in model region(and in other regions) **National support**

Activity	Budget (USD)
National Salaries	15,000
National Computerisation	19,000
DHIS "super user" training	58,000
International consultants	275,000
TOTAL	**367,000**

Table 4: Budget for first six months at national level After the initial development of the toolkit and database in the model region, international consultants and DHIS training will be shifted to national level, making these costs more or less constant, reducing gradually over the five year period. Costs will be spread across increasing numbers of regions as the program spreads and MoH&SW makes more of its resources available . It is envisaged that the International consultants will shift from regional level to Head office and reduce in days as national skills are developed.

The MoH&SW will increasingly budget for national salaries for M&E at all levels to absorb increasing workloads generated by improving M&E.

Rollout to 7 regions

The 7 region rollout phase will be funded specifically by donors, after which increasing regular "earmarked" basket funding will be used, at a higher level than the present system. It is foreseen that the new system, while simpler than the current (non-functional)system, will be more costly than the present HMIS because of the costs of improved support and supervision and strengthened use of data at local level.

The *model region* will continue to be supported after the initial period, in the form of one fulltime HMIS person and funds for supportive supervision, data use workshops, in-service and pre-service training ($500,000) for the second year and half of this for the third year, after which the region should be self sufficient. (500,000 plus 748,000 = $1,25 million for the first year +500,000 year 2 + 250,000 year 3 = total just over $2 million)

National support will be needed for the full 5 years anticipated for the project, reducing slightly as the MoH&SW M&E budget for staff and supervision increases.
- National consultants costs should reduce as the MoH&SW appoints staff
- Computer costs should reduce after the initial purchases
- DHIS "super user" training will need to be continued to cope with staff changes and attrition
- International consultant days are expected to stay at the level of 2 full time equivalents (700 days per year) for the full five years

Similarly *other 6 regions* will have technical support and funding for at least 18 months until they are able to fund M&E activities out of annual budgets.

	Year 1	Year 2	Year 3	TOTAL
Pilot Region	1,250,000	500,000	250,000	2,000,000
National	700,000	600,000	500,000	1,800,000
6 Regions	6,300,000	3,000,000	1,800,000	11,100,000
TOTAL	**8,250,000**	**4,100,000**	**2,150,000**	**14,900,000**

Table 5   Budgeted costs for seven region rollout for three years

NOTE: Year one is a full year for the pilot region but only *SIX months for the other six regions* (see Gantt chart.

Budget lines for the SIX region will be very similar to table 3. The national consultant line may absorb some of the regional/international cunsultant and materials development budget. Hopefully methodologies for reducing in-service training will budgets will be developed, reducing costs.

The rollout to seven regions as described in the MoH&SW proposal should therefore cost approximately **$15 million** for three years (with inflation probably $18 million!)

National rollout to remaining 14 regions

As the rollout to the remaining 14 regions is implemented in years 2-5, similar intensive 6 month support will occur, gradually reducing over 3 years. This will cost US$1,8 million per region for three years (1,050,000+ 500,000+ 300,000 per year) or a total of **US$ 25 million** for 3 years (with inflation $28 million more likely!)

It is expected that the MoH&SW will increase M&E budgets to all levels as specific HMIS funding by donors reduces. This too needs to be factored in and negotiated before rollout starts.

Finance and administration

Assuming the consortium gets selected to provide services, financial management will be done as in the original proposal, with all funds going through Ifakara and regular financial reports made to the project steering group. Ifakara will appoint a full time administrator / accountant to manage financial affairs as part of their management fee.

Annex 1 – HMIS Logical Framework

This logframe is an adaptation from the original MOH&SW proposal, to support a **shorter (6Month) timeframe** in one region. The number of indicators will need to be further reduced for the one region and again for the 7 region rollout, after discussion among the involved partners. (Management and teams, MoH&SW and programs).

Goal, Purpose, Outputs and indicators

		Indicators
Goal	To strengthen the Health Information System in Tanzania	• % Districts achieving levels 1,2,3 as defined by the TALI tool
Purpose	To provide quality routine information for monitoring MDGs and the National Health Sector Strategic Plan (NHSSP) at every level	• % MDG programs producing monthly reports using DHIS • % districts using routine information to manage MDG programs • % districts producing indicators to monitor NHSSP
Output 1	Revision of HMIS	1. Indicator set agreed with all major stakeholders 2. Data set based on indicators, with definitions and sources 3. Data collection and analysis tools and procedures developed and tested 4. Data flow defined, documented and implemented 5. Guidelines tested for monthly, quarterly, annual reports for each level 6. HMIS rollout strategies developed and tested 7. Regional M&E steering committee discusses and documents HMIS reform process monthly 8. Information management system developed and implemented 9. 6 month review of Indicators and data sets conducted
Output 2	HMIS Implemented in all districts of the region	10. % Facilities providing all required monthly reports 11. % Facilities with [defined number of]up-to-date MDG graphs displayed 12. % Districts reporting electronically to region monthly 13. % districts holding monthly data use workshops 14. % Districts providing monthly written **feedback** to facilities 15. % Districts in which HMIS **indicators are discussed** at monthly DHMT meetings 16. % Supervision visits with written reports on routine information 17. % Districts with Quarterly reports written as per guidelines 18. % Hospitals reporting MDG activities using DHIS 19. % Districts with facility sentinel surveillance sites established
Output 3	Health staff trained to collect, process, analyse and use routine information	20. HMIS Human resource audit written 21. HMIS Training needs assessment written 22. % District & regional HMIS trainers trained 23. % Districts with MDG-related focal persons using DHIS for program data analysis 24. % Facilities with HMIS-trained health staff 25. Data use Guidelines and manuals written for every level

		26.% Districts with information focal persons identified and trained 27.% Districts with action plans monitored using DHIS 28.Regional capacity for ongoing DHIS training capacity established at at least one institution
Output 4	DHIS Software adapted to support HMIS implementation	29.Specifications for hardware and software defined 30.% Indicators and data elements included in DHIS 31.% MDG program with automatic reports developed 32.DHIS Software manuals developed for districts and super-users 33.% Districts doing monthly DHIS validation checks 34.% facilities with semi-permanent data entered on DHIS 35.% districts with administrative systems (HR and finance) linked to DHIS by gateways 36.% Districts with outsourced computer Maintenance contracts 37.% Districts with up-to-date data available on regional Data warehouse 38.% Districts with council health indicators available on LG database
Output 5	Action research to support HMIS implementation	39.Human Resource and Training needs documented 40.Document activities needed to Achieve level 1 41.Document activities needed to Achieve level 2 42.Research mechanisms to develop facility Sentinel sites 43.Outsourcing best practices documented for hard and software 44.Develop methodology to conduct simple surveys to cross-check routine data 45.Use of appropriate low-energy computing researched

NOTE: All of the above would be within a 6 month time frame and measured
against a Month 0 baseline assessment

Activities and time line

Activities	Month
Output 1 Revised HMIS	
1. Develop DRAFT core indicator set, based on needs of Mkukuta, HSSP III and MDGs	1
2. Hold national level workshop to agree on revised data sets, starting with the Mkukuta and programs related to the MDGs	1
3. Hold regional workshops to ensure buy-in of all HMIS stakeholders, including RMO, Local government, DHMTs, FBOs and private sector	1
4. Review tools and procedures for data collection, compilation and reporting at the facility level, based on the indicator set. Revise if necessary.	1
5. Identify which indicators are to be reported Monthly, Quarterly, Half-yearly and annually	1
6. Include district hospitals in indicator revision and tool development process, focusing on basics that are already collected,	2
7. Hold monthly meetings of regional and district HMT committees	

Activities	Month
8. Hold monthly consortium steering committee meetings	
9. Revise and test guidelines for reporting and data use.	3
10. Establish a flexible framework to include additional data needs once the basics are working	3
11. Develop rollout strategy for other regions	6
12. Ensure revision of indicators, data sets and tools to ensure continued relevance of HMIS program	3,6, 12, 24
Output 2 HMIS Implemented in all districts in region	
1. Identify 3 **best-performing HMIS districts** for initial 6-week testing of revision process. Get their cooperation and buy-in to reform process. Identify "change agents" and learn from them. Distil reasons for success.	1
2. Draw up detailed timeframe for implementing HMIS rollout in all districts	1
3. Ensure availability of client cards and registers and Book 2 at all facilities for 6 months	1
4. Set up and establish data entry and management functions to send Book 2 monthly summaries from HF to district	1
5. Develop monthly reporting procedures of data sets from facilities to districts.	1
6. Support (training, equipment) to regional teams and provide information management and technical support to regional program managers.	1
7. Computerise districts and install DHIS, with appropriate procedures to send electronic data monthly to region.	2
8. Establish templates for monthly/ quarterly reports and feedback to the level below as well as dissemination at same level.	2
9. Work with health programs (Vertical programs, FBOs etc) and incorporate facility and district level data from their computerized systems.	2
10. Produce monthly reports on key indicators and make them available to stakeholders.	2
11. Support (training and supervision) district teams and enable them to support facilities to send complete and timely reports.	3
12. Support program coordinators (district and regional) to use DHIS to analyse facility data and provide relevant feedback to facilities, during supervision and in written form.	2
13. Meet with programs and projects in the region working on HIS and agree on how to get maximum synergy from efforts and resources	2

Activities	Month
14. Support development of District and regional data warehouse integrating all health programs.	3
15. Ensure monthly CHMT HMIS support to all facilities, including hospitals.	3
16. Prepare standard graphs of indicators and monthly use of HMIS data at facility and hospital management meetings.	4
17. Ensure monthly meetings for dissemination and use of information, with feedback routines at all levels.	3
18. Orient Regional and district HMT in use of routine data in preparation and monitoring of annual planning process.	6
19. Produce quarterly information "Bulletins" on key MDG topics.	3,6,9
Output 3 Health staff trained to collect, process, analyse and use available information	
1. Conduct a region-wide staffing and training needs assessment	1
2. Run monthly data use workshops in districts.	1ongoing
3. Identify potential HMIS / DHIS facilitators for the roll-out, including competent trainers from all levels. Train them in practical skills at district data use workshops	1
4. Train program coordinators in support and supervision process to focus on data quality and use for monitoring and evaluation.	2
5. Develop HMIS Guideline booklet, based on local experience	3
6. Train trainers and supervisors at a series of 5-day courses at regional level, based on the revised guidelines	3-6
7. Training team to train health facility staff	
8. Establish mechanism for ongoing training of facility staff	
9. Develop practice-based short courses at regional health institutions for in-service training of health workers, managers and HMIS staff.	5
10. Initiate process of integration of HMIS and information use into pre service training curriculum at schools of nursing, clinical officers and university colleges.	6
Output 4 DHIS 2 Software adapted to support HMIS implementation	
1. Customize the DHIS according to requirements for data and indicator definitions, data collection forms, data validation procedures, facility categorization, and data flow policies.	2
2. Set up the DHIS to support monthly data capture by facility; train DIOs in data entry and quality control	1

Activities	Month
3. Use DHIS and populate with facility list and (at least) the last 3-6 months of available data, plus any other available electronic data.	1
4. Develop standard feedback reports and tools for data analysis and dissemination, in addition to flexible pivot table-based analysis and reporting	2
5. Include revised indicator and data sets, with definitions, into the DHIS software	3
6. Work with local training institutions (private and public) to get International and HISP computer "drivers license" training locally available	4
7. Develop and implement a Computer tool kit (including manuals) for the management of data at district level including quality control, data validation rules and protocols for violations.	4
8. Include facility and district level semi-permanent data (Staff, equipment, infrastructure, population etc.) into DHIS	4
9. Import all existing electronic data into the National DHIS (MTUHA data from all regions), to the extent that they are of identical character, to enable historical comparison for existing system	2
10. Develop a flexible software framework that can include additional data needs once the basics are working and the health workers learn to manage the HMIS.	6
11. Define needs of maintenance of hard and software at all levels and ensure locally sustainable systems in place	5
12. Develop gateways to other data sources (including existing "vertical" program databases and EPRs) to extract and import data into DHIS from these systems	5
13. Develop Geographical Information System (GIS) for display of data and indicators from the DHIS on thematic maps for all levels. Train staff on GIS.	6
14. Develop and establish an integrated "data warehouse" software application for district, regional and national levels with online reports and indicator dashboards. This will include data, reporting & indicators from all programs as well as census and surveys.	6 ongoing
15. Link DHIS data warehouse to existing local government database	6
Output 5 Action research and dissemination of findings to support implementation	
1. Empower RHMT with understanding of operational research use and results, and capacity to support districts and facilities.	3
2. Develop "best practice" sentinel sites in selected health facilities and districts where there are interested and capable staff that are able to conduct action research.	1
3. Explore innovative ways to collect, report, manage and use data	Ongoing

Activities	Month
4. Facilitate and develop best practices in information management and using Information for Action.	Ongoing
5. Conduct participatory mid term and final review of implementation process	3, 6
6. Develop minimum "HMIS toolkit" (data and indicator set, reporting tools, DHIS database)	4-6
7. Investigate best possible options for low-energy computing	4-6
8. Monitor feedback on how best practices are adapted in other settings, and take required corrective and revision processes.	5
9. Ensure that lessons learned are adequately documented and disseminated to other facilities and districts	6
10. Develop additional research questions	6

Annex 2: Budget justification

Assumptions

For Tanzania as a whole, there are 6 zones, 21 regions, 132 district councils and 7,500 facilities (Source MoH&SW 2008).

For the purposes of this budget for one region, it is assumed that there are 7 districts (132/21) per region and 60 facilities (7500/132) per district.

Training and Data use

Supervision, Training and in-service capacity development is the biggest component of this budget, with the biggest component of this being the per diem of 60,000, 50,000 and 40,000 TSH (MoH&SW standard) given for each training day at regional, District and sub district levels. Facilitators will receive an additional TSH 27,500 per day for formal training.

Institution	# / region	Type of trainee	# trainees/ institution	Total Trainees
Dispensary	40	In charge + RCH	2	7x80
Health centre	7	2 C/O + 2 RCH	4	7x28
Hospital	3	In charge, Doctor, Clinical Officer, administrator, ward heads etc.	10	7x30
District	7	DHMT (7) + trainers, computer staff etc	10	7x10
Region	1	RHMT (7) + trainers, computer staff etc	10	10
Regional hospital	1	In charge, Doctor, CO, administrator, ward heads etc.	10	10
			TOTAL	**902**

Table 6   Type and number of trainees by type of institution.

Capacity Development

Training of trainers

Four trainers would be selected from each district, and four from the region (total 32). They would be selected on training ability and skill, coming from different levels and organisations. They would be trained for 10 days at the Zonal training centre, followed up by supervision during basic training by the regional master trainers.

Basic

As most staff have been trained in MTUHA already, what is needed is a practical 4-day basic refresher course held at district level. Training would be held at government institutions, at hospitals and sub districts where possible, minimising cost of conference facilities (TSH100,000 per day) and transport. (TSH 10,000 per participant) This will be followed up by intensive, regular supervision and data use workshops at each level).

Computer

Regional Computer training would need a computer laboratory to be set up at the Zonal training centre (or other institution) with 10 computers (separate budget). Four trainees per district/ hospitals and region (total 32) would need an initial practical 10 day course plus a follow up 5 day course. These courses would be followed up by mandatory report production at district and regional data use workshops. Where needed, alternative power supply will be provided in the form of solar panels batteries and wiring (TSH 5 million per unit)

DHIS program training

An international DHIS2 trainer should be brought to Tanzania to provide training for twenty Tanzanian DHIS experts for one month (preferably before the project starts) to teach necessary programming skills and work with the team to get the database up and running. The international /regional trainees will adapt the DHIS database to Tanzania and develop the national, regional and district data warehouses. Two trainees will work in the region and two will work at national level for the next six months, while others will start activities in other regions.

Supervision and data use workshops

Each level would be funded to provide regular and scheduled integrated supervision to the level below, national visiting region annually, region visiting district quarterly and district visiting facilities monthly. Fuel is estimated at TSH 2,000 per litre (which may increase). Regional level would use a project vehicle and would take other RHMT members according to a planned schedule, visiting at least one district during the supervision process.

Supervision would coincide with data use workshops where possible. Where this is not possible, transport and per diem may need to be found for additional support to DHMT to run these workshops. A flight to Mtwara from National level support will cost TSH386,000.

Computerisation, Training equipment

Each district will need a computer, laser printer, UPS etc (TSH 1million, 500k, 165k each). Each district will need a digital projector (500,000*), plus a portable generator (1,800,000). Where there is no reliable electricity, solar panel and batteries may be needed, or connections made to existing EPI or other power sources
The regional training centre and region will need two desktop computers plus a laptop for the training team The region will need in addition an A4 colour printer (1 million*) and four laptops (1 million* each) for training, supervision and support teams. In addition, a heavy duty photocopier and binding equipment for training manuals will be needed as well as other office and stationary costs such as telephones, paper etc.

A computer laboratory at the regional training centre. Alternatively use existing ones set up for LGA database training) will need 10 computers and printing equipment, plus solar power (5 million*),

office equipment, desks, tables, projection screens etc (2 million*). In addition they will need a laptop, digital projector and a generator for outside training.

Project implementation team

The RHMT and HIR unit will be supported by a team of Tanzanian experts (seconded from the consortium partners) according to the major outputs. They will be recruited specifically for project tasks.

Project manager

A National HMIS officer (TSH 2,5 million/month) will be seconded to the region to personally oversee implementation of the activities by the three project teams. (S)he will report to the national HIR director, the SWAP M&E committee and HMIS reform team

2   HMIS Revision

A HMIS expert (TSH 2,3m/ month) conversant in HMIS will run the revision process at regional level, ensuring maximum involvement of national level HMIS unit, vertical programs, regional and district managers.

3   Computerisation

At **regional level** One Team Leader / information system manager (TSH 2/ month) and one computer programmer (TSH 1,7m*/ month) will work to support the RHMT to set up the DHIS

At national level, two DHIS experts (TSH 1,7m*/ month) will work on developing the national system; include all existing data (MTHUA data from all regions), manage the data flow, develop gateways to other computerised programs and incorporate data into the national data warehouse, set up GIS and develop feedback reports to various programs and to the regions. Training of MOHSW HMIS staff is part of this task.

4   Supervision and Training

At regional level, a training and supervision expert (TSH 2m/ month) and a master trainer (TSH 1,7m*/ month) will support the region and the Zonal training institution to do the initial training needs assessment, develop training materials, train regional trainers, support them in the training and data use sessions, participate in data use workshops. They will also supervise translation of materials into Swahili

5   Administrative Support

An office assistant will be hired at TSH 700,000 a month, with the project contributing TSH 1 million per month. Ifakara will provide general labour, secretarial support and other administrators as part of their administrative costs (15% of total). Part of this may be distributed to other consortium members by mutual agreement.

A project vehicle (make to be determined) will be purchased for a maximum of 50 million shillings

Consultants

Consultants will be a combination of national and regional/ international consultants, with the mix gradually changing over time so that by the end of the project the majority will be Tanzanian.

National

National consultants will be needed to provide technical support and backstopping to the project implementation team to a level of 100 person days at $ 300 per day ($30,000 plus alowances) for the six month period. This will strengthen the Tanzanian consultant skill base and develop a strong platform for long-term sustainability. During the rollout phase, National consultants will hopefully take over many of the functions performed by regional and international consultants in the initial phases.

International /Regional

International consultants will be hired from the Southern African region wherever possible and will provide technical skill not available from the consortium or within Tanzania. There will be a full time advisor to the project manager, initially in Mtwara, then shifting to National level. In addition, other consultants will be brought in as required up for to 500 person-days.

The **Technical Advisor** to the Project manager ($750/day) will be an experienced international consultant with extensive experience in HMIS revision, project management, training and data use. (S)he will have primary responsibility for the HMIS reform and implementation process and will be appointed for the full 6 months to support the process from start to finish, reporting to the project manager.

ICT/ DHIS Consultants. The equivalence of one international consultant ($500/day) will support the consortium for 6 months at both national and regional level to strengthen information offices at all levels, make the transition from the current software to DHIS 2 and to set up the National, Regional and District databases

Training consultants ($500/day) will do the initial training needs assessment, develop training materials, train regional trainers, and support them in the initial training sessions.

Annex 3: Terms of Reference for Project Implementation Teams

Introduction

1.   Background

The HMIS in Tanzania (Mtuha) was piloted in the early 1990s, rolled out in the mid 1990s and last evaluated in 2000. Not much has changed since then, and, while a great deal of data is collected at facility level, the core and interlinked problems identified then as *"poor quality of data"* and "*low use of data for decision making*" remains valid today. The Tanzanian HMIS is basically functional at all levels of the health system with a defined indicator set and regularly collected data elements; data collection and reporting tools are in use and the flow of information are clearly set out. There is quarterly analysis of routine data with reasonably good coverage for some MDG indicators, though many MDGs are not monitored. There is poor integration of vertical programs and administrative information into the routine HMIS, quality of data is not checked. Most staff are trained (though inadequately) in HMIS procedures but there is not much faith in the results coming out of the HMIS and many programs have set up their own vertical reporting systems.

The MoH&SW HMIS unit, in collaboration with Ifakara Health Institute, the University of Dar es Salaam and the University of Oslo, has developed a **proposal to revitalize the HMIS[2]**, using a paper-based system at facility level and computerisation free open-source software at district level. This proposal will be developed, tested and refined in one region (Mtwara) for a period of six months to test the revision process, with a view to defining a system that is appropriate, affordable and replicable. The pilot will produce the following deliverables for national rollout to all other regions as funds become available
   1. Rollout process in all facilities and districts in the region well documented
   2. A toolkit with indicator and data set, data collection and analysis tools, training materials and guidelines for both the information cycle and DHIS software.
   3. An adapted data warehouse containing all relevant health-related data for each level

2   Objective and Outputs

The global objective of the HMIS reform process is to strengthen the HMIS in Tanzania, which is seen as a combination of people, equipment and procedures organised to provide quality health information that will enable concerned stakeholders to make timely and informed decisions and use information at various levels.

The specific objective for a six month implementation process in one region is to provide a "roadmap" to improve the efficiency and effectiveness of the HMIS to monitor MDGs and the NHSSP III. The process will provide a "vision" for the next stage, which is the national rollout.

The proposed HMIS program has five key outputs to be achieved in the six months.

1   Revision of the existing Mtuha. A nationally agreed set of aligned indicators on which to base data elements and the revised Mtuha books will be agreed with all regional stakeholders. Current duplication, extra work, arithmetic errors caused by quarterly errors will be minimised by monthly data input reporting and , based The HMIS will include MDG-related facility and hospital indicators and key resource information to broaden management data. Common indicators will link HMIS to district plan monitoring and resource allocation to ensure sustainability.

MoH&SW Proposal to strengthen HMIS October 2007

2   **HMIS implementation** is planned for one region initially, with a focus on collection of quality data and use of information for improved MDG service delivery, with links to resource allocation. In the region there will be six months of intensive implementation that will produce the toolkit, develop the data warehouse and produce training courses and guidelines to be used in the national rollout.

3   **Capacity development**. Health Staff will be supported through regular supervision and mandatory data use workshops to collect, process, present and use information – and thereby ensure the *quality* of data. Capacity development will focus on practical in-service training at facility and district level by trained supervisors, backed up by regional teams. A key output will be production of training curricula, training manuals and teaching methodologies to be used in the National rollout

4   **Computerisation.** The DHIS software will be adapted to Tanzanian needs and incorporate data from all priority programs, with links to local government and other program-specific databases. The computerisation plan includes use of a free open source software package with the capacity to produce appropriate feedback using graphs, GIS maps and pivot tables. Essential indicators and data will be made available through a web-based "*data warehouse*" that will integrate health-related data for all levels and link to other databases, reducing current fragmentation.

5   **Action Research.** Intervention and action based **research** will be conducted in the region, focusing on ways to implement current knowledge, producing "best practice" sites and disseminating improved interventions and practices to other districts.

3   Profile of teams

National team

In the first six months the national team will be small and consist of two computer experts who will work with MoH&SW staff to adapt the DHIS to local requirements, develop gateways to other databases to incorporate data into the national data warehouse and make this data available on the web.

Regional team

The regional team, based in Mtwara will have a Project manager (MoH&SW HMIS manager) assisted by three team leaders (one from each consortium member) for HMIS reform, Capacity Development and DHIS development. Their key role will be to use action research methods to develop and document the toolkit for the rollout in other regions and to develop capacity in the region to sustain the HMIS.

International consultants

Where local capacity is not available, International or regional consultants will be employed to provide technical assistance for short periods according to specific terms of reference. Consultants should have significant experience in the field of health information system development in developing countries. (See ToRs for additional specific profile requirements)

- The consultants will liaise with the project manager and team leaders, defining consensually the working modalities and reporting to the team leader.
- Consultants will work closely with the project team and support Ministry of Health Staff.

ToR 1:   Indicator and dataset revision team
Date   July 2007

Background
An indicator set has existed in Tanzania since the 1990s, but this is now seen as being out of date, fragmented and inadequate and needs to be reviewed in conjunction with all relevant stakeholders. There is a need for **international** best practice standards to be applied to indicator selection

There is a perceived need for harmonised set of indicators clearly acknowledged by MoH&SW top management, M&E chapter of HSSP III, donors and programs. The **HMN assessment** demonstrated need for coordination, harmonisation, of indicators. Indicator harmonisation part of way forward
The selected Indicators need to be incorporated into overall monitoring of HSSP III, P4P etc
The Revised Indicators need to be based on **existing** indicators (MDG, HSSPIII, MKUKUTA, Programs), available data sets (MTUHA, routine, surveys).
The **Data elements** to be collected in Routine HMIS should all be based on indicators (Numerator, denominator) with clear definitions and periodicity
HMIS revision in **Mtwara** needs agreed set of indicators before it can start in January

Objectives
Through discussion with all stakeholders and in line with the National health Sector Strategic plan III (HSSPIII) and the HMN
- Identify **key performance indicators** for the health sector in Tanzania
- Develop a minimum **data set** based on indicator numerator and denominator, with clear definitions of all components
- Identify sources and frequency of all indicators

Scope of Work
1. Review existing indicator set and data definitions
2. Meet with all key HIS stakeholders and their implementation teams
   o MOH%SW Policy makers, cooperating partners
   o Priority "vertical" program managers,
   o HMIS managers, District, provincial managers (during Mtwara test)
3. Develop draft national indicator set with defined numerator and denominator and source, in accordance with international norms and HMN framework
4. Circulate indicators with numerator, denominator, data source, rationale, use, related indicators
5. Organise and facilitate consensus meeting on indicators with each program
6. Incorporate final definitions into DHIS database
7. Devise a mechanism to revise indicator set annually

Week	Activity	Participants
1	Develop list of existing indicators, with numerator and denominator and source	??
2	Introductory workshop with key HIS role-players	All
3-5	Meetings with key HIS stakeholders, national level policy makers, program managers and development partners develop a draft indicator set and definitions for key programs • Reproductive and child health • HIV/AIDS, TB, Malaria	All

	• Nutrition	
6	Finalise consolidated indicator set	??

Expected outputs

1. List of **national indicators**, with numerator, denominators and source in line with international standards and HMN framework

2. **Data set** with definitions, guidelines for data sources, rationale, use and related indicators

3. **Reports** of national consensus workshops

Personnel Required.

Each member of the consortium (MoH&SW, Ifakara, UDSM, WHO, World Bank) will assign a staff member full time for this consultancy
One international consultant will be contracted, who should be:
- knowledgeable on the development of indicators
- Familiar with the HMIS program in Tanzania
- Experienced in report writing and communicating with stakeholders

Duration and location

This consultancy, in Dar es Salaam, will be the first event in the HMIS reform program

Consortium members	**6 weeks**
MoH&SW staff	**8 weeks**
International Consultant	**6 weeks**

ToR 2:   HMIS Design review team

Date   July 2007

Background

The HMIS in Tanzania was designed in 1990 and has been implemented throughout the country and reviews in 2000 felt that the system. However the 2007 MOH&SW&SW proposal and the 2008 HMN review team felt that there had been insufficient revision of the system and that the HMIS did not respond to new developments, particularly the MDGs and emerging health problems such as HIV/AIDS. With the start of the HMIS reform project, the HMIS design, management and process needs to be reviewed and piloted in one region before full rollout in all regions.

Objectives

1. Review current HMIS system design
    a. Links with other existing subsystems and proposed subsystems
    b. Data flow and periodicity of reporting
    c. System management
2. Revise HMIS design
    a. data collection, collation and analysis tools
    b. Management systems, job descriptions etc.
    c. Links with other subsystems, including administration, hospitals, human resources
3. Set up quality assurance procedures
4. Clarify managerial and administrative requirements
5. Develop appropriate guidelines and manuals for all levels, to be used in the national rollout

Scope of Work

In conjunction with key stakeholders at national, regional and district level and the Database development and training teams

1. Review current system, assessing and identifying reasons for success or failure of each sub-system
2. Review information needs of different programs with regard to periodicity, data flow, indicators
3. Revise HMIS systems and linkages
    a. data collection, quality assurance, collation, reporting tools
    b. Management systems and job descriptions
4. Pilot test system in all districts in one region over a period of six months
5. Draw up a plan of action and budget for phased national implementation.
6. Write detailed implementation guidelines for all levels

Expected Activities (One region)

Week	Activity	Participants

1-4	• Get consensus from key stakeholders
	• Plan for revised HMIS system, based on new indicator set
	   o modified periodicity of reporting to meet NHSP needs
	   o draft tool revision for collection, self assessment, quality assurance, collation and data reporting
	• Develop M&E instruments
		All

5-8	• Set up pilot project in three districts in one region • Train district, facility staff in new procedures, forms etc • Collect data retroactively for 6 months and enter onto DHIS • Initiate data use workshops at facility, district and regional level	All TA National TA MOH&SW
9-18	• Set up system in all districts • Monthly data use workshops linked to supportive supervision	Regional teams
19-20	• Implementation Review	All
21-22	• Final Plan for rollout to all regions	All
24	• National Consensus workshop	All
Ongoing	• Regional rollout	

Expected outputs

1. Revised HMIS design and management systems finalised
2. Pilot test carried out in one region and written up
3. Tools developed with guidelines for their use at all levels
4. National Implementation rollout plan, with options

Personnel Required.

Two Tanzanian consultants, who should be

- knowledgeable on HMIS system design and tool development
- Familiar with the HMIS program in Tanzania
- Experienced in guideline writing and communicating with stakeholders

One international consultant with appropriate skills to provide technical backup where local skills are not available

The team will work closely with senior MOH&SW staff, one of whom will be assigned full time to this activity

Duration and location

This consultancy will take place in Mtwara region in the first six months of the HMIS project and will occur concurrently with the revision and testing of the database.

One National Consultant	**24 weeks**
One MOH&SW official	**24 weeks**
International Consultant	**24 weeks (Equivalent)**

ToR 3:   HMIS Database development team

Date   August 2008

Background

The HMIS database was designed for the HMIS in the 1990s and has been operating with minimal change since then. The 2007 HMIS proposal found it to be inadequate and has recommended that a new database, the District Health Information Software (DHIS) be adopted. A consultancy is needed to set up a modern, integrated HMIS **database** that is flexible, user-friendly and able to handle all necessary data sources, including the proposed subsystems of Hospitals, Administration, Human Resources and Community. The database should feed into a web-enabled data warehouse and have easily operated links with other databases linked to the M&E framework

The database development process will take place in two locations for a period of six months:
1. At national level within the MoH&SW
2. At regional level as part of the pilot test

Objectives
1. Review current database and identify strengths and weaknesses
2. Develop specifications for technical requirements for DHIS database
3. Adapt DHIS database to consolidated Tanzanian indicators and dataset
4. Integrate available data from routine, semi-permanent and survey sources into new database
5. Pilot database in one region along with revised design of HMIS system
6. Produce prototype reports and discuss with stakeholders
7. Clarify managerial and administrative requirements for maintaining database

Scope of Work

The consultants will work with the MOH&SW M&E database designers and software developers and use the revised HMIS indicator and data set to modify the DHIS database to Tanzanian needs. They will incorporate all relevant and available data – routine, semi-permanent and surveys – and come up with a prototype database.

This prototype will be pilot tested in one region alongside the revised HMIS design test.

Proposed activities

These will happen both at National level and in one region as a coordinated process

Weeks	Activity	Participants
1-4	• Revise DHIS database to include HMIS indicators and dataset • Integrate available regional and district electronic data (semi-permanent and routine)into DHIS • Produce reports and feedback	All TA
5-8	• Pilot database, training regional and district M&E officers • Incorporate 6 months of retroactively collected data • Produce program and feedback reports	All TA Regional team
9-18	• Monthly data entry and quality assurance • Review data from pilot districts, support to GRZ with	Tanzanian TA Regional team

Weeks	Activity	Participants
	quality control, training, reporting, feedback. • Produce monthly reports and graphs for data use workshops • Set up a sustainable mechanism of strengthening of regional, district and hospital information centres, including staffing, computers and internet •	
19-20	• Implementation review • Plan for National rollout developed •	All TA MoH&SW Regional team
24	• Finalise database, produce final report • National consensus workshop	MoH&SW All TA

Expected outputs

4. DHIS Database according to technical specifications developed.

5. Data and indicator reports as per standardised formats

    a. Monthly (six) for facility, district and regional level in Mtwara

    b. Quarterly (two) for national level and other regions

6. Documented ongoing support and training to MOH&SW and regional teams

7. National Implementation plan, with options

8. Feedback to stakeholders and MOH&SW at consensus workshop

Personnel Required.

Three consultants, two Tanzanian and one international, who should be
- knowledgeable on the design and development of databases
- Familiar with the HMIS program in Tanzania
- Experienced in report writing and communicating with stakeholders

Duration and location

Training development work will all occur in Mtwara region for six months

Two National Consultants	**24 weeks**
One International Consultant	**16 weeks**
MOH&SW staff	**24 weeks**

TOR 4:   Training materials development and implementation

Support development of HMIS in-service curricula and training materials, including training of trainers, district and facility staff

Background

Use of information at all levels of health services requires appropriate in-service training of **facility level** health personnel -HMIS professionals, nurses, and midwives clinical officers and doctors,. This should be based on a thorough assessment of training needs at all levels of the health system, and include HMIS staff and the users of information in the various programs.

Ensuring sustainable functioning of HMIS requires well trained regional and district level facilitators who have practical training skills, a well developed curriculum and a thorough knowledge of the HMIS. This requires intensive **training of trainers**, based on a well developed curriculum.

Objectives

1. To support development of pre-service training programmes for HMIS personnel and other health professionals.
2. To develop and monitor an HMIS in-service training program for all levels focusing on appropriate information use for self assessment, planning and management.
3. To identify and train regional and district level HMIS facilitators to be able to train district and facility staff.

Scope of Work

1. Contact key regional training institutions, stakeholders and development partners to identify existing HMIS training programs and personnel and inform them of the HMIS training program
2. Review existing HMIS in-service training programs at all levels, as well as international HMIS training programs
3. Conduct training needs assessment of HMIS and program staff at regional, district and facility level
4. Develop criteria to identify suitable personnel for training as HMIS facilitators at regional and district level.
5. Develop an appropriate training of Trainers (ToT) program, (practical, skill-oriented and based on the information cycle) including educational objectives, content, methods of training and evaluation , performance assessment of participants
   a. Implement the ToT program for regional and district facilitators,
   b. From the ToT participants, identify those who have the required competencies and attitudes to carry out the training and form final training teams
   c. Prepare a plan of training of HMIS facilitators at district level
   d. Circulate draft of in-service training program to all major stakeholders, including regional and district level
6. Participate in monthly data use workshops at district level, together with HMIS facilitators and regional supervision teams, using these as a practical development of HMIS training.
7. Develop draft HMIS in-service training program.
8. Implement the in-service training program at all facilities and districts in the region
9. Initiate process of integrating HMIS training into pre-service training
10. Develop an appropriate support and detailed monitoring program at every level, based on clear performance indicators that are agreed by all parties
11. Finalise in-service training program

a. Circulate in-service training program to major stakeholders before consensus meeting
b. Organise and facilitate consensus meeting on the in-service program at central level

Proposed activities

Week	Activity	Participants
1-4	• Meetings with key training institutions, stakeholders, and implementing partners • Training needs assessment at all levels • Develop a draft training program for different cadres of staff • Develop selection criteria for facilitators and use these to select potential candidates • Develop a Draft training of trainers program for regional and district HMIS facilitators	All
5-12	• Participate in data use workshops at district level • Develop support and monitor in-service programs for HMIS personnel at central, regional and district level • ToT for HMIS facilitators at district level • Implement the training for regional and district facilitators • Finalise the training teams •	All
13-20	• Conduct in-service training program at facility level • Revision of draft •	National Consultants Regional team
20-24	• Finalise in-service HMIS training program manuals • National Consensus workshop	All

Expected outputs

1. Training Needs assessment of HMIS and program staff

2. HMIS in-service training program for all levels focusing on appropriate information use for self assessment, planning and management

3. A training of trainers program for regional and district HMIS facilitators, including educational objectives, content, methods of training and evaluation

4. Regional level HMIS facilitators trained, and those performing adequately selected for implementation of training

5. Documented participation in monthly data use workshops in all districts and at region.

6. Training of facility and district staff throughout region

7. Support and monitoring activities of HMIS in-service programs planned and implemented at regional and district levels

8. HMIS pre-service training program for HMIS staff and other health professionals initiated, focusing on appropriate information use for self assessment, planning and management

Personnel Required.

Two Tanzanian national consultants (one of whom is team leader). One international consultant. The consultants will work with regional MOH&SW staff members who will be assigned full time for this consultancy

The consultants should be:
1. Knowledgeable in the development of in-service training program for HMIS
2. Knowledgeable in educational methodology and, in particular, in developing training programs in the area of HMIS
3. Knowledgeable in planning, implementing and monitoring of HMIS in-service programs
4. Knowledgeable and experienced in developing and implementing pre-service training programs in the domain of health management information systems

Both international and national consultants should be:
- Familiar with the revised HMIS program in Tanzania
- Experienced in report writing and communicating with stakeholders

Duration and location

Training development work will all occur in Mtwara region for six months

Two National Consultants	**24 weeks**
One International Consultant	**16 weeks**
MOH&SW staff	**24 weeks**