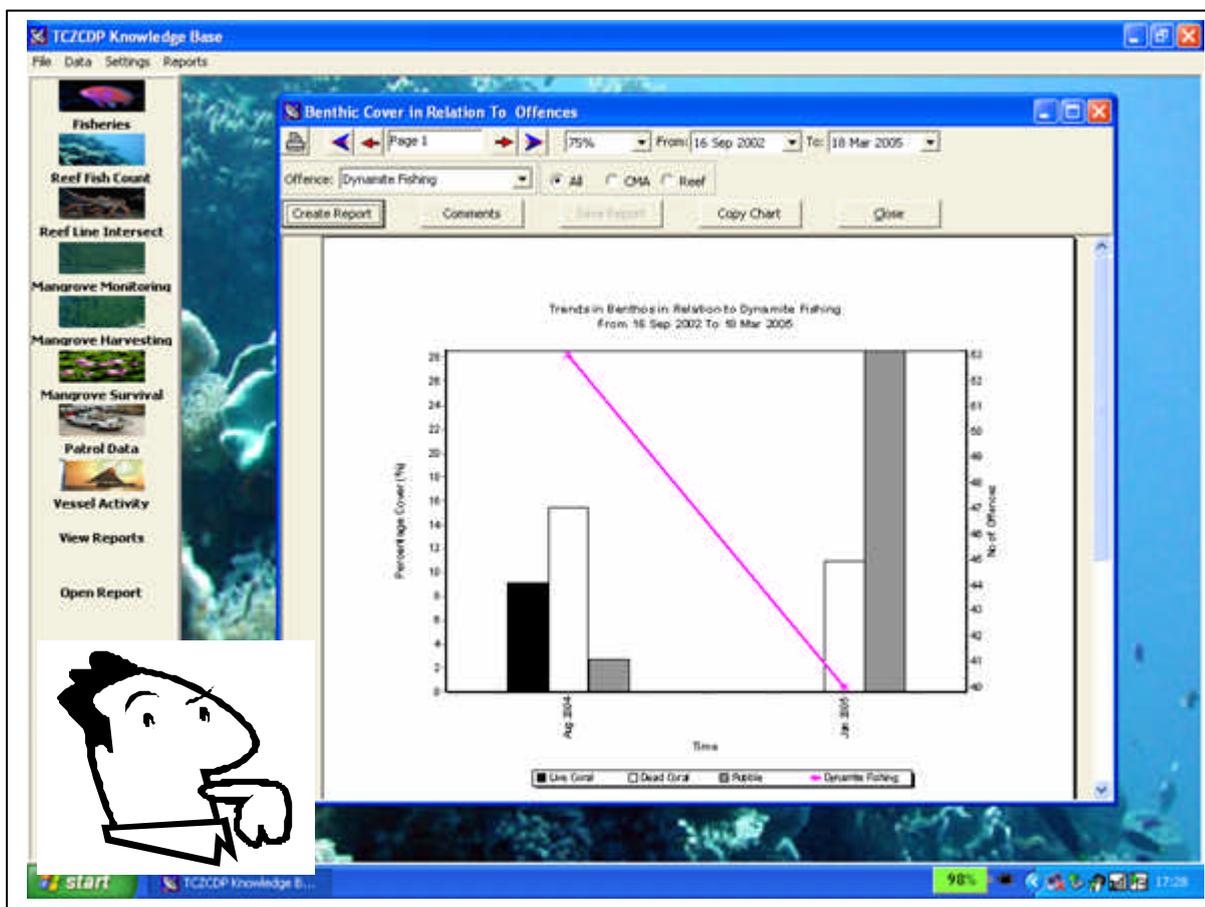


USING MONITORING AND ASSESSMENT FOR ADAPTIVE MANAGEMENT: A Guide to the TCZCDP Information Management System

Mine Pabari, Melita Samoily, Helinah Muniu, Andrew Othina,
George Thande, Philbert Mijifha and Violet Matiru



May 2005

Tanga Coastal Zone Conservation and Management Programme



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This publication has been made possible in part by funding from DCI.

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Available from: IUCN EARO Publications Service Unit
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Acknowledgements

The Information Management System for the Tanga Coastal Zone Conservation and Development Programme described in this guide originates from many years of hard work and experience of the participating communities, Districts, and the Regional office of the Tanga Region, and the staff of IUCN's Eastern Africa Regional Office.

The role of the authors was simply to bring together these experiences, which could not have been done without the openness of the villages consulted and the guidance of the Districts – Pangani, Muheza and Tanga Municipality. We are especially grateful to the Programme's monitoring coordinator Hassan Kalombo.

Introduction

Using Monitoring & Assessment (M&A) for Adaptive Management

Implementing and managing interventions for natural resource management is a complex affair. The environments in which we operate tend to be highly dynamic, and require us to frequently respond and adapt in order to achieve our objectives. In order to do so, we need to be in a position to identify and understand the changes that occur, both as a result of our interventions and those external to our sphere of influence.

Monitoring and assessment (M&A) is fundamental to identifying, understanding and learning about the changes we bring about and are influenced by. It can enable us to manage our interventions more strategically and our operations more efficiently. M&A involves the means by which we gather and analyse relevant information to make sound decisions; create new insights; empower stakeholders to understand and therefore better manage their own resources, as well as ensure accountability.

***Monitoring** is the gathering of data on a regular basis and the use of this data to check on progress of the intervention to determine whether or not it is on track and things are happening as expected.*

***Assessment** is the process of analysing data and interpreting the results in order to make judgements about the situation or processes being employed. Assessments are often undertaken through specific events that can be either internal or external and are used to gain an in-depth understanding about the overall intervention in terms of progress and impact.*

In order for M&A to be useful, we need to ensure that we have some basic elements in place to give us the information and insights that we need. These include:

- A clear understanding of the changes our interventions seek to bring about and the relationship between these changes;
- Mechanisms for data & information gathering;
- Processes and capacity to store and analyse data & information; and
- A learning environment that promotes and encourages interpretation and reflection on the information gathered, identification of successes and openness to mistakes, in order to generate new ideas for making improvements

Overview of M&A systems in the Tanga Coastal Zone Conservation and Development Programme

The primary objective of the Tanga Coastal Zone Conservation and Development Programme (TCZCDP) is to maintain healthy marine ecosystems which in turn will support productive fisheries which in turn will improve the livelihoods of coastal people.

To achieve the Programme objectives the TCZCDP has focussed on improving the management of coral reefs and mangroves through establishing six Collaborative Management Areas (CMAs) which are community initiated with the support of District and Regional Government. The CMAs employ a range of management interventions which are captured in the CMA Plans (CMAPs), and these include: closure (full protection) of certain coral reefs for fishery management and/or habitat recovery; restricted fishing gears; patrolling to prevent illegal and destructive fishing gears being used; and controlled mangrove harvesting. As the Programme developed, it established monitoring programmes for the various sectors and ecosystems it was interested in assessing, thereby established five primary datasets. These are:

- Reef health
- Fisheries
- Mangroves
- Patrolling
- Socio-economic status (initiated in 2004)

Monitoring by communities or District officers through measuring a large number of variables (parameters) of these ecosystems or sectors has evolved since around 1998. Various experts have provided advice and recommendations on methods and variables to measure, based on international best practice. However, one sector, the socio-economic monitoring was only initiated recently (2004) and is still in the process of development.

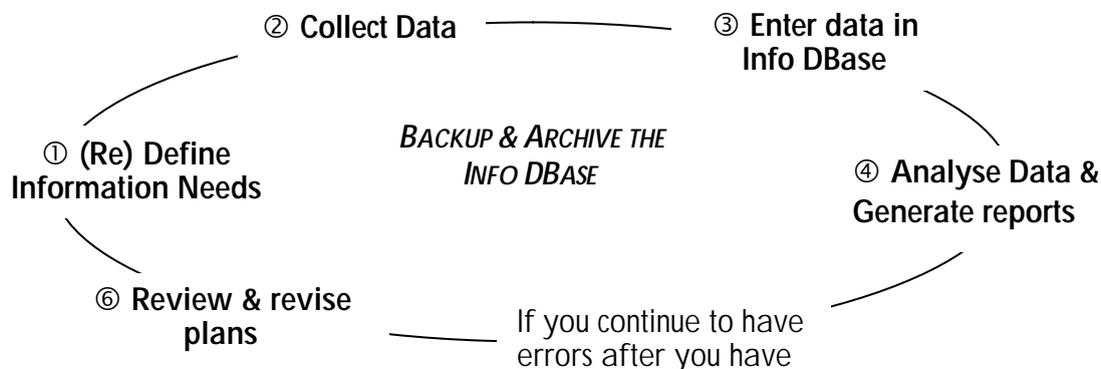
It was soon recognised that as the five monitoring programmes had been developed more or less separately they tended to operate in isolation. This essentially made it extremely difficult to generate a holistic picture of the status and links between marine resources and socio-economic health and understand the cause and effect relationships between impact and outcomes (For example, the relationship between raising awareness, implementing by-laws and reef health).

Consequently, in 2005, the Programme set out to bring together the existing monitoring programmes and data sets and develop a simple, yet comprehensive and sustainable Information Management System. The design of the Information Management System was based on a review of the existing systems and practices¹, during which information needs of key stakeholders at Regional, District and Village levels were identified.

¹ Pabari, M., Matiru, V., Muniu H., and G.Thande (2005) Building capacity for the use of Monitoring and Assessment in adaptive management: Review of existing systems & practices in Tanga.

Overview of the TCZCDP Information Management System

The key elements of the TCZCDP Information Management system are illustrated in the diagram below, and form the basis for this guide. A major component of the TCZCDP Information Management System, is an Access based database, called the Info DBase, which stores the data and generates reports.



The Information Management System is intended primarily to support the management of the coastal and marine resources of the Tanga region. Consequently, the “clients” of the system include:

Relevant institutions at the Village level, including:

- Village Governments – To enable them to make informed decisions regarding the development and implementation of CMAPs – such as writing approval letters for mangrove harvesting permits, proposing By-laws, developing action plans for replanting & patrols; identifying reefs to be closed and surveyed by members of the Village Monitoring Team (VMT).
- Village Environmental Management Committees – To assist them fulfil their role as an advisory body to the V/Govts.

District level staff: These include (but are not limited to) the District Executive Director (DED) who is responsible for making policy decisions and providing progress reports to the Central Government; the District Natural Resources Officer (DNRO) and District officer assigned as Coordinator to oversee the implementation of the Programme in his/her District; District Technical Officers who provide technical support in particular areas to the Programme; and Extension workers who are responsible for gathering data from the villages.

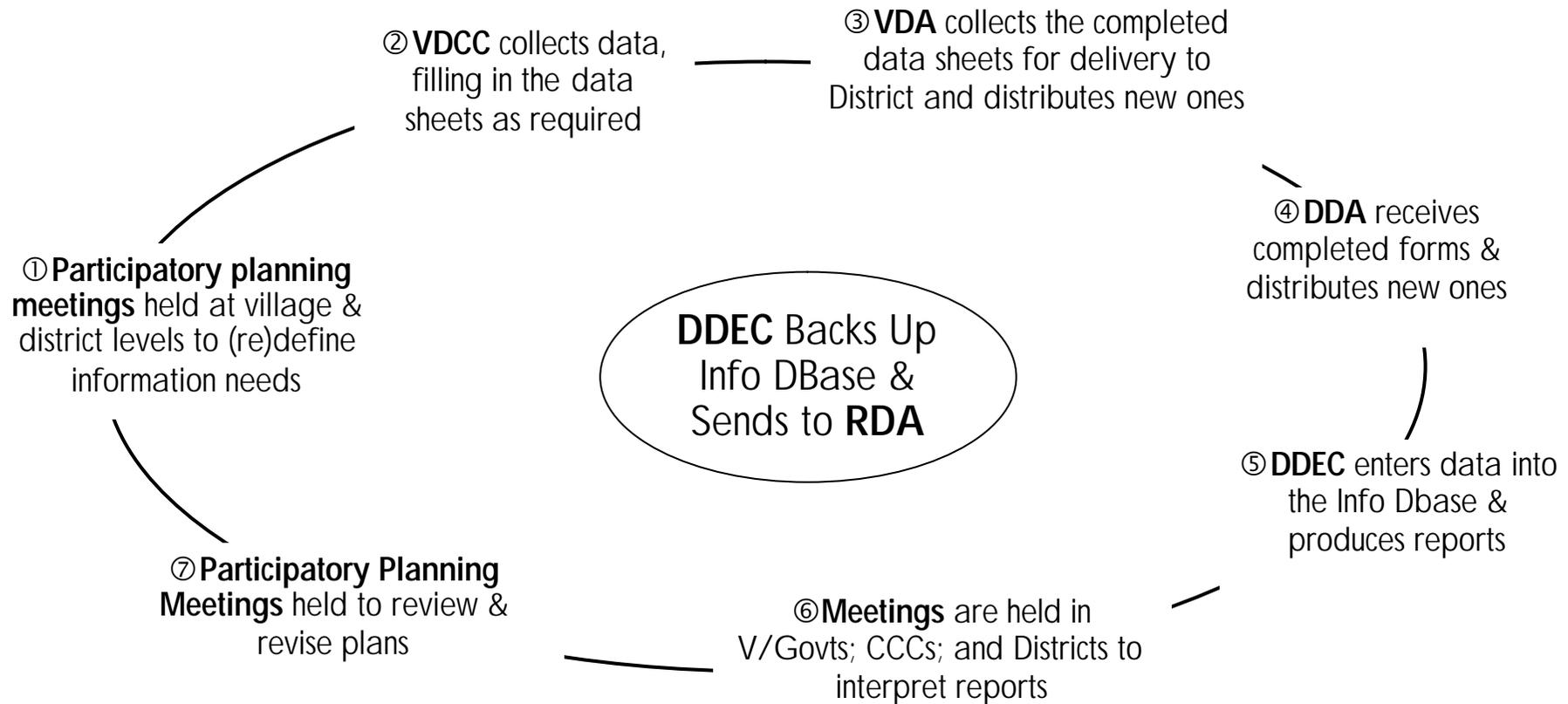
Regional level staff: Provide technical advice to the Districts.

Central Coordinating Committees: Responsible for reviewing progress and developing and harmonising CMAPs and Village By-laws.

Others: Such as researchers; non governmental/international institutions and/or projects (e.g. IUCN, TCMP, SEEGAD, the University of Dar es salaam, CORDIO) with an interest in the Programme and its activities.

Each of the “clients” described above has a significant role to play in ensuring that the overall Information Management system is implemented effectively. These roles are illustrated in Figure One below

Figure One: Overview of Roles & Responsibilities within the Information Management System



Legend*:

- VDCC** - Village Data Collection Clerks
- VDA** - Village Data Administrators
- DDA** - District Data Administrators
- DDEC** - District Data Entry Clerk
- RDA** - Regional Data Administrator

**(Refer to Part One, Section Three for further information on roles & responsibilities)*

Overview of the Guide

This Guide provides a short description of each of the activities within the overall Information Management System, and uses of the system for adaptive management within the TCZCDP. The Guide is divided into two parts. The first part of the Guide provides an overview of the different elements within the overall Information Management System, and contains the following:

Section One: Defining Information Needs

Section Two: Data Collection

Section Three: The Info DBase – Roles and Responsibilities

Section Four: Entering Data into the Info DBase

Section Five: Maintaining the Info DBase

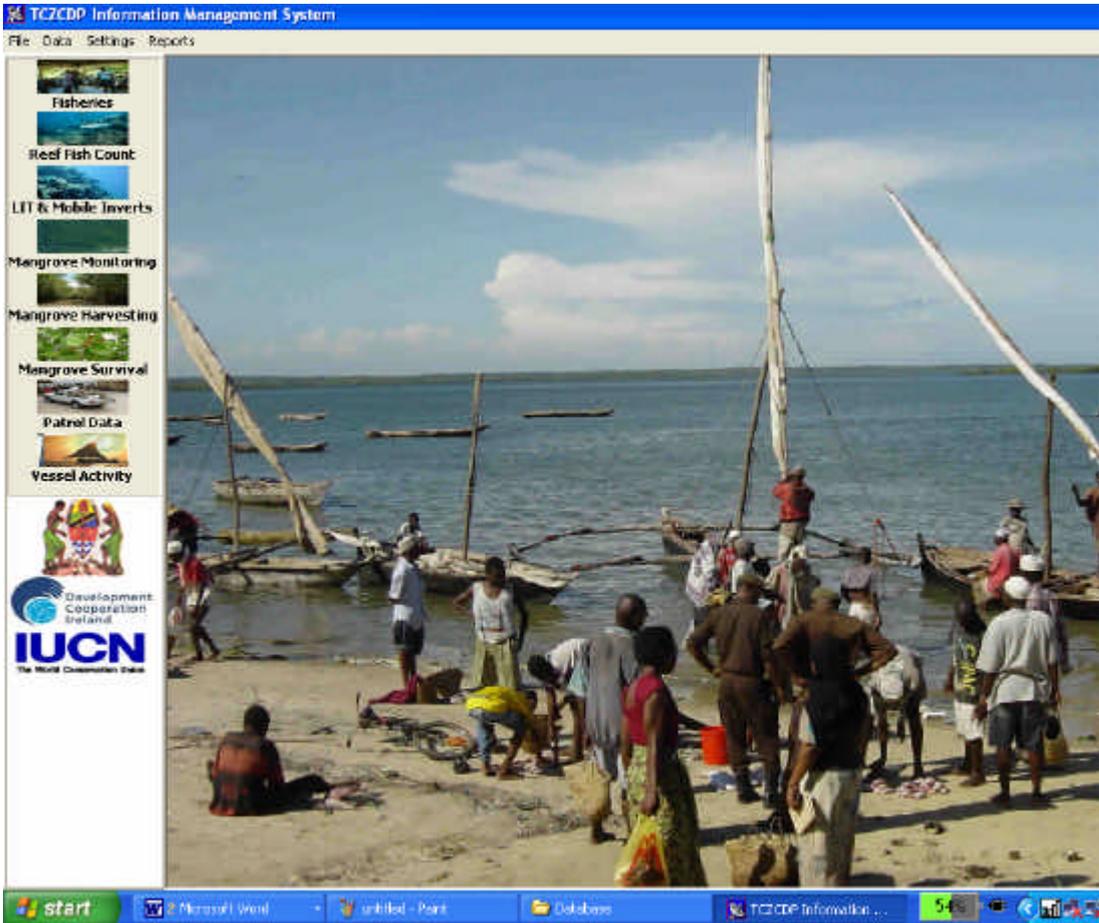
Section Six: Analysing Data and Generating Reports

Section Seven: Using Monitoring and Assessment for Adaptive Management

Data collected through the Information Management System is stored and analysed through a database - the TCZCDP Info DBase. The second part of the Guide provides details on how to use the database – including installing the system, entering data and analysing and generating reports.

PART ONE

OVERVIEW OF THE INFORMATION MANAGEMENT SYSTEM



Section 1. Defining Information Needs

In order to assess whether the management interventions put in place in the Tanga region to achieve the Programme's objectives are working, we need to monitor and assess key variables that will provide a measure of success. Such variables that provide a clear and measurable indication of success are termed indicators. Choosing indicators is therefore the key step in defining what information is needed to make management decisions.



1.1 Identifying Variables

There are a very large number of variables that can be measured but not all will be good indicators. The following steps are useful in defining what information you will need and which variables will serve as suitable indicators to assist you to manage your marine & coastal resources and achieve your overall Goal.

A. Define clearly what you are trying to achieve with your management plan.

If, for example, your overall Goal is to: "Maintain healthy marine ecosystems and fisheries to support sustainable livelihoods" – Ask yourself: What are we doing to achieve our overall Goal? What are our key areas of interest?

B. Discuss what you should measure in relation to your key areas of interest? These are your Variables

When you are choosing your variables, you need to make sure that they are:

- i. **Specific** to goals and objectives and **Relevant** to managers/resource users: Variables must be directly linked to management goals and activities. For example – you might decide that it would be useful to measure *water temperature*. Ask yourself:
 - ✓ How is this connected to our goals and activities?
 - ✓ If we collect this information – how will it help us to make decisions in the future?
- ii. **Measurable**: There is no point selecting a variable that you cannot measure! In order to be sure that your variable is measurable, you need to consider the following:
 - ✓ **Cost & Logistics**: We are always faced with limited funds, people and equipment, and constrained by logistics in the field such as travel time. Therefore, we need to be sure that we can measure our variables with the resources we have.
 - ✓ **Replication**: Often, community members ask data collectors "why are you asking me these questions again, didn't you just do it last week"? The need to collect the same data many times is because one measure tells us very little, and it is important to calculate averages, based on a good representative sample. To measure average catch in a year we need to measure catch from a number of fishers, not just one fisher. Similarly, to measure the average percentage live coral cover on a reef, we need to lay several transects not just one, and take the mean of those transects.

- iii. **Sensitive** to change & **Timely** : Management decisions need to be made on a regular basis and within a given time. If decisions were only made once in 5 years, things might go very wrong in the meantime. Therefore, it is important that your variables are sensitive and will change in response to interventions in a timely manner. For example, live coral cover is a very useful and a widely recognised measure of reef health. But coral does not grow quickly and therefore change is only likely over years rather than months with this indicator. Therefore you may also want to measure another variable that responds more quickly, such as certain fish species.

C. Decide on where & how often you should collect your data

Deciding on the location and timing of your data collection is the **design** aspect of your monitoring programme. For example:

- ? To monitor fisheries, do we collect data in every village, or in only selected villages per CMA? Do we collect this data every day, every month, or twice a year?
- ? For monitoring reef health, do we do surveys on every reef, or selected reefs, if so which reefs? Do we make sure for every closed reef we survey at least 1 or 2 open reefs? Do we select representatives from the inner coastal reefs and the more distant offshore reefs? Do we measure the density of crayfish on the reef once a year or every month?

Some of the answers to these questions will be driven by cost and logistics (see above), but within these constraints the design must be scientifically rigorous otherwise the data collected will not provide the answers. Consider the following examples:

Example One: Collecting Fisheries Data

In thinking about the design of your data collection, you need to think carefully through all the factors that are likely to affect the variable you are collecting. For example, if you are collecting data on fisheries and you know that fishers tend to go out more frequently during the North east monsoon (*kaskazi*) because the weather is better, then you must factor this into your design. So, if you collect data one month a year, this month should always be the same season. For example, if you collected your fisheries data in Pangani in May (*kusi*) and in Tanga in October (*kaskazi*), you cannot compare these data because they have been collected from different seasons. In other words, if the Catch Rate is higher in Tanga you cannot say this is because the Catch Rate is generally higher in Tanga compared to Pangani, it might simply be because fishers catch more in the *kaskazi*.

Example 2: Collecting data on the health of Mangrove Forests in the Region

If you want to know the average density and height of mangroves in Tanga Region over time in order to make general statements about the health of the mangrove forests in the Region you will need to collect data over a range of locations in all three Districts. Therefore if you only measure mangrove height and density in one village in Pangani, you can only reflect and talk about that particular stand of mangroves. If you collect data from say two villages in each of the three Districts you will feel more confident that when you look at the trends you are able to reflect on trends for the Region rather than one village. However, if in this example you collect the data from the villages in Pangani in year 1, year 3 and Year 5, from Muheza, in Year 3 and Year 6, and from Tanga in Year 5 and Year 6, you are not in a good position to combine the data and look at general trends. The general rule is to decide on your collection unit – e.g. 2 villages per District, and repeat this every time you collect data, e.g. twice a year

D. Review your indicators at least once every two years

As you conduct your monitoring programmes and analyse your data, you will gain experience and a better understanding of which indicators are Specific, Relevant, Measurable, Sensitive and Timely.

You may find certain indicators you have chosen are too difficult to measure, or are not responding to your management intervention quickly enough and cannot therefore tell you how successful your management is. Therefore, it is wise to review the indicators you have chosen at least every two years. While doing so, consider your experiences as well as the analyses done to date – what have your reports been telling you; what other information might you need? Were there certain types of data that were expensive/difficult to collect?

To select suitable indicators is a science in itself, and in terms of tropical fisheries and coral reef ecosystems, it is a complex process because both the fisheries and the ecosystem they are based on, are highly complex and changeable involving a large number of variables that vary naturally. Fortunately, TCZCDP has amassed a large amount of data over the eight years of monitoring (particularly of Reef health and Fisheries), and therefore detailed analyses of these data have been possible to assess which variables are sensitive to change and can therefore serve as good indicators of successful management². The Information Management System developed for the Programme includes a group of indicators which have been selected for the TCZCDP, based on the data analyses, and from experience from other marine resource management programmes in the Eastern African region and elsewhere. The TCZCDP Info DBase has been designed to generate reports based on these key indicators so that monitoring data are analysed in a systematic and regular way and results examined to assess the success of the Programme's management interventions.

² Refer to: Anderson, J. (2004) Analysis of reef fisheries under co-management in Tanga; Samoily, M. (2004) *Review of the Village Monitoring Team's coral reef monitoring programme in Tanga*; Othina, A. and Samoily, M. (2005) Impacts of management on coral reefs in Tanga.

Section 2. Data Collection



2.1 Data collection in TCZCDP

There are two types of data – **primary** and **secondary** data. The former refers to data taken by a person or an institution for their own analysis and decision making processes. If the data is from another person/institution, then this is referred to as secondary data. Secondary data may also be from published sources or reports (such as population census statistics).

The data that is stored and analysed through the TCZCDP database is primary data and is collected through directly measuring the status or change of a specific indicator – for example numbers of mangroves planted, changes in the percentage cover of live coral, changes in the number of bomb blasts over a period of time.

The design for data collection has changed over time, with experience and to meet the needs of the Programme. For example, details of data collection design for the Reef Health monitoring are presented in the tables below (also refer to data collection forms in Annex Two).

A. Fish density data collection design

Date		No. of transects (replicates)	Size		Repeat counts	Area of transect (m ²)
From	To		Length	Width		
1998	2000	2	100	5	1-4	500
2001	2003	2	50	5	8-10	250
2004	To date	10	50	5	1	250

B. Mobile Invertebrates data collection design

Date		No. of transects (replicates)	Size		Area of transect (m ²)
From	To		Length	Width	
1998	2000	4	20	5	100
2001	To date	10	10	5	50

C. Line intercept transect (LIT) data collection design

Date		No. of transects (replicates)	Size	
From	To		Length	Width
1998	2000	4	20	5
2001	To date	10	10	5

2.2 Data Collectors - Guidelines for Good Practice

When collecting data, it is important to bear in mind the following principles³:

- ✓ Ensure that you have a field book to record when you went to the field, what you did, and any problems you encountered when collecting data
- ✓ If you fill in the data in a rough sheet in the field and transfer it to a clean data form, do so on **the same day**. Using the same data sheet form from the field is preferable as it avoids possible errors in transferring data.
- ✓ Fill in all fields on data sheets, even when you think it is repetitive.
- ✓ Enter full dates on the form, ensuring that you spell out the name of the month (e.g. 12-May-2002). Different countries use different formats (e.g. dd/mm/yy OR mm/dd/yy), which can be confusing
- ✓ Always indicate which measurement units you are using (e.g. cms, kgs)
- ✓ Avoid abbreviations unless they have been defined and documented elsewhere.
- ✓ Make sure your writing can be read by other people. Check your data sheet form when you return from the field.
- ✓ Make sure you have two copies of each data sheet, one to send to the District Office, and one that is stored in a safe place.

Data collectors play a very important role, which is not always easy. In addition to difficulties such as getting to a particular site, data collectors often come across people that are suspicious of them, and reluctant to give the information required. The following tips may assist data collectors in such situations:

☺ **Be Open & Transparent** - Make sure you explain who you are, why the information is being collected, and how it will be used.

☺ **Ensure Confidentiality** – Data collected should only be used in combination with other data. Explain this to the individual, and ensure that they know their name and their personal information will not be used in any of the reports.

☺ **Ensure you are understood** – If you ask a question and do not get a clear answer, it is possible that the person did not understand the question or is suspicious of it. Rephrase the question, using different words without changing the meaning; and/or politely state that you were not clear on their answer and ask them to repeat it for you.

☺ **Always be courteous and polite** – Remember that the people you are collecting data from may be tired from a hard day's work and anxious to get home. Getting angry, arguing or being impolite will only make it more difficult for you next time and make it harder for them to trust you.



³ From Samoily, M & Giles, B. (2003). Data management. Project Seahorse Technical Report No. 5, Version 1.0. Project Seahorse, Fisheries Centre, University of British Columbia.

Section 3. The TCZCDP Info DBase: Roles & Responsibilities

In order for the database to effectively contribute to the overall Information Management System, the people that will use and benefit from the system all have a very important role to play. In each District and at the Regional level - individual staff have been given the responsibility for ensuring that activities related to data collection, storage and analysis are carried out effectively. These are as follows:

1. **The Village Data Collection Clerks (VDCCs).** The role of the VDCC is to fill out the data collection forms and hand them into the Village Data Administrator to be taken to the District officers
2. **The Village Data Administrators (VDAs).** The VDA is responsible for collecting the completed forms from the VDCCs and taking them to the District Data Administrator (DDA) once a month. The VDA is also in charge of collecting new forms from the DDA, distributing them to the VDCCs and ensuring that they know how to use them.
3. **The District Data Administrators (DDAs).** The role of the DDA is to receive completed forms from the VDA; to check them to see that they are complete and readable; to deliver them to the District Data Entry Clerk (DDEC); and to provide the VDA with new forms and ensure that they are trained in their use.
4. **The District Data Entry Clerk (DDEC).** The DDEC is responsible for inputting all data into the database; verifying the data, performing backups and producing the required reports. The DDEC is also required to liase with the Regional Data Administrator on a regular basis, hand over the backups and ensure that they are aware of any requirements/problems the District might have.
5. **The Regional Data Administrator (RDA).** The RDA is responsible for receiving backup copies of the District Info DBase from the DDEC, updating the Regional Info DBase with District Information and archiving it in a safe place. The RDA also responds to requests for specific reports from Districts or other institutions; and provides backup support to the Districts. Last, but not least, the **RDA is responsible for approving and authorizing all changes to the settings of the Info DBase.**
6. **The Monitoring Coordinator.** The Monitoring Coordinator is responsible for providing technical support to the Districts for the identification of information needs, the design of data collection tools, and data analysis and interpretation.

Section 4. Entering Data into the Info DBase

The accuracy and usefulness of the information and reports generated by the database is completely dependent on the data that is entered into it. Therefore, while entering data can be a tedious business, it is extremely important that it is done accurately.



When entering data, bear in mind the following ³:

- ✓ If you make any corrections/amendments to the data forms, make sure you clearly mark them on the hard copy of the data form, put in the date and your signature against your changes.
- ✓ Make sure you distinguish between values which were not obtained, i.e. missing data, versus values which were obtained but were zero. Zero's are important data and should be recorded either as "0" or "none". If the data is missing, then the record should be left blank.
- ✓ File hard copies of the data sheets in a safe and orderly manner for future reference.
- ✓ When you have completed entering data for the day, cross check your entries. This process is called data verification and should be carried out at both the District & Regional level. It is most easily done by two people together, as follows:

District Data Verification

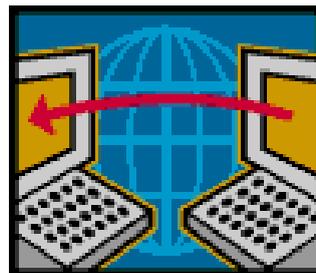
- Data Entry Clerk exports data to Microsoft Excel and prints out work sheet.
- Data Administrator verifies data entered with Data Entry Clerk: DEC reads out data from printed spreadsheet while DA crosschecks against original data forms.
- DEC highlights errors on printed spreadsheet and then makes changes to Info DBase.
- Data is exported to media (CD etc) and sent to Regional office.
- Sign and date data entry forms that have been entered into database, photo copy and send copies to Regional office.

Regional Data Verification

- Exports Data to Microsoft Excel for District.
- Prints Microsoft Excel work sheet.
- Highlights errors and informs District Data Administrator.
- Receive revised data.
- Backup data.
- Sign and date photocopies of data entry forms once verification is complete, and store data forms.

Section 5. Maintaining the Info DBase

Data are the basis for generating useful information and making important decisions. Obtaining good data takes years of monitoring, and it is not enough to trust individual computers alone to store the fruits of such hard work - especially since it is very easy for them to break down! In order to be safe, it is important to ensure the database is used, maintained and stored in accordance with the instructions provided.



5.1 Maintaining Settings of the Info DBase

In order for the Info DBase to work properly, it must be set up properly before you begin to use it. This is done only by the RDA and involves entering the user groups, their passwords, as well as parameters such as the Districts and Village names, CMAs, Reefs and Data Recorders.

Once settings have been entered, they can only be changed by the RDA. If a District wants to change any of the setting (such as add/delete a data recorder), they must inform the RDA who will make the required changes. These changes must be made to all the databases – those in the Districts, as well as the Regional Office. If this does not happen, and the settings in one District are different from that of the Regional Office, then that District will not be able to be backed up or archived to the Regional Info DBase (see Part Two, Section 6.2).

5.2 Archiving & Backing Up the Information Database

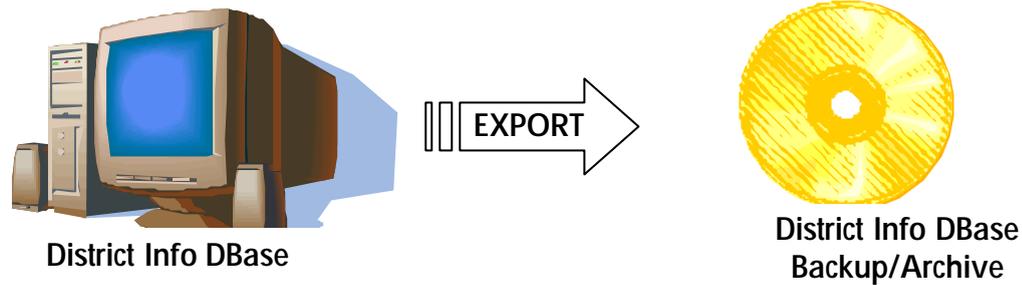
Archiving and backups are used to save data and information in case of damage/loss and to allow future users to work with the data in different ways, if the need arises. The two processes are used in different ways, as show in the illustrations and described further in the table below.

The TCZCDP Info DBase is archived and backed up using the import/export utility (See Part Two, Section 6).

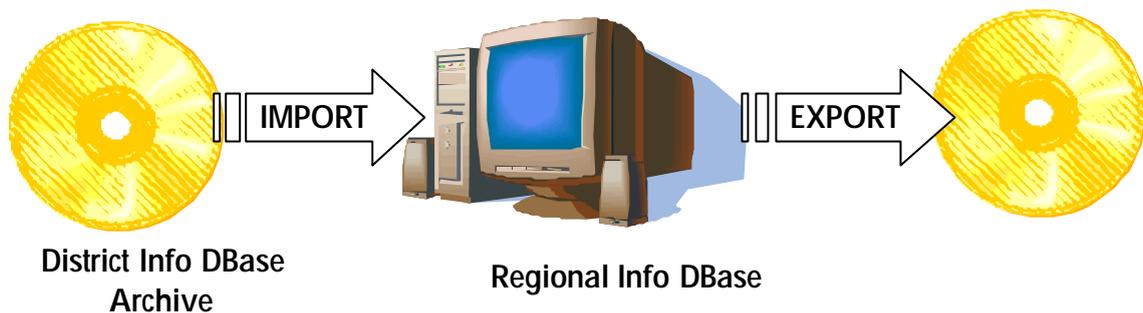
Backups are carried out every day and at the end of every month, by exporting the District Info Dbase to a CD. The CD is then stored in the District Office in a safe.

Archives are carried out every six months by exporting the District Info Dbase to a CD, and then importing it from the CD into the Regional Info DBase which is backed up on another CD and kept in a safe.

Backing up/Archiving District Info DBases



Archiving the District Info DBases



When backing up/archiving your database, ensure that³:

- ✓ All data has been verified before it is backed up (refer to Section Four)
- ✓ The CD actually has the information on it. After you have saved it – open and view the file
- ✓ The CD on which the database is backed up on is stored in a safe place AWAY from your computer. Any event that affects your computer (e.g. fire or theft) should not affect your back up disks
- ✓ Clearly label your CDs with the District name and the date it was created
- ✓ Always produce two copies of the archive, and store them in separate places
- ✓ Never destroy/write over your archive CDs – you will need them to provide a history of the evolution of your database

✓ **Archiving and Backing up the Info DBase – Summary Information**

Backups	Archives
General Description	
Backups are used to save data on a daily basis.	Archives are used to save data over a longer time period (e.g. monthly or yearly), and are used to provide a history/track the evolution of the database
Data can be kept in the same building, but on a different media (e.g. another hard disk, CDs etc) and therefore access to the data is readily available	Archives should be kept in a safe, away from the office in which the databases are kept. Therefore, access to data is not readily available and may take time to retrieve and reload
The format/media on which the data are stored can be semi-permanent (e.g. Flash disks, CDs, or floppy discs)	The format/media on which the data is stored is more permanent and can last for longer periods of time (e.g. Tapes, Zip drives, CDs, DVDs)
Procedures	
<p>Timing: Daily & Monthly At the end of each day and each month, the database should be backed up on a Flash Disk or a CD.</p> <p>It is wise to use two Flash Disk/CDs, one for each alternative day/month. For example; on Monday use CD1 and Tuesday CD2. On Wednesday, write over CD1 and Thursday, write over CD2.</p> <p>For monthly backups use two CDs – one for each alternative month. For example; CD1 is for January, March, May, etc; and CD2 is for February, April, June etc.</p>	<p>Timing: Semi-Annually At the end of every six months, backup up the entire database to a CD (or other permanent media). One is to be stored in the Regional office & one at the District Office.</p> <p>Semi-annual archives should NOT be erased or reformatted as these are the true archive CDs</p>
<p>Filing: Label all CDs/Flash Disks with a permanent marker as follows: <u>Daily:</u> CD/Flash Disk 1: "Backup1" (refers to Monday, Wednesday and Friday backups) CD/FlashDisk2: "Backup2" (refers to Tuesday and Thursday backups) <u>Monthly:</u> CD1: "Monthly 1[year]": Refers to alternate months starting with January CD2: "Monthly 2[year]": Refers to alternate months starting with February</p>	<p>Filing: Label all CDs/Flash Disks with a permanent marker as follows:</p> <p>i) "Archive [Year][District Name]" ii) "Archive [Year][Regional Office Copy]"</p> <p>*Caution: Use the full year when naming (e.g. "2005"), and NOT "05"</p>
<p>Storage: The Flash Disk/CD should be stored in another office from the one which your database is kept in, preferably in a cool dry place where the A/C is on the majority of the time</p>	<p>Storage: Store archives in a locked safe</p>

5.3 Exporting/Importing data

The TCZCDP Info DBase is designed as a regional database which combines three District/ Municipality databases. As described in the previous section, Districts are to archive their databases and transport them to the Regional Office in Tanga every six months. This is not just for archiving and safe storage purposes. The primary reason is for the Regional Office to import each District Info DBase and thereby update the overall regional Info DBase. It is important that this step is taken and that the Districts view the Regional Info DBase as an umbrella database able to be used for regional level reporting. This is particularly important for those CMAs that span District boundaries and for broader analyses of the impacts of the TCZCDP. Importing procedures for the Regional Office are described in detail in Part 2, Section 6.2 of this Guide.

Section 6. Analysing Data & Generating Reports

With the TCZCDP Info DBase you can analyse and produce a set of predefined reports or you can export the raw data to Excel for other analyses.



6.1 Predefined Reports

The following subsections provide an outline of the types of reports and information that can be automatically generated by the Info DBase; with a short explanation on each.

A. Reefs

The health of coral reefs are monitored by measuring the abundance of a wide range of flora and fauna on the basis that high abundance of most species will indicate healthy status of the reef. For example if the number of groupers (chewa) increases it suggests populations are recovering. If live coral cover increases it suggests reefs are recovering from previous coral death (due to dynamite fishing or bleaching). However, there will be other species where high abundance is cause for concern because these are species that thrive on damaged coral reefs, examples being certain algae and sea urchins. These can also be useful indicators for reef health⁴.

The reef health variables are divided into three broad groups⁴:

- Benthic fauna and flora, measured by the line intercept method (10m transect)
- Mobile invertebrates, measured in 10m x 5m transects (100m²)
- Fish, measured in 50m x 5m transects (250m²)

Benthic Fauna and Flora

Primary indicator variables from the benthic data for reports in the Info DBbase are: i) Live coral; ii) dead coral; and iii) rubble

The report generated shows the average percentage cover of each of these three variables. For each survey 10 replicate 10m long transects are done on a reef (see Section 2). Therefore, to estimate average percentage cover, the following calculations are done for datasets for each survey on each reef, example being for live coral:

Average live coral cover (in centimetres) = Line 1 [total length of live coral] + Line 2 [total length of live coral] + Line 3 [total length of live coral]... Line 10 [total length of live coral] / 10

(where Line 1 = Line intercept transect, replicate no. 1)

Percentage average cover per reef = Average live coral cover (in cm) / 1000 * 100
(divided by 1000 because the transects are 10m long)

The average percentage of live coral cover on a reef is well recognised worldwide as a sensitive measure of reef health. Simply put, the more live coral cover the healthier the reef. Conversely, an increase in dead coral will suggest the reef is deteriorating, possibly due to bleaching, disease or crown of thorn starfish. Rubble has also been included. Some rubble is always present naturally on a reef due to storm damage that breaks up corals. However, dynamite fishing causes extensive damage to coral by

⁴ Samoily, M. (2004) Review of the Village Monitoring Team's coral reef monitoring programme in Tanga.

reducing it to rubble rather than leaving it dead and standing, therefore rubble can be a useful indicator of dynamite damage.

Mobile invertebrates

Ten mobile invertebrate groups are monitored, and these have been grouped into two broad categories:

- Non-fishery species which include i) starfish and ii) sea-urchins
- Fishery species which include i) crayfish, ii) sea-cucumber, iii) shells, and iv) octopus.

Since the Programme is not monitoring any invertebrate fisheries in the fisheries catch and effort monitoring, the data collected through the Reef Health monitoring provides a very useful look at these species: the VMT's visual surveys provide independent estimates of population density of invertebrates on the reefs.

Sea-urchins are possible indicators of reef degradation, since it appears that these species thrive when fishing is heavy and corals are dead. Starfish are not currently known to be clear indicators of reef health but have been included with the non-fishery group for reference. Since they are closely related to sea-urchins but do not have the same association with reef degradation, they may provide a useful indication of natural variation in population abundance of these invertebrates.

The reports generated show the average density of each of these six invertebrate types. For each survey 10 replicate 50m² transects are done on a reef (see Section 2), therefore to estimate average density, the following calculations are done for datasets for each survey on each reef, example being for sea-urchins:

Average sea urchin density (no. per 50m²) = Line 1 [total number] + Line 2 [total number] + Line 3 [total number]... Line 10 [total number] / 10

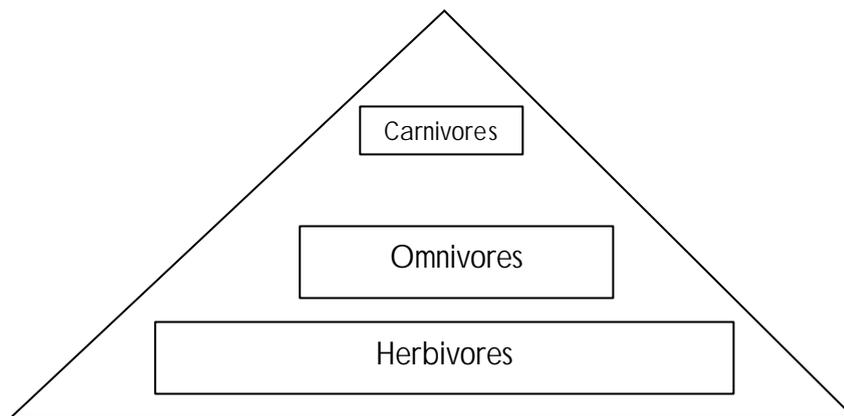
(where Line 1 = Transect replicate no. 1)

Fish

17 categories of fish are surveyed ranging from identifying a single species (e.g. Chazanda – mangrove jack) to grouping all species from a family together (e.g. Chewa – groupers). In the TCZCDP Information Management System these 17 categories of fish have been grouped to form five indicators for reporting using the database, based on a mix of criteria: ecology (trophic level in the food chain), fishery value and type, and general reef health indicators⁴. These groups are:

- Carnivores
- Omnivores
- Herbivores
- Coral health indicators (angelfish and butterflyfish)
- Triggerfish (possible relation to sea-urchins)

A healthy reef should support decent numbers of these groups within the typical trophic pyramid:



In terms of trophic level and fishery type, fish categories can be grouped quite conveniently because gears are selective. For example, traps (madema) mostly take the herbivorous parrotfish, surgeonfish and rabbitfish, whereas handlines (mishipi) capture the carnivorous groupers, snappers and emperors. Thus, trends in carnivores will provide information on the health of these populations that are also prime target species in the artisanal fisheries. The pelagics (kolekole) are presented separately. A further report for chafi (rabbitfish) and changu (emperors/snappers) is also generated since these are primary target species in the Tanga fisheries.

The butterfly and angelfish are grouped together as they are generally associated with high and diverse hard coral cover and therefore a high number of these species will suggest that the reef is in healthy condition. The triggerfish are possibly an indicator of fishing pressure and sea urchins densities because they prey on sea-urchins and are targeted by fishers.

The three reports generated show the average density of each of 8 fish groups. For each survey 10 replicate 250m² transects are done on a reef (see Section 2), therefore to estimate average density, the reports are based on the following calculations for datasets for each survey on each reef, example being for carnivores:

$$\text{Average carnivore density (no. per 250m}^2\text{)} = \text{Line 1 [total number]} + \text{Line 2 [total number]} + \text{Line 3 [total number]} \dots \text{Line 10 [total number]} / 10$$

(where Line 1 = Transect replicate no. 1)

B. Fisheries

There are two critical variables to collect when monitoring fisheries:

i) **Catch**; and ii) **Effort**.

Catch is expressed by weight (e.g. tons or kg) and represents the amount of fish caught by the fisher. This may be broken down into weight per species, and needs to be obtained by fishing trip. It can then be summed by week, month, or year, for one fisher or all fishers or a sample of fishers (e.g. men over 40 yrs old). Annual catch is a value frequently needed by Government staff to obtain information on the likely amount of fisheries produce going in to a community (perhaps to look at health/nutrition issues) or for relating total catch to the likely income generated by a community from fisheries.



Effort is expressed in time (e.g. hours, days, fishing trips), and represents the amount of effort expended by a fisher to get the catch. Effort is invariably broken down by vessel and gear because different gears catch fish at different rates, and usually target different species. Therefore, a standard unit of effort is decided on in a fisheries monitoring programme that reflects the fisheries that are being monitored and the way the data are collected. The standard Effort unit for the TCZCDP is vessel/gear.hours. This means that effort is recorded by data collectors in hours, and the vessel and gear used are also recorded. This gives the effort as the number of hours used by vessel/gear X to collect Y catch. For example, the most common fin-fish fisheries in Tanga region are those taken by ngalawa/madema, ngalawa/mishipi and ngalawa/jarife. Therefore a typical fishing trip data sheet may record the **Catch** as 3 kg of snapper (*changu*) which the fisher caught in 4 hours (**Effort**) using ngalawa/mshipi.

Once you have catch and effort you can calculate **Catch per Unit of Effort (CPUE)** which is the "Catch Rate". This simply means how much weight of fish is caught in a set amount of time. Clearly if a fisher spends 2 hours and catches on average 4 kg, and then the next year spends 2 hrs fishing and catches 8kg, the catch rate has doubled in the second year suggesting the fishery has improved. CPUE is the most useful parameter⁵ for assessing a fishery because it is assumed that the higher the catch rate the greater the abundance of fish and therefore the healthier the fishery.

$$\text{CPUE} = \text{Catch}/\text{Effort}$$

CPUE will *increase* if the Catch increases but the Effort remains constant, or if the Catch remains constant but the Effort decreases. For example, imagine the following typical fishing trips:

In 1995 CPUE = 10kg/ 2hrs = 5 Kg per hour
In 1997 CPUE = 5kg/ 2hrs = 2.5 Kg per hour
In 1999 CPUE = 10kg/2hrs = 5 Kg per hour
In 2001 CPUE = 14kg/2hrs = 7 Kg per hour

⁵ A parameter is a measure calculated from variables. Thus, CPUE is a parameter calculated from the variables Catch & Effort

These data tell us that the fishing trips remained constant, at 2 hours, i.e. Effort remained constant, but that Catch changed. First it decreased (from 10kg to 5kg) then it increased steadily, from 10kg to 14kg. This is reflected directly in Catch Rate or CPUE, and suggests that the fishery was declining from 1995 to 1997, after which it picked up and continued to improve to levels in 2001 that were higher than in 1995.

These examples show clearly the important distinction between Catch and CPUE. If only Catch is recorded you cannot really say anything about the state of the fishery if you do not know how much effort was expended in getting that catch. The following example illustrates this:

In 1995 10 kg was caught in 2 hours

In 1997 10 kg was caught in 4 hours

If you only look at the Catch you might assume the fishery was stable from 1995 to 1997, but in fact the Catch Rate has halved, because CPUE in 1995 is 5kg per hr, and in 1997 CPUE is 2.5 kg per hr, which would suggest the fishery was in decline.

Thus, two critical indicators (variables) are used by TCZCDP when monitoring fisheries: i) Catch and ii) Effort, and these are combined to look at trends in CPUE.

C. Mangroves

Indicator species used in the TCZCDP database are:

- i) *Avicennia marina*
- ii) *Rhizophora mucronata*
- iii) *Ceriops tagal*
- iv) *Bruguiera gymnorrhiza*

To assess the status of mangroves in the CMAs and villages, the density (number/plot) of the four species calculated against maturity levels which include: trees, saplings, seedlings; and also for stumps. Similarly, for harvesting levels, the numbers per acre harvested of the four species are assessed for all maturity levels.

Other predefined reports include:

a) Effectiveness of land patrols:

- No. of land patrols/month
- Trends of offences over time
- Summary of actions taken
- No. of poles illegally harvested
- Replanting and Survival in relation to offences
- Illegal harvesting v/s offences
- Species by maturity levels v/s offences

b) Effectiveness of planting efforts:

- Replanting v/s survival by species

c) Effectiveness of land patrols:

- No. of land patrols per month
- Trends of offences over time
- Summary of actions taken
- No. of poles illegally harvested
- Replanting and survival v/s offences
- Illegal harvesting v/s offences
- Species by maturity levels v/s offences

D. Patrol Data

Data collected through patrols is used in connection with fisheries, mangroves and reef data in order to generate reports. The reason for this is patrols are a means to an end, and it was felt that these reports would be a way in which the Programme would be in a better position to reflect on the effectiveness of patrols in relation to (for example) ecosystem health.

E. Socio-economic data

The Programme only started monitoring socio-economic variables in 2004 and therefore the data collection design and data collected to date are still at the development stage¹. The Info DBase has included the data entry forms that are currently used but no reporting forms have been designed because it is too early to select indicators. TCZCDP plans to develop this component of its monitoring programme to assess socio-economic aspects of the Programme in 2005. It is therefore highly recommended that new socio-economic data are not entered using the current data entry forms in the Info DBase until the socio-economic component has been properly developed, the data entry forms reviewed and the report forms designed

Section 7. Using Monitoring & Assessment for Adaptive Management

7.1 What is Adaptive Management?

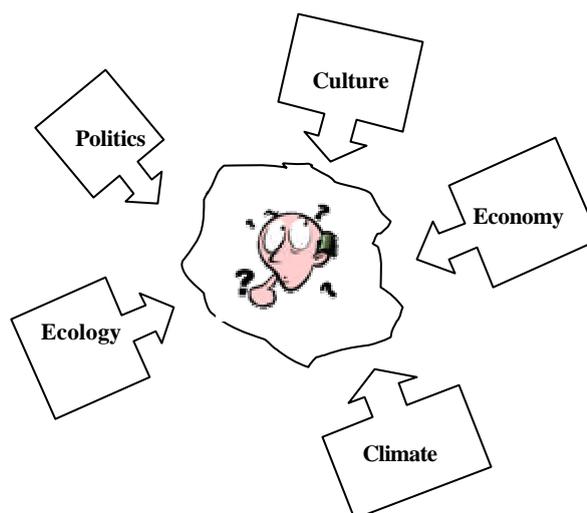
The world around us is continuously changing. Just when we think we finally understand our environment, the natural resources we are responsible for managing, and the people we seek to manage them with, a completely unpredictable event will occur that has significant implications for our work!

It is therefore extremely difficult (and unwise) to define policy or practice and assume that that it is the “best” for a particular management issue, irrespective of the future.

Adaptive Management “*incorporates research into conservation action. Specifically, it is the integration of design, management, and monitoring to systematically test assumptions in order to adapt and learn*”⁶

Often, we simply use our common sense and knowledge to “adapt” to changes in our environment. However, managing natural resources involves dealing with a wide and complex range of circumstances which makes it difficult to assess a situation based on common sense alone. There are:

- Physical factors such as weather and currents;
- Ecological factors such as regeneration rates and predator-prey interactions;
- Social factors such as culture, religion and demographic structures; and
- Political factors such as the type of government, among others



Consequently, we need to treat our decisions and actions as experiments. We can do this by clearly defining what “hypotheses” we are making at the very beginning and testing them through our actions in a systematic manner. The following *example illustrates this process*.

⁶ Salafsky, N., R. Margoluis, and K. Redford. 2002. *Adaptive Management: A Tool for Conservation Practitioners*. Washington, D.C.: Biodiversity Support Program.

Management Decision: Ban dynamite fishing

Hypothesis: If dynamite fishing stops/decreases, reef health will improve, which will result in improved fisheries

Experimental action(s):

- i) Ban dynamite fishing and ensure that the ban is enforced
- ii) Monitor trends in incidences of dynamite fishing, reef health and fisheries before & after the ban

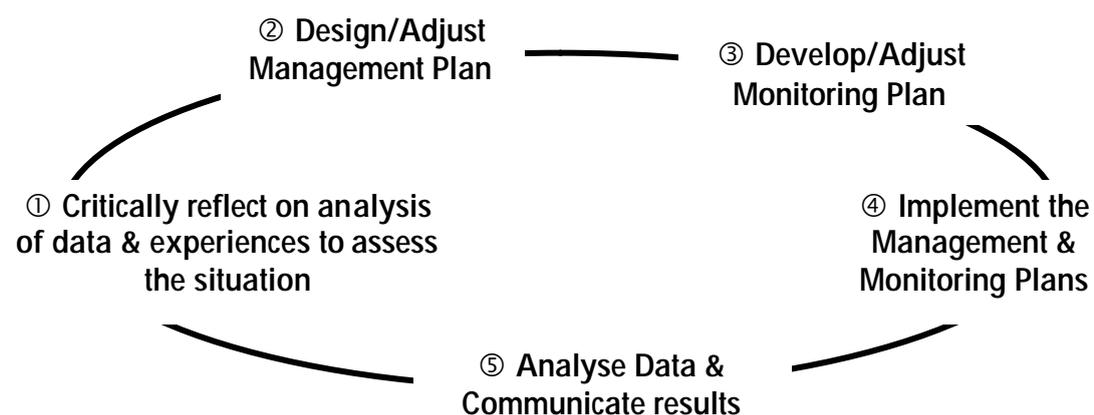
Critical Reflection: Analyse your data to see if your assumption(s) were valid - Did reef health improve as a result of reduced incidences of dynamite fishing? If so, did this result in/contribute to improved fisheries?

Assessment: Little/no change in the incidence of dynamite fishing; or reef health

Management Decision: Introduce an awareness campaign in addition to enforcement activities

7.2 How do we practice Adaptive Management?

Effective adaptive management requires managers to complete all steps in the cycle illustrated below.



Critical reflection is an important tool for adaptive management – this means interpreting your experiences and data to create new insights and agreement on actions. Without critical reflection, monitoring data will not be useful for adaptive management.

Critical reflection requires going beyond collecting, analysing and reviewing data. It involves questioning what is normally taken for granted. It is especially important to question the assumptions made when developing management plans, and understand which actions work, which do not and why.

Critical reflection can take place through a number of different events, such as weekly meetings, reporting on progress, annual planning meetings, and evaluations and reviews⁷.

⁷ From IFAD (2001) *Managing for Impact in Rural Development. A Guide for Project M&E*.

A. Reporting & Feedback Mechanisms

From the full list of predefined reports available in the Info DBase, the following reports were selected to be circulated at both District & Village levels on a semi-annual and annual basis:

Fisheries:

- i) Fish catch trend
- ii) Catch per Unit Effort (CPUE) trend
- iii) Revenue trends

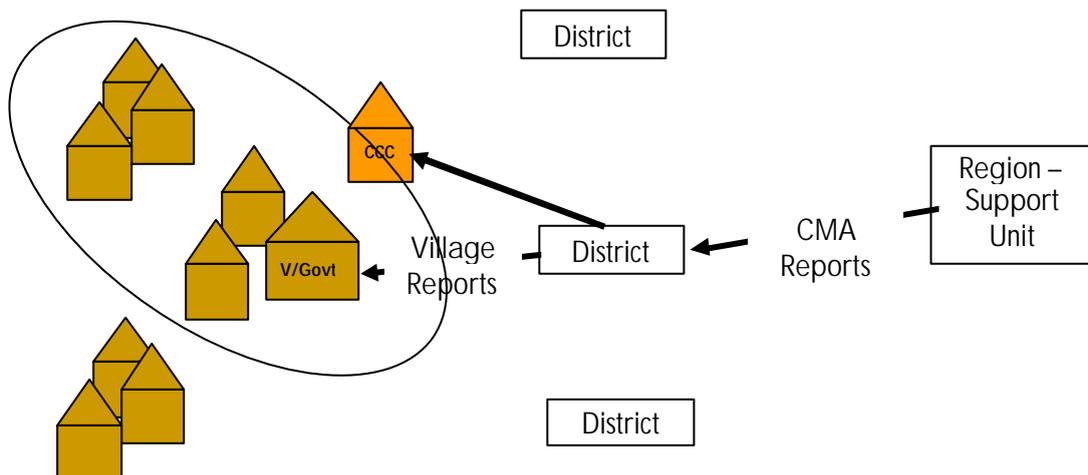
Reefs:

- i) Graph A: Densities of fish by trophic level
- ii) Densities of mobile invertebrates (Fishery)
- iii) Benthic cover in relation to offences

Mangroves:

- i) Species by maturity level
- ii) Harvesting levels
- iii) Replanting v/s survival by species
- iv) Number of poles illegally harvested

The District Offices are primarily responsible for ensuring that reports are circulated to the villages. This will involve receipt and distribution of CMA reports from the Regional Support Unit, and generation and distribution of village level reports generated by the District office, as illustrated in the diagram below.



B. Tips on Organising & Managing Events for Critical Reflection

Simply holding a meeting or producing a report is not sufficient. A systematic and deliberate approach is required to ensure that the events actually result in adaptive management. The following tips are useful to ensure that this is achieved:

- **Plan** for the event, and ensure that it is reflected in annual work plans and budgets
- **Time** the event; Ensure that the events are timed appropriately – far enough apart to allow for new data and information and frequent enough to allow for timely decisions
- Consider the **Participants**
 - o Present the data in such a way that it is useful to the participants. Consider their information needs and ability to interpret and understand the information
 - o Make sure you create “spaces” for individuals to voice their opinions honestly and openly. In a heterogeneous group, it is often useful to create smaller groups based on like interests, gender, status, etc.;
- **Consider Non-Participants.** Not everybody can attend meetings or write/receive reports. However, information and assessment is useful to everybody that uses or has a stake in the natural resources. Ensure that the information is accessible to all stakeholders in a format they can understand.
- **Focus on understanding and deciding** rather than describing. We generally spend a lot of time telling each other what has been done, as opposed to taking the time to understand successes, weaknesses and define actions. To do so, ask people to consider the following questions:
 - o What is happening/What happened?
 - o Why is it happening?
 - o What are the implications for our plans and actions?
 - o What should we do next?
- **Ensure that the outputs of meetings are action-oriented;** Focus on documenting “actions needed”, “persons responsible”, “deadline”, and “follow up actions (who and how)”



Annex One: References and further reading

- Anderson, J. (2004) Analysis of reef fisheries under co-management in Tanga. IUCN-EARO, Nairobi.
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- Samoily, M. (ed) (1997) Manual for Assessing Fish Stocks on Pacific Coral Reefs. Department of Primary Industries, Queensland, Training Series QE 97009, Brisbane.
- Samoily, M. (2004) Review of the Village Monitoring Team's coral reef monitoring programme in Tanga. IUCN EARO, Nairobi.
- Samoily, M., and B. Giles (2003) Data management. Project Seahorse Technical Report No. 5, Version 1.0. Project Seahorse, Fisheries Centre, University of British Columbia, Vancouver.

Annex Two: Examples of Data Collection Forms

1) MANGROVES

A. Harvesting Data

Ufuatiliaji wa uvunaji (Harvesting Monitoring Sheet)									
Muda wa kutoa taarifa (Reporting period)									
Xxx (Site) Kijiji (Village) Wilaya (District)									
Mkusanyaji Takwimu (Rapporteur)									
Tarehe (Date)	Eneo alilovuna (Area of harvest)	Jina la Mwombaji (Name of harvester/applicant)	Aina aliyovuna (Species harvested)	xxx (Mature Category)	Idadi Aliyovuna (No. harvested)	Thamani (Total value)	Maoni (Remarks)		
Ufuatiliaji wa Uotaji wa Miche iliyopandwa (Replanting & Survival Monitoring Sheet)									
Muda wa kutoa taarifa (Reporting period)									
Eneo la msitu (Site) Kijiji (Village) Wilaya (District)									
Mkusanyaji Takwimu (Rapporteur)									
Tarehe (Date)	Block (Block)	Mahali (Location)	Tarehe ya kupanda (Date of planting)	Idadi iliyopandwa (No. planted)	Aina iliyopandwa (Species planted)	Eneo iliyopandwa (Area planted)	Iliyoona (Survival)		Maoni (Remarks)
							Idadi (No)	%	

B. Ecological Monitoring Data

Mangrove Monitoring Data Sheet				
Date:		Village (Kijiji):		Site No:
GPS reading beginning transect		Lon:	Compass direction of transect:	
		Lat:		
Plot (Shamba)	Species (Aina ya mikoko)	Mature category/Stump (Kiwango cha ukwali/ukatwaji)	No (Idadi)	Notes (Maelezo)
	Avicennia marina (Mchu)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Rhizophora mucronata (Mkoko magondi)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Ceriops tagal (Mkandaa)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Bruguiera gymnorrhiza (Mzinzi)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Sonneratia alba (Mlilana)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Xylocarpus granatum (Mkomafi)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Heritiera littoralis (Munu, Msikundazi)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Lumnitzera racemosa (Mkandaa dume)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		
	Pamphis acidula (Mkaa pwani)	Tree (mti mkubwa)		
		Sapling (mti mdogo)		
		Seedling (mche)		
		Stump (kisiki)		

Mangrove Soil Macro fauna Data Sheet (Fomu Ya Wadudu Wanopatikana Kwenye Mikoko)				
Date:		Village (Kijiji):		
Site (Eneo la msitu):		Zone (Kanda):	Plot (Shamba):	
GPS reading beginning transect		Lon:	Lat:	
Compass direction of transect:				
Plot (Shamba)	Quadrant (Ubao)	Macrofauna (Wadudu)	Tally marks (Namna ya kuhesabu)	No. (Idadi)

2) FISHERIES

Tanga Fish Catch Monitoring Data Sheet				
Kijiji:.....	Recorder:.....	Tarehe:/...../.....	Saa::.....	
Jina la Mvuvi:.....		Idadi ya Wavuvi:.....		
Aina ya Chombo:	<input type="checkbox"/> Ngalawa	<input type="checkbox"/> Canoe	<input type="checkbox"/> Dau	<input type="checkbox"/> Mashuwa
Aina ya Mtego:.....	Idadi ya Mitego:.....			
Sehemu aliyovua:.....	Muda wa uvuvi:hrs			
Uzito wa Samaki:.....Kg	<input type="checkbox"/> Kubuni	<input type="checkbox"/> Uliopimwa	Thamani:.....	
Idadi ya samaki:.....	<input type="checkbox"/> Kubuni	<input type="checkbox"/> Waliohesabiwa	Tshs.....	
BAC survey	Day -3: y / n	Day -2: y / n	Day -1: y / n	
Samaki Walioteuliwa kuhesabiwa				
Aina ya Samaki	Urefu	Aina ya Samaki	Pcs	KG
		Changu (snappers)		
		Changu doa (L. harak)		
		Changu njana (L.Lentjan)		
		Mkundaji (goat fish)		
		Mkundaji 1 (P. cinnabarinus)		
		Mkundaji 2 (P. indicus)		
		Chafi (rabbit fish)		
		Chafi 1 (S. luridus)		
		Chafi 2 (S. sutor)		
		Kangu (parrot fish)		
Kangu 1 (S. ghobban)				
Kangu 2 (H. harid)				
		Mlea (sweetlips)		
		Mlea (P. gaterinus)		
		Kohe (D. pictum)		
		Mbono		
		Mbono 1 (C. xanthonotus)		
		Mbono 2 (C. diagramma)		
		Chewa (groupers)		
		Chewa (E. fuscogutatus)		
		Mjombo (E. punctatus)		
		Taa (rays)		
Taa (D. jenkinsii)				
Pungu (S. narinari)				
		Jodari (tuna)		
		Kibua/Bangra (R. kanagurta)		
		Jodari (T. albacarus)		
		Mizia (barracuda)		
		Mizia (S. barracuda)		
		Msusa (P. forsteri)		
		Kolekole (jacks)		
		Kolekole manjano (C. sem)		
		Kolekole ubwi (C. sexfasciatus)		

VESSEL ACTIVITY DATA SHEET

Kijiji:

Mwezi:

Karatasi hii inanakili idadi ya siku kwa mwezi ambapo **kiasi kikubwa** cha msafara hawaendi baharini kuvua. Kwa mfano siku za ijumaa na sikukuu ambapo msafara unaweza kuwa wa nusu siku tu, au hali mbaya ya hewa hakuna chombo

Msafara	Aina ya chombo	Aina ya zana	Days of uniform inactivity	Comments
1				
2				
3				
4				
5				

3) REEFS

LINE INTERSECT TRANSECT FORM

Date:

MGT AREA
 REEF:
 RECORDER:

LINE	VIUMBE
1)	
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	
21)	
22)	
23)	
24)	
25)	
26)	
27)	
28)	
29)	
30)	
31)	
32)	
33)	
34)	
35)	
36)	
37)	
38)	
39)	

SUMMARY

MC	
MH	
MHM	
MK	
MKK	
ML	
MJ	
MN	
MW	
OT	
SP	
CA	
RB	
TOTAL	

MOBILE INVERTEBRATES

VIUMBE	IDADI
MACHO	
MAWE	
MOTO	
BODO	
TOTAL	
PWEZA	
KAMBA	
NYERA	
JONGOO	
NYALI	
K'PWEZA	
MAKOME	
TAWANIGWE	

DATE:
REEF:

MGT. AREA

RECORDER:										
LINE										
CHAFI										
CHANGU										
CHAZANDA										
TEMBO										
HARAKI										
CHEWA										
MILEA										
KITAMBA										
KANGAJA										
KIPEPEO										
MBONO										
MWASOYA										
MKUNDAJI										
KIKANDE/KIDUI										
KOLEKOLE										
KANGU SMALL										
KANGU LARGE										

Observations on dynamite blast spots (nos, levels of destruction etc):
Observations on rubbish found within the closed reef (nets, nylon bags etc):

4) ENFORCEMENT

TAARIFA YA DORIA

TAREHE/...../.....	Boma-Mahandakimi	<input type="radio"/> Deep-Sea Boma	<input type="radio"/> Mwanrongo-Sahare
Kuondoka:	<input type="radio"/> Mtang'ata	<input type="radio"/> Boza-Sange	<input type="radio"/> Mkwaja-Sange
Kurudi:	Mtoa taarifa.....		

Washiriki:	1.....	2.....	3.....	4.....
	5.....	6.....	7.....	8.....
	9.....	10.....	11.....	12.....

Maoni:

Matukio ya uhalifu yaliyotolewa taarifa:								
Mahali	Muda	Kipimo kijografia	Chombo No. /Mature category	Jina la chombo/Zana	Jina la mwenye chombo/Mhalifu	Kosa/Aina ya mikoko	Hatua zilizo chukuliwa	Sahihi

Annex Three: List & description of predefined reports in Database

A. Reefs

Information Types	Possible Uses of the Information	Reports
Status of Reefs	Identify needs for management interventions (e.g. increase enforcement efforts, close new reefs, etc.)	<ul style="list-style-type: none"> ➤ Graph A: Densities of Fish by Trophic Level ➤ Graph B: Densities of Fish by Trophic Level ➤ Graph C: Densities of Chafi & Changu ➤ Densities of Mobile Invertebrates (Non Fishery) ➤ Densities of Mobile Invertebrates (Fishery)
Effectiveness of Management Efforts	<p>Demonstrate benefits of closing reefs</p> <p>Assist with motivating villagers to participate in management efforts</p>	<ul style="list-style-type: none"> ➤ No of Sea Patrols/Month (in relation to offences) ➤ Trends in Benthic Cover (in relation to offences)

Indicators:

Indicators/Cluster	Species
Graph A: Trend in mean density of fish by trophic level	
Pelagic /schooling	Kolekole
Carnivores/high trophic level/high fishery value	Chewa, Tembo, Chazanda, Haraki, Changu
Omnivores – carnivores/ medium trophic level/medium fishery value	Mleya, Kitamba, Mkundaji
Herbivores /medium trophic level /medium fishery value	Kangu –kidogo, Kangu –mkubwa, Kangaja, Chafi
Graph B: Trend in mean density of indicator fishes	
Coral health indicators/ value in aquarium fishery	Kipepeo, Mwasoya
Possible indicators of sea urchin populations	Kikande /kidui
Graph D: Densities of Mobile Invertebrates (Non Fishery)	
Sea urchins	Ufuma, Macho, Mawe, Moto, Bodo
Starfish	Kiti cha pweza, Tawangwe
Graph E: Densities of Mobile Invertebrates (Fishery)	
Crayfish	Kamba
Sea cucumber	Jongoo
Shells (Molluscs)	Makome, Nyale
Octopus	Pweza

B. Fisheries

Information Types	Possible Uses of the Information	Reports
Status of Fisheries	- Promote and encourage use of appropriate gear in appropriate places	➤ Fish Catch Trend ➤ Catch per Unit Effort (CPUE)
Financial Returns from the fisheries	- Encourage alternative livelihood practices (e.g. farming) - Guide decisions regarding enforcement activities to promote compliance with reef closure & destructive practices (e.g. dynamite fishing)	➤ Revenue Trends
Effectiveness of Management Efforts	- Guide budgetary allocations for fisheries management	➤ No of Sea Patrols per month & Offences

C. Mangroves

Information Types	Possible Uses of the Information	Reports
Status of Mangroves	Guide approval of requests for permits to harvest (how much, where, which species)	➤ Species by Maturity level
Mangrove Harvesting		➤ Harvesting levels
Effectiveness of land patrols	Guide enforcement efforts (identify repeat offenders; increase / decrease patrols)	<ul style="list-style-type: none"> ➤ No. of land patrols/month ➤ Trends of offences over time ➤ Summary of actions taken ➤ No. of poles illegally harvested ➤ Replanting and survival in relation to offences ➤ Illegal harvesting v/s offences ➤ Species by maturity levels v/s offences
Effectiveness of planting efforts	<p>Guide planting for mangrove planting (how much; where (medium); which species)</p> <p>Promote and encourage village participation</p>	➤ Replanting v/s survival by species

PART TWO

TCZCDP INFO DBASE USERS GUIDE

Click on user name/user group or password to change settings



Version 1.0

Section 8. Introduction

The Tanga Coastal Zone Conservation and Development Programme's Information Management System uses a database-driven application (the Info Dbase) designed to store data collected by the Programme and facilitate the processing and analysis of that data.

1.1 Topics Discussed in this Guide

This Guide describes how to use the TCZCDP Info DBase, with details on how to install and use the system

1.2 Who Should Use This Guide

This Guide is intended for use by persons administering and using the Info Dbase, and contains information pertaining to installing, using and administering the InfoDbase.

1.3 Other Support Services

Should there be any queries or need for additional support, database users should contact IUCN EARO using the contact details provided below:

Dr. Melita Samoilys
Technical Coordinator, Marine & Coastal Ecosystems
IUCN EARO
Email: melita.samoilys@iucn.org
Tel: +254-20-890605-12

2 Installing, Logging On, Accessing the System

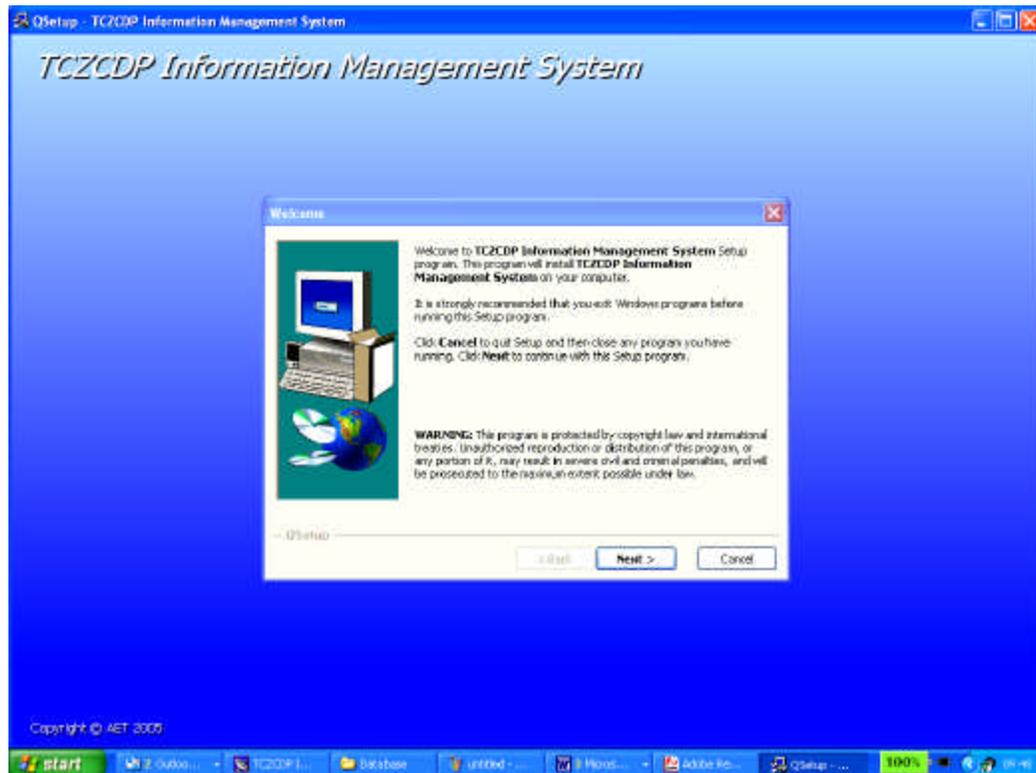
This chapter describes how to install the Info Dbase and how to log-on to it.

2.1 Installation Instructions

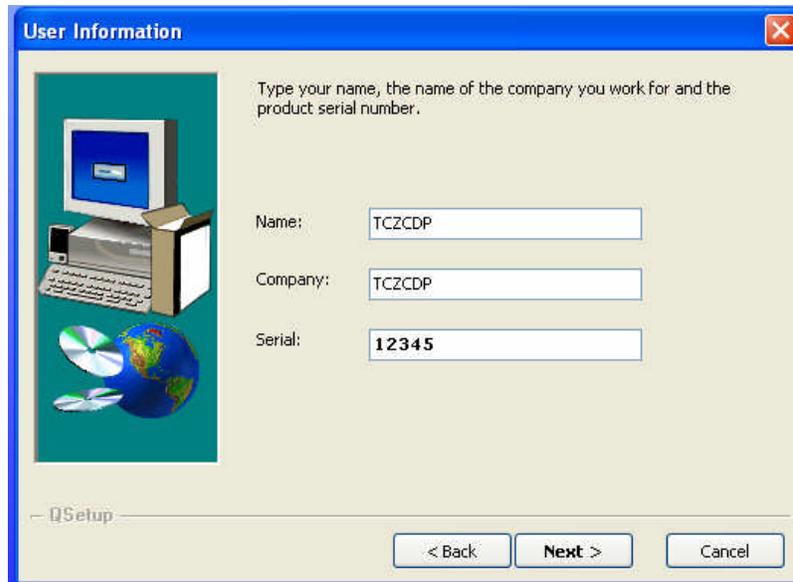
If you have previously installed the Info Dbase, you must uninstall it before installing a new version (see 2.2 below).

To install **InfoDbase** software, do the following:

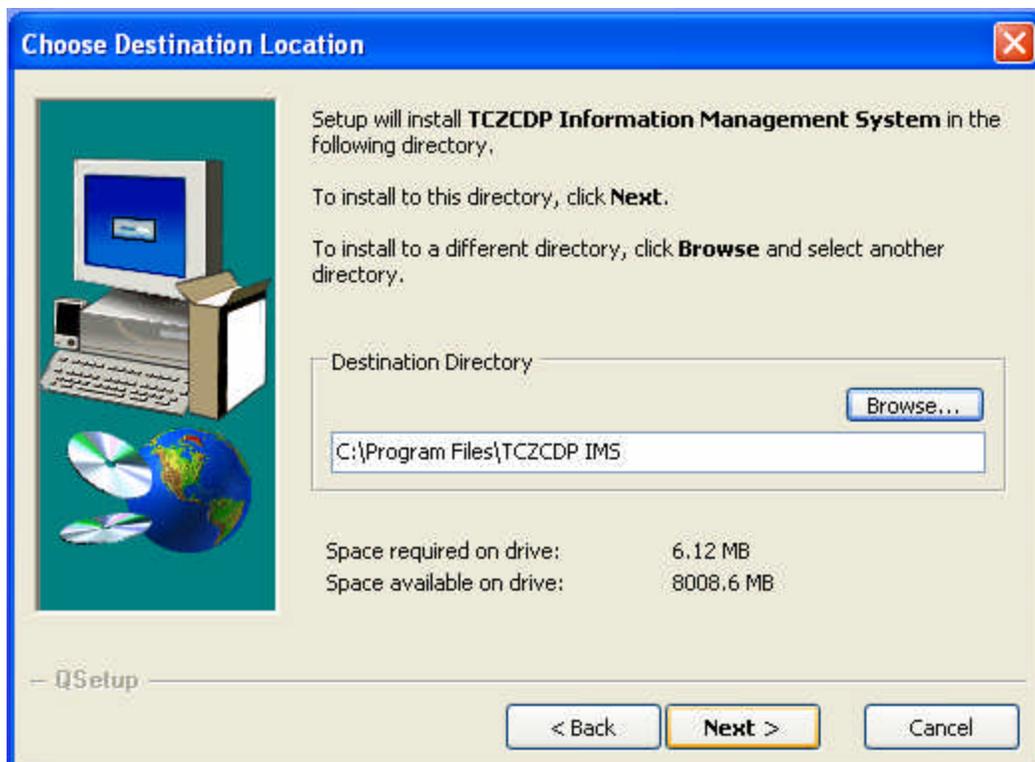
- A. If the CD auto runs, the setup will start automatically and you will see the screen shown below. Follow the simple instructions given by the wizard as you move along.



- B. Click on Next and type in the name of the organisation, the company and enter 12345 as the serial number as shown below:



- C. The soft ware will install to the directory suggested in the "Destination Directory" box as shown below and you are ready to run the application for the first time.



D. In case the CD does not automatically run, do the following:

- Double click on the "My Computer" icon on your desktop or from the start menu in windows XP.
- Right click on your CD-Rom icon, and select "Explore"
- Navigate to the setup file
- Double click on the file **setup.exe**
- During installation, you will be asked to specify the Destination Directory where you want the application to be installed. We recommend that you choose the default

2.2 Uninstalling

To uninstall the database, use the "Add/Remove Programs" facility in the "Control Panel" of Windows.

2.3 Logging On/Accessing System

2.3.1 Security

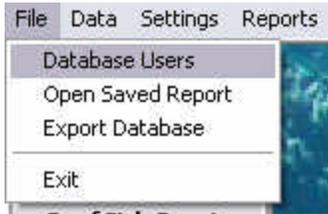
The system includes a security feature that requires the user to supply a valid user name and password before they can use the database as shown below:



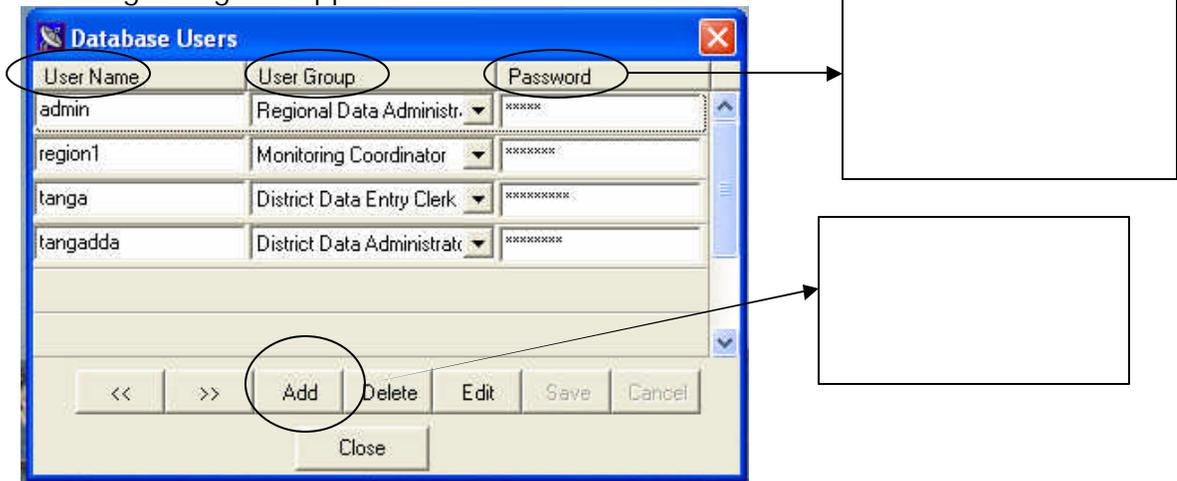
The screenshot shows a Windows-style login dialog box titled "Login". On the left is the coat of arms of Tanzania. On the right is the logo for "Development Cooperation Ireland" and the "IUCN The World Conservation Union" logo. Below the logos, the text reads "Tanga Coastal Zone Conservation and Development Programme Information Management System". To the right of this text are two input fields: "User Name:" and "Password:". At the bottom right are "OK" and "Cancel" buttons.

On installation, the Regional Data Administrator (RDA) will set user names and passwords. To do so, the RDA should initially log on using the user name **admin** and password **admin**. Immediately after doing so, the RDA should change his/her user name and password and ensure that he/she writes down the new user name and password and puts this in the office safe for security reasons.

To change user names - click File menu and select Database Users as shown below. Please note - User names and passwords are **case sensitive**.



The following dialog box appears:



Recommended User Levels & User Rights are as follows:

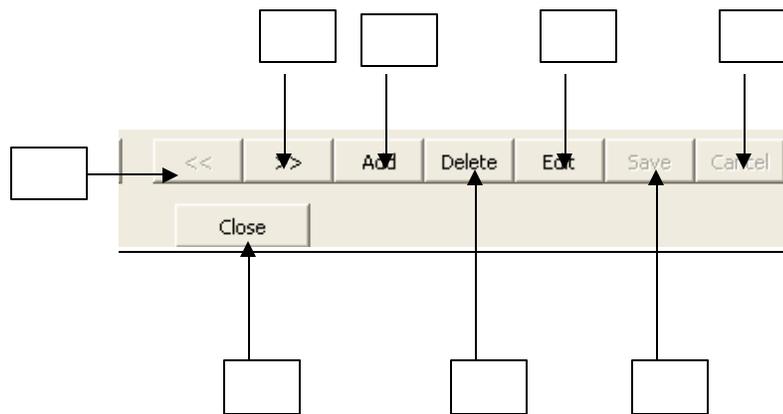
User	User Rights			
	Data entry	Edit/Delete Data	View Reports	Change Settings
Regional Data Administrator	NO	YES	YES	YES
Monitoring Coordinator	NO	NO	YES	NO
District Data Entry Clerk	YES	NO	YES	NO
District Data Administrator	NO	YES	YES	NO

3 Setting up the system

This chapter describes how to use the general features of the software. It begins by showing you how to navigate through the InfoDbase and describes the settings that need to be done before full utility of the InfoDbase can be realised. Later on in this chapter the use of the software will be described.

3.1 Navigating through the forms

Most forms contain a navigation bar to help you edit and modify records similar to the one in the figure below. The number representations on the below diagram are as follows:



1. Moves to the previous record. To do that, simply click on the button labeled 1.
2. Moves to the next record. To do that, simply click on the button labeled 2.
3. Adds a record. To do that, simply click on the button labeled 3. A place in the grid will be created and the pointer will be focused in that place allowing the user to type in the necessary data.
4. Edits an existing record. Highlight the data in the grid that you would like changed using the mouse by clicking on it then simply click on the button labeled 4. The user will now be able to modify the existing data that was highlighted.
5. This is for canceling what you were doing, to do that click on the button and the active window will automatically close. If the user does not save but clicks this button, the data the user had entered might not be saved.
6. Button 6 will close the active window.
7. This will delete any highlighted data or record.
8. This is simply for saving records that have been added or modified in any manner

3.2 Settings

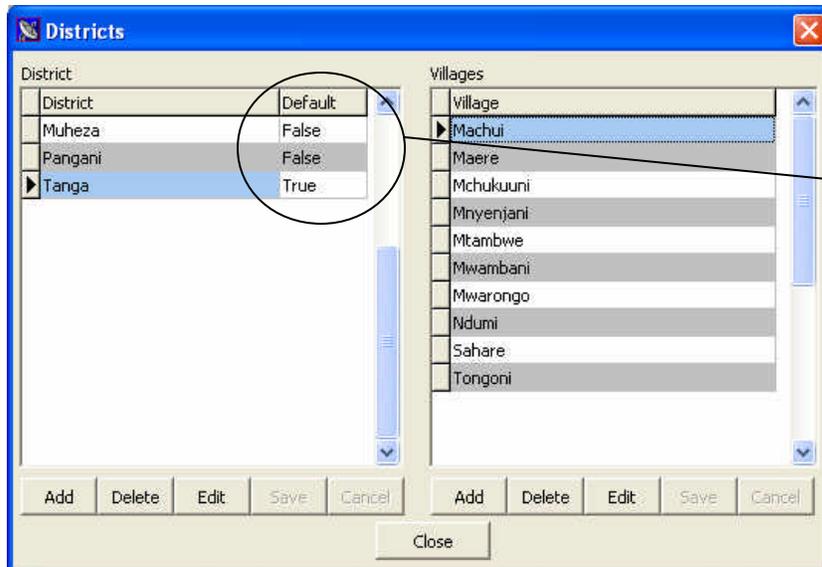
For security purposes, the settings can **only** be changed by the Regional Data Administrator, who will do so during the first installation and thereafter, as need arises. *Please note – settings MUST be the same for all the Info Dbases in all Districts and at the Region. If changes are made in one and not the other – you will not be able to import/export the database from the Districts to the Region.*

3.2.1 Districts

For District settings go to **Settings > Districts** as illustrated below.



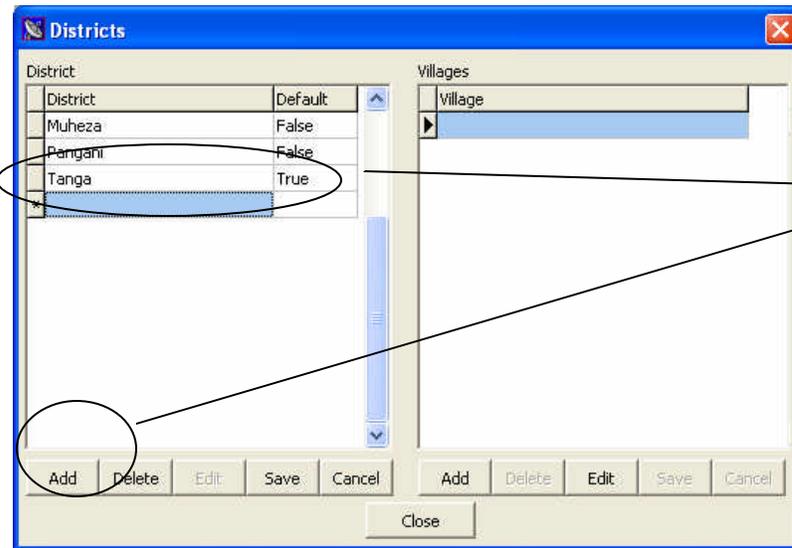
A window will appear like the one shown in the picture below that will assist you to Add, Edit, Delete as well as Save any changes made to both the Districts and/or Villages. Each District may have one or more villages under it. When a new District has just been added, the user can add the villages in the grid under the Village field.



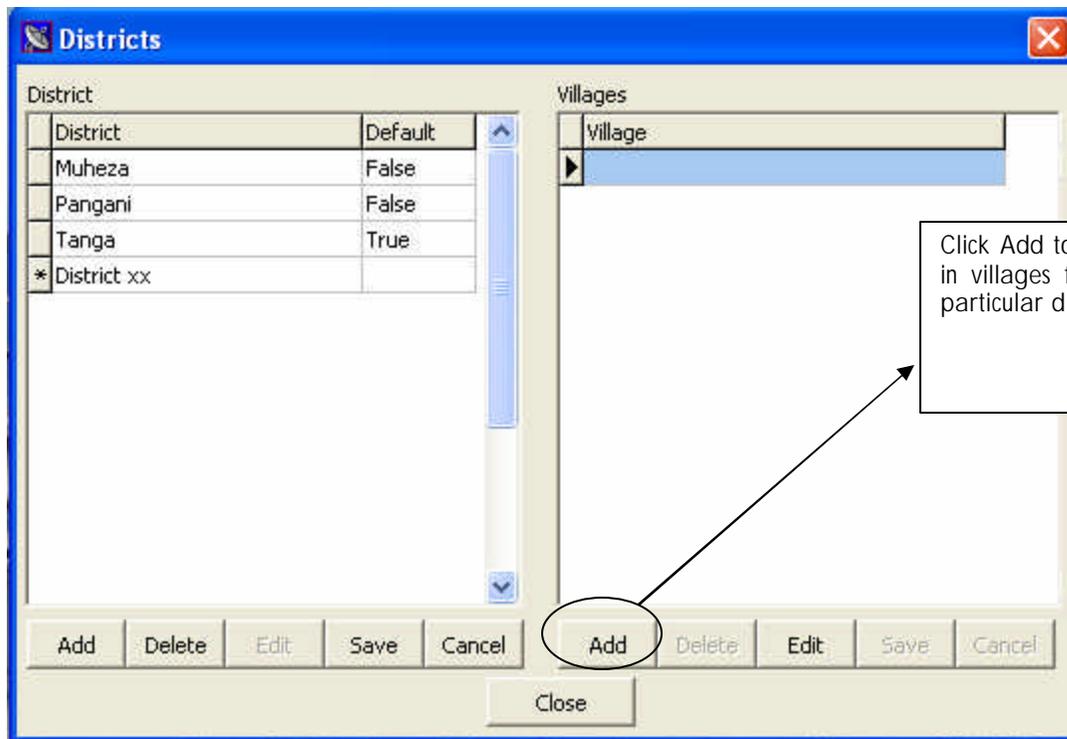
The Districts table has an additional column called Default which helps in identifying where the data came from during importing at the regional office. One and **only one** of the Districts should be made the default at the District level - even if only one District has been defined

Adding a District & Villages

Click the Add button under District. A blank entry space will automatically be created as shown below.



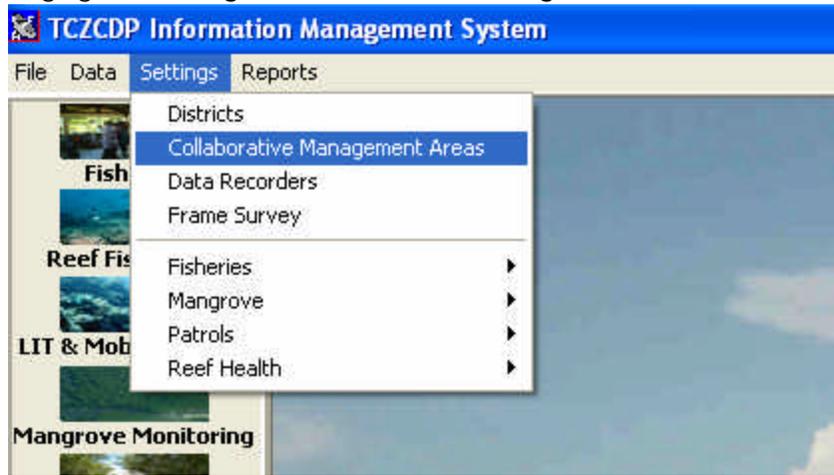
Under the village's grid, click Add to key in the villages that fall under the District entered above. You may add all the villages that exist in that particular District. See examples below.



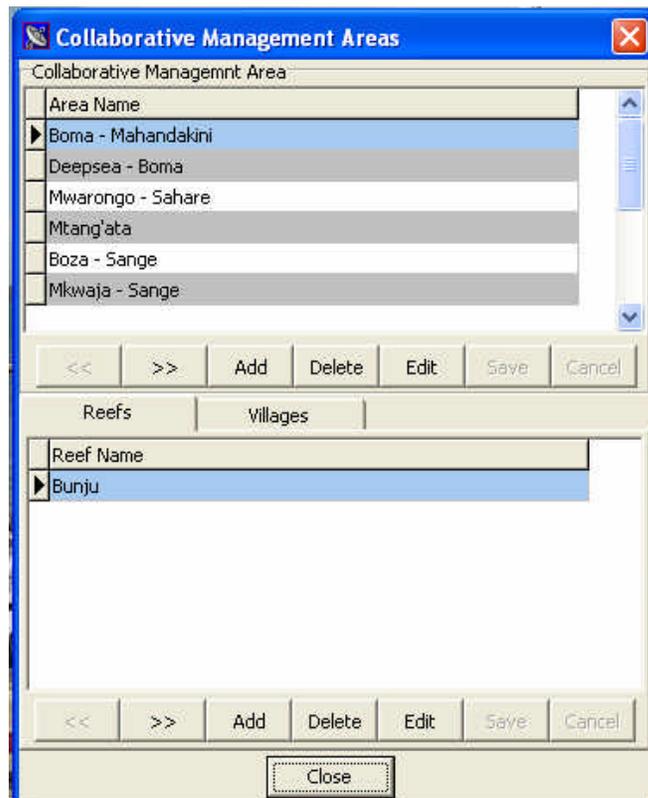
NB: The system accommodates more than one District but the user must specify only one as the default District.

3.2.2 Collaborative Management Areas (CMAs)

For CMA settings go to **Settings > Collaborative Management Areas** illustrated below.

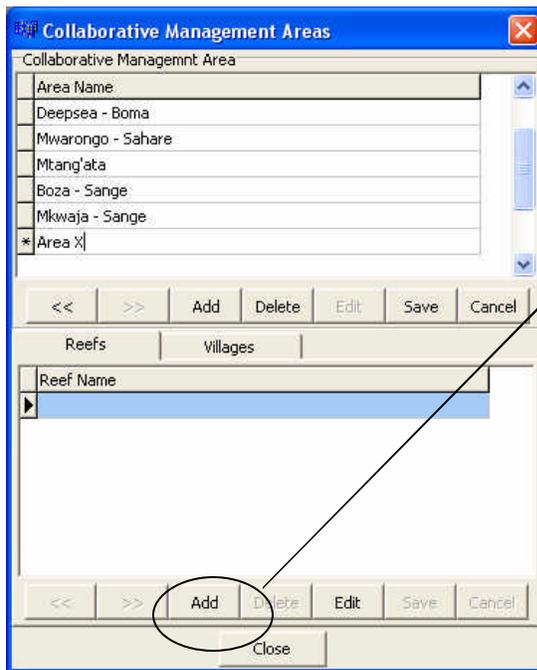


A window will appear like the one shown in the picture below that will assist you to Add, Edit, Delete as well as Save any changes made to CMA, Reefs and/or Village. Each CMA may have one or more reefs and/or villages under it. When a new CMA has just been added, the user can add the reefs in the grid under the Reefs field in the Reefs tab or villages in the grid under the Village field in the Villages tab.

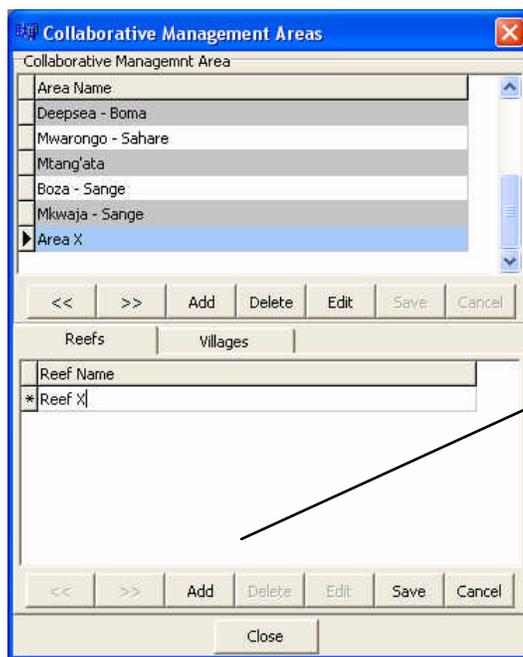


Adding a CMA

Click the Add button under CMA grid. A blank entry space will automatically be created as shown below. This space will allow the user to type in a CMA name as demonstrated in the example below

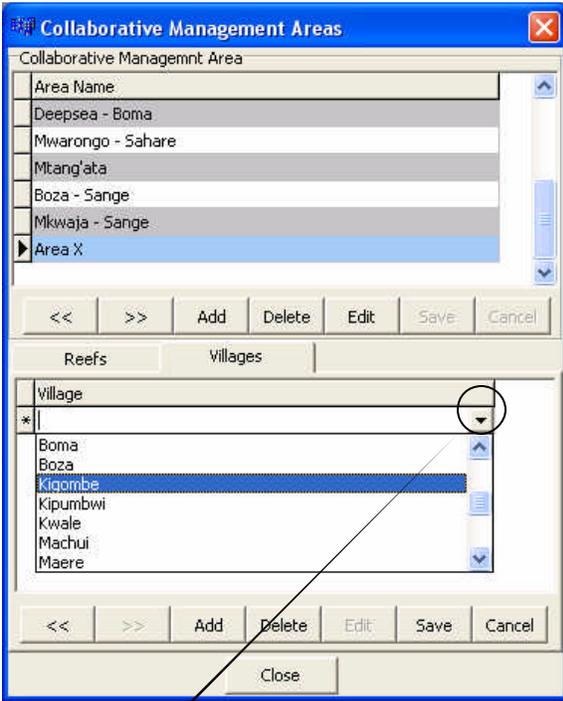


Click on Add and type in the CMA name

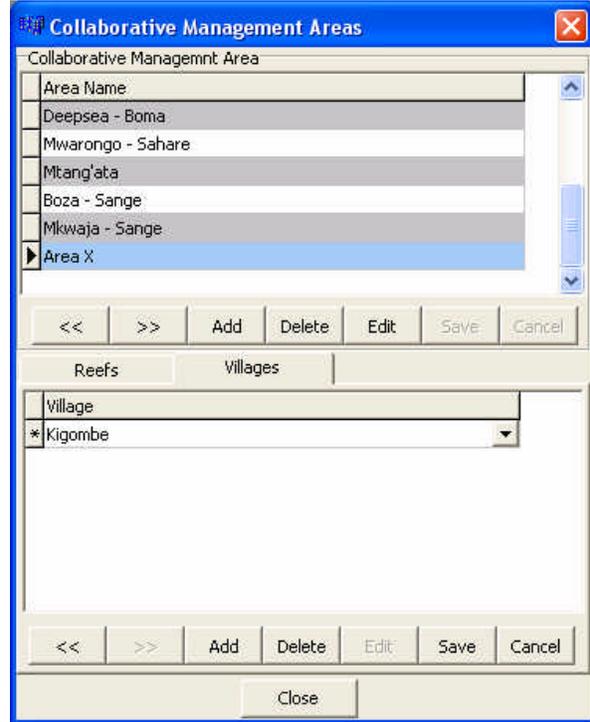


Under the Reef Name grid and under the Reef tab, the user can click Add to key to add the reefs that fall under the area entered above.

Under the Village's grid under the Villages tab, the user can click Add to choose the villages that fall under the CMA entered above. See examples below.



Select the village you want to add to the CMA by clicking here



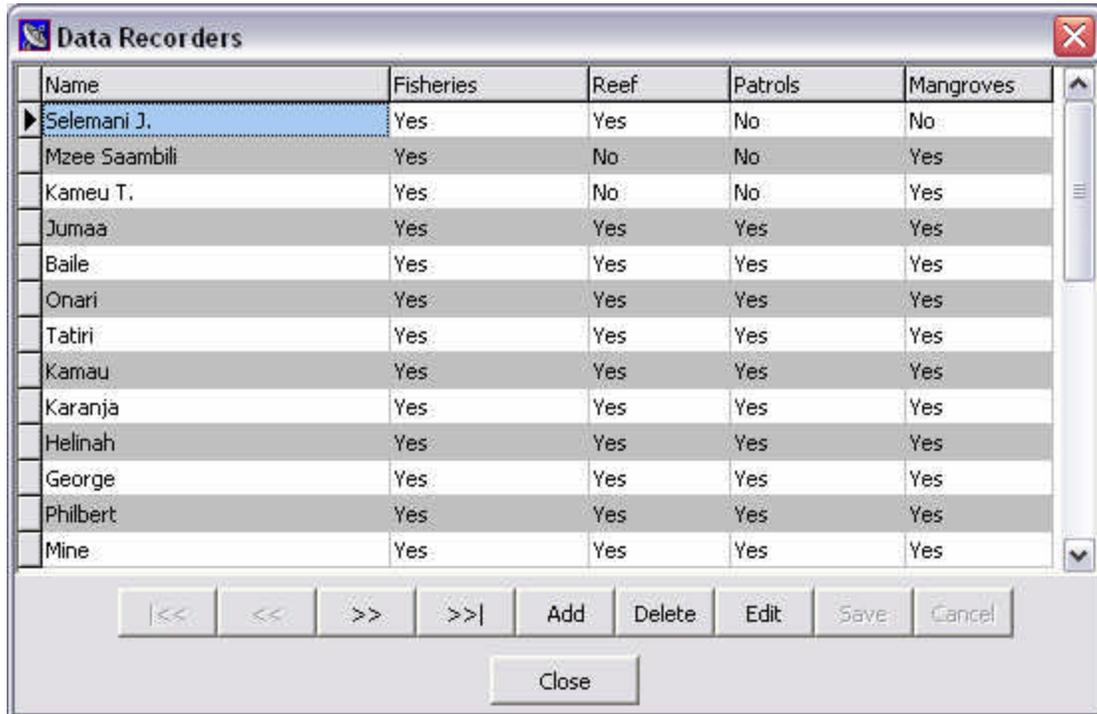
3.2.3 Data Recorders

For data recorders settings go to **Settings > Data Recorders** as illustrated below.

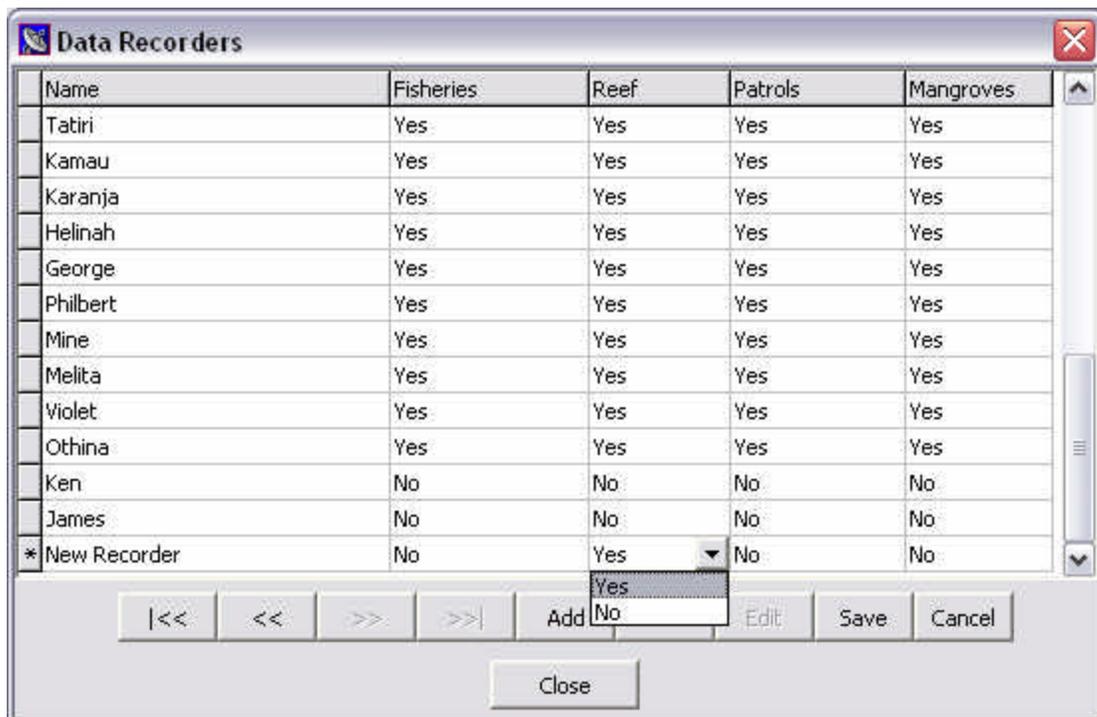


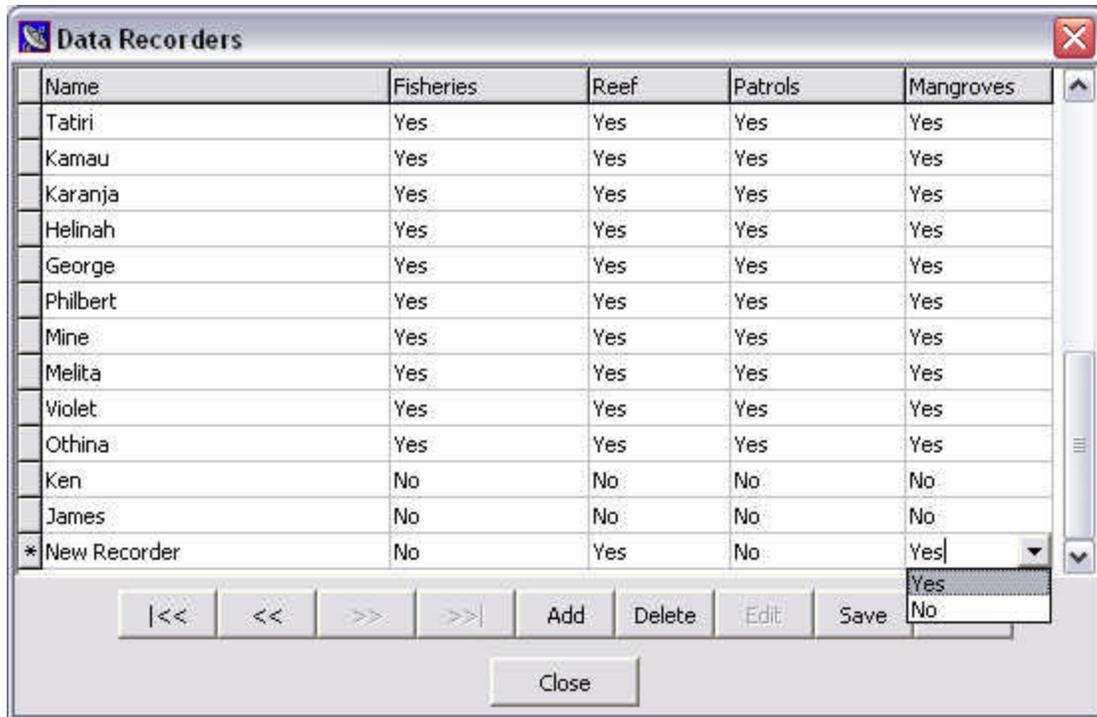
The following settings form should appear

To add a new data recorder click on Add and select from the relevant columns (Fisheries, Reef, Patrols and Mangroves) which data forms the recorder is allowed to gather. By default the new recorder is assumed to be able to enter no records.



Enter the new recorders name and choose their permissions in the fields besides the recorders name

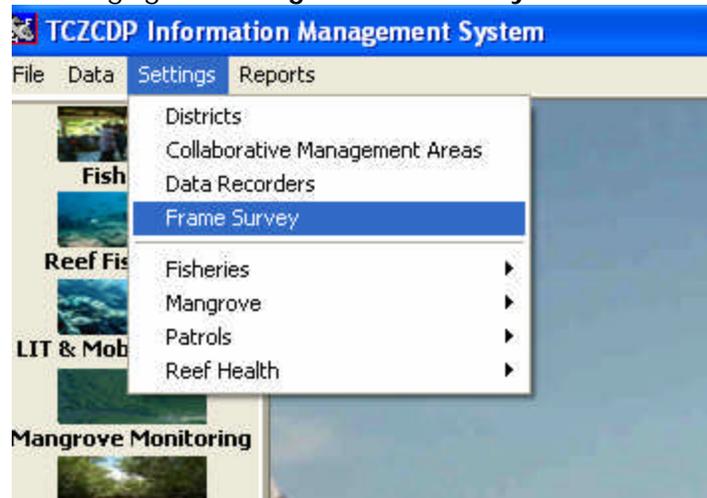




Save the changes as necessary and click on the **close** button to exit.

3.2.4 Frame Survey

For data recorders settings go to **Settings > Frame Survey** as illustrated below.



The following form will appear:

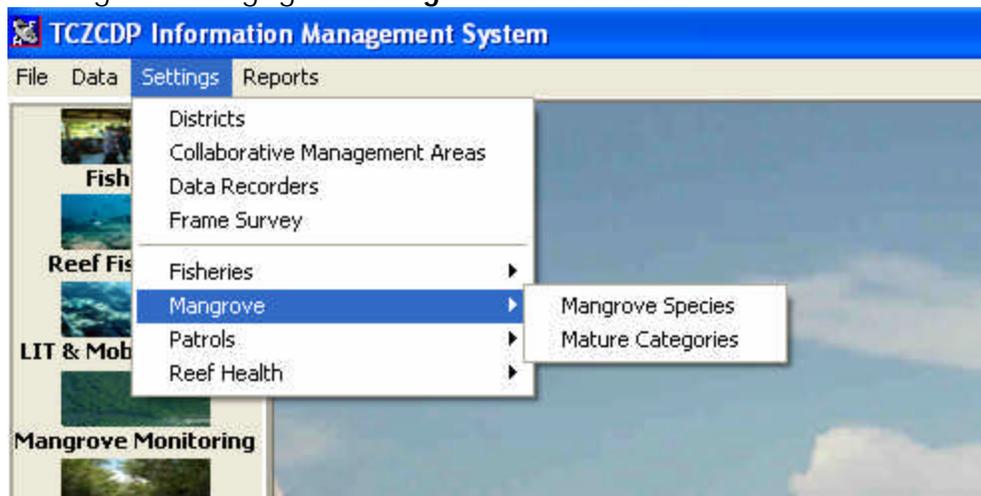
Boat Type	Number

Once you have selected the District, Village, Month and Year - choose each boat type and fill in the number of boats for each type

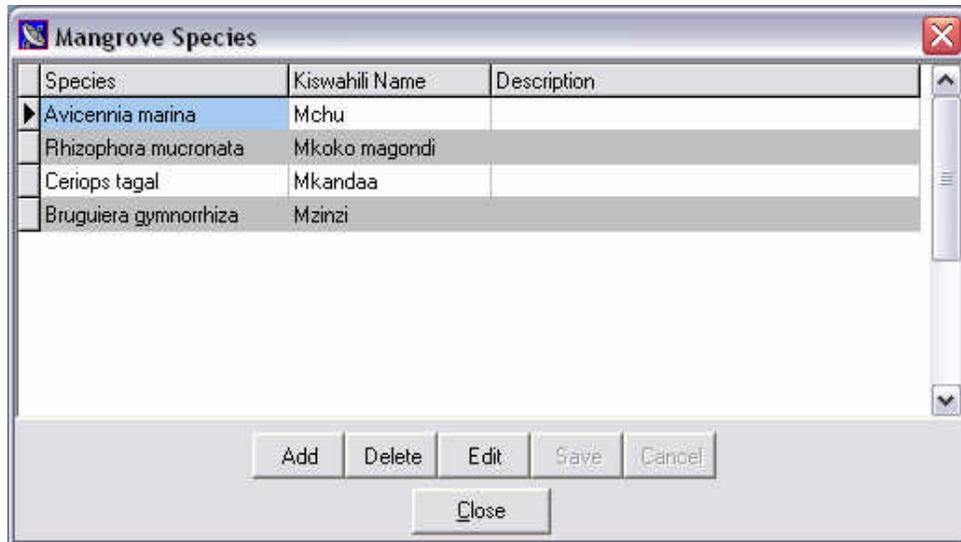
After each record, click save and then add to enter a new record

3.2.5 Mangrove Settings

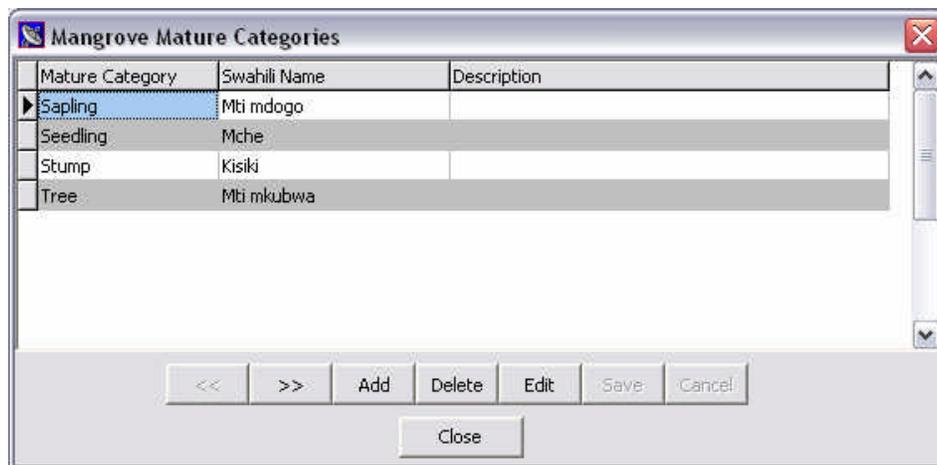
To enter mangrove settings go to **Settings > Data Recorders** as illustrated below.



Select Mangrove Species to add, edit or delete a species. You may also enter the maturity category from the sub menu shown above

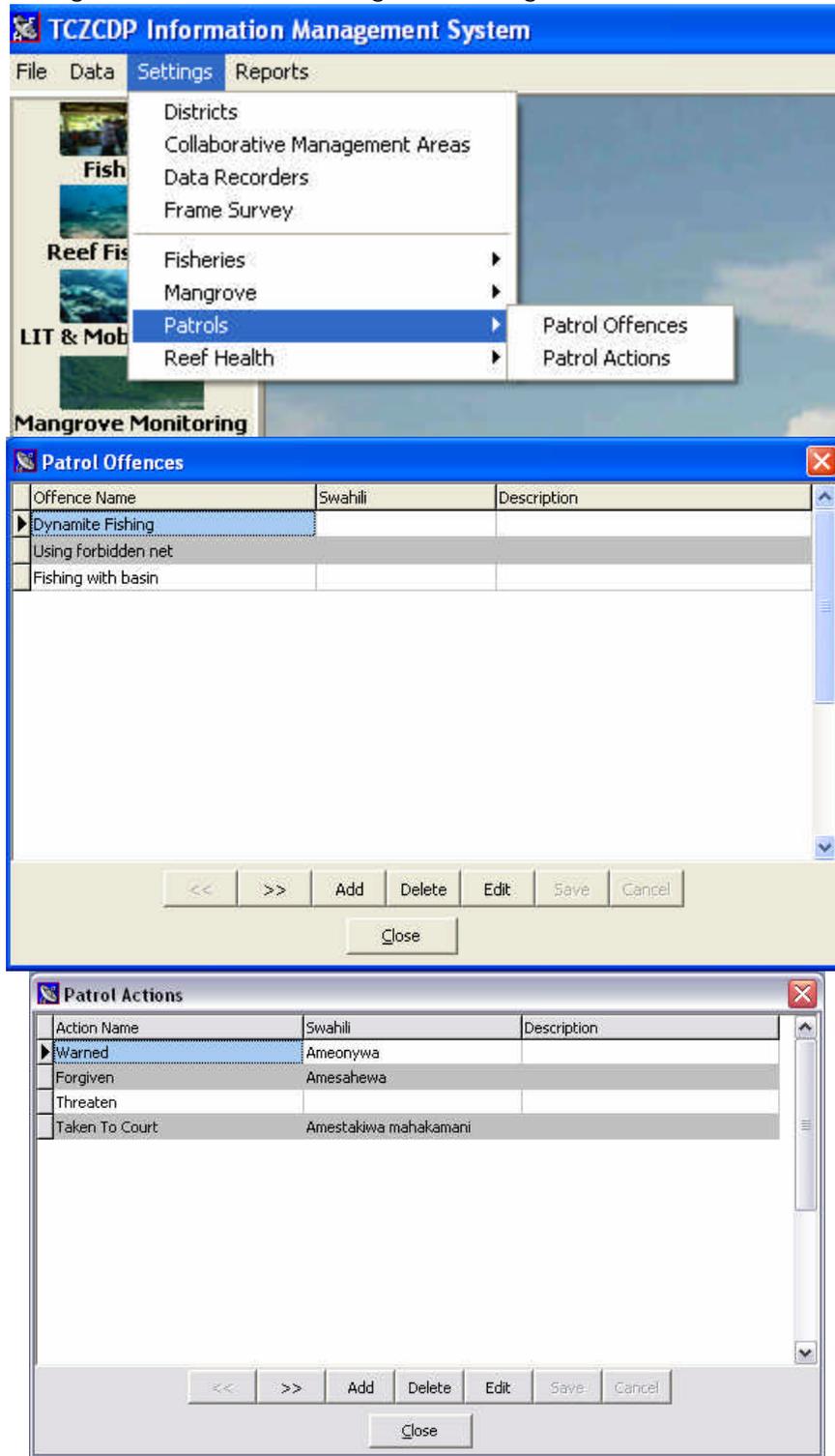


Use the navigation buttons to Add, Delete, Edit, Save or Cancel any entry.

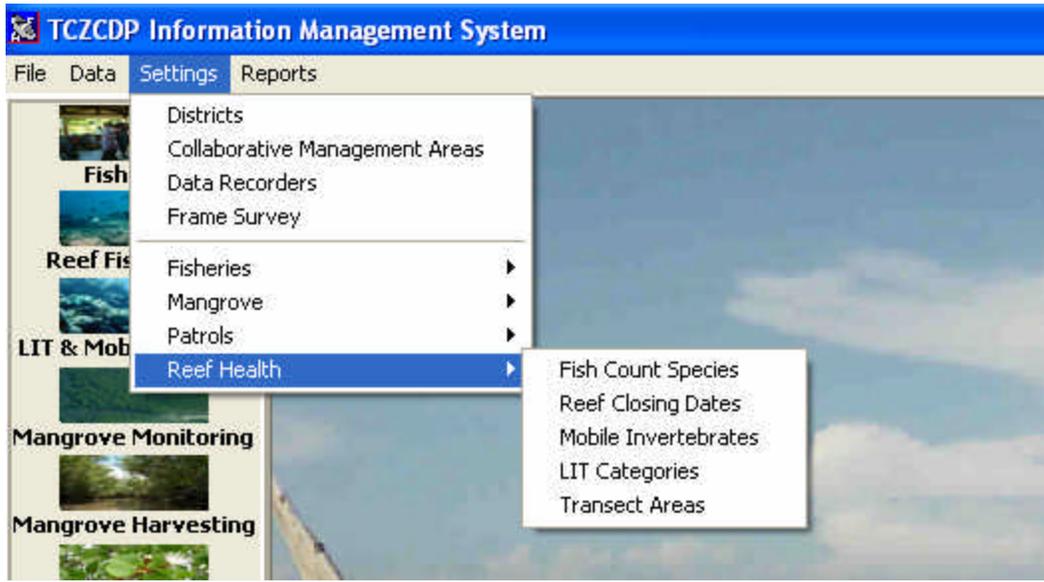


3.2.6 Patrol Settings

The patrol settings are similar to the mangroves settings.



3.2.7 Reef Health Settings



To enter the **reef fish count species** and their descriptions navigate as above and click on the fish count species item. The following form should appear.

The 'Fish Count Species' form displays a table with the following data:

Species	Trophic Level	English Name	Latin Name
CHAFI	Herbivores/ medium trophic level/ medium fishery value	Rabbit Fish	Siganidae
CHANGU	Carnivores/ high trophic value/ high fishery value	Emperors	Lethrinidae
CHAZANDA	Carnivores/ high trophic value/ high fishery value	Mangrove jack	L. argentimaculatus
CHEWA	Carnivores/ high trophic value/ high fishery value	Groupers	Serranidae, Epinephelus spp., Cephalopholis spp
HARAKI	Carnivores/ high trophic value/ high fishery value	Paddletail Snapper	L. gibbus
KANGAJA	Herbivores/ medium trophic level/ medium fishery value	Surgeonfish	Acanthuridae
KANGU LARGE	Herbivores/ medium trophic level/ medium fishery value	Parrot Fish Adults	Scaridae
KANGU SMALL	Herbivores/ medium trophic level/ medium fishery value	Parrot Fish Juveniles	Scaridae
KIKANDE/KIDUI	Indicator of sea urchin populations	Tigger Fish	Balistidae
KIPEPEO	Coral Health Indicators/ value in aquarium fishery	Butterfly Fish	Chaetodontidae
KITAMBA	Omnivores-Carnivores/ medium fishery value	Grunt	Plectorynchus flavomaculatus
KOLEKOLE	Pelagic/ schooling	Trevally	Carangidae
MBCONO	Planktivores/ low trophic level/ low fishery value	Fusiliers	Caesionidae
MKUNDAJI	Omnivores-Carnivores/ medium fishery value	Goatfish	Mulidae
MLEYA	Omnivores-Carnivores/ medium fishery value	Grunts (sweet lips)	Haemulidae

Below the table are control buttons: <<, >>, Add, Delete, Edit, Save, Cancel, and a Close button.

You may add, edit or delete as you wish the fish types and categories, descriptions and their names.

To enter **reef closing dates**, use the following form;

Reef Closing Dates

Reef Name: Bunju

Year

Add Delete Save Cancel

Close

Navigate as before to the **mobile invertebrates** item and the following form should appear.

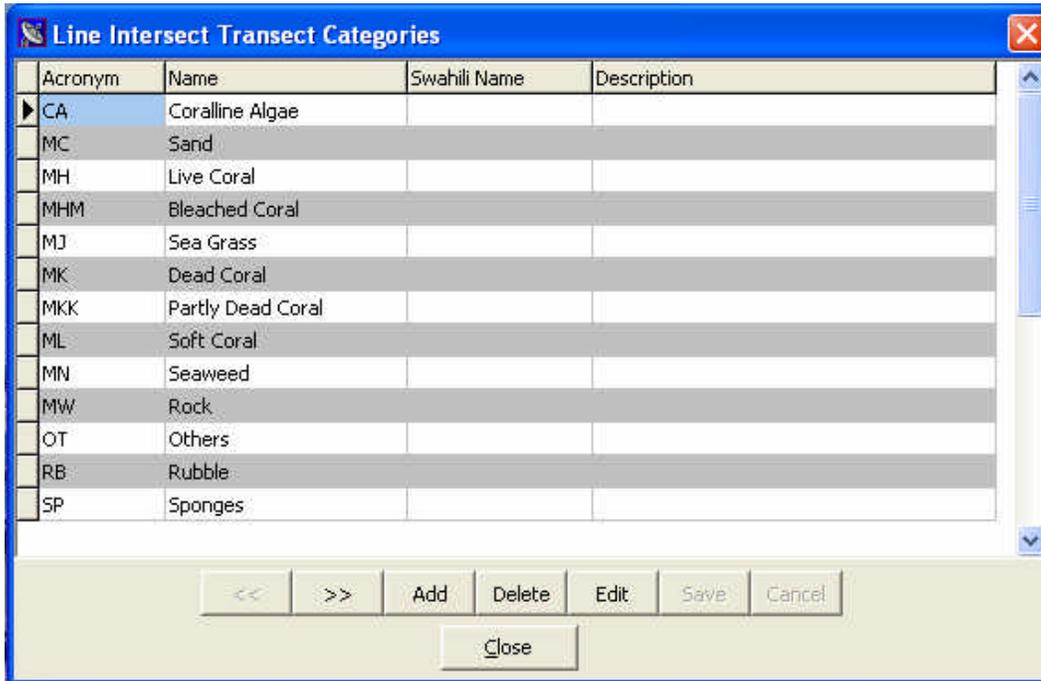
Mobile Invertebrates

Invertebrate	English Name	Category	Grouping	Description
BODO	Tripneustes	Sea Urchins	Non-Fishery Species	
JONGOO	Sea Cucumber	Sea Cucumber	Fishery Species	
KAMBA	Crayfish	Cray Fish	Fishery Species	
K'PWEZA	Starfish	Starfish	Non-Fishery Species	
MACHO	Diadema	Sea Urchins	Non-Fishery Species	
MAKOME	Shells	Shells	Fishery Species	
MAWE	Stomopneustes	Sea Urchins	Non-Fishery Species	
MOTO	Echinothrix diadem	Sea Urchins	Non-Fishery Species	
NYALE	Lambis	Shells	Fishery Species	
NYERA	Giant Clams		Non-Fishery Species	
PWEZA	Octopus	Octopus	Fishery Species	
TAWANGWE	Starfish	Starfish	Non-Fishery Species	

<< >> Add Delete Edit Save Cancel

Close

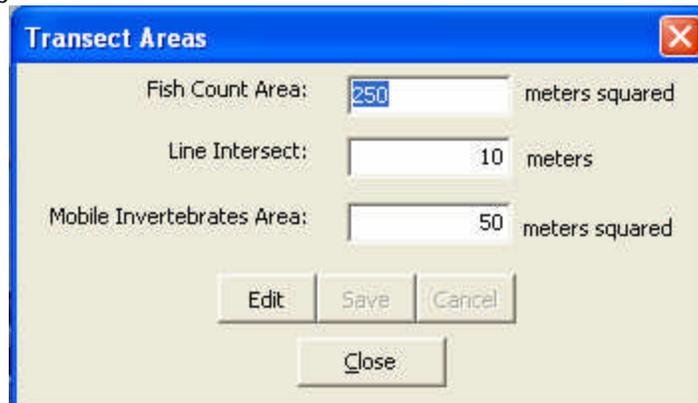
From the above forms any necessary changes or additions can be made. The same procedure can be used for **LIT categories**



The screenshot shows a software window titled "Line Intersect Transect Categories". It contains a table with four columns: Acronym, Name, Swahili Name, and Description. The table lists various categories such as Coralline Algae, Sand, Live Coral, Bleached Coral, Sea Grass, Dead Coral, Partly Dead Coral, Soft Coral, Seaweed, Rock, Others, Rubble, and Sponges. Below the table are several control buttons: navigation arrows (<< and >>), Add, Delete, Edit, Save, Cancel, and a Close button.

Acronym	Name	Swahili Name	Description
CA	Coralline Algae		
MC	Sand		
MH	Live Coral		
MHM	Bleached Coral		
MJ	Sea Grass		
MK	Dead Coral		
MKK	Partly Dead Coral		
ML	Soft Coral		
MN	Seaweed		
MW	Rock		
OT	Others		
RB	Rubble		
SP	Sponges		

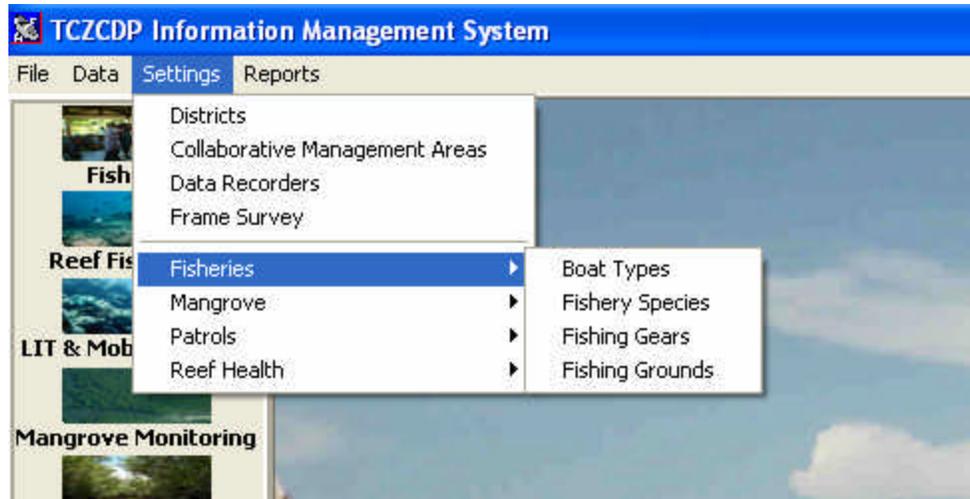
To enter information about **transect areas** navigate to the transect area form and click on it. You may then modify the relevant area using the edit button and save when you are done. While editing and before saving the changes, if you do not wish to retain the changes, you may click on the cancel button.



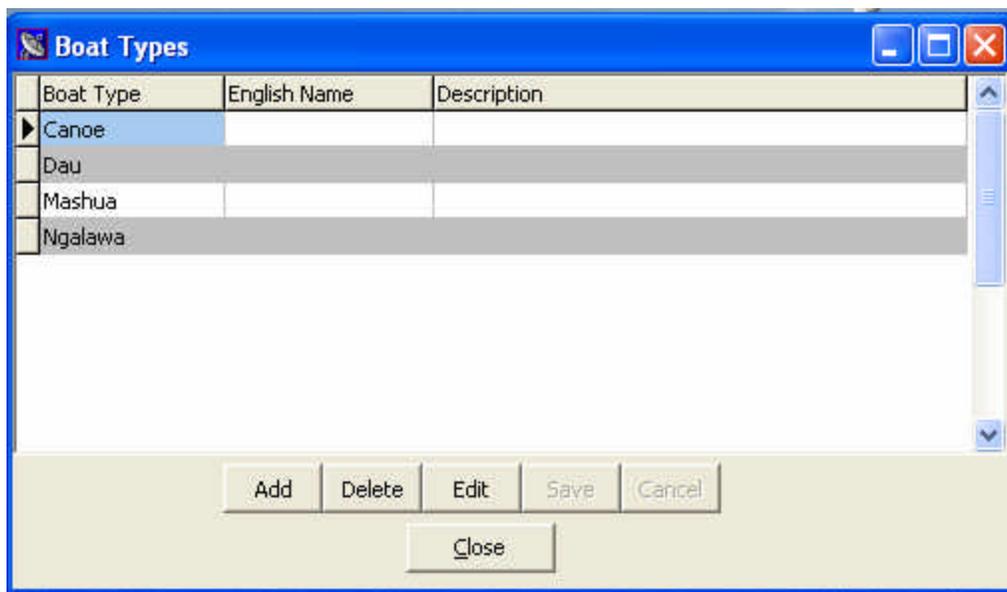
The screenshot shows a software window titled "Transect Areas". It contains three input fields with labels and units: "Fish Count Area: 250 meters squared", "Line Intersect: 10 meters", and "Mobile Invertebrates Area: 50 meters squared". Below the input fields are three buttons: Edit, Save, and Cancel, and a Close button at the bottom.

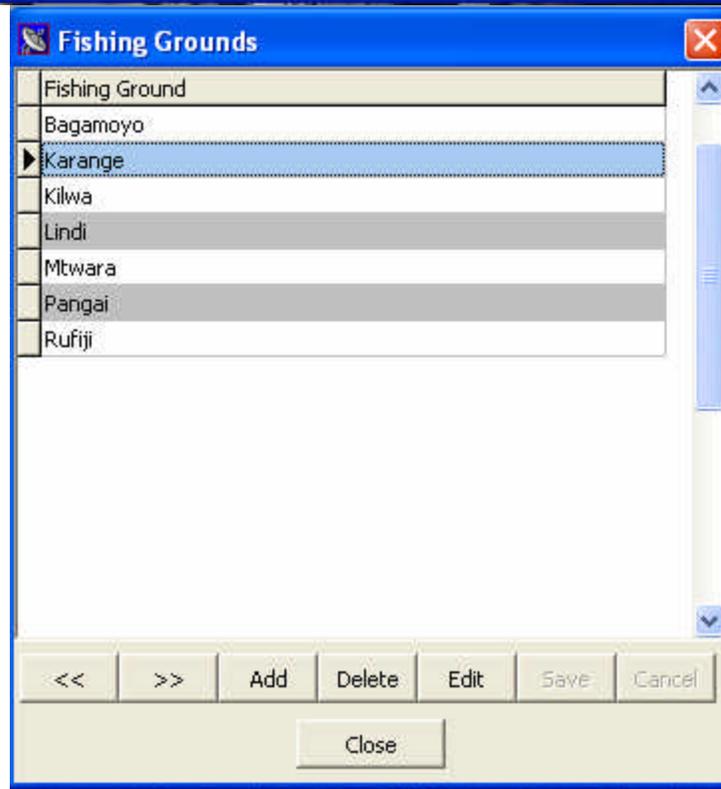
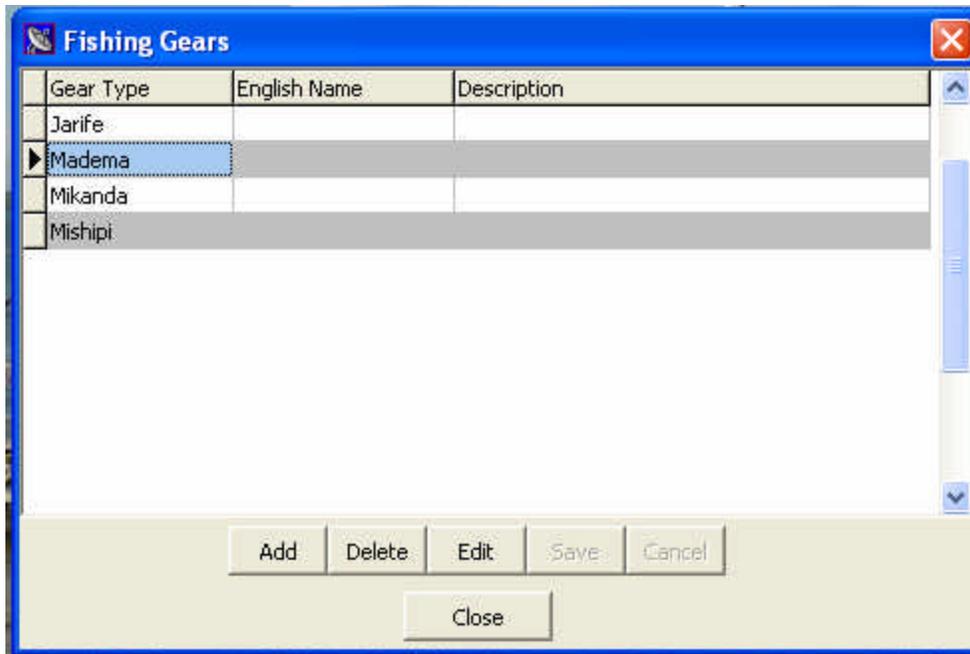
3.2.8 Fisheries

For data recorders settings go to **Settings > Fisheries** as illustrated below.

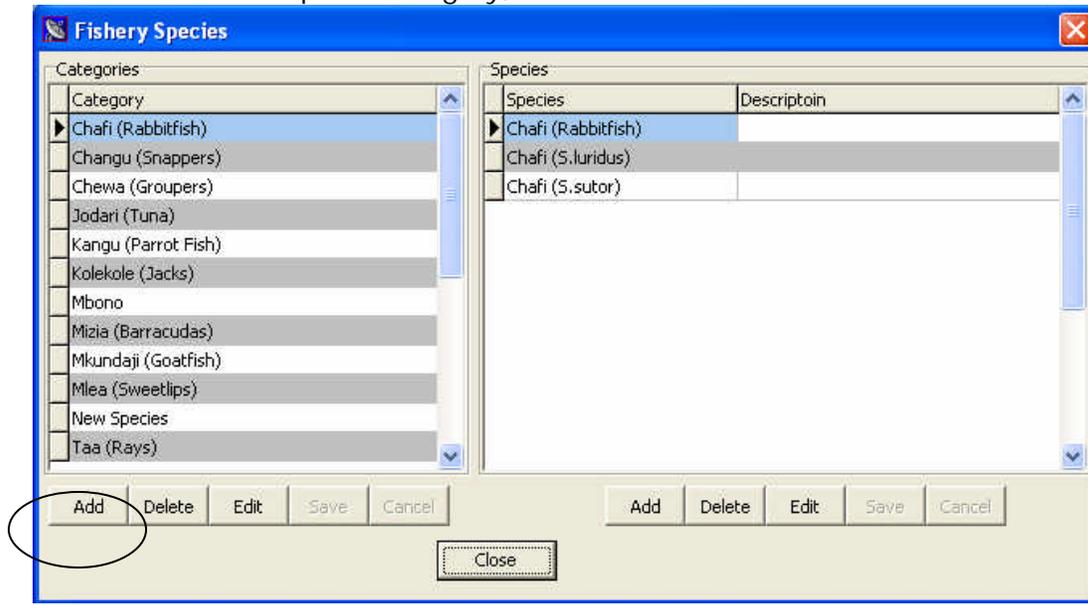


Depending on the selection you choose, the following forms will appear. The Boat types, Fishing Gears and Fishing ground forms can be modified simply by using the editing and navigation buttons as done previously

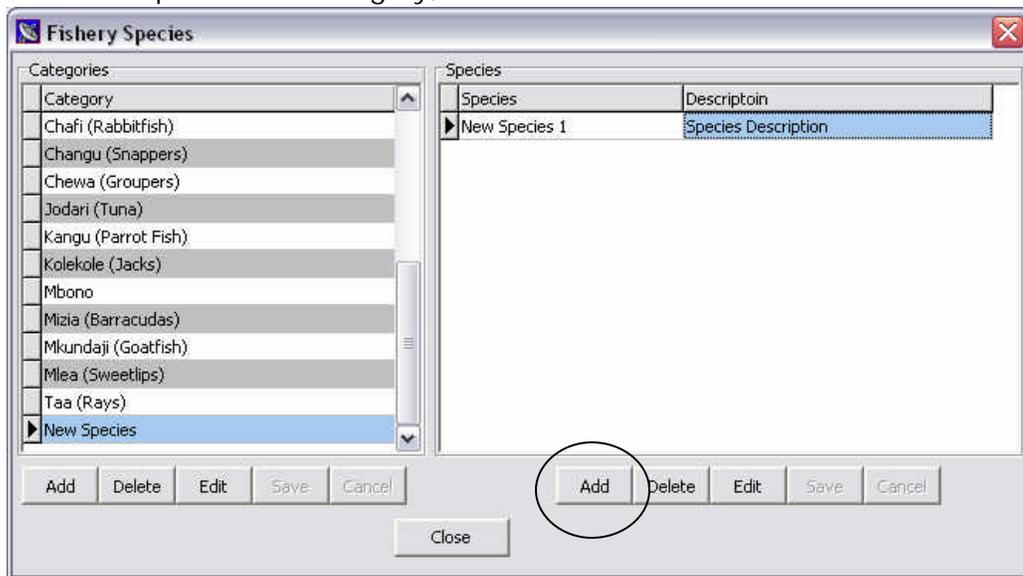




To enter new species category, click on the add button as shown below



To enter a new species for a category, click on the add button as shown below



4 Entering Data

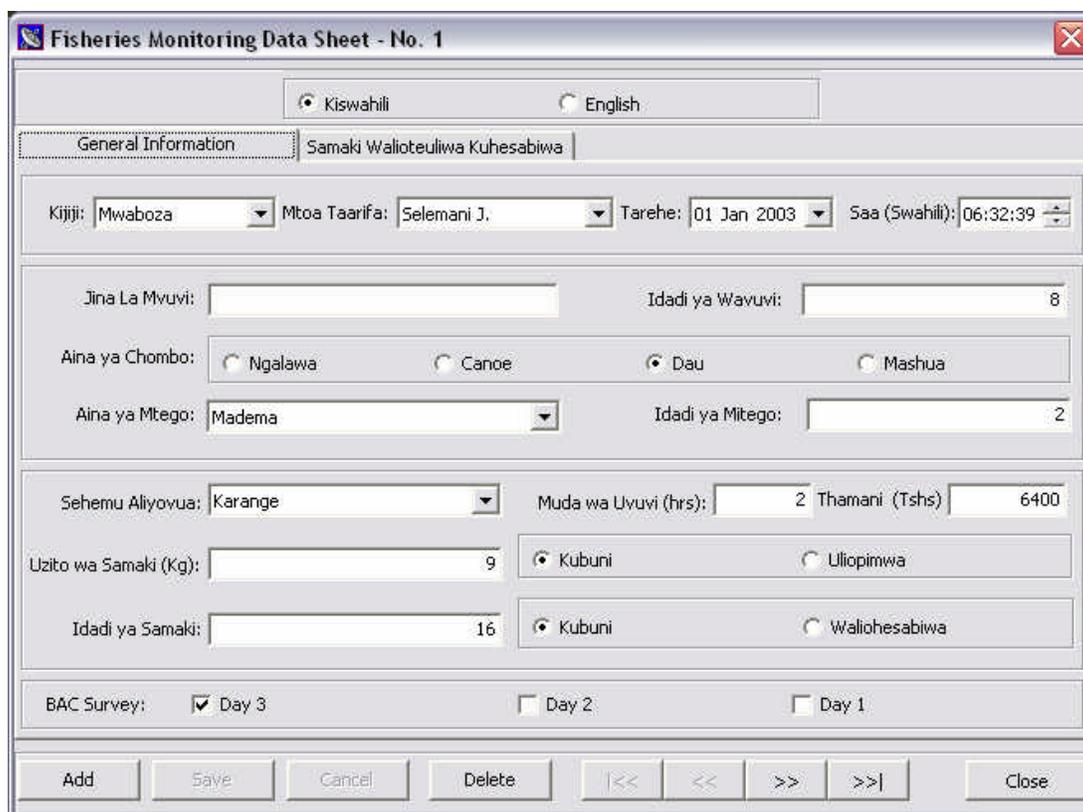
4.1 Fisheries Data

- To enter fish catch data, go to **Data > Fisheries** as shown below.



Alternatively you can click on the icon shown on the left.

- On the form, you can view/enter data either in **Kiswahili** or **English** as shown below

A screenshot of a software window titled 'Fisheries Monitoring Data Sheet - No. 1'. The window has a language selector at the top with 'Kiswahili' selected. Below that is a 'General Information' tab with the text 'Samaki Walioteuliwa Kuhesabiwa'. The form contains several input fields and dropdown menus: 'Kijiji' (Mwaboza), 'Mtoa Taarifa' (Selemani J.), 'Tarehe' (01 Jan 2003), 'Saa (Swahili)' (06:32:39), 'Jina La Mvuvi', 'Idadi ya Wavuvi' (8), 'Aina ya Chombo' (radio buttons for Ngalawa, Canoe, Dau, Mashua), 'Aina ya Mtego' (Madema), 'Idadi ya Mitego' (2), 'Sehemu Aliyoyua' (Karange), 'Muda wa Uvuvi (hrs)' (2), 'Thamani (Tshs)' (6400), 'Uzito wa Samaki (Kg)' (9), 'Idadi ya Samaki' (16), and 'BAC Survey' (radio buttons for Day 1, Day 2, Day 3). At the bottom, there are buttons for 'Add', 'Save', 'Cancel', 'Delete', navigation arrows, and 'Close'.

Note: The data in the diagram is sample data (You should fill in **using your own data**).

Entering Data

To enter data, click the **Add** button

- Select the **Village (Kijiji)**, **Recorder (Mtoa Taarifa)**, **Date (Tarehe)** and **Time (Saa)**.
- Enter the **Name of the Fisher (Jina la Mvuvi)** and the **Number of Crew (Idadi ya Wavivu)** in the respective fields.
- Select the **Type of Boat (Aina ya Chombo)**.
- Select the **Type of Gear (Aina ya Mtego)** and enter the **Number of Gears (Idadi ya Mitego)**.
- Select the **Fishing Ground (Sehemu Aliyovua)**, enter the **Hours Spent Fishing (Muda wa Uvuvi)** and the **Value of Fish (Thamani)**.
- Enter the **Weight (Uzito wa Samaki)** and **Number of Fish (Idadi ya Samaki)** respectively. Specify whether the weight was **Estimated (Kubuni)** or **Weighed (Uliopimwa)** and number of fish was **Estimated (Kubuni)** or **Actual (Waliohesabiwa)**.
- Select the appropriate **BAC Survey** days by clicking **Day 1**, **Day 2**, and/or **Day 3**.

Fisheries Monitoring Data Sheet - No. 1

Kiswahili English

General Information | **Sampled Fish**

Village: Recorder: Date: Time (Swahili):

Name of Fisher: Number of Crew:

Type of Boat: Ngalawa Canoe Dau Mashua

Type of Gear: Number of Gears:

Fishing Ground: Time Spent Fishing (hrs): Value (Tshs):

Weight of Fish (Kg): Estimated Weighed

Number of Fish: Estimated Actual Value

BAC Survey: Day 3 Day 2 Day 1

Add Save Cancel Delete |<< << >> >>| Close

- Click the **Samaki Walioteuliwa Kuhesabiwa (Sampled Fish)** tab and under it, fill in the required information for **Idadi (Pieces)** and **Uzito (Weight)**.

Fisheries Monitoring Data Sheet - No. 120

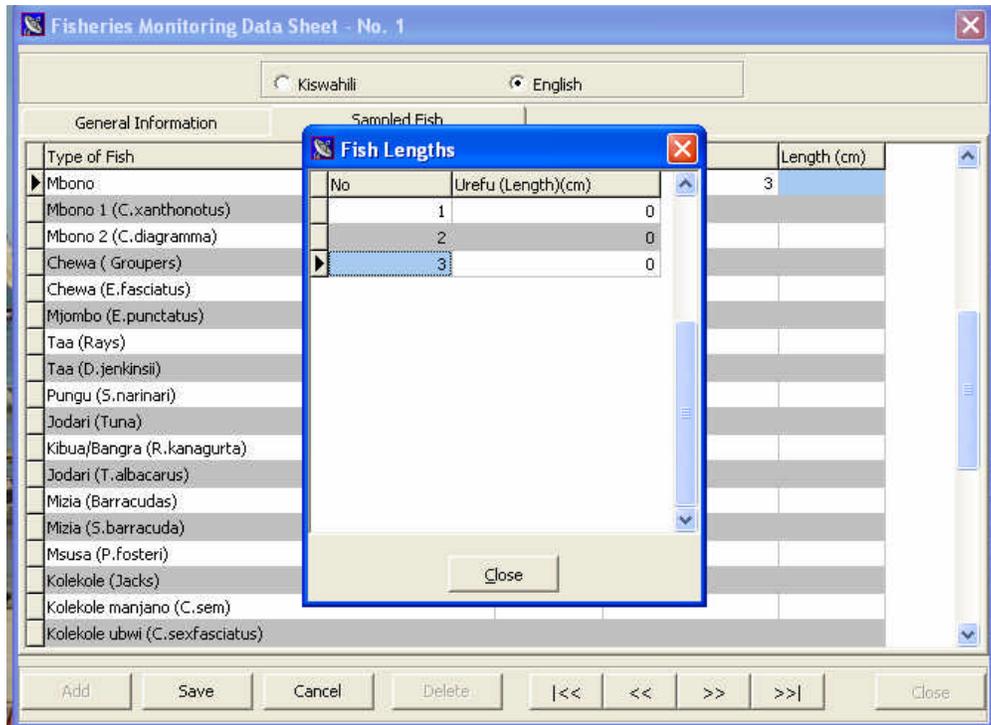
Kiswahili English

General Information | **Samaki Walioteuliwa Kuhesabiwa**

Aina ya Samaki	Idadi	Uzito (Kg)	Urefu (cm)
▶ New Species 1			
Changu (Snappers)			
Changu Doa (L. harak)			
Changu Njana (L. lentjan)			
Mkundaji (Goatfish)			
Mkundaji 1 (P. cinnabarinus)			
Mkundaji 2 (P. indicus)			
Chafi (Rabbitfish)			
Chafi (S. luridus)			
Chafi (S. sutor)			
Kangu (Parrot Fish)			
Kangu 1 (S. ghobban)			
Kangu 2 (H. harid)			
Mlea (Sweetlips)			
Mlea (P. gaterinus)			
Kohe (D. pictum)			
Mbono			
Mbono 1 (C. xanthonotus)			

Add Save Cancel Delete |<< << >> >>| Close

To enter the lengths of the individual fish, click inside the appropriate **Urefu (Length)** field box and another form will automatically appear with the numbered 1 to the number of fish you filled in the field **Pieces** as shown below.



Fill in the length(s) of each fish then click the **Close** buttons. The *Fish Catch Monitoring Data Sheet* will remain active. Click the **Save** button to save the changes.

4.2 Reef Data

4.2.1 Reef Fish Count

To go to the Reef Fish Count Form, go to **Data>Reef Monitoring> Reef Fish Count**



Reef Fish Count -Alternatively, click on the icon resembling the illustration on the left.

To add data to the form, do the following:

- Click on the **Add** button so that the form looks like the illustration below.

The screenshot shows a software window titled "Fish Count Form - No.". It has a "General" tab selected. The form includes fields for "Date:", "Mgt. Area:", and "Reef:". Below these are five "Recorder:" dropdown menus. A table with 6 columns (Line 1-6) is visible. At the bottom, there are buttons for "Add", "Save", "Cancel", "Print", "<<", "<", ">", ">>", and "Close". The "Add" button is circled in red.

- Choose the Date, Reef and Recorders as required. There can be up to ten recorders, so use the scroll bar to enable you to enter the remaining recorders if necessary. See illustration below.

The screenshot shows a software window titled "Fish Count Form". It has a "General" tab selected. The form includes fields for "Date:" (02 Feb 2005), "Mgt. Area:" (Dagupan - Bana), and "Reef:" (Chundoj Kroha). Below these are ten "Recorder:" dropdown menus. A table with 10 columns (Line 1-10) is visible. At the bottom, there are buttons for "Add", "Save", "Cancel", "Print", "<<", "<", ">", ">>", and "Close".

- Double-click inside the rectangle under 1 which is in the **Line** field as demonstrated below, to allow you to start keying in your data. A window will open allowing you to fill in the necessary information for all the lines and for each recorder. See illustration below.

Fish Count Form

General | Comments

Tarehe: 02 Feb 2005 (Date) Mgt. Area: Deepsea - Boma

Reef: Chundo/ Kiroba Status: Open

Mtoa Taarifa (Recorder): Jumaa Baile Selemani J. Onari Onari Tatiri

Line	1	2	3	4	5	6
▶ CHAFI	3	0	0	0	0	0
CHANGU	0	0	0	0	0	0
CHAZANDA	0	0	0	0	0	0
TEMBO	0	0	0	0	0	0
HARAKI	0	0	0	0	0	0
CHEWA	0	0	0	0	0	0
MLEYA	0	0	0	0	0	0
KITAMBA	0	0	0	0	0	0
KANGAJA	0	0	0	0	0	0
KIPEPEO	0	0	0	0	0	0
MBONO	0	0	0	0	0	0
MWASOYA	0	0	0	0	0	0
MKUNDAJI	0	0	0	0	0	0

Add Save Cancel Delete |<< << >> >>| Close

- Click **Save** or click on the comments tab to allow you to write any necessary comments before saving. An illustration of how the comment tab looks like is below.

Fish Count Form

General | Comments

Observations on dynamite blast spots (nos, levels of destruction, etc):

Observations on rubbish found within the closed reef (nets, nylon blags, etc.):

Add Save Cancel Delete |<< << >> >>| Close

4.2.2 Line Intersect Transect and Mobile Invertebrates Form

On the **Data** menu, click **Reef Monitoring** and then **LIT & Mobile Inverts** as shown below:



LIT & Mobile Inverts -Alternatively, click on the icon shown on the left.

The following form appears (sample data is shown here, the actual data may be different):

Line Intersect Transect & Mobile Invertebrates Form - No. 1

Date: 02 Aug 2004 Reef: Shenguwe
 Recorder: Selemani J. Management Area: Mtang'ata

LINE INTERSECT TRANSECT			SUMMARY		MOBILE INVERTEBRATES	
Line		Viumbe			Viumbe	Idadi
0	25	MK : Dead Coral	CA	43	BODO	30
25	58	CA : Coralline Algae	MH	274	JONGOO	46
58	135	MK : Dead Coral	MK	466	KAMBA	20
135	171	MH : Live Coral	ML	123	K'PWEZA	36
171	221	MK : Dead Coral	MN	91	MACHO	40
221	232	MH : Live Coral	SP	3	MAKOME	90
232	304	MN : Seaweed			MAWE	15
304	310	CA : Coralline Algae			MOTO	17
310	329	MN : Seaweed			NYALE	18
329	391	ML : Soft Coral			NYERA	22
391	423	MK : Dead Coral			PWEZA	9
423	442	MH : Live Coral			TAWANGWE	22
442	446	ML : Soft Coral				
			Total:	1000		

Buttons: Add, Save, Cancel, Delete, <<, >>, Close

To add new data:

- Click the **Add** button. The form now looks as shown below:

The screenshot shows a software window titled "Line Intersect Transect & Mobile Invertebrates Form - No.". The window contains several input fields and tables. At the top, there are dropdown menus for "Date:", "Recorder:", "Reef:", and "Management Area:". Below these are three main sections: "LINE INTERSECT TRANSECT" with columns "Line" and "Viumbe"; "SUMMARY" with a "Total:" field; and "MOBILE INVERTEBRATES" with columns "Viumbe" and "Idadi". At the bottom, there is a toolbar with buttons for "Add", "Save", "Cancel", "Delete", navigation arrows, and "Close".

- Select the **Date**, **Reef** and **recorder** as required. See illustration below.

The screenshot shows the same software window as above, but with data entered in the top fields. "Date:" is set to "18 Aug 2004", "Recorder:" is "Jumaa", "Reef:" is "Bunju", and "Management Area:" is "Boma - Mahandakini". The tables below are still empty.

- Click **Add** again to enter the Line Intersect Transect data (**Line** and **Viumbe**).

Line Intersect Transect & Mobile Invertebrates Form - No. 19

Date: 18 Aug 2004 Reef: Bunju
Recorder: Jumaa Management Area: Boma - Mahandakini

LINE INTERSECT TRANSECT		SUMMARY	MOBILE INVERTEBRATES
Line	Viumbe		Viumbe Idadi
0	15 MK : Dead Coral		BODO 0
* 15	63 OT : Others		JONGOO 0
			KAMBA 0
			K'PWEZA 0
			MACHO 0
			MAKOME 0
			MAWE 0
			MOTO 0
			NYALE 0
			NYERA 0
			PWEZA 0
			TAWANGWE 0

Total: _____

Add Save Cancel Delete |<< << >> >>| Close

- Add your data as shown in the example below. In the Line part enter the ranges of the distances. The first range will be from 0 to e.g. 15. The next line will be filled in with the first digit of the range for you and you fill in the ending part of the range as in the form from the field. Select the category (**viumbe**) as shown below:

Line Intersect Transect & Mobile Invertebrates Form - No. 19

Date: 18 Aug 2004 Reef: Bunju
Recorder: Jumaa Management Area: Boma - Mahandakini

LINE INTERSECT TRANSECT		SUMMARY	MOBILE INVERTEBRATES
Line	Viumbe		Viumbe Idadi
0	15 MK : Dead Coral		BODO 0
	CA : Coralline Algae		JONGOO 0
	MC : Sand		KAMBA 0
	MH : Live Coral		K'PWEZA 0
	MHM : Bleached Coral		MACHO 0
	MJ : Sea Grass		MAKOME 0
	MK : Dead Coral		MAWE 0
	MKK : Partly Dead Coral		MOTO 0
	ML : Soft Coral		NYALE 0
	MN : Seaweed		NYERA 0
	MW : Rock		PWEZA 0
	OT : Others		TAWANGWE 0
	RB : Rubble		
	SP : Sponges		

Total: _____

Add Save Cancel Delete |<< << >> >>| Close

- Click **Add** again to add more lines.
- To enter the mobile invertebrate counts, click under **idadi** for the desired **MOBILE INVERTEBRATES** and enter the number.

Line Intersect Transect & Mobile Invertebrates Form - No. 19

Date: 18 Aug 2004 Reef: Bunju
Recorder: Jumaa Management Area: Boma - Mahandakini

LINE INTERSECT TRANSECT		SUMMARY	MOBILE INVERTEBRATES
Line	Viumbe		Viumbe Idadi
0	15 MK : Dead Coral		BODO 2
			JONGOO 0
			KAMBA 16
			K'PWEZA 0
			MACHO 9
			MAKOME 0
			MAWE 0
			MOTO 0
			NYALE 0
			NYERA 0
			PWEZA 0
			TAWANGWE 0
		Total:	

Add Save Cancel Delete |<< << >> >>| Close

- After entering all the details, click **Save** to save and view a summary as well as the total that will be seen under the **SUMMARY** title. See example below.

Line Intersect Transect & Mobile Invertebrates Form - No. 20

Date: 23 Aug 2005 Reef: Bunju
Recorder: Jumaa Management Area: Boma - Mahandakini

LINE INTERSECT TRANSECT		SUMMARY	MOBILE INVERTEBRATES
Line	Viumbe		Viumbe Idadi
0	15 ML : Soft Coral	ML 15	BODO 0
15	63 MW : Rock	MW 156	JONGOO 0
63	90 SP : Sponges	SP 27	KAMBA 0
90	198 MW : Rock		K'PWEZA 0
		Total: 198	MACHO 0
			MAKOME 0
			MAWE 0
			MOTO 0
			NYALE 0
			NYERA 0
			PWEZA 0
			TAWANGWE 0

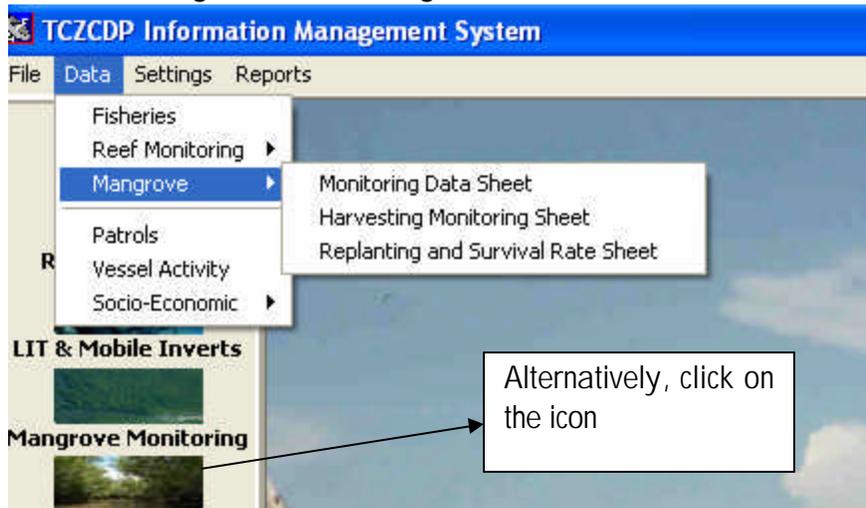
Add Save Cancel Delete |<< << >> >>| Close

4.3 Mangrove Data

4.3.1 Mangrove Monitoring Data Sheet

To enter data in the Mangrove Monitoring Data Sheet, do as follows;

- Go to **Data>Mangrove>Monitoring Data Sheet** as illustrated below.



- Wait for a window to appear as the one below and click the **Add** button.

The screenshot shows the 'Mangrove Monitoring Data Sheet - No.' window. It contains several input fields for data entry: Date, Village (Kijiji), Site No., GPS Reading beginning transect, Longitude, Latitude, and Compass Direction of Transect. Below these fields is a table with the following structure:

Plot	Species	Mature Category/Stump	No	Notes
(Shamba)	(Aina ya Mikoko)	(Kiwango cha Ukuaji/Ukatwaji)	(Idadi)	(Maelezo)

At the bottom of the window, there are buttons for 'Add', 'Save', 'Cancel', 'Delete', navigation arrows, and 'Close'.

- Choose the date from the **Tarehe(Date)** field, Village from the **Kijiji(Village)** field and enter the required Longitude, Latitude and Compass Direction of Transect in the **Longitude**, **Latitude** and **Compass Direction of Transect** fields respectively as shown below and then click the **Add** button to enter the remaining data in the grid that will become active after the click of the button.

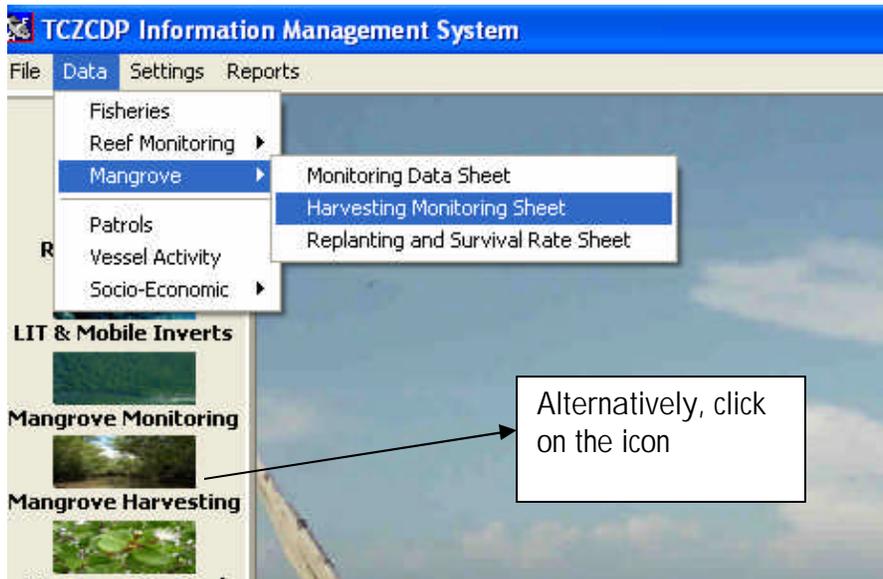
- Type in the Plot name in the **Plot(Shamba)** field. Choose a species from the **Species(Aina ya Mikoko)** field
- Choose the Mature Category/Stump from the Category/Stump (Kiwango cha Ukuaji/Ukatwaji), type in the number in the **No(Idadi)** field and type in any necessary notes in the **Notes(Maelezo)** field and click **Save**.

- Click **Add** if you want to put in some more information in the grid and repeat the previous process. Do not forget to save by clicking on the **Save** button.

4.3.2 Mangrove Harvesting Monitoring Sheet

To enter data in the Mangrove Harvesting Monitoring Sheet, do as follows;

- On the **Data** menu, select **Mangrove** and then **Harvesting Monitoring Sheet** as illustrated below



The following form appears.

The screenshot shows the 'Ufuatiliaji wa Uvunaji (Mangrove Harvesting Monitoring Sheet) - No.' form. It includes the following fields and controls:

- Muda wa kutoa taarifa (Reporting Period):** Kutoka (From): [dropdown], Hadi (To): [dropdown]
- Eneo la Msitu (Site):** [text field]
- Kijiji (Village):** [dropdown]
- Wilaya (District):** [text field]
- Mkusanyaji Takwimu (Rapporteur):** [dropdown]

Tarehe	Eneo Aliyov...	Jina la Mwombaji	Aina Aliyovuna	Kiwango cha Ukuaji	Idadi Aliyov...	Thamani	Maoni
(Date)	(Area of Harvest)	(Name of Harvester)	(Species Harvested)	(Mature Category)	(No. Harvested)	(Total Value)	(Remarks)

Buttons: Add, Save, Cancel, Delete, <<, >>, Close

- Choose the from date from the **Kutoka(From)** field, the to date from the **Hadi(To)** field, enter the required site name from **Eneo la Msitu(Site)** field, Choose the village from the **Kijiji(Village)** field, and the reporter from the **Mkusanyaji Takwimu(Rapporteur)** field as shown in the illustration. Click the **Add** button to enter the remaining data in the grid that will become active after the click of the button.

Ufuatiliaji wa Uvunaji (Mangrove Harvesting Monitoring Sheet) - No.

Muda wa kutoa taarifa (Reporting Period)

Kutoka (From): Hadi (To):

Eneo la Msitu (Site): Kijiji (Village): Wilaya (District):

Mkusanyaji Takwimu (Rapporteur):

Tarehe	Eneo Alilov...	Jina la Mwombaji	Aina Aliyovuna	Kiwango cha Ukuaji	Idadi Aliyov...	Thamani	Maoni
(Date)	(Area of Harves...	(Name of Harvester)	(Species Harvested)	(Mature Category)	(No. Harvested)	(Total Value)	(Remarks)

- Type in the date in the **Tarehe(Date)** field, area of harvest in the **Eneo Alilovuna(Area of Harvest)** field, name of harvester in the **Jina la Mwombaji(Name of Harvester)** field. Choose the species from the given list in the **Aina Aliyovuna(Species Harvested)** field. Type in the mature category in the **Kiwango cha Ukuaji(Mature Category)** field, the number harvested in the **Idadi Aliyovuna(No. Harvested)** field, the total value in the **Thamani(Total Value)** field, and Remarks in the **Maoni(Remarks)** field.

Ufuatiliaji wa Uvunaji (Mangrove Harvesting Monitoring Sheet) - No. 577

Muda wa kutoa taarifa (Reporting Period)

Kutoka (From): Hadi (To):

Eneo la Msitu (Site): Kijiji (Village): Wilaya (District):

Mkusanyaji Takwimu (Rapporteur):

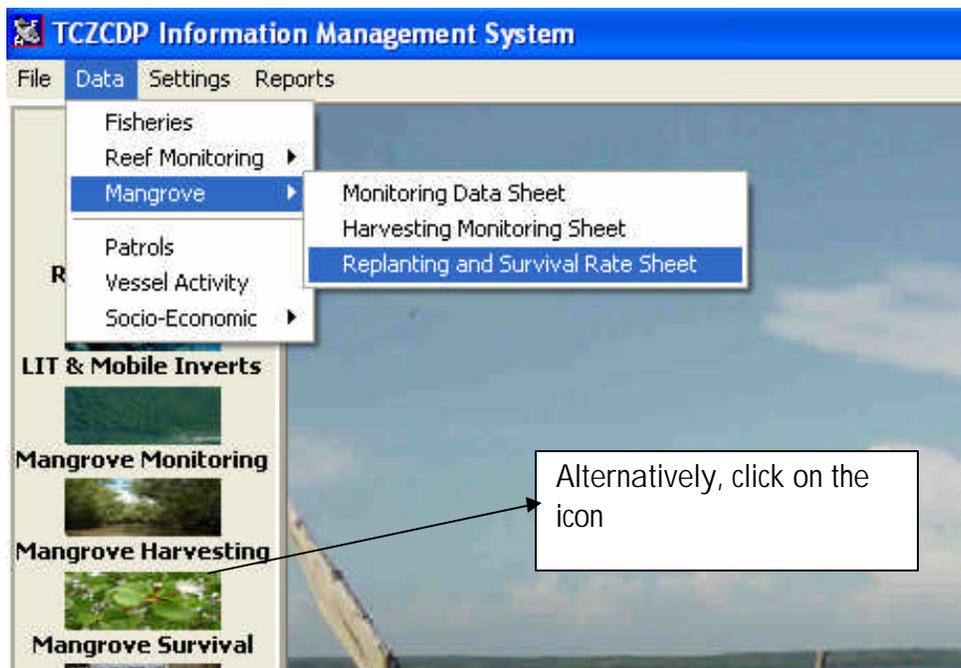
Tarehe	Eneo Alilov...	Jina la Mwombaji	Aina Aliyovuna	Kiwango cha Ukuaji	Idadi Aliyov...	Thamani	Maoni
(Date)	(Area of Harves...	(Name of Harvester)	(Species Harvested)	(Mature Category)	(No. Harvested)	(Total Value)	(Remarks)
* 05 Jun 05	Area 1	Mvunaji	Rhizophora mucronata (Mki Tree (Mti mkubwa))		15	3600	Thamani ndogo

- Click **Add** if you want to put in some more information in the grid and repeat the previous process. Do not forget to save by clicking on the **Save** button.

4.3.3 Replanting and Survival Rate Sheet

To enter data in the **Replanting and Survival Rate Sheet**, do as follows;

- Go to **Data>Mangrove> Replanting and Survival Rate Sheet** as illustrated below.



Wait for a window to appear as the one below and click the **Add** button

Tarehe	Eneo	Mchali	Tarehe ya...	Idadi	Aina Iliyopandwa	Eneo Ilyo...	Iliyopanda	%	Mambi
Date	Block	Location	Date of Planting	No. Planted	Species Planted	Area Planted	No. Survived	%	Remarks

- Choose the from date from the **Kutoka(From)** field, the to date from the **Hadi(To)** field, enter the required site name from **Eneo la Msitu(Site)** field, Choose the village from the **Kijiji(Village)** field, and the reporter from the **Mkusanyaji Takwimu(Rapporteur)** field as shown in the illustration below. Click the **Add** button to enter the remaining data in the grid that will become active after the click of the button.

Ufuatiliaji wa Miche Iliyopandwa (Mangrove Replanting and Survival Rate Monitoring Sheet) - No. 575

Muda wa Kutoa Taarifa (Reporting Period)
 Kutoka (From): 13 Feb 2005 Hadi (To): 18 May 2005

Eneo la Msitu (Site): Site 1 Kijiji (Village): Boza Wilaya (District): Pangani

Mkusanyaji Takwimu (Rapporteur): Jumaa

Tarehe	Block	Mahali	Tarehe ya ...	Idadi	Aina Iliyopandwa	Eneo Iliyo...	Iliyopona	Maoni	
Date	Block	Location	Date of Planting	No. Planted	Species Planted	Area Planted	No. Survived	%	Remarks
* / /								0.0	

Buttons: Add, Save, Cancel, Delete, |<< << >> >>|, Close

- Type in the date in the **Tarehe(Date)** field, block in the **Block(Block)** field, location in the **Mahali(Location)** field, planting date in the **Tarehe ya Kupanda(Date of Planting)** field, number planted in the **Idadi(No. Planted)** field. Choose the species from the **Aina Iliyopandwa(Species Planted)** field. Type in the area planted in the **Eneo Iliyopandwa(Area Planted)** field, the number survived in the **Iliyopona(No. Survived)** field, the percentage will automatically be calculated and placed in the **%(%)** field, finally type any remarks in the **Maoni(Remarks)** field.

Ufuatiliaji wa Miche Iliyopandwa (Mangrove Replanting and Survival Rate Monitoring Sheet) - No. 575

Muda wa Kutoa Taarifa (Reporting Period)
 Kutoka (From): 13 Feb 2005 Hadi (To): 18 May 2005

Eneo la Msitu (Site): Site 1 Kijiji (Village): Boza Wilaya (District): Pangani

Mkusanyaji Takwimu (Rapporteur): Jumaa

Tarehe	Block	Mahali	Tarehe ya ...	Idadi	Aina Iliyopandwa	Eneo Iliyo...	Iliyopona	Maoni	
Date	Block	Location	Date of Planting	No. Planted	Species Planted	Area Planted	No. Survived	%	Remarks
* 10 May 05	Block 1	Location 1	10/01/2005	19	Rhizophora mucronata	120	14	73.7	

Buttons: Add, Save, Cancel, Delete, |<< << >> >>|, Close

- Click **Add** to enter more information in the grid and repeat the previous process. Do not forget to save by clicking on the **Save** button.

4.4 Patrol Data

To go to the Patrol Data Form, go to **Data>Patrols**



To insert data using the form that will appear, do the following:

- Click on the Add button. See picture below.

Taarifa ya Doria (Enforcement / Patrol) - No.

Tarehe (Date): 01 Apr 2005

Kuondoka (Departure): 08:44:26

Kurudi (Return): 03:15:33

Washiriki (Participants):

Maoni (Comments):

Mtoa Taarifa (Reporter):

Fisheries Mangrove

Mahali	Muda	Kipimo Kij...	Chombo...	Jina la Chombo	Jina la Mweny...	Uhalifu	Hatua Zilizoch...
(Area)	(Time - Swahili)	(GPS Position)	(Vessel No)	(Vessel Name)	(Vessel Owner)	(Offence)	(Action Taken)

Add Save Cancel Delete |<< << >> >>| Close

- Enter the date, departure time, return time, participants, and comments (if any), as well as the reporter in the appropriate field boxes before ticking the necessary CMA (locations) on the upper right side of the form.
- Select the patrol type from the two choices of patrol types given, namely **Fisheries** and **Mangrove**.

Fisheries Option

Assuming Fisheries is the option chosen;

- In the grid will appear different data entry fields namely **Area, Time, GPS Position, Vessel Number, Vessel Name, Vessel Owner, Offence** and **Action Taken**. Enter the data in the required fields by either typing or selecting from the combo boxes. See illustration below.

Taarifa ya Doria (Enforcement / Patrol) - No. 981

Tarehe (Date): 01 Apr 2005 Boma - Mahandakini Mwarongo - Sahare Boza - Sange
 Kuondoka (Departure): 08:44:26 Deepsea - Boma Mtang'ata Mkwaja - Sange
 Kurudi (Return): 03:15:33
 Washiriki (Participants): Steve
 Maoni (Comments): None
 Mtoa Taarifa (Reporter): Me Fisheries Mangrove

Mahali	Muda	Kipimo Kij...	Chombo...	Jina la Chombo	Jina la Mweny...	Uhalifu	Hatua Zilizoch...
(Area)	(Time - Swahili)	(GPS Position)	(Vessel No)	(Vessel Name)	(Vessel Owner)	(Offence)	(Action Taken)
▶ Chundo/ Kiroba	2pm	1	1	Vessel 1	Me	Dynamite Fishing	Forgiven

Buttons: Add, Save, Cancel, Delete, |<< << >> >>|, Close

- If more data need to be added into the grid, click the **Add** button and repeat the previous process. When finished, save by clicking on the **Save** button.

Mangrove Option

Assuming Mangrove is the option chosen;

- In the grid will appear different data entry fields namely **Area**, **Time**, **No of Trees**, **Mature Category**, **Weapon**, **Offender**, **Species Name** and **Action Taken**. Enter the data in the required fields by either typing or selecting from the combo boxes. See illustration below.

Taarifa ya Doria (Enforcement / Patrol) - No. 981

Tarehe (Date): 01 Apr 2005 Boma - Mahandakini Mwarongo - Sahare Boza - Sange

Kuondoka (Departure): 08:44:26 Deepsea - Boma Mtang'ata Mkwaja - Sange

Kurudi (Return): 03:15:33

Washiriki (Participants): Steve

Maoni (Comments): None

Mtoa Taarifa (Reporter): Me Fisheries Mangrove

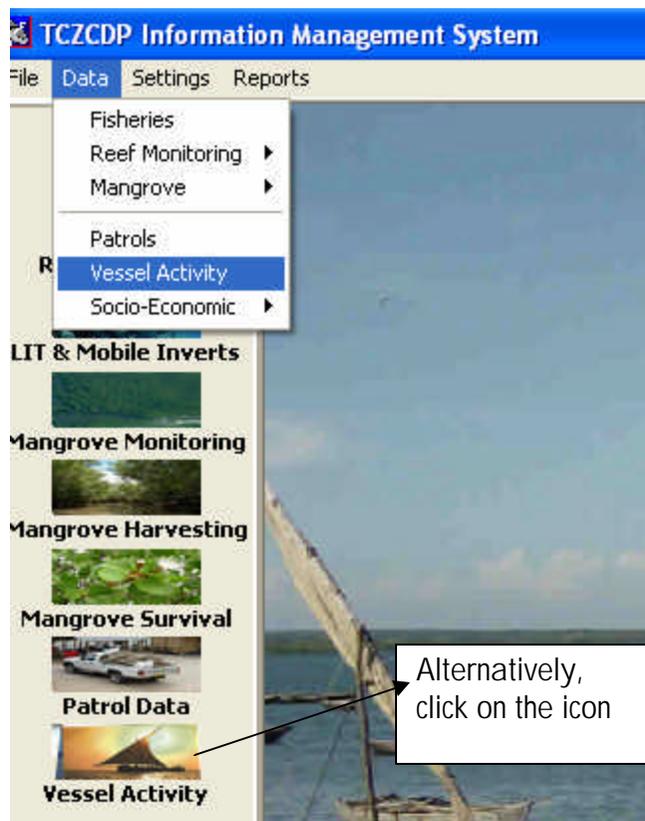
Mahali	Muda	Idadi ya ...	Kiwango cha U...	Zana	Mhalifu	Aina ya Mikoko	Hatua Zilizochuku...
(Area)	(Time - Swahili)	(No of Trees)	Mature Category	(Weapon)	(Offender)	(Species Name)	(Action Taken)
*Kigombe	3pm	2	Seedling	Gun	Johni	Avicennia marina	Forgiven

Add Save Cancel Delete |<< << >> >>| Close

- If more data need to be added into the grid, click the **Add** button and repeat the previous process. When finished, save by clicking on the **Save** button.

4.5 Vessel Activity

To go to the Vessel Activity Form, go to **Data>Vessel Activity**



The following form appears:

The screenshot shows the 'Vessel Activity Data Sheet - No.' form. It features three dropdown menus at the top for 'Kijiji', 'Mwezi' (set to 'Jan'), and 'Mwaka'. Below these is a table with the following headers: 'Msafara', 'Aina ya Chombo', 'Aina ya Zana', '(Siku) Chombo Hakivui', and 'Maoni'. The 'Add' button at the bottom left is circled, and a callout box with an arrow points to it, stating: 'To insert data, click on the Add button'.

Msafara	Aina ya Chombo	Aina ya Zana	(Siku) Chombo Hakivui	Maoni

- Choose the appropriate Village, Month and Year from their combo boxes as shown in the example below.

- Click inside the grid below and enter the Number, Vessel Type, Gear Type and Days of Uniform Inactivity and type any necessary remarks. See example below.

Msafara (No)	Aina ya Chombo (Vessel Type)	Aina ya Zana (Gear Type)	Days of Uniform Inactivity	Remarks
1	Mashua	Mikanda	15	
2	Dau	Mishipi	36	

- If you want to insert more data inside the grid, click **Add** again and repeat the previous step. When you finish, save your data by clicking on the **Save** button.

4.6 Socio-Economic

To Access the Socio-Economic forms from the database click on Data -> Socio-Economic and a submenu containing links to all available socio-economic forms will drop down. Clicking on any of those sub-menu items will open the relevant forms. Data entry is similar to all other forms.

*** Please note – As the socio-economic monitoring programme had not been fully developed at the time this database was designed, no reports have been created. Consequently, it is highly recommended that this component of the database is not used until reports have been designed and the database adapted accordingly.*

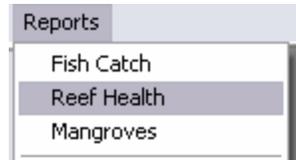


5 Reports

5.1 Accessing Reports

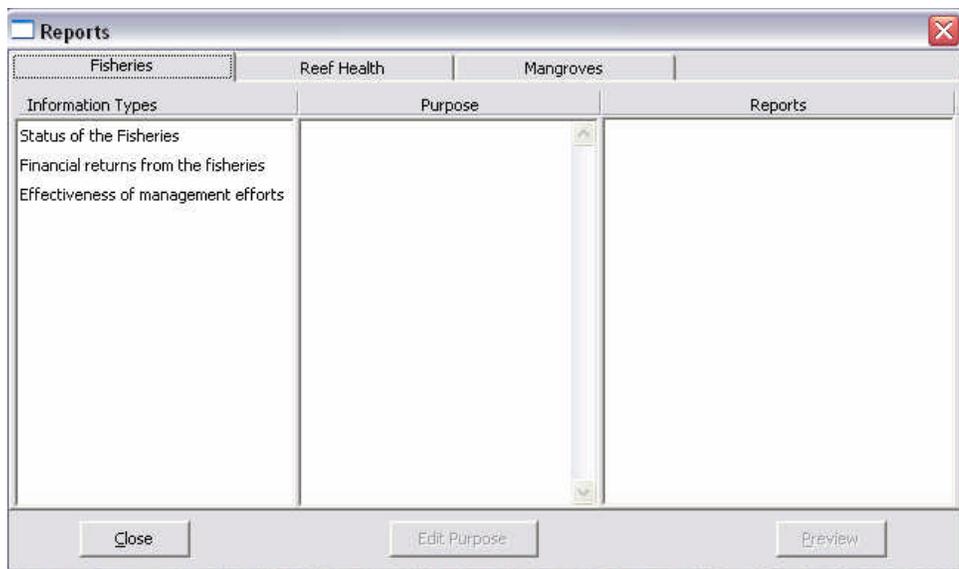
The TCZCDP database contains 3 main categories of reports. These are fish catch, reef health and mangrove reports. To access the reports:

Click the **Reports** menu and select the category of report you want



Depending on the category you highlighted, one of the following screens appears:

(a) Fisheries



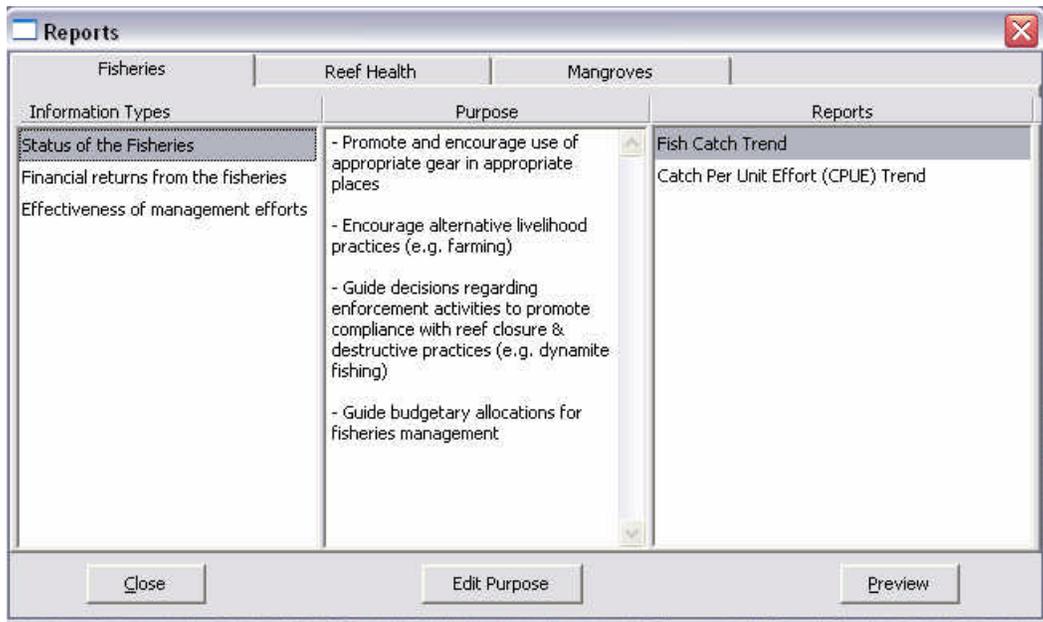
(b) Reef Health

The screenshot shows a software window titled "Reports" with a close button in the top right corner. The window has three tabs: "Fisheries", "Reef Health" (which is selected), and "Mangroves". Below the tabs, there are three columns: "Information Types", "Purpose", and "Reports". The "Information Types" column contains the text "Status of the Reefs" and "Effectiveness of management efforts". The "Purpose" and "Reports" columns are currently empty. At the bottom of the window, there are three buttons: "Close", "Edit Purpose", and "Preview".

(c) Mangroves

The screenshot shows a software window titled "Reports" with a close button in the top right corner. The window has three tabs: "Fisheries", "Reef Health", and "Mangroves" (which is selected). Below the tabs, there are three columns: "Information Types", "Purpose", and "Reports". The "Information Types" column contains the text "Status of mangroves", "Mangrove Harvesting - Use", "Effectiveness of land patrols", and "Effectiveness of planting efforts". The "Purpose" and "Reports" columns are currently empty. At the bottom of the window, there are three buttons: "Close", "Edit Purpose", and "Preview".

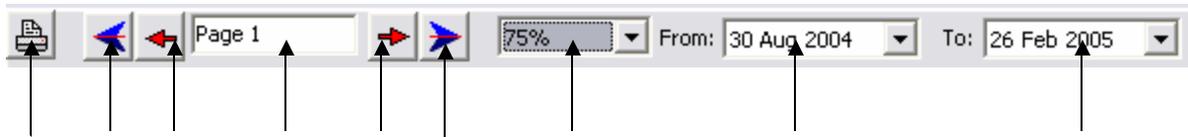
Select the category under **Information Types**. The **Purpose** is automatically filled in and the reports available under that category are also listed under **Reports** as shown below:



Select the relevant report under Reports and click the **Preview button** (or double-click the report name).

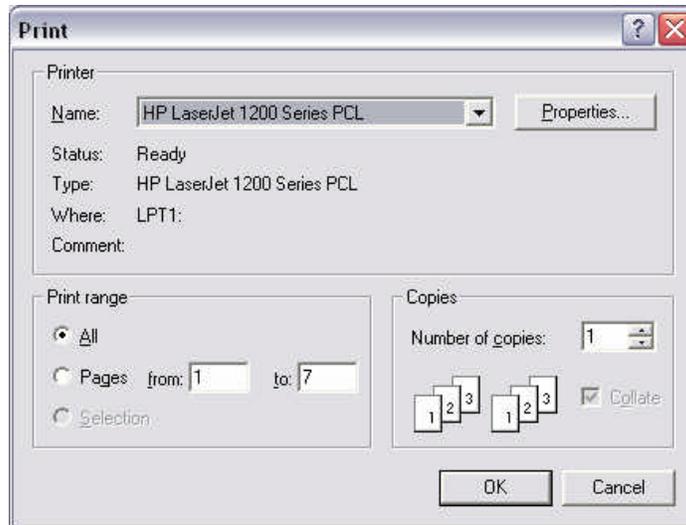
5.2 Report Navigation

All reports have the following buttons for navigating:



Each of the above buttons is explained below:

1 – Print button. The button enables you to send the current report to the printer. When clicked, the following dialog appears:



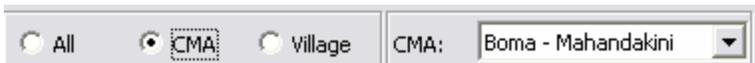
- 2 – First button. Enables you to navigate to the first page of the report
- 3 – Previous. Navigates to the previous page of the report
- 4 – Current page. Shows the currently selected page in the report.
- 5 – Next. Navigates to the next page of the report.
- 6 – Last. Navigates to the last page of the report.
- 7 – Zoom. You can "zoom in" to get a close-up view of your document or "zoom out" to see more of the page at a reduced size.
- 8 and 9 – Enable you to select the range of dates for which you want the report generated.

5.3 Report Level

A report can be generated for region, CMA or village. To determine the level of detail, select the option you want as shown below:



When you select CMA, the following option appears:



When you selected Village, the following option appears:



5.4 Report Manipulation

Each report has the following set of buttons for manipulating it:



Create Report enables you to generate the report according to the options specified (e.g. date range, CMA, etc)

- **Comments** enables you to add comments to the report and change its title
- **Save Report** enables you to save the report for future reference.
- **Copy Chart** enables you to copy the chart generated to other applications e.g. Microsoft Word.
- **Close** enables you to close the report.

Some of these buttons appear disabled initially as shown below:



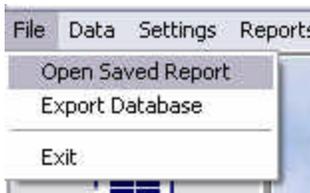
The **Comments** and **Copy Chart** buttons become active after you click Create Report to generate a report.

The **Save Report** button becomes active after you have added comments to your report.

5.5 Opening a Previously Saved Report

There are two ways to open a previously saved report.

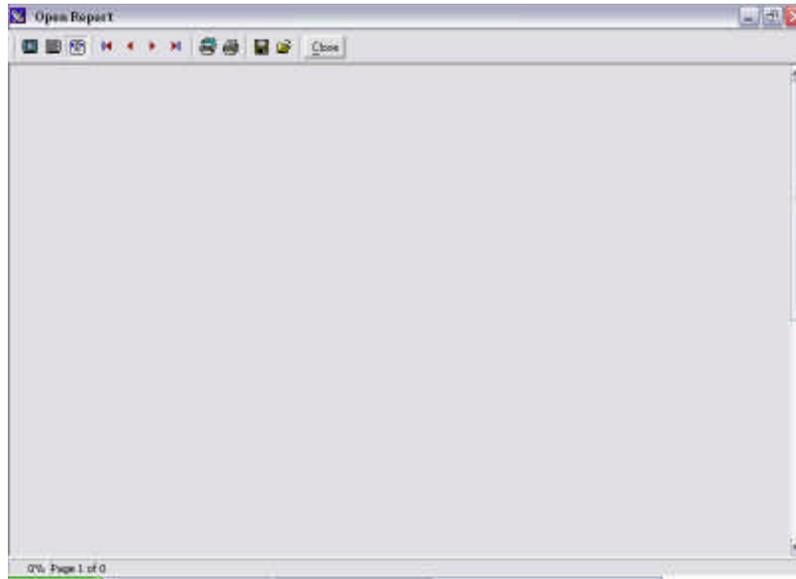
1. Click the **File** menu and select **Open Saved Report** as shown below:



2. Click the **Reports** menu and select **Open Saved Report** as shown below:



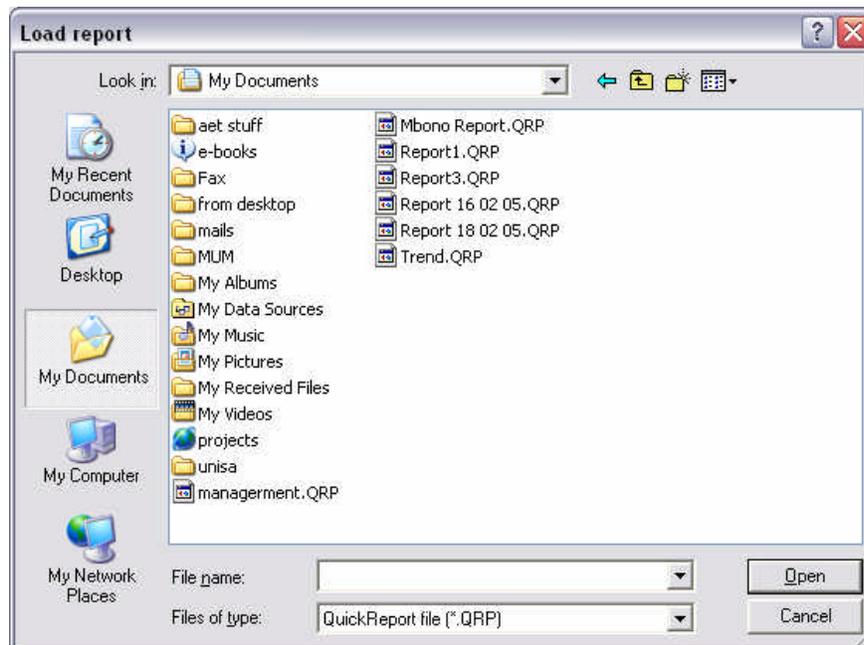
The following form appears:



Click the **Open Report** button as shown below:



The following dialog appears:



Select the report you want to open and click **Open** button.

5.6 Exporting Queries to Excel

The InfoDbase has a number of queries that can be exported to Microsoft Excel for further analysis.

To export a query to excel, click the **Reports** menu and select **Export to Excel** as shown below:

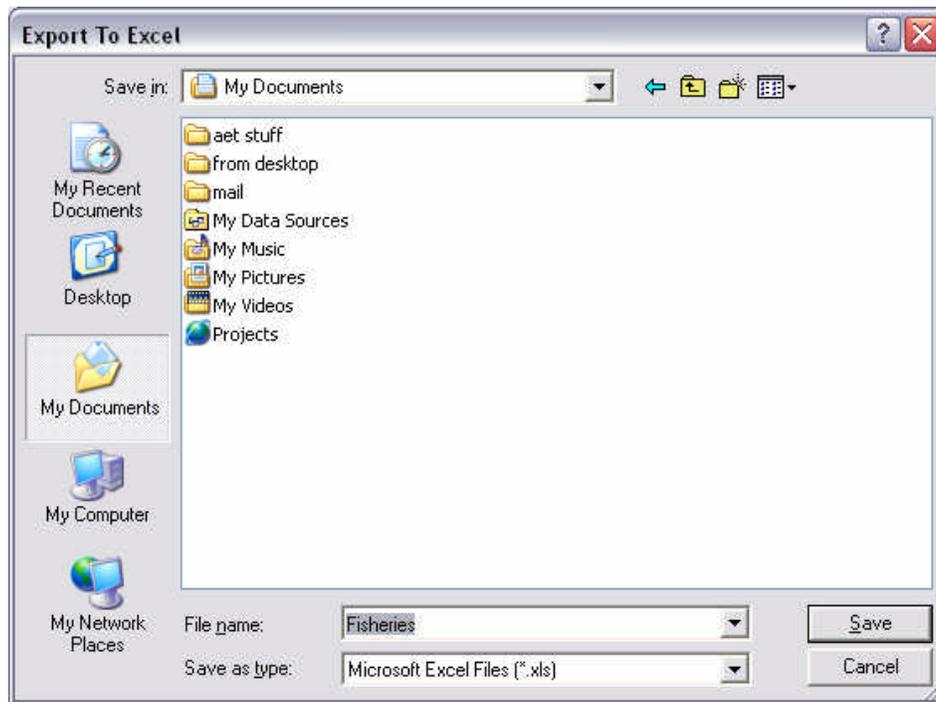


The following dialog box appears



Select the range of dates and the query you want to export to Excel and click **Export** button (or double-click the report name).

The following dialog box appears



Type in the name of the file that you want to save the query to and click **Save**. The query is automatically saved and opened in Microsoft Excel as shown below:

Microsoft Excel - Fisheries

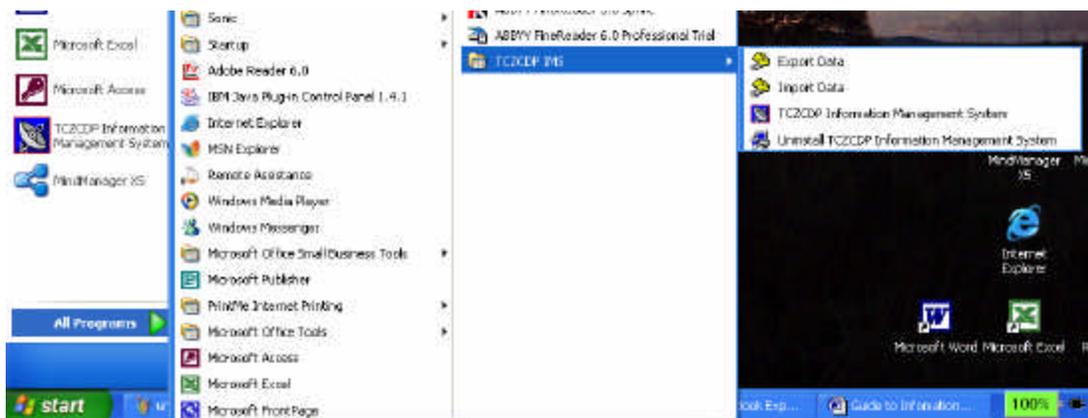
Record No	CMA	Village	Data Recorder	Date	Month	Year	Time (Swahi)
1	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
2	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
3	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
4	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
5	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
6	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
7	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
8	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
9	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
10	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
11	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
12	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
13	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
14	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
15	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
16	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
17	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19
18	Boma - Mahandakini	Mwaboza	Selemani J.	01/01/2003	1	2003	00/01/19

6 Importing and Exporting Data

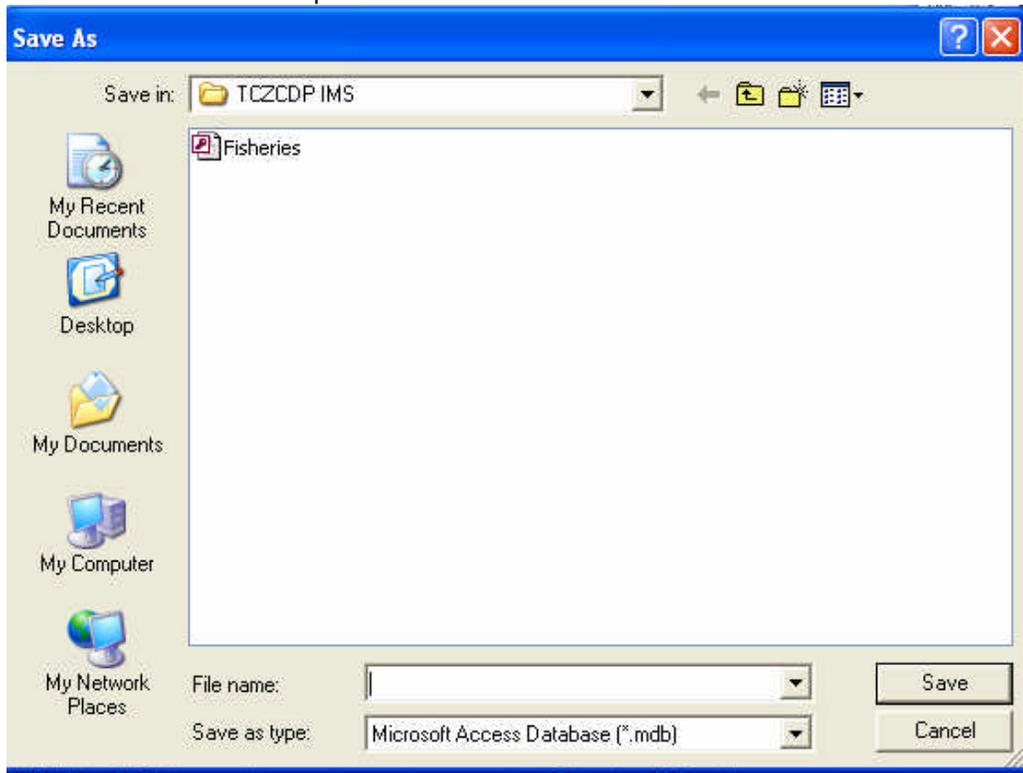
6.1 Exporting Data

The export facility of InfoDBase enables the user to back up or achive the data and to transport the data to the Regional office so that it can be imported into the regional InfoDBase (see 6.2).

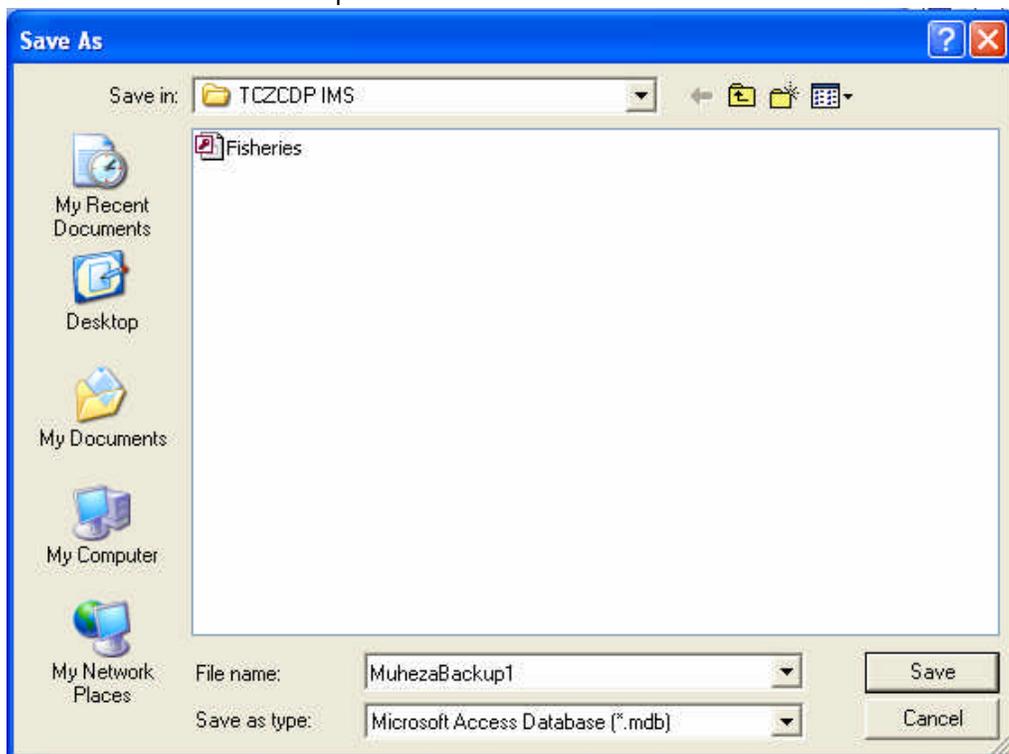
To export data from the InfoDBase - go to Start, TCZCDP MIS, Export Data:



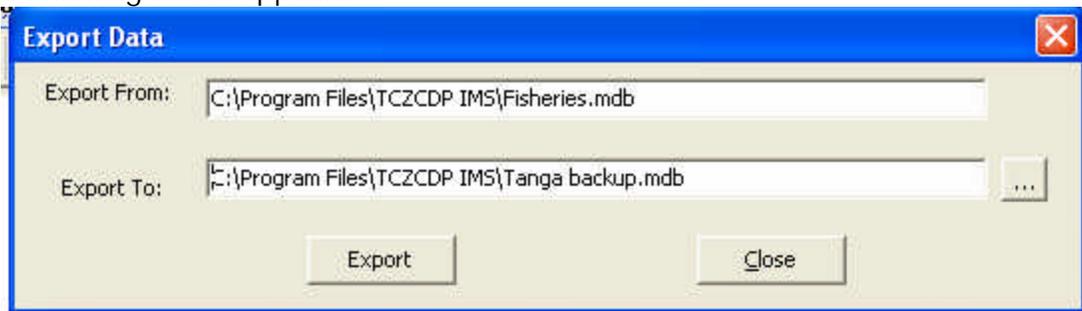
Click on the button next to Export To



Enter the name of the file to export data to and click **Save**.



The following screen appears:

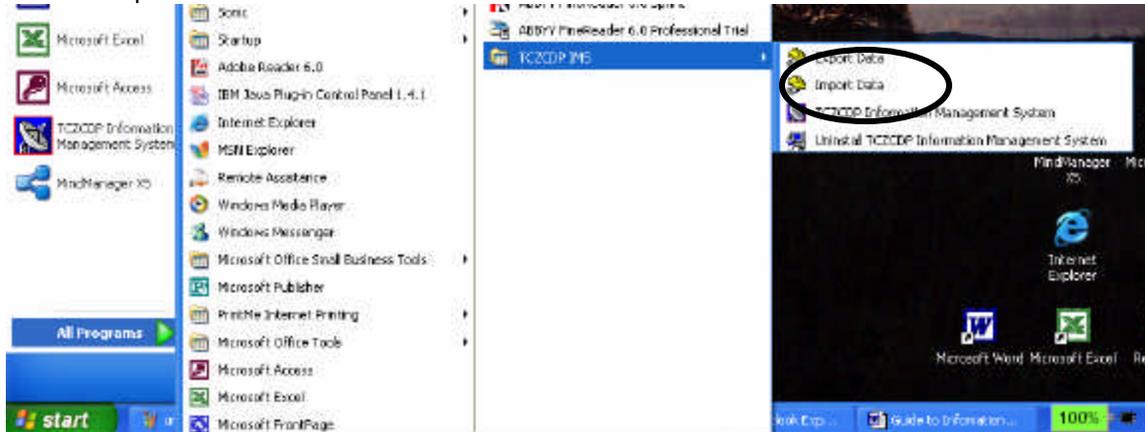


Click **Export** button

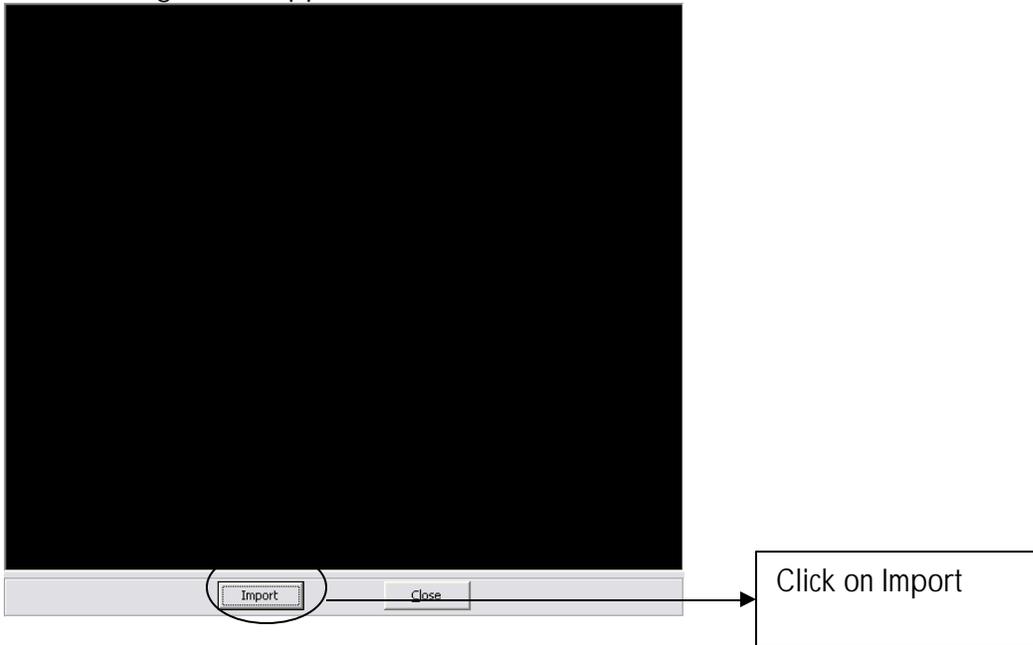


6.2 Importing Data

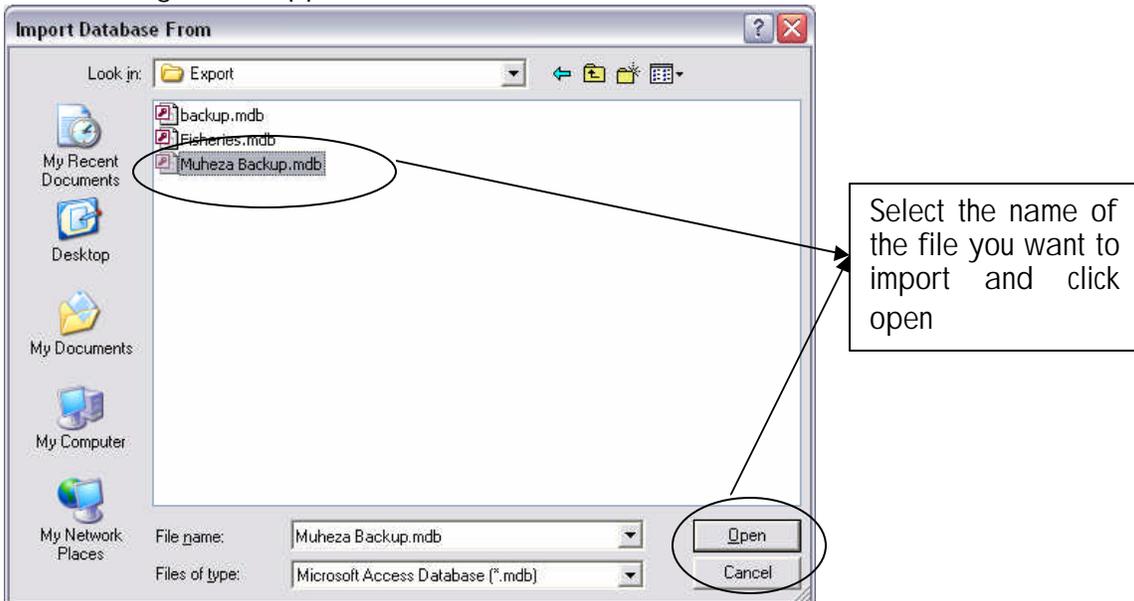
To import data, first close the InfoDbase application, then go to Start, TCZCDP MIS, and click on Import Data:



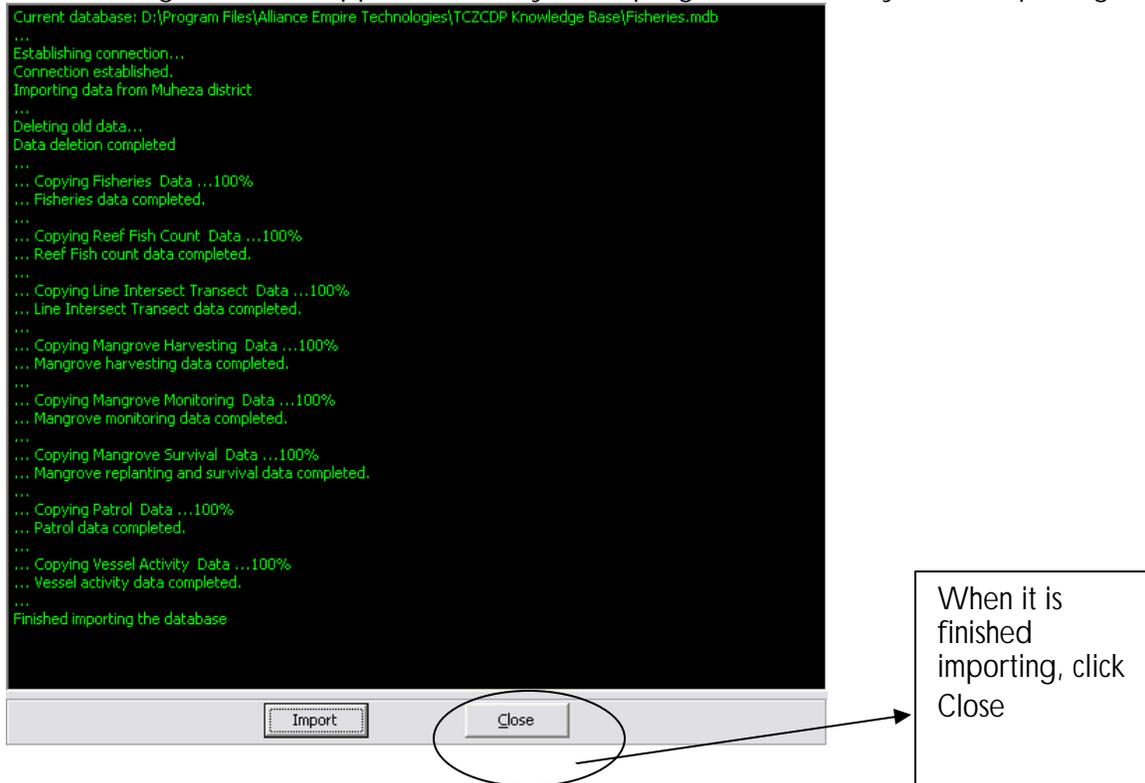
The following screen appears:



The following screen appears:

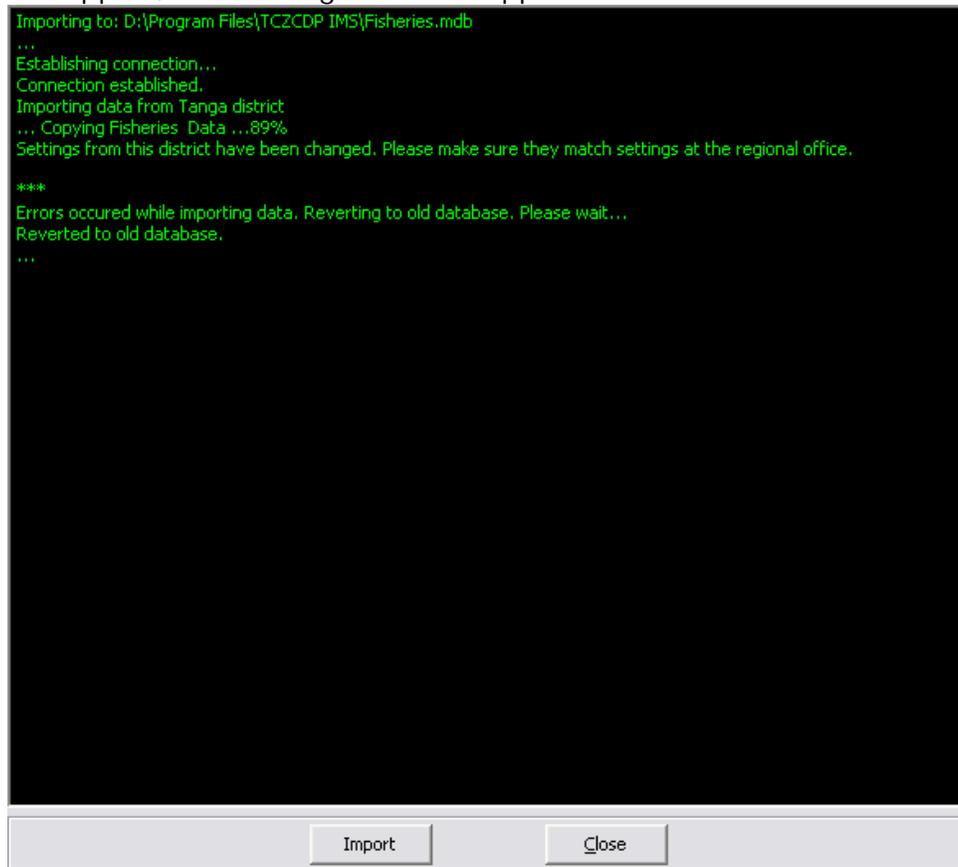


The following screen will appear to show you the progress of the file you are importing



In the event that the settings of the District InfoDbase are different from that of the Regional InfoDbase – the importing process will be aborted, and the Regional InfoDbase will automatically go back to the version before importation began.

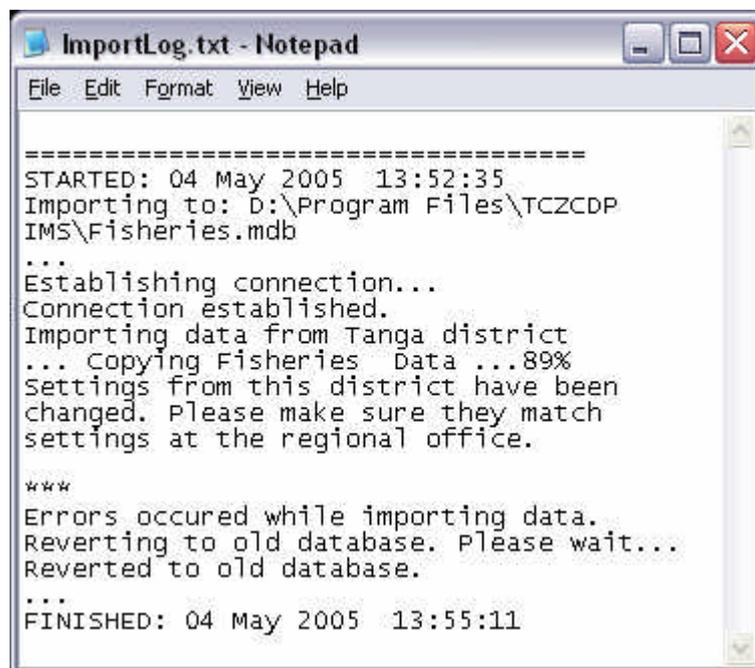
When this happens, the following screen will appear:



Should this occur, the RDA will need to check the settings of the District InfoDbase. If changes to the settings are justifiable, the RDA should make the same changes in the Regional InfoDbase and to the InfoDbases of the other two Districts. If this is not done, you will not be able to import the InfoDbase from the other two Districts.

A record is automatically kept each time the District InfoDbases are imported to the Regional InfoDbase. The record is stored in the same folder where the InfoDbase was installed - C:\Program Files\TCZCDP IMS

If you double click on the ImportLog, the following screen will appear:



```
ImportLog.txt - Notepad
File Edit Format View Help

=====
STARTED: 04 May 2005 13:52:35
Importing to: D:\Program Files\TCZCDP
IMS\Fisheries.mdb
...
Establishing connection...
Connection established.
Importing data from Tanga district
... Copying Fisheries Data ...89%
Settings from this district have been
changed. Please make sure they match
settings at the regional office.

***
Errors occured while importing data.
Reverting to old database. Please wait...
Reverted to old database.

...
FINISHED: 04 May 2005 13:55:11
```


IUCN – Eastern African Regional Programme

IUCN established the Eastern Africa Regional Office (EARO) in Nairobi in 1986. EARO facilitates the implementation of the IUCN Programme in Sudan, Eritrea, Djibouti, Somalia, Kenya, Tanzania, Comoros, Seychelles, Uganda and Ethiopia. Through its technical group, established in the early 1990s, the IUCN Programme assists members and partners in the region with capacity building through the implementation of programmes and projects, networking, and technical advice. Specific areas of expertise include: protected areas, ecosystem management, biodiversity conservation, environmental planning and strategies, and support to environmental NGOs.

IUCN – Marine and Coastal Ecosystems Programme

The aim of IUCN's Eastern Africa Marine & Coastal Ecosystems Programme, which has been operating since 1992, is to maintain the biodiversity and ecological processes of marine and coastal ecosystems in Eastern Africa, to restore their functioning where this has been impaired, and to facilitate the sustainable and equitable use of marine resources. Current priorities include: the establishment and effective management of marine protected areas, sustainably managed fisheries and integrated coastal zone management.

Tanga Coastal Zone Conservation and Development Programme

The Tanga Coastal Zone Conservation and Development Programme (TCZCDP) started in 1994 and aims to enhance the well being of coastal communities by improving the health of the coastal and marine environment on which they depend. The Programme is working with coastal fishing villages to manage the coral reefs, mangroves and other marine resources that the villagers depend upon for their livelihoods. Districts and village level institutions are being strengthened so that they can undertake integrated management in a sustainable way. The Programme is implemented by the three coastal Districts (Muheza and Pangani Districts and Tanga Municipality) of the Tanga Region in north-east Tanzania in collaboration with the Regional Secretariat, the Ministry of Natural Resources and Tourism, and the Vice-President's Office (Environment). IUCN – EARO has provided technical and managerial advice on behalf of the donor, Development Cooperation Ireland (DCI).

