

**Muheza District Council**

**Ireland Aid**

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**THE MANAGEMENT INFORMATION SYSTEM  
FOR MUHEZA DISTRICT, TANZANIA**

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**Report of a Study to Develop Feasible and  
Accurate Data Capture Methods for the  
District's Development Indicators**



**MAIN REPORT**

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This report is a result of a study commissioned by Muheza District Council and funded by Ireland Aid.

The results of this study are presented in two volumes:

- (1) The Main Report – this report
- (2) The HITAMIMA Data Register

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# CONTENTS

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Background .....	vii
The terms of reference .....	ix
Methodology .....	xi
Problems encountered during implementation .....	xiii
Itinerary .....	xiv
Acknowledgements .....	xvii
1. The District development indicators, the data and procedures used for capture and processing .....	1
1.1 Seventeen development indicators in the health sector .....	2
1.2 Two development indicators in the water sector .....	3
1.3 Fifteen development indicators in the education sector .....	3
1.4 Nine development indicators in the agriculture and livestock sector ...	5
1.5 Three development indicators in the natural resources sector .....	6
1.6 Four development indicators in the trade sector .....	7
1.7 Two development indicators in the co-operatives sector .....	8
1.8 One development indicator in the lands sector .....	8
1.9 Ten indicators of community development .....	9
1.10 Four development indicators in the works sector .....	10
1.11 Seven development indicators for leadership and administration .....	11
1.12 Summary .....	27
2. Existing problems in the procedures for data capture, analysis and storage ..	28
2.1 The information display system lacks a spatial dimension .....	29
2.2 Some indicators are not sufficiently specific or relevant .....	30
2.3 The methods used for data processing for some indicators are inaccurate, improper or cumbersome .....	33
2.4 There is no institutionalised data capture and storage system .....	37
2.5 The village registers do not have complete household and population data .....	38
2.6 Summary .....	38

3.	Existing problems in vertical and horizontal two-way flow of information	41
3.1	Weak development planning responsibility at the village and ward levels	42
3.2	The existence of parallel reporting lines	43
3.3	The absence of fixed formats for data transmission between levels of management	43
3.4	The process has not been initiated	44
3.5	Summary	44
4.	An alternative information system - HITAMIMA	45
4.1	Strengthened role of the Wards as information centres	45
4.2	Increased capacity of the Ward as a development planning unit	46
4.3	Strengthened horizontal communication at the Ward level	46
4.4	A high degree of in-built spatial resolution	47
4.5	Exclusion of unworkable indicators	47
4.6	Re-designing the computerised database to allow improved spatial resolution	48
4.7	Summary	49
5.	Appendix: Participants to the Final Workshop	50

## LIST OF TABLES

Table 1:	The data and procedures currently used for the indicators in the Health sector	14
Table 2:	The data and procedures currently used for the indicators in the Water sector	16
Table 3:	The data and procedures currently used for the indicators in the Education sector	17
Table 4:	The data and procedures currently used for the indicators in the Agriculture and Livestock sector	18
Table 5:	The data and procedures currently used for the indicators in the Natural Resources sector	19
Table 6:	The data and procedures currently used for the indicators in the Trade sector	20
Table 7:	The data and procedures currently used for the indicators in Co-operatives	21
Table 8:	The data and procedures currently used for the indicators in the Lands Department	22
Table 9:	The data and procedures currently used for the indicators for	

Community Development .....	23
Table 10: The data and procedures currently used for the indicators in the Works Department.....	25
Table 11: The data and procedures currently used for the indicators for Leadership and Administration .....	26

## Abbreviations

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AcO	Academic Officer – Education
AVO	Audio-Visual Officer – Education
CBO	Community Based Organisation
CDO	Community Development Officer
CMT	Council Management Team
DALDO	District Agricultural and Livestock Development Officer
DCCO	District Cold Chain Officer
DCDO	District Community Development Officer
DDO	District Dental Officer
DE	District Engineer for Works
DEO	District Education Officer
DHO	District Health Officer
DLDO	District Lands Development Officer
DLUP	District Land Use Planner
DMO	District Medical Officer
DNO	District Nursing Officer
DNRO	District Natural Resources Officer
DPLO	District Planning Officer
DWE	District Water Engineer
LT	Laboratory Technician
NGO	Non-Governmental Organisation
SLO	Statistics and Logistics Officer – Education
SMS	Subject Matter Specialist
VAO	Village Agricultural Officer
VHW	Village Health Worker
WAO	Ward Agricultural Officer
WCDO	Ward Community Development Officer
WDC	Ward Development Committee
WEC	Ward Education Co-ordinator
WEO	Ward Executive Officer
WHO	Ward Health Officer
WMT	Ward Management Team

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## **BACKGROUND**

Muheza District is one of the six districts of Tanga Region in Tanzania. With its borders extending from the Indian Ocean in the east to the Usambara Mountains in the north-east, the District has an area of about 4,922 km<sup>2</sup> and a population estimated at 267,900 persons. Its headquarters are at Muheza Town, about 50 km from the coast of the Indian Ocean.

Administratively, the District is divided into 35 wards. Each Ward has a number of villages under its jurisdiction. The total number of registered villages is 174. Actually below the District level, the District is divided into 6 administrative Divisions, but this management level is hardly employed in the administration of the District.

Within the context of Tanzania's system of government, the District is managed by a Council. The District Council is headed by an Executive Director. Management plans that are formulated by the Council are approved through General Meetings that include a body of elected Councillors from the Wards. These general meetings are known as Full Council Meetings and are held every three months. The management process of Planning, Organising, Launching actions, Controlling those actions, Gathering information on performance results, Evaluating those results; and Redirecting the actions (in order to improve on future performance) is executed through this system.

In 2000, the District drew up a strategic plan for development management. The first phase (which is ongoing) is of three years, extending from 2000 to 2002. This plan has been drawn up on the basis of consultations with and initiatives from the development stakeholders in the District; that is, the communities in the villages.

Although the strategic plan has set its objectives for a period of three years starting from 2000, the District realises that the process of development management as described earlier in this document is a continuous process. So, later in 2000, the District established a computer-based database and information system to enable

- gathering information on performance results; and
- evaluating the results

With the aid of this computerised monitoring and evaluation system, development will be monitored through a set of measurable and objectively verifiable development indicators. A comprehensive list of these objectively verifiable indicators will be discussed in the body of this report. The computer

system includes the measured values of these indicators for 1999, which is the baseline situation for change. The project targets for 2002 are available in the Strategic Plan document.

In the process of creating the computerised system for monitoring and evaluation and the experience gained during implementation, the District has realised that there are problems in the procedures for data capture and processing. For some indicators these procedures are inaccurate; for others they may even be impractical. In some cases the development indicators themselves may need to be redefined.

The objective of this study, therefore, is to develop feasible and accurate data capture methods for the development indicators.



## **THE TERMS OF REFERENCE**

### ***Statement of the problem***

When developing the district's development plan for 2000 – 2002, a set of indicators was established for monitoring and evaluating the plan. Experience gained so far in implementing the district's development plan has shown that the procedures currently used for collecting the data needed for measuring some of these indicators may be inaccurate or impractical. These problems are likely to have an impact on a realistic assessment of the achievements of the plan.

### ***Objective and description of the study***

The objective of the study is to develop feasible and accurate data capture methods for the district's development indicators.

The study will involve

- a desk study of the input data for each of the district's development indicators and the procedures currently used to collect and pre-process this data
- an analysis of the current problems in the data collection, analysis and storage procedures
- an analysis of current problems in two-way vertical information flow from the grass-root level to the district and horizontal flow at the district level
- participatory development and testing of alternative procedures for data collection, analysis and storage and for vertical reporting

The activity will involve interviews with various information stakeholders at all levels in the district. Different wards will be visited, on a sampling basis, to examine how information is collected and problems that exist. The activity will be facilitated by the consultant who will report to the Council Management Team (CMT), propose new systems for data capture, and provide training for data collectors in the use of the new system.

The Consultant shall

- Work in close collaboration with The Client and The Client's designated staff. The Consultant shall discuss all phases of The Project in draft form before finalisation
- Produce and discuss a tentative schedule (times and places) for interviews with various information stakeholders at all levels in the district.
- Produce a report in the English language on his findings and come up with a proposal to improve the information system and discuss these with the CMT. The forms for data collection should be designed in the Kiswahili language

- Establish the new information system. This will involve:
  - Establishing formats for data capture
  - Establishing procedures for processing primary data into the format of development indicators
  - Establishing a system for the storage of primary data at the data 'centres' and at district level
  - Establishing procedures for two-way vertical flow of information
  - Organising a workshop for all Ward Executive Officers (WEOs) to brief them on the system and how to use it
- Produce a final report explaining the procedures and formats to be used. This report should include the itinerary of the consultancy.

## **METHODOLOGY**

This report is a result of a study that was conducted between 19<sup>th</sup> April and 24<sup>th</sup> June 2002. The study was commissioned by Muheza District Council with financial and technical assistance from Ireland Aid.

Right at the beginning of the assignment, it became clear that the data for 2000 and 2001 had not been entered into the computerised database. This meant that the system still had only the baseline data for 1999 that were entered while designing the system.

To find out what the reasons for this could be, I asked for a meeting with the Heads of Departments on 25<sup>th</sup> April 2002. The objectives of this initial meeting were:

- to establish the level of awareness of the district data maintenance exercise
- to jointly highlight implementation problems
- to assess the management expectations from and commitment to the data maintenance system

In this meeting some Heads of Department were not available but the attendance was sufficient for the objectives of the meeting.

In further discussions with the District Management, additional weaknesses in the monitoring and evaluation system were identified. These were that:

- the system does not give due consideration to poverty-reduction indicators
- gender-equity indicators have not been fully incorporated
- the relevance of some indicators may be doubtful.

The management indicated a need for this study to give some attention to these issues as well.

After a short period of preparation, the next phase of activities involved detailed discussions with personnel in the Departments at the District Headquarters and the officers in the Wards. In the Departments, we discussed each indicator in terms of its wording, its relevance, the data used in its measurement, and the procedures for capture and processing. In rounding up the discussions, we examined the storage systems used in the Departments.

The discussions in the Departments were interspersed with interviews in a number of Wards. For this purpose the Planning Office selected five Wards as a sample. The selection of these wards was made so as to represent the coastal belt (Manza), Maramba sub-District (Maramba), an urban setting (Mbaramo)

and the hinterland (Songa and Ngomeni).

During visits to the Wards, I was accompanied by the Planning Officer or by his assistant. As a rule, during discussions in the Wards, the meetings included the Ward Executive Officer and the team of sectoral officers at Ward and village levels. In two Wards, the Councillors were also in attendance and chaired the meetings.

In conducting the interviews in the Departments and in the Wards, I used information checklists designed to get the information specified in the terms of reference for this study. These checklists were not meant to be a basis for structured interviews, but rather to serve as prompts during the conversations. The checklist for Ward-level interviews were revised with time as our understanding of the issues improved.

Two workshops were included as part of this study. The overall objective of the two workshops was to ensure the full participation of the District personnel in the design of the alternative system proposed from this study and in describing the procedures for its implementation.

We held the first workshop on 24<sup>th</sup> June 2002. This workshop comprised the Council Management Team, i.e. the Heads of Department in the Council, and their senior assistants. One of the objectives of the workshop was to reach a common understanding of the problems in the procedures currently used for capturing, processing and storing the data for the development indicators. The second objective of the workshop was to refine the proposal from this study for an alternative information system.

The workshop was organised to start with my presentation of the findings of this study. This was followed by work-group assignments, in which each of the five cluster groups worked on the relevant section of the proposed system in order to:

- identify deficiencies, errors and problems in the proposed data capture forms
- propose corrections for these deficiencies, errors and problems
- present the results from the work groups in a plenary for final approval

On 16<sup>th</sup> August 2002 we conducted the second workshop. This workshop included both the Council Management Team and the Ward Executive Officers. The objective of this second workshop was to institutionalise the new system and to provide initial training in its use and implementation. The Ward Executive Officers had the opportunity to study the proposed data register in advance of the workshop.

At the beginning of the workshop we went through the register to ensure that participants could understand and use the data tables. I then asked participants to split into four groups to study the register in more detail. The four groups examined the following aspects respectively and present in a plenary session:

- make a listing of the different data/information stakeholders in the District and describe their responsibilities in the new system
- describe the possible uses of the new system for each data/information stakeholder
- describe workable procedures for submitting data into the registers and to the Planning office
- describe the implications of the new system to the duties of the Ward Executive Officers

The results of this workshop have been used in this report.

The ideas and results from both workshops were then incorporated into this report and the design and procedures for the new system – officially launched under the name HITAMIMA.

## **PROBLEMS ENCOUNTERED DURING IMPLEMENTATION**

Given the nature of the activities and responsibilities of the District, it is probably too much to expect that a study such as this could have gone without a hitch.

Sometime halfway through the “fieldwork”, the timetable was interrupted because of unforeseen circumstances on the part of the concerned officers at the District. This necessitated a review of the timetable for interviews and seeking new appointments with the Departments.

Before the new timetable could be completed, the Planning Officer was taken ill and remained off duty for a considerable period.

Ultimately, it became necessary to alter the planned date for completion of this assignment.

According to the initial planning, the second workshop would have been held a week after the first one. However, due to the workload on the officers in the District, we could not follow this timetable. After the first workshop, the second one was postponed for an undefined period due to other commitments on the part of the District. Finally, we held the workshop on 16<sup>th</sup> August 2002.

## ITINERARY

DATE	ACTIVITIES	PERSONS MET
19 Apr 02	<ul style="list-style-type: none"> <li>- Reporting</li> <li>- Planning the assignment</li> <li>- Preparation of schedule for interviews</li> </ul>	<ul style="list-style-type: none"> <li>- Mr. O. Mwashu (DED)</li> <li>- Mr. H. Njama (Ag. DED)</li> <li>- Mr. H. Mwachibuzi (DPLO)</li> <li>- Mr. L. Schoonman (DDA)</li> </ul>
20-21Apr 02	<ul style="list-style-type: none"> <li>- Study of literature</li> <li>- Preparation of checklists of information to be collected at various levels</li> </ul>	
22 Apr 02	<ul style="list-style-type: none"> <li>- Desk study</li> <li>- Meeting with CMT</li> </ul>	All Heads of Departments
2 May 02	Discussions in the Department of Water	Mr. Mohamed
	Discussions in the Department of Natural Resources. Report compilation	Mr. F.G. Makumba
3 May 02	Discussions with Department of Health	<ul style="list-style-type: none"> <li>- Dr. Kiango (Ag. DMO)</li> <li>- Victoria Wasapa (DNO)</li> <li>- Abdallah Dhahabu (DCCO)</li> <li>- Dr. Tumaini Gershon (DDO)</li> <li>- Paulo Mhusa (Lab Technician)</li> <li>- Mnzava</li> </ul>
6 May 02	Discussions with Department of Education	<ul style="list-style-type: none"> <li>- H. Njama (DEO)</li> <li>- Mr. R.M. Mutatina (SLO)</li> <li>- Mr. G. Kilevo (SLO)</li> <li>- Mr. S. Shemzigwa (Ac.O)</li> <li>- Mr. P. Lengeju (AVO)</li> </ul>
7 May 02	Discussion with WMT at Songa	<ul style="list-style-type: none"> <li>- Mwindadi Balozi (WEO)</li> <li>- Aggrey Kilomela (Ag. WEC)</li> <li>- Dismas Chalange (WHO)</li> <li>- Aloyse Sheshe (VAO)</li> <li>- Kayange Marika (WAO)</li> </ul>
8 May 02	Discussions with Department of Agriculture and Livestock	<ul style="list-style-type: none"> <li>- M.A. Musa (Ag. DALDO)</li> <li>- Simbi S. Simbi (SMS, Livestock)</li> <li>- A.K. Bilali (SMS, land Use)</li> <li>- A.J. Senkoro (DLUP)</li> <li>- J.K.L. Mbuji (SMS, Tse-tse &amp; Tripanosomiasis Control)</li> <li>- Juliana Swai (Dairy Husbandry Management Advisor)</li> </ul>
9 May 02	Discussion with WMT at Mbaramo	<ul style="list-style-type: none"> <li>- Musa Abd (Councillor)</li> <li>- Stuart Mzia (WEO)</li> <li>- Mturi Mkeiy (WEC)</li> <li>- Kiravu Mbwambo DAO</li> <li>- Abdallah Mhina (WAO)</li> <li>- Portina Seng'enge (WCDO)</li> <li>- Ms. Nyota (Councillor, Special Seats)</li> </ul>
22 May 02	Discussions in the Department of	<ul style="list-style-type: none"> <li>- Mr. Hatibu (DCDO)</li> </ul>

DATE	ACTIVITIES	PERSONS MET
	Community Development	- Ms. Mary Mbure (CDO)
27 May 02	Discussions in the Trade Department	Ms. Aziza Omary (District Trade Officer)
27 May 02	Discussions in the Lands Department	Mr. Leonard Mhando (DLDO)
27 May 02	Discussions in the Department of Co-operatives	Mr. F. Mvungi (Co-operative Officer)
28 May 02	Discussions in the Department of Works	Mr. Mboya (District Engineer)
30 May 02	Discussions at Ngomeni Ward	- Mr. Ali Zuberi (WEO) - Ms. Zainabu Kandoro (Ward Agric & Livestock Extension Officer) - Ms. Nakijwa Aston (Village Agric & Livestock Extension Officer)
30 May 02	Discussions at Manza Ward	- Mr. Nyundo Shime (Councillor) - Mr. Yusufu Yanga (WEO) - Mr. Hamisi Ali (WEC) - Mr. Omar Ramadhani (Head Teacher) - Mr. John Simon (Head Teacher) - Mr. Omari Mbwana (Medical Attendant)
31 May 02	Discussions at Maramba Ward	- Mr. Juma Mdoe (WEO) - Mr. Elisa Shekidele (Divisional Executive Officer, Maramba Division) - Mr. Mdolwa Shaban (Head Teacher) - Mr. Lewis Jonathan (Teacher) - Mr. Bakari Zito (Head Teacher) - Mr. Sefu Nkondo (Health Assistant) - Ms. Devota Lyimo (Ward Agric & Livestock Extension Officer) - Mr. Michael Mbilu (Teacher) - Mr. Luhusu Mbwana (Head Teacher) - Mr. Nasib Salehe (Head Teacher) - Mr. Yusufu Mkukutika (Divisional Forest Officer) - Mr. Semainda Ali (Head Teacher)
24 Jun 02	Workshop to discuss findings and proposed alternative system	- Mr. Mohamed Hamisi (DWE) - Mr. Charles Mongi (IDE) - Mr. Faustin G. Makumba (DNRO) - Mr. Edward E. Lyawere (DFO) - Mr. F. Mvungi (CO) - Mr. H. Y. Mwalugoya (DHO) - Mr. L. F. Mhando (DLDO) - Mr. A. M. Janja (HABARI) - Mr. M. Akida (S/ INSPECTOR) - Mr. L. E. Mgaya (D. COOP) - Mr. Shabani H. Muzava (W/ Technician) - Mr. Obindi Jeremiah (AG. DT)

DATE	ACTIVITIES	PERSONS MET
		<ul style="list-style-type: none"> <li>- Mr. A.K. Hatibu (DCDO)</li> <li>- Mr. Luka Schoolman (DDA)</li> <li>- Mr. Shemhina SA (MIFUGO)</li> <li>- Mr. M. A. Musa (Kilimo)</li> <li>- Mr. Vije Mfaume Mdwanga (MIPANGO)</li> <li>- Mr. H. O. Mwachibuzi (DPLO)</li> <li>- Mr. G. L. Kilevo (SLO)</li> <li>- Mr. R. M. Mutatina (SLO)</li> <li>- Mr. P. E. Lengeju (DAVO)</li> </ul>
16 Aug 02	Workshop for Ward Executive Officers	See list of participants in Appendix (page 50)



## **ACKNOWLEDGEMENTS**

I am very grateful to Mr. O. Mwashu, the Executive Director, and Mr. L. Schoonman, the District Development Advisor, for their assistance and facilitating this consultancy. Through them I would like to acknowledge the progressive spirit of the whole Council Management Team, which enabled this assignment in the first place.

My special tributes go to the Planning Officer, Mr. H. Mwachibuzi, who allowed me to work from his office and, despite his very busy schedule, arranged most of my appointments and accompanied me on all of the field visits. When Mr. Mwachibuzi fell ill, Ms. Vije Mfaume was a very efficient planner for me during the last visits to the most distant Wards from the District headquarters.

I appreciate the co-operation of the staff of Muheza District Council, who made my work enjoyable by providing me with a friendly atmosphere and for their services and attention whenever I needed them. By the end of this assignment I was feeling as one of the staff there.

The people we visited in the villages were very kind and always ready to give us all we needed of their time and attention. This made the fieldwork a refreshing experience.

Juvent P. Magoggo  
August 2002



# **1. THE DISTRICT DEVELOPMENT INDICATORS, THE DATA AND PROCEDURES USED FOR CAPTURE AND PROCESSING**

Muheza District has established the development indicators in order to put in place a system for informing itself on progress made towards its development objectives. The kind of information that the district wishes to get out of the system is expected to have immediate value for management to plan, execute and control its development activities. The whole process involves flow of information from various functional levels to the top management. For all intents and purposes this is a full-fledged *Management Information System*.

It is useful to introduce this term early in this chapter. In the rest of this document the full term or shortened versions of it will be used to refer to this concept as it applies to the development indicators for Muheza District.

The District has defined 74 indicators for development monitoring and evaluation. These indicators are recorded as a single value for a given year for each indicator.

This single value for the indicators is aggregated from Ward-level data, which are supplied to the Departments on monthly and three-monthly intervals. At the end of the year, the Departments summarise the data from the monthly and quarterly reports supplied by the Ward officers in the various sectors.

Both the Ward officers and the Heads of Departments use flat files and box files to store the reports they receive or copies of reports they pass on to the next functional level. In most cases the various functional levels exchange data in the form of a report, which may or may not include tabulated summaries.

For the purposes of capturing data, storing it and transmitting information derived from it, the District has two functional levels. These are:

- the Ward level, and
- the District level

Actually, most of the data originates at the village level. The village is the next lower level below the Wards. This is the level at which summaries from direct household data are made. But, because the staff in the villages is not directly under the control of the District Council, this level does not form a direct node in the information system at present.

This chapter will examine the input data used for each development indicator,

the source of this data and the way this data is captured and processed. In the strategic plan, several administrative departments in the District are pooled together in what are known as “clusters”. The plan groups the departments into five clusters as follows:

- Health and Water
- Education
- Agriculture, Natural resources, Lands, Trade and Co-operatives
- Community development and Works
- Leadership and administration

Even so, this document will discuss the development indicators separately for each administrative department, because in practice, each department is responsible for its own indicators. We will list the development indicators, highlight the data used to characterise those indicators and discuss in short the procedures that are used to capture, process and store the data.

At the end of this chapter, this information is summarised in a set of tables.

## **1.1 Seventeen development indicators in the health sector**

The Department of Health has defined the following indicators to measure achievement in the health sector:

- Percentage of projected health plans completed
- Percentage of children immunised against DPT 3
- Percentage of children immunised against Polio 3
- Percentage of children immunised against TT2
- Percentage of children immunised against measles
- Percentage of ward-level PHC operations completed
- Gross number of reported maternal mortality cases (per 100,000)
- Percentage of homesteads with standard latrines
- Number of attendants to MCH clinics
- Number of reported malaria cases: morbidity
- Number of reported malaria cases: deaths
- Number of reported cases of diarrhoea: morbidity
- Number of reported cases of diarrhoea: deaths
- Number of reported cases of anaemia: morbidity
- Number of reported cases of anaemia: deaths
- Number of reported cases of pneumonia: morbidity
- Number of reported cases of pneumonia: deaths

The Health Department has a system for collecting and storing data from the health centres and dispensaries in the villages. The system was developed for

the health sector by the respective Ministry. It is known as *Mfumo wa Taarifa za Uendeshaji wa Huduma za Afya* - in short, MTUHA.

The MTUHA information system has been designed to feed into the national system in the Ministry of Health. In its present form, it includes formats and procedures for collecting and processing the data that is needed for most of the District's development indicators in the health sector. The data are recorded in a series of registers popularly known to the Department by their numbers from Book One to Book Ten.

## **1.2 Two development indicators in the water sector**

The monitoring and evaluation system database uses the following development indicators for this sector:

- Percentage of villages with access to clean water
- Percentage of households with access to clean water

According to the District Water Engineer, however, these two are not relevant indicators. They are more or less a repetition of the same thing. The relevant indicator, which the Department uses and for which data can be gathered and interpreted, is the *Percentage of rural population with access to clean water*.

The Department defines clean water as water supplied to a village by pipe or from shallow wells.

The data set used to measure this indicator consists of two parameters:

- The number of villages served by a clean water project
- The population of each of these villages

The sum of these two parameters gives the overall population that has access to clean water. This is then converted to percentage of the District population.

The Department has prepared a table of population projections for each village up to the year 2005. These population estimates are based on the 1988 national census and a nominal growth rate of 2% per year. Another source of data for village population data is the village offices. However, the District Water Engineer is of the opinion that the village population data may be less reliable than the projection tables.

## **1.3 Fifteen development indicators in the education sector**

For measuring achievement in the education sector, the District has defined the following indicators:

- Percentage of P/School age actually registered: boys

- Percentage of P/School age actually registered: girls
- Percentage of teachers of Grade A status
- Gross number of classrooms
- Ratio of text books/pupil
- Average number of exercise books per pupil
- Number of functioning adult education groups
- Number of adults registered/active in agricultural programmes
- Number of adults registered/active in livestock programmes
- Number of adults registered active in home-craft programmes
- Number of registered adult artisans
- Average Std IV mark for girls
- Average Std IV mark for boys
- Average Std VII mark for girls
- Average Std VII mark for boys

The range of data used to define these indicators includes:

- K Number of children of school age in the current year
- K Number of pupils actually registered for Std I at each school
- K Total number of pupils and classrooms at each school
- K Number of Grade-A teachers at each school
- K Number of adult education classes
- K Number of adults registered under each programme
- K Number of text books and exercise books distributed to schools
- K Actual mark obtained by each Std IV and Std VII pupil in the final exam

Around the end of the third quarter, primary school head teachers carry out a census to determine the number of children who will be of school age in the coming year.

During the course of the year the head teachers submit monthly and quarterly reports to the District education office. These reports are prepared in a format designed by the District. In addition to the head teachers' reports, the Ward Education Co-ordinators also send in their quarterly reports.

In the District Education office, the reports are stored in files.

The data on number of classrooms and those indicators that have to do with adult education is used more or less in the form that it is collected. The procedures for the other indicators are more involved, and deserve to be treated separately.

### *The percentage of school age boys and girls actually registered*

The percentage of school age boys and girls actually registered is a ratio of the actual numbers at the end of the year to the number expected from the census.

### *Percentage of Grade-A teachers*

The percentage of Grade-A teachers is obtained thus:

- The required number is calculated by dividing the number of pupils in the school by a stated number of 45
- The percentage is then calculated through dividing the actual number of Grade-A teachers available by the required number

### *Ratio of textbooks to pupils*

In calculating the ratio of textbooks to pupils the annual reports of the head teachers are used to get the total number of textbooks from all schools for each title. This number is then divided into the number of pupils.

The District Education office is not sure how to aggregate these averages into a single value that takes into account the possible differences between classes and between titles.

### *Average Std IV and VII mark*

The average standard IV and VII mark is calculated by:

- Adding the marks for all pupils
- Dividing this total by the number of pupils

This process is repeated for the other subjects. The subject averages are then added and divided by the number of subjects to obtain one class average.

This is the procedure that the Department outlined during discussions. In actual fact, this procedure is not followed yet because of the heavy numeric processing that it entails. The values that were used for 1999 are the respective national pass marks.

## **1.4 Nine development indicators in the agriculture and livestock sector**

In the agriculture and livestock sectors the district uses the following nine development indicators:

- Value of gross cess collection (Tshs)
- Average yield of maize (tons/ha)
- Average yield of cassava (tons/ha)
- Average yield of citrus (tons/ha)
- Number of farmers using pest and disease control in citrus

- Number of farmers using pest and disease control in cashew
- Percentage of calf deaths
- Number of cows sold in auction markets
- Recorded number of animals dipped

Four of these indicators are direct measurements. This means that the indicators are themselves directly measurable entities. These are: (a) number of farmers using pest and disease control measures, (b) number of cows sold in auction markets and (c) number of animals dipped.

The data for average crop yields per hectare is yields from adoption plots or control plots. The adoption plots are 10m by 10m plots from a part of the farmer's land. These plots are managed directly by the extension officers at the optimum husbandry level, but taking care to keep the management level within the farmer's means. For example, fertilisers are not used, because the farmers do not use fertilisers. Control plots, on the other hand, are 10m by 10m plots from the real conditions of the farmer.

While there is no processing involved for the directly measurable indicators, the calculation procedures for average crop yields deserve description. The two yields, from the adoption and control plots respectively, are converted to yield per hectare (by multiplying by 100). Results from a few such plots from a number of farmers are used to arrive at an average value for a Ward.

The data from all wards are submitted to the District. The Department of Agriculture processes the data to arrive at a single value for the District average. The value from the adoption plots is kept as the productivity potential for the particular crop, while the value obtained from the control plots is used as the average yield for that crop for that year.

Again, this is the procedure that the Department describes for calculating production per hectare. In practice, the Department does not keep these data. It is more concerned with data for estimates of total production in any one year. These estimates are derived from an estimate of areas under cultivation and fixed productivity indices that were established a few years ago and are not updated annually.

## **1.5 Three development indicators in the natural resources sector**

In the sector of natural resources, the District uses three development indicators. These indicators are:



- Number of illegal cases of forest resources harvest
- Number of illegal cases of fisheries resources harvest
- Number of villages with community wood lots

At present, there are no institutional arrangements for collecting, processing and storing data to be used to determine the number of villages with community wood lots.

All three indicators are directly measurable entities. The data for illegal harvest of natural resources are obtained through the East Usambara Catchment Forestry Programme and from the Department's own forestry officers. They are kept in the tabulated report formats.

Even though data on number of villages with community wood lots is not yet collected, the District plans to introduce a register of tree planting in the District. This process is still in the formulation stage. The procedures for data capture, storage and processing have not yet been established.

## **1.6 Four development indicators in the trade sector**

The formulation of the performance indicators in the trade sector is based on trade licences. The primary source of data is the license books. Since all trade licensing is done at the District Headquarters, the data for the indicators in the trade sector do not originate from the Ward or village level.

The District has defined four indicators in this sector. These are:

- Number of business licenses renewed for 3 years or more
- Number of business licenses continued from last year
- Number of all licensed traders
- Number of licensed women traders

Every business license that is sold includes a remark as to whether it is new or continuing from the previous year. Thus the number of renewed licenses is obtained by counting the renewed licenses in the license books.

Up to 1999, the license books were submitted to the Regional Trade Office, but since 2000, these books are retained at the District. Thus it is possible to obtain a list of traders who have been renewing their licenses since 1999. In this way the number of business licenses that have been renewed for 3 years or more can be obtained starting from 2002.

Since 2000, the Department of Trade has introduced a register. In this register

the particulars of every trader are recorded. The register can record the license particulars for a maximum of three years.

The traders register does not include a column for gender specification. The number of women traders is made from a count of “feminine” names.

### **1.7 Two development indicators in the co-operatives sector**

The District uses two indicators to monitor the performance of co-operatives:

- Number of primary societies making profit
- Number of primary societies with annual audited accounts

According to the Department of Co-operative Development, at the time of this study (May 2002) there were 32 societies in the District. This number is not fixed; it varies from year to year as new societies may be registered or some may go out of business.

The societies use two different accounting periods. The accounting period for some societies is July to June of the next year. Other societies use the calendar year, i.e. January to December of the same year.

The Department is charged with the responsibility of auditing the accounts of all the societies every year. In practice the department cannot fulfil this task, due to constraints in financial and human resources. Thus, in any year only some societies may have their accounts audited; others may be behind by any number of years.

The data for these indicators comes from the audit reports prepared by the Department. The Department of Co-operative Development keeps the records of the societies in a separate file for each society. These records include audit reports that have been prepared. The values for the indicators are obtained from a direct count from the audit reports. Any society that has had its accounts audited at least once in its lifetime is counted as having annual audited accounts.

### **1.8 One development indicator in the lands sector**

The main responsibility of the Lands Department is surveying and allocating land to developers. The District has defined one indicator to monitor the results from this activity. The indicator is defined as the *Number of 5-acre plots surveyed and allocated to smallholders*.

When new plots are surveyed, they are added to the survey map. Upon allocation to a developer, the new developer is issued a letter of offer. The

Department opens a personal file for the new developer. In addition to the individual files, the Department keeps a register of individuals allocated land by letters of offer and another register of owners to whom land titles have been issued.

The number of plots allocated can be obtained by direct count from the register of letters of offer. It can also be obtained from a search of the files opened for new developers in the year in question.

Until the time of this study, this activity had not been done. The Department has not yet formalised the method for this count.

## **1.9 Ten indicators of community development**

In the area of community development, the District has defined ten indicators. Most of these indicators are concerned with improving gender equity. The complete list of those indicators is as follows:

- Percentage of women in village meetings
- Percent women elected to leadership at village level
- Percent women elected to leadership at ward level
- Percent women elected to leadership at district level
- Percent women appointed to leadership at village level
- Percentage women appointed to leadership at ward level
- Percentage women appointed to leadership at district level
- Number of villages with community development projects
- Total registered women participants in socio-economic groups
- Total registered male participants in socio-economic groups

Six of these indicators are concerned with the *percentage of women elected* as well as those *appointed to positions of leadership* at the various administrative levels. These indicators are based on one measurement: the number of women in leadership positions at various levels in the District. The denominator used in the calculations is the number of leadership positions available at the specific level. The available positions of leadership at each administrative level in the District are those provided for in the Local Government administrative structure. They are thus known and fixed.

The number of women elected or appointed to positions of leadership is obtained from election reports. The records of elections are kept in the District Registry office. The Department of Community Development does not retain a copy.

To obtain a value for the *percentage of women in village meetings* the Depart-

ment uses, as its denominator, the total number of “able-bodied” (adult) *women* in the particular village. The number of women attending such meetings is “averaged” from sample villages as determined from Participatory Rural Appraisal (PRA) studies. In some cases the number of women attendees is obtained from the minutes of village meetings. According to Local Government rules, village meetings are supposed to take place every month.

The last three indicators listed at the beginning of this section address the economic sphere. The *number of villages with community development projects* is based on one measurement – a count of such villages. The data is obtained through PRA studies and from the monthly reports of the Community Development Officers. The information is stored in the files of the Department in tabulated format. The value reported for the year is the total number of projects, which includes the ones initiated in the current year and on-going projects from previous years.

The *number of women and men registered in socio-economic groups* is obtained from the registers of the groups themselves. A record of socio-economic groups is kept in the files of the Department in loose tabulated form. The records that were available for scrutiny in this study did not include a column for the number of members of the groups, let alone the ratio by sex.

## **1.10 Four development indicators in the works sector**

The main focus of the Department of Works is the maintenance of roads and bridges in the District. To monitor its performance in this area, the District has defined the following four indicators:

- Tons of agricultural produce transported to markets
- Number of births while en-route to health centres
- Average dry-season travel time Muheza - Maramba – public vehicles (hrs)
- Average dry-season travel time Muheza - Maramba – goods vehicles (hrs)

The data for the first two indicators are captured, processed and stored by other Departments. Data on agricultural produce transported to markets is administratively under the jurisdiction of the Department of Agriculture. Records of births are administered by the Department of Health.

According to the extension officers of the Department of Agriculture, data on tons of produce for crops such as citrus is obtained from farmer interviews. The farmer is asked to make an estimate of what he/she expects to harvest. Where applicable, she is further asked to estimate the proportion she expects to sell. The results obtained from a sample of farmers is extrapolated over a Ward and

finally over the District. The method does not consider a transportation factor.

Another method of obtaining this data does not involve interviews with farmers. The Department makes estimate of crop areas. This is then multiplied by productivity indices that have been established by the Department to obtain total production. For mainly cash crops such as citrus it is assumed that all of the produce will be sold, so this value is used directly. Again, this method does not include a transportation element.

The deliveries that take place while expectant mothers are on transit to health facilities are recorded by the Department of Health in the MTUHA registers. The annual value is obtained by a direct count of such events.

Data for estimating the average travel time between Muheza and Maramba towns is not available. The District does not have a system for recording, processing and storing the necessary data. The data for 1999 were obtained from an estimated “average” driving speed and the distance between the two towns.

## **1.11 Seven development indicators for leadership and administration**

According to the strategic plan, Government policy aims to strengthen local government and popular participation in provision of essential services. To monitor its own capacity in this regard, the District has defined the following seven indicators:

- Amount of revenue collected (Tshs)
- Percent of Council internal revenue spent on development programmes
- Financial year of the most recent audited and closed accounts
- Number of audit queries in the latest audited accounts
- Number of villages with community development plans
- Percent of planned district development activities implemented
- Percent village governments presented annual report to village assemblies

The responsibility for data rests in different offices for these seven indicators. The financial data and data that are concerned with aspects of financial management are under the custodianship of the District Treasurer. Data on the administrative aspects are under the custodianship of the District Administrative Officer.

The amount of revenue collected and the proportion of this revenue that the District spends on development programmes are financial administration data. Data on the *amount of revenue collection* are obtained from records in the

District Treasurer's office. To calculate the *percent of revenue spent on development programmes*, the total expenditure for each development programme is divided over the total collections.

Financial management data are those needed for determining the *number of audit queries*, the *latest year with audited and closed accounts*. These data are obtained directly from available audit reports.

Community development plans developed in the villages have to be submitted to the Planning Office at the District. The Planning Office is then responsible for integrating them into a District-wide plan and co-ordinating their implementation. Thus, the data on the number of villages with such plans can be extracted from the records in the Planning Office.

At the beginning of the planning year, the District approves a number of development activities to be implemented. The list of activities so approved is kept in an operational plan document. At the end of each quarter a progress report is prepared, which indicates the planned activities and their budgets, the amount of money actually expended and the activities actually implemented.

In general, progress in implementation is described by way of checking off the sub-activities actually implemented against those planned for each activity. But this is only a general rule. In some cases the narration of the planned and implemented sub-activities do not tally.

Each quarter updates the previous quarter, which means that expenditure is reported as a cumulative amount. The fourth-quarter report is an update of the previous three reports and, for all intents and purposes, serves the purpose of an annual report.

The *percentage of planned district development activities implemented* is calculated as the number of activities actually completed.

Village governments are obliged to hold annual meetings and to submit the minutes of those meetings to the District, through the District Administrative Officer. In this way, the number of villages that have submitted their reports can be obtained from the records. The *percent village governments that have presented annual reports to village assemblies* can then be calculated by dividing by the total number of villages.

This description is hypothetical. According to the Planning Officer, so far there is no responsible officer for it and it is not done.

The tables on the remaining pages in this chapter contain a summary of the data and methods used for their capture, storage and processing.

Table 1: The data and procedures currently used for the indicators in the Health sector

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Percentage of projected health plans completed	List of health plans Planned budgets Budget expenditure Inspection reports	MTUHA registers District processing file	For each plan: Proportion of budget expended per plan, or Estimate of completion stage Procedures for final aggregation unknown
Percentage of children immunised against DPT 3	Number of children immunised at each health centre Number of children within the immunisation age bracket	MTUHA registers (Annual report – F005)	For each centre, from F005: Number of children immunised divided by total number of children <i>(Procedures for final aggregation not established)</i>
Percentage of children immunised against Polio 3			
Percentage of children immunised against TT2			
Percentage of children immunised against measles			
Percentage of ward-level PHC operations completed	Number of PHC planned for the year Number PHC operations completed		Number operations completed divided by number planned for the year
Gross number of reported maternal mortality cases (per 100,000)	Number of maternal deaths Number of deliveries		Number of deaths divide by total deliveries, then multiply by 100,000
Percentage of homesteads with standard latrines	Number of homesteads with latrines Total number of homesteads		Number of homesteads with latrines divided by total number of homesteads



INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Number of attendants to MCH clinics	Number of attendants to MCH clinic		Sum from the registers
Number of reported malaria cases: morbidity	Number of cases		
Number of reported malaria cases: deaths			
Number of reported cases of diarrhoea: morbidity			
Number of reported cases of diarrhoea: deaths			
Number of reported cases of anaemia: morbidity			
Number of reported cases of anaemia: deaths			
Number of reported cases of pneumonia: morbidity			
Number of reported cases of pneumonia: deaths			

Table 2: The data and procedures currently used for the indicators in the Water sector

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Percentage of rural population with access to clean water	List of villages served with a water project	Project write-up and survey maps	Ratio of total population in villages that are served to total district population

*Actually, this is not the indicator that has been registered into the computerised database. On the other hand, the Department of Water has no means of estimating the indicators used now in the monitoring and evaluation system.*

Table 3: The data and procedures currently used for the indicators in the Education sector

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Percentage of P/School age registered: boys	Number of school age children Number of children actually present in Std I at the end of 1 <sup>st</sup> quarter	Census conducted by school teachers around September Teacher's monthly report to Ward Education Co-ordinator	Use ratio of pupils actually registered to number obtained from census
Percentage of P/School age actually registered: girls			
Percentage of teachers of Grade A status	Number of pupils A stated ratio of pupils per room (45) Number of Grade-A teachers	Head Teacher's monthly reports Ward Education Co-ordinator quarterly report	Divide number of pupils by 45 to get required number Divide actual number of Grade-A teachers by above number
Gross number of classrooms	Number of rooms	Head teacher's monthly reports	Used directly as collected
Ratio of text books/pupil	Number of text books distributed Number of pupils	Ledgers at the District Head Teachers' monthly reports Head Teachers' annual reports	At the end of the year: Divide number of books reported by Head Teachers by number of pupils
Average number of exercise books per pupil	Number of exercise books distributed by the Department Number of pupils		
Number of functioning adult education groups	Number of adults registered under each programme	Head Teacher's monthly reports Ward Education Co-ordinator's quarterly report	Make a direct count from the records
Number of adults registered/active in agricultural programmes			
No. of adults active in livestock programmes			
Number of adults registered active in home-craft programmes			
Number of registered adult artisans			
Average Std IV mark for girls	Examination mark per pupil Number of pupils examined		For each examination subject: Sum mark for all pupils Calculate average Then compute overall average
Average Std IV mark for boys			
Average Std VII mark for girls			
Average Std VII mark for boys			

Table 4: The data and procedures currently used for the indicators in the Agriculture and Livestock sector

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Value of gross CESS collection	Revenue collections	Not done at present	Not done at present
Average yield of maize (tons/ha)	Stated productivity index Yield data from adoption plots Yield data from control plots	Extension Officers monthly reports	Measure yield from 10x10 plot Convert to yield per ha (multiply by 100) Find average of all plots
Average yield of cassava (tons/ha)	Stated productivity index Yield data from adoption plots Yield data from control plots		
Average yield of citrus (tons/ha)	Stated productivity index Estimate of area under citrus		
Number of farmers using pest and disease control in citrus	Number of farmers advised and verified	Extension Officers monthly reports	Used directly
Number of farmers using pest and disease control in cashew	Number of farmers advised and verified		
Percentage of calf deaths	Number of problems reported by farmers to the extension officers		
Number of cows sold in auction markets	Number of animals sold Number of animal movement permits issued Number of animals butchered at home	Auction register VEO inspection reports	Used directly
Recorded number of animals dipped	Number of animals dipped	Not done at the moment	Not done at the moment

Table 5: The data and procedures currently used for the indicators in the Natural Resources sector

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Number of illegal cases of forest resources harvest	Number of cases reported	Inspection reports (tabulated)	Count the number of cases from the reports
Number of illegal cases of fisheries resources harvest	Number of cases reported	Inspection report (tabulated)	Count the number of cases from the reports
Number of villages with community wood lots	-	Not yet done	Note yet done

The department, in collaboration with the District Commissioner's office, has plans to start a tree-planting register. With this register, the department hopes to get an accurate count of the *number of villages with community wood lots*.

Table 6: The data and procedures currently used for the indicators in the Trade sector

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Number of business licenses renewed for 3 years or more	No. of licenses renewed for three or more years	Trade license books Traders register	
Number of business licenses continued from last year	No. of license renewed	Trade license books Traders register	Count all licenses marked as renewals in the license books Or Count traders in the register who were also doing business in the previous year
Number of all licensed traders	Total number of licenses sold in a particular year	Trade license books Traders register	Count all licenses in the license books Or Count traders in the register
Number of licensed women traders	Total number of licenses sold to women business owners in a particular year	Trade license books Traders register	Count all licenses sold to traders with feminine names in the license books Or Count traders with feminine names in the register

Table 7: The data and procedures currently used for the indicators in Co-operatives

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Number of primary societies making profit	Number of societies whose audit reports show profit	Each society has a separate file Audit reports in the society's file	Count the societies that have made profit
Number of primary societies with annual audited accounts	Number of societies who have at least one final audit report	Each society has a separate file Audit reports in the society's file	Count the societies that have an audit report

Table 8: The data and procedures currently used for the indicators in the Lands Department

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Number of 5-acre plots surveyed and allocated to small-holders	Letters of offer issued Titles issues	Separate file for each owner Register of letters of offer Register of titles	Count the number of letters of offer in the year



Table 9: The data and procedures currently used for the indicators for Community Development

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Percentage of women in village meetings	Total number of “able-bodied” (adult) women in a village Number of women attendees	Village population register PRA studies in sample villages Village minutes	Number of women attendees divided by total number of women in sample villages
Percent women elected to leadership at village level	Number of women in electable positions of leadership Number of electable leadership positions at village level	Election reports	Number of women in leadership divided by number of leadership positions at this level
Percent women elected to leadership at ward level	Number of women Councillors* Number of Wards	Election reports	Number of women in leadership divided by number of leadership positions at this level
Percent women elected to leadership at district level	Number of women Members of Parliament + The District Chairperson Number of constituencies + 1	Election reports	Number of women in leadership divided by number of leadership positions at this level
Percent women appointed to leadership at village level	Number of women in positions of government leadership Number of government leadership positions at village level	Staff disposition list	Number of women in leadership divided by number of leadership positions at this level
Percentage women appointed to leadership at ward level	Number of women in positions of government leadership Number of government leadership positions	Staff disposition list	Number of women in leadership divided by number of leadership positions at this level

\* This is the only electable position at the Ward level

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Percentage women appointed to leadership at district level	Number of women in the District Council Number of workers in the Council	Staff disposition list	Number of women in leadership divided by number of leadership positions at this level
Number of villages with community development projects	Number of projects	PRA reports Reports of CDOs (tabulated)	Count individual villages having at least one on-going project
Total registered women participants in socio-economic groups	List of socio-economic groups List of members in these groups List of women in these groups	Registers of individual socio-economic groups	Total number of women in all groups divide by total number of members in all groups
Total registered male participants in socio-economic groups	List of socio-economic groups List of members in these groups List of men in these groups	Registers of individual socio-economic groups	Total number of men in all groups divide by total number of members in all groups

Table 10: The data and procedures currently used for the indicators in the Works Department

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Tons of agricultural produce transported to markets	Tons of crops produced?	Dept of Agriculture	Total tonnage of all crops?
Number of births while en-route to health centres	Number of reported births on transit	MTUHA registers	Count of such incidences
Average dry-season travel time Muheza – Maramba –public vehicles (hrs)	Not done	Not done	Not done
Average dry-season travel time Muheza – Maramba –goods vehicles (hrs)	Not done	Not done	Not done

Table 11: The data and procedures currently used for the indicators for Leadership and Administration

INDICATOR	INPUT DATA	PROCEDURES	
		CAPTURING	PROCESSING
Percent planned District development activities implemented	Number of district development activities implemented Number of district development activities planned in the year		Number of implemented activities divided by number of planned activities
Financial year of the most recent audited and closed accounts	Year of last audit report		None
Number of audit queries in the latest audited accounts	Number of audit queries		None
Number of villages with community development plans	Number of villages with plans Total number of villages (174)		Number of village plans divided by number of villages
Percent village governments presented annual report to village assemblies	Number of village annual reports Total number of villages (174)		Number of village annual reports divided by number of villages
Amount of revenue collected (Tshs)	Amount of revenue collected		None
Percent Council internal revenue spent on development programmes	Amount spent on development programmes Amount of revenue collected		Amount spent on development programmes divided by amount of revenue collected

## 1.12 Summary

To facilitate monitoring and evaluation of its development strategies, Muheza District has defined 74 indicators. These indicators have been selected in due consideration of the socio-cultural and economic environment of the District.

Each Department deals with a sector-specific subset of these indicators. The number of sectoral indicators ranges from one in the Lands Department to seventeen in the Health Department. Even so, about half of the Departments have less than five indicators and only three Departments have defined ten or more indicators.

The data for measuring the indicators are obtained from the villages through the Council's sectoral officers stationed in the villages, wards or divisions. The exceptions to this rule are the trade and co-operatives sectors, for which the data are obtained from records available only at the District level and not in the villages or wards. Data for some indicators in leadership and administration are also available only at the District level. Some data for the Education sector originate from the Regional level.

The District has a regular reporting interval for each sector. Most sectors use informal data capture and storage systems. Both the Ward officers and the Heads of Departments use flat files and box files to store the reports they receive or copies of reports they pass on to the next functional level. In most cases the various functional levels exchange data in the form of a report, which may or may not include tabulated summaries.

The Health Department has the most formal system for the capture, storage and processing of the health data. The Trade Department also has a formal system for data capture.

The District has a set of processing procedures for most of the indicators. These procedures are more or less formalised within the respective Departments. There are a few indicators for which there are no established procedures for processing. These are:

- ❑ percentage of projected health plans completed
- ❑ average Std IV and VII mark for girls and for boys (4 indicators)
- ❑ average yield of maize, cassava and citrus (3 indicators)
- ❑ number of villages with community wood lots
- ❑ percent of women in village meetings
- ❑ tons of agricultural produce transported to markets
- ❑ average dry-season travel time between Muheza and Maramba towns

## **2. EXISTING PROBLEMS IN THE PROCEDURES FOR DATA CAPTURE, ANALYSIS AND STORAGE**

Before enumerating the problems that exist in the procedures for the capture, processing and storage of data, it is useful to re-state the District's development objective as described in the District's *Three Year Strategic Development Plan* for 2000 to 2002. The plan aims to arrive at **improved and equitable access to socio-economic services and increased production.**

This objective will be reflected in:

- Improved and equitable access to quality health services and clean water
- Improved standards and quality of education
- Improved quantity and quality of agricultural and natural resource products
- Equitable empowerment of women and men in social and economic life
- An effective, enabling and transparent administration and leadership

The indicators that the District has defined are meant to measure quantitatively, accurately and unambiguously the District's progress towards these desired situations with time.

To simplify the data storage and information retrieval tasks, the District has developed a computerised database and information system that accepts the district-aggregated yearly values for the 74 indicators covering all sectors of the socio-economic environment of the District.

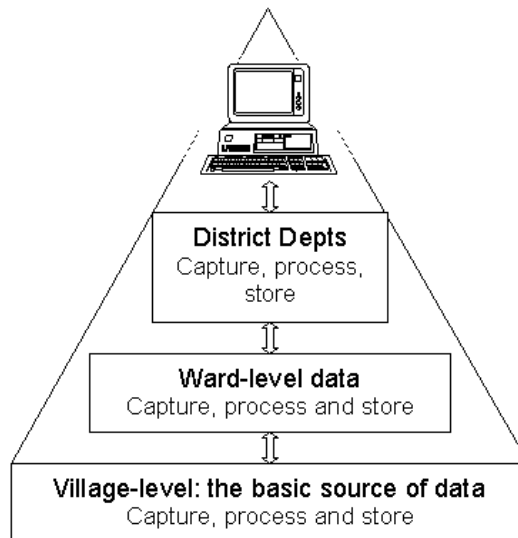
Before input into the computer system:

- The sectoral Ward officers, in collaboration with the respective Departments, must summarise the data collected over the year into a single yearly value for each indicator.
- The Departments must aggregate yearly Ward data to obtain a single District-wide value for each indicator

The computer application allows a fast and easy display of the annual changes. This application is therefore an integral part of the information system. It is the only location where the long-term District-aggregate values are to be stored. It is to this computer application that the task of producing the *information* that the District needs for monitoring and evaluation has been assigned.

We can consider the management information system for Muheza District as a pyramid whose base is represented by the villages and the apex is the information display system.

The information system for Muheza District has three functional levels. Starting at the grass-root level these are the Villages, the Wards and the District Departments. Each level collects (captures) data, keeps a copy of the data and processes this data to produce information that is suitable for capture at the next higher level.



The levels of the Management Information System for Muheza District

Each level above the village level receives data that has been summarised. The computer-based data bank stands at the top of these functional levels. It receives data in a highly summarised form, from which all spatial and temporal variations within the year have been obliterated.

The double-edged arrows connecting two levels indicate that there is (expected to be) two-way exchange of information.

The major problem areas in the information system for Muheza District in its present form are:

- The (computer-based) information display system lacks a spatial dimension
- Some indicators are not sufficiently specific or relevant
- The methods used for data processing for some indicators are inaccurate or improper
- There is no institutionalised data capture and storage system

In discussing the problem areas, we shall focus on those indicators for which there are problems in the data, in the procedures used for processing this data or in the definition of the indicators themselves.

## **2.1 The information display system lacks a spatial dimension**

As we have seen, the computer application is a sub-system of the Management

Information System for the District. Its task is to store the district-aggregated values of the indicators and to display information in the form that the District needs it for monitoring its own performance. It is therefore an information display system.

Because the information display system has been designed to use data that has already been aggregated into a single annual value for the whole District, it is not able to provide information at lower levels of abstraction. For example, it cannot show variations in performance among Wards or Villages.

Although this was the need of the District at the time of its development, the design of the information display system constitutes a potential problem. The immediate concern is that it demands unnecessary pre-processing of the Ward-level data. Ideally, this processing should be done by the computer application. A longer-term shortcoming is that the system will not be able to answer area-specific questions. This means that it cannot be used to give Ward- or Village-specific feedback to the lower levels of management in the District.

The specifications that the District made for designing the computer database for the monitoring and evaluation system did not consider the possible need for information at lower levels. Its main and only goal was to allow a temporal overview of progress at the District level at one-year intervals. It does not allow the same overview at the lower administrative levels such as wards and villages. Such lower levels could give an idea of variations in progress according to geographic areas.

## **2.2 Some indicators are not sufficiently specific or relevant**

In the way in which they are used now, some indicators are either not specific enough or are not relevant in light of the results or changes they are meant to monitor. Indicators that fall in this category are:

- Percentage of villages with access to clean water
- Percentage of households with access to clean water
- Average yield of maize per hectare
- Average yield of cassava per hectare
- Average yield of citrus per hectare
- Number of farmers using disease and pest control in citrus
- Number of farmers using disease and pest control in cashew
- Number of illegal cases of forest resources harvest
- Number of illegal cases of fisheries resources harvest
- Tons of agricultural produce transported to markets
- Number of births while en-route to health facilities



Let us now examine each of these indicators in more detail.

*Percentage of villages/households with access to clean water*      **(Water sector)**

In the villages, individual households do not normally have private water points. Instead, one or more water points are installed in a particular village for the common use of the village community and, possibly, from neighbouring villages. So the percentage of households with access to clean water is not a relevant indicator in the rural areas at present.

*Number of farmers using disease and pest control in citrus and cashew*  
**(Agriculture sector)**

In the area of disease and pest control in crops, the Department uses two indicators that could have more than one interpretation. The two indicators are designed to measure the number of farmers actually using pest and disease control measures. They are listed as:

- number of farmers actually using pest and disease control in citrus, and
- number of farmers actually using pest and disease control in cashew

The Department reports that the District has a prevalence of diseases and pests in these two crops. The reasoning is therefore that an *increase* in the number of farmers taking action against them is a measure of positive achievement.

If we assume that the fight against these pests and diseases cannot be won, this reasoning is safe. On the other hand, if we expect the use of control measures to eradicate the problems, it is reasonable to assume that at some time in future a decline in their use will follow, since this will then be unnecessary. At that time, continued positive results will be marked by a *declining* number of farmers using these control measures.

A good indicator should have the same interpretation at all times. These two indicators, on the other hand, may be interpreted differently by different people or at different times.

*Number of illegal cases of natural resources harvest*      **(Natural resources)**

The District has defined two indicators related to illegal cases of natural resources harvest. They are:

- Number of illegal cases of forest resources harvest
- Number of illegal cases of fisheries resources harvest

The data for these indicators is straightforward and easy to get from the forest extension officers. The problem with these indicators is that the numbers reported would show the number of individuals who have been apprehended. So

what do they measure? Do they measure the degree of the community to respect the natural resources, and therefore the level of environmental awareness, or are they a measure of the efficiency of the extension and law-enforcement services?

*Tons of agricultural produce transported to markets* **(Roads & transportation)**

The range of agricultural products in Muheza District is rather wide and varies substantially with the seasons. The main products include maize, cassava, mango, oranges, banana and vegetables. Although the main market centre is at Muheza Town, which is within the District, a good proportion of agricultural produce is transported to markets outside the District as well as outside the Region. Within the District there are other market centres in some villages. During peak harvest season, individual buyers set up temporary markets in the villages.

The District does not have a system for weighing produce at the various market centres. Therefore the data for this indicator is not available. The District could not get the data for 1999. Even in the foreseeable future, it would be difficult to put such a system in place.

Even if the data could be obtained, it is difficult to relate the tons of produce transported to markets directly and exclusively to the performance of the roads and transportation sector. The quality of roads may indeed result into this, but other factors, such as increased productivity, could also result to increased tonnage of produce transported to markets.

*Number of births while en-route to health facilities* **(Roads & transportation)**

As an indicator for the performance of the Works department, it pre-supposes that the network of health facilities remains unchanged with time. This is a precarious assumption. In actual fact the number of births while en-route to health facilities could just as easily be attributed to *mean distances to health facilities* as to the *quality of the roads*. It could even be attributed to poverty factors such as accessibility to *means of transport*.

*Average dry-season travel time between Muheza and Maramba* **(Roads & transportation)**

The District has two indicators under this title: one is concerned with travel time for public vehicles, the other for goods vehicles.

These indicators are presumably designed to measure the quality of the road between Muheza and Maramba towns. Maramba is the headquarters of Maramba sub-District in Muheza District. It is the second largest market centre in the District.

The District has no institutional arrangement or procedures for collecting this data. Even if such an institutional arrangement could be put in place, there are a number of variables that come into play, apart from the quality of the road. The kind of vehicles and the age and service condition of those vehicles are some of these factors.

## **2.3 The methods used for data processing for some indicators are inaccurate, improper or cumbersome**

This applies to the following indicators:

- Percent of projected health plans completed
- Percent district development activities implemented
- Average Std IV mark for girls
- Average Std IV mark for boys
- Average Std VII mark for girls
- Average Std VII mark for boys
- Percentage of women in village meetings

A detailed discussion of the problems in data processing methods follows.

### *Percent of projected health plans completed* **(Health sector)**

The procedures for estimating the completion of health plans are based on either (a) the proportion of the budget expended, or (b) physical inspection of progress. This may be an acceptable method of estimating the level of completion of a single plan, but there are no procedures for aggregating the completion stages for all the health plans to produce one value. For this reason, the value for 1999 could not be calculated.

### *Percent district development activities implemented*

The problems described for estimating the completion of health plans also apply to this indicator. There are no simple procedures for aggregating the implementation stages for all the development activities to produce one value. From the value for 1999, it appears that the District finds it easier to calculate the percent district development activities *completed*, which is straight count of the number of activities planned divided by those planned.

### *Percentage of Grade-A teachers* **(Education sector)**

To calculate the percentage of Grade A teachers, the Department first calculates the *required* number of Grade A teachers. It does this by dividing the number of pupils at any one school by a stated value of 45. The understanding is that a normal class should have 45 pupils. The value reported for the indicator is then

obtained through dividing the *actual* number of Grade-A teachers at the particular school by the number *required*.

This method of calculating does not show a percentage of Grade A teachers in relation to the teaching staff force. It fails to show progress in the area of eliminating lower-grade teachers. According to the Department, the policy of the government is to eliminate lower-grade teachers. It is therefore safe to assume that this indicator was meant to measure achievement towards this goal. The present calculation method cannot show this.

The present method of estimating the percentage of (Grade-A) teachers may be relevant for schools where lower-grade teachers are not and cannot be part of the teaching staff. Of course, in that case the indicator would need to be re-defined so as to reflect a level of attainment of the required number. Still, this is a future situation. It does not apply at the moment. Many schools still have a mixture of various grades of teachers.

*Ratio of textbooks to pupils* **(Education sector)**

The ratio is calculated using the number of textbooks actually distributed and the pupil count. The data for the number of textbooks is available from the records of the District Education office. The pupil count comes from the primary schools through the Ward Education Co-ordinators.

In practice both numbers can change unpredictably with time. If this indicator is meant to measure central government's capacity to support the education sector, a single value based on the number of exercise and textbooks actually distributed by the District Education office should indeed suffice. But then it would not be an indication of the internal capacity of the District and therefore not a very relevant indicator.

*Average number of exercise books per pupil* **(Education sector)**

Like the ratio of textbooks to pupils, this indicator is also more relevant as a measure of central government's capacity to support the education sector. It too is not necessarily an indication of the internal capacity of the District and therefore not an appropriate District development indicator.

*Average mark for Std IV and Std VII* **(Education sector)**

The procedure for calculating the average mark involves:

- adding the actual mark obtained for all pupils in the district
- dividing by this sum by the number of pupils examined
- repeating these two steps for the other (two) subject

- averaging the result

The department says that the numeric processing involved here is heavy.

Judging from the values for these indicators that the Department fed into the computerised database for 1999, this processing is not usually completed. The values reported for 1999 are actually the *pass marks set by the Ministry of Education*. For 1999 the value was 25 for Std IV both for boys and for girls. For Std VII the pass mark was 60. These are also the values that the Department used as the baseline status for these four indicators. These were not actually the respective District average marks in 1999!

This is a serious error. It means that the information system will not be able to give the true picture for monitoring and evaluation with respect to these four indicators.

*Value of gross cess collection* (Agriculture sector/Leadership & Admin.)

The value of gross cess is obtained from the revenue accounts of the Ward. In practice, the activity of revenue collection is directly under the Ward Executive Officers. Ward revenue is not limited to crop cess. There are other sources of revenue. The gross revenue collections are reported in terms of aggregate values combining all sources.

In practice it seems that the collection of cess is not entirely within the mandate of the Department of Agriculture. It appears to be more under the jurisdiction of the Ward Executive Officer. Perhaps because the agricultural extension officers are not collectors of this data, the Department was not able to get the value for this indicator for 1999.

The District has an indicator that is a composite value for all revenue collections to measure achievement in Leadership and Administration. This indicator is called "*amount of revenue collected*". For 1999, while the Department of Agriculture could not get a value of gross cess, Leadership and Administration had a value for the amount of revenue.

Under Leadership and Administration, the amount of revenue collection is a measure of governance and control. It is not clear what collections of crop cess are supposed to measure in the agriculture sector. The data for this indicator is not readily (directly) available to the agriculture sector. In addition, it appears to have some overlap with a similar indicator under Leadership and Administration.

### *Average crop yield per hectare*

### **(Agriculture sector)**

Another area where there are difficulties is in the techniques used at present to estimate the levels of production from one hectare. This concerns maize, cassava and citrus. The agricultural extension officers in the wards and villages have a number of “adoption plots”. These are plots measuring 10m by 10m, which are located in a farmer’s farm. They are managed by the extension officers from preparation to harvesting. These plots are managed at the best husbandry level, but without using inputs that are beyond the farmer’s ability. The yield from these plots is converted to yield per hectare. Results from a few such plots from a number of villages are used to arrive at an average value for a ward.

The data from all wards are submitted to the District. The Department of Agriculture processes the data to arrive at a district average. This value then becomes the district productivity index for that crop. This value is not updated on a yearly basis. The productivity index for maize, for example, has remained at 1.5 tons per hectare for several years. This is the value that the department entered into the database for 1999 and it is still in use now. The same technique has been used to arrive at a productivity index for citrus.

Yields obtained from the adoption plots do not necessarily represent yield from the actual conditions of the farmers. Results from such estimates can be used to show the potential yield that the farmer can expect to achieve by improving on her crop husbandry. If variations in weather and disease conditions could be discounted, these values would not then be expected to change with time. Presumably such “potential” yield can best be used to set the target in the development plan.

An indicator of progress in this area could be a change in yields per hectare from the farmer’s conditions of crop husbandry. According to the extension officers, data for this too is collected along with that from the adoption plots.

At present the extension officers are not sure how to use the data collected from the farmer’s conditions. In practice the extension officers use the productivity index together with an estimate of area under the crop in an attempt to obtain total production from any one village.

The procedures for estimating the area under a particular crop are also a subject of contention. The basis is a count of “able-bodied” individuals. For annual crops this is multiplied by a stated value representing the minimum area that each individual is required by local by-laws to cultivate. At some point during the season, the extension officers make an “eye” estimate for the purpose of

verifying the total area actually under cultivation.

Even for permanent crops, such as citrus and cashew, there are no institutional arrangements for performing an actual count of trees for all farmers.

On top of all this, there is a basic problem in these indicators. Although the procedure for estimating production per hectare is scientifically sound, the results can hardly be conclusive as an indicator of development in the agricultural sector. The over-riding factor for yields from seasonal crops in Muheza District is rainfall, especially its distribution during the cropping season. For this reason, the final value for average yield per hectare is more likely to be a measure of the quality of the season rather than improvement or otherwise in crop husbandry. To make any conclusions in this direction, it would be necessary to have yield data over a period of a few decades.

From this last consideration, it is clear that there is not one interpretation to the values for these indicators, even if they were measured correctly and accurately. These indicators are inherently difficult to interpret conclusively.

*Percentage of women in village meetings* (Community Development)

This indicator is appropriate for measuring the levels of female participation in collective decision-making – a gender-equity indicator. The procedures used to measure it, however, are not correct. At present, the denominator used to obtain the percentage is the number of adult *women* in a particular village. This eliminates the gender-equity perspective completely.

## **2.4 There is no institutionalised data capture and storage system**

Apart from the Department of Health and Trade, all sectors depend on *ad-hoc* forms for data capture.

All departments store their data in box files. This, at least by account of some Departments, leads to frequent frustration when information is required from this data. Sometimes the data cannot be found because it is difficult to determine which file to search. In some cases the information may eventually be found through trial-and-error methods of searching. The Department of Health has a more permanent and known system for storage of primary and summarised data.

In general each department has procedures for analysing the data for reporting to the District management. Some departments have a parallel system for

reporting directly to the Regional levels. However, no formal procedures have been defined for processing the data for the purpose of feeding into the time-series database of development indicators.

## **2.5 The village registers do not have complete household and population data**

Population data is the denominator for many indicators. All of the five Wards sampled in this study had “population registers”. These registers are kept by the Ward Executive Officer.

The registers contain a list of male adults in each village. According to the Ward management, these registers are designed mainly for revenue collection, specifically development levy. Apart from the names of village residents eligible to pay development levy, these registers have no data that can be used in the development indicators.

## **2.6 Summary**

The list of indicators that the District has defined covers most sectors of development, although some areas have been overlooked. Also, this study has found that 18 of these indicators have problems either in availability of data for their definition, in data capture or in processing procedures. The relevance of some of the indicators is also questionable.

The choice of indicators for some sectors requires review in order to obtain relevant measures for the results stated in the plan. For example, in the sector of roads and transportation, a significant proportion of the indicators defined are not specific in the things they measure. The District did not consider other indicators for which accurate data could be more easily available and which would indeed measure improvements in the road conditions. Such indicators could be defined around the following measurements:

- number of villages inaccessible by public transport service vehicle (because there are villages that are not reached by public vehicles due to physical inaccessibility)
- length of new roads constructed by Council (to measure capacity of the Council to construct new roads)
- number of new broken bridges in the year (could measure improvement in the technical quality of bridge construction)
- length of road maintained by Council (to measure capacity of the Council to maintain its roads)
- length of road maintained by village communities (to measure community



The overall objective of the strategic development plan is to arrive at an improved and equitable access to socio-economic services and increased production. This would seem to imply, among other things, a decrease in the level of poverty of the community. Yet, the list of indicators is significantly deficient in poverty-reduction pointers. Poverty-monitoring indicators could be developed around the following factors:

- percentage of households with a bicycle
- percentage of households with a cart
- percentage of households with a radio
- percentage of households with a motorcycle
- percentage of villages with a car
- number of villages with a tractor
- number of households with 10 or more milk cows

The District has also overlooked other areas such as indicators for monitoring the percentage of the population that is disadvantaged. Groups that are obviously disadvantaged in terms of accessibility to socio-economic services include orphaned children, the elderly and the disabled.

The fact that the Health sector has the largest number of indicators points to the importance of a healthy community in the plan. Still, there are no indicators for difficult diseases such as tuberculosis and HIV/AIDS. Considering the prominence of HIV/AIDS on the national and world development agenda, this is an important oversight.

The MTUHA system, which is used at present to obtain data for the indicators in the health sector, does not cover health facilities classified as hospitals. Muheza District has one hospital, which is an important health facility. Yet, the data from this hospital cannot be obtained through the MTUHA system.

In the water sector, the two development indicators currently used are difficult to obtain accurate data for. These indicators are:

- Percentage of villages with access to clean water, and
- Percentage of households with access to clean water

An important problem is that these two indicators are used in the information display system, but not by the Department of Water. In fact, the Department uses only one indicator: the percentage of the *population* with access to clean water.

Ten indicators have been defined in the area of community development. Most of them are designed to monitor progress in gender equity, particularly the integration of women into positions of leadership.

The data from these indicators comes from election results. Even for appointed positions, these appointments are made during elections. This is the general rule, although appointments at some District and Ward level positions may be made individually at unspecified times.

The main problem with indicators for which data is obtained from election results is the length of the interval at which data becomes available. While the other indicators can be monitored on an annual basis, these can only be monitored on *five-year* intervals. It is therefore difficult to obtain much decision-support information on a yearly basis or to compare performance with the other indicators that are updated on a yearly basis.

### **3. EXISTING PROBLEMS IN VERTICAL AND HORIZONTAL TWO-WAY FLOW OF INFORMATION**

It is important at the outset of a discussion on the problems in vertical and horizontal flow of information in Muheza District to point out that the government administrative structure in Tanzania provides an enabling environment for vertical communication.

At the District level, the complete management team, known as the Full Council, comprises technical personnel and elected representatives from the Wards (the Councillors). One of the Councillors is the Chairperson of the Council and presides over the proceedings of the Full Council. An executive officer directs the day-to-day management in the Council.

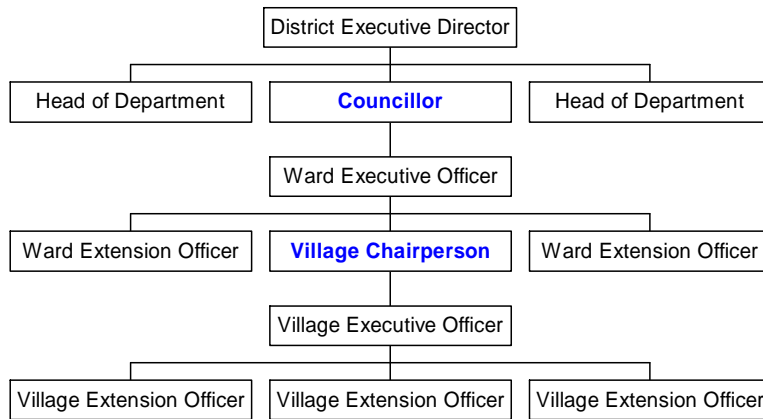
The same management structure is replicated at the Ward and Village levels. The Ward Executive Officers are responsible for the day-to-day management at this level. They are in the direct employ of the District Council and are answerable to the District Executive Director. The management team at this level functions through the Ward Development Committee. The committee is composed of the Ward Executive Officers, the sectoral extension officers and elected representatives from the villages (the Village Chairpersons). The Ward Councillor presides over the proceedings of the Ward Development Committee.

In the village, Village Executive Officers are responsible for the day-to-day management of development activities. Unlike the Ward Executive Officer, they are not in the direct employ of the District Council. The management team at this level is directed by the Village Development Committee. The committee is composed of the Village Executive Officers and the sectoral extension officers (where applicable). The Village Chairperson chairs these committees.

In this arrangement, the Councillors sit both in the Council Management meetings at the District and in the Ward Development Committees. Thus the Councillors are the link between the District and the Ward. The Village Chairpersons sit both in the Ward Development Committees at the Ward level and in the Village Development Committees. Here also the Village Chairpersons form a link between the Ward and the Village.

The diagram below is a schematic representation of this management structure. In the diagram, the direct lines between the elected representatives and the executive officers at the three levels are meant to point to the *available* lines of communication between the levels of management. These lines are not intended necessarily to imply the chain of command.

The Management Structure in Muheza District



With such an administrative structure, what problems could there be in vertical or horizontal flow of information at any level? To understand the nature and the source of the problems we must remember that our focus is on the capture, processing and exchange of data for *monitoring and evaluation*. We are not concerned with *ad-hoc* demands for information from the lower levels of management or from technical officers at the same management level.

The problems lie in three areas:

- Weak development planning responsibility at the village and ward levels
- The existence of parallel reporting lines
- The absence of fixed formats for data transmission between management levels

### 3.1 Weak development planning responsibility at the village and ward levels

In principle the Ward Executive Officers are responsible for directing the planning process at the Ward level. Under the present system in the District, these officers are also responsible for revenue collection. The achievement of the Ward Executive Officers in revenue collection counts heavily in their performance evaluation. Because of this heavy responsibility, the officers have found it necessary to design systems for flow of data from the villages in order to plan and monitor collections of development levy. All Wards visited have a “population” register, which, as we have already pointed out, is a register of individuals eligible for development levy. Therefore the data for this activity flows smoothly from the village to the Ward.

The Wards feel that the responsibility for revenue collection that the District has assigned to the Ward Executive Officers affects their commitment to the planning responsibilities adversely. It does not provide a motivating environment for

the Wards to develop a sense of urgency to establish procedures for the flow and storage of the data that would be needed for monitoring and evaluation.

In all the five Wards visited during this study, the Ward personnel had little idea of what information they needed for development planning, monitoring and evaluation. After considerable prompting, some officers indicated the need for at least an extract of the District's three-year strategic development plan.

This lack of a clear identification of the information needs at the Ward level may, at least in part, be due to fact that the Ward Executives see themselves primarily as revenue collectors and development managers only if and after the revenue targets have been reached.

### **3.2 The existence of parallel reporting lines**

The sectoral technical officers in the Wards and villages are directly responsible to the respective Heads of Departments at the District. At the same time these officers are expected to facilitate the Wards with sectoral information, particularly during the meetings of the Ward and Village Development Committees. This means that there is a parallel reporting system.

Most departments have a regular reporting schedule for their Ward officers. The Ward Development Committees hold their meetings on a regular schedule. In this sense there is also a fixed reporting schedule to the Ward Development Committee. Even so, the nature of information required in these meetings is ad-hoc and usually in highly summarised form.

As we have seen at the beginning of this chapter, the Councillors and the Village Chairpersons are an important link in the success of vertical flow of information. They, however, are not the executors of development plans in the Wards or in the villages. The fact that they come to positions of leadership through a different process from the executive officers appears to be an additional, though fuzzy, reporting line.

These multiple reporting lines exist in an environment where the Wards have not been developed clearly as centres of information into which all producers of data are required to report.

### **3.3 The absence of fixed formats for data transmission between levels of management**

Because the Wards do not operate as information centres for development planning, they have not developed an understanding of what data are needed, at

what times and for what purposes. The result of this is that they have not felt the need to develop fixed storage formats for development monitoring data at this level. Lack of such storage formats means that the Wards are not in a position to specify reporting formats to take advantage of the existing schedules for such reporting.

### **3.4 The process has not been initiated**

All Departments expect the Planning Office to initiate the process of information flow into the database system. Likewise all sectors expressed a need for the Planning Office to supply information from the database.

The Planning Office does not have a planning board that could serve to remind the Planning Officer to initiate this process. In combination with the fact that the Planning Office is under-staffed, this creates a break in the process. This appears to be the reason why the database system has not been fed any data since its inception in 2000. In a joint meeting with the Council Management Team (CMT) at the beginning of this study, some Heads of Department appeared to be unaware of their role in the computer element of the information system. One Head of Department even appeared to be ignorant of the database system!

### **3.5 Summary**

The system of government in Tanzania provides an enabling environment for two-way vertical flow of information and for horizontal flow at all levels of government.

In Muheza District there are a number of problems that interfere with the flow of data that it needs for monitoring and evaluation of its strategic development plan. The primary problem is that the Wards have not been developed into information centres for development planning.

The Executive Officers in the Wards are also responsible for revenue collection, which takes priority over all other activities. The District has not created a sufficiently motivating environment for development management responsibility at this level.

The presence of parallel reporting lines also contribute to breaks in the horizontal flow of information at the Ward level. In the vertical flow of information this affects the *downward* flow more severely than it does the upward flow, thereby denying the lower levels of government the necessary feedback.

## **4. AN ALTERNATIVE INFORMATION SYSTEM - HITAMIMA**

Earlier in this document the term Management Information System was introduced. We saw that Muheza District needs a system for transmitting data from one functional level to the next, for keeping records at the various functional levels and for obtaining information needed for development monitoring and evaluation.

The objective of the system that the District needs is to facilitate data capture, storage and processing these data into the format of the development indicators that have been discussed in this report.

The previous chapters have discussed the methods that are used at present for the capture of the data that are needed for measuring the indicators. The methods used for storing these data and for processing them have also been described.

The report has also pointed out that the system of government in Tanzania provides a suitable environment for exchange of data both vertically and horizontally in the administrative structure.

The improved system seeks to correct the problems in the present system and to take advantage of the existing administrative structure more effectively. The building stones of the system are:

- strengthened role of the Wards as information centres
- strengthened horizontal communication at the Ward level
- an open system that can be used to extract spatial information down to the village level
- strengthened vertical communication between the villages and the Wards, and between the Wards and the District

The proposed system is known by the acronym HITAMIMA, which is abbreviated from *Hifadhi ya Takwimu kwa Mipango ya Maendeleo*. HITAMIMA is part of this study but is a separate volume from this report. The central concept of HITAMIMA is the establishment of Wards as information centres for development management. While the Wards are not the lowest-level sources of data, this appears to be a good balance between cost and detail at present. The design of HITAMIMA has taken care not to eliminate the village details unnecessarily.

### **4.1 Strengthened role of the Wards as information centres**

HITAMIMA consists of a set of forms for sectoral data. All of the data on these

forms have to be supplied from the villages. They are recorded on the forms as monthly summaries of the source data.

In this way, the Ward officers will have an established and formal set of procedures for getting data from the sectoral technical officers and from the villages.

The same register will be used by all Wards. Through the process of mental association, after some time the system will be known by all information stakeholders. The most important result from the use of these registers will be that data can be readily available and will be stored uniformly in all Wards.

The design of HITAMIMA has taken due consideration of the District's established indicators, the present procedures for data capture and processing and the available communications lines. All the same, some departures from the present system are inevitable. The following points form the basis of such departures:

- exclusion of unworkable indicators from the monitoring and evaluation system
- re-designing the computerised database to accommodate ward-level data

## **4.2 Increased capacity of the Ward as a development planning unit**

In principle, the presence of the basic planning database at the Ward will raise the capacity of the Ward Development Committee to steer the development planning process at that level. The value of these records increases in direct proportion to the number of years that the system is in use.

The new system also calls for re-orientation in the work philosophy of the Ward Executive Officers. At present the Ward Executive Officers see the potential of the database more in the area of supplying information to the District. The District will need to pay attention to this and take the necessary measures to enable the Ward Executive Officers to take on an increased managerial role.

## **4.3 Strengthened horizontal communication at the Ward level**

The HITAMIMA register has a large number of data forms. The task of recording into the register could be relatively huge for the Ward Executive Officers.

The forms in the register have been designed with due consideration of the



sectoral responsibilities of the technical officers in the Ward. This means that the Ward could easily assign the responsibility of recording into the register to the respective officers for each sector. For example, the Ward Education Co-ordinator would be responsible for the education data set.

In the final workshop, the Ward Executive Officers examined the HITAMIMA register from the point of view of procedures for data entry. The role of the sectoral officers was clear to the workshop. It remains for the District Council to institutionalise the procedures in terms of staff rules and reporting responsibilities so that all staff in the wards and the villages recognises their duty to the register.

This participatory data management approach would certainly reduce the WEO's burden. Equally importantly, it would ensure a more integrated approach to the management and custodianship of the data at that level. This approach does not call for introduction of new procedures and reporting responsibilities. It simply seeks to strengthen and institutionalise the existing lines.

#### **4.4 A high degree of in-built spatial resolution**

Spatial resolution as used in this document means the ability to extract details that are related to different administrative levels. These administrative levels in the District are the district itself, then the divisions, the wards and the villages. Since the units involved in these administrative levels are areas of land which have a geographic positioning, this resolution corresponds to areas in the space occupied by the district.

In the HITAMIMA register, data are recorded for each village. This means that it can support resolution at village level, ward level, division level and district aggregation.

#### **4.5 Exclusion of unworkable indicators**

The problems associated with the continued use of some indicators have been discussed in this report. In the design of HITAMIMA all indicators for which data cannot be easily, cheaply and reliably obtained have not been considered. In general, data for indicators that do not meet the qualifications of being **Specific, Measurable, Attainable, Realistic, Time-bound and Usable (SMARTU)** have not been considered.

Due to these considerations, the HITAMIMA registers may necessitate to discontinue the use of 14 indicators from the original list of 74

For a number of indicators, data can only be found at the District level. These indicators are mainly from the Trade Department and from Leadership and Administration. Eight indicators fall in this category.

The problems in availability of reliable data for some indicators and the doubtful relevance of others have been described in this report. The continued use of such indicators is not likely to be very useful.

The proposed system does not consider these indicators. This means that for some sectors, the system may not provide data for the indicators currently used. But it is probably better to work with a few indicators for which accurate data can be obtained reliably than to keep a large number of doubtful indicators. If the District decides to define other indicators, especially in the areas that this study has noted a deficiency, then the system will need to be updated. But this can probably best be done when sufficient experience has been accumulated with the new system proposed in this study.

#### **4.6 Re-designing the computerised database to allow improved spatial resolution**

Until the time of preparing this report, the computer database had not been updated. In this study it has been noted that the present design of the database and the driving application does not permit resolution of information at lower levels than the District. For a system meant to be used for long-time monitoring, this constitutes a potential limitation.

Through the HITAMIMA registers, the Wards become a stronger planning unit. However, given the present capacity of the District, it is unlikely that the Wards will be equipped with computer equipment in the near future. Instead, they will continue to rely on a central location in the District for the processing of these data. This means that the computer sub-system needs to be able to provide information specific to at least Ward level. If the output from the computer sub-system fails to meet this, the feedback (downward vertical information) flow will be severely handicapped.

In the system proposed in this study, the aggregation that is supposed to be done in order to produce one district-wide value for each indicator is nonessential. But, in order to enter the values into the present computer database, this processing and subsequent loss of detail is necessary. Before they can accommodate data of lower-level resolution, the computer database and its driving application need to be re-designed.

In view of the considerations described in this report, additional reporting modules for Ward-level information may need to be included in the computer system in order to meet potential information needs at that level.

## **4.7 Summary**

The HITAMIMA information system seeks to strengthen the role of the Wards as planning units in the District. It will also serve as a first step towards decentralising the custodianship of planning data. Thus the Wards become the basic information centres.

In these data registers, data for indicators that have been identified to be doubtful either in terms of availability or accuracy of their data or in the relevance of the indicators themselves are not considered.

The system does not require the aggregation of ward-level data to single district-wide values. This ensures that the system can support a high degree of spatial analysis.

In Muheza District, the information system is supported by a computer application. However, the computer database is designed to accommodate district-aggregated values. This means that the computer system will need to be re-designed to take advantage of the possibilities available in the HITAMIMA system.

## 5. APPENDIX: PARTICIPANTS TO THE FINAL WORKSHOP

### HALMASHAURI YA WILAYA MUHEZA

KONGAMANO KUHUSU

HIFADHI YA TAKWIMU KATIKA KATA

KWA

MIPANGO YA MAENDELEO

16 August 2002

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4	Mwaita J. Vunza	W.E.O
5	Judith A. Madudu	W.E.O
6	Issa A. Mtunguja	W.E.O
7	Abedi B. Omari	W.E.O
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10	Hassani Silaha	W.E.O
11	Salimu Rashidi	W.E.O
12	Hamisi Ally Musa	W.E.O
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20	Ally Kassimu	W.E.O
21	Hassani M. Mwinjuma	W.E.O
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45	Juma H. Shabani	W.E.O – BWEMBWERA
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