

## Improvement of quality insurance of data from fisheries technology experiments

Report to NORAD  
on a 5 months contract at IDPPE, Maputo  
Department of Fishing Technology

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## Summary

This reports sums up the experiences obtained during a 5 months engagement at IDPPE (Instituto Nacional de Desenvolvimento da Pesca de Pequena Escala), Mozambique. The purpose of the contract was to support technical assistance and competence building in the field of Fishing Technology at IDPPE, and at the same time contribute to competence building at IMR, Bergen, within the field of artisanal fisheries.

After initial consultations with the staff of dTP (Departamento de Tecnologia Pesceira), IDPPE, it was decided to concentrate my effort on tasks linked to improvement of quality insurance of data from fisheries technology experiments. This would be evaluating and suggesting improvements of the methods used by IDPPE to collect, store, analyse and report data from fishing gear experiments, as well as to make programs/manuals/ templates for future handling, analyses and reporting of fishing technology data. It was also decided to arrange a Workshop for the fishing gear technicians at IDPPE in order to raise their level of consciousness and knowledge on handling data from fishing gear experiments.

Basis for my work was two trips to IDPPE's delegations in Nampula and Zambezia to get familiarized with IDPPE's working methods in the rural areas of Mozambique, and also to study the flow of information from the field experiments **through** data storage, processing, analysing and presentation in reports. I also evaluated the working conditions for the technical staff of the two delegations.

Based on these observations it was decided to standardize/improve IDPPE's handling of fishing technology data by developing simple forms/sheets for data collection in the field as well as to construct simple data bases for handling fisheries technology data. The main purpose was to secure that all delegations collected the same amount of data from parallel experiments and treated the collected information in a standardized manner. In addition a simple manual for handling of fisheries technology data was made.

The new system for collecting and handling of data were introduced to the delegations at a Workshop in Beira 19-21 July 2007 with participation from all delegations. This Workshop was aimed at increasing the knowledge and the awareness among the technicians of the importance of using adequate methods for collecting and treating data from fishing gear experiments.

## 1. Introduction

### 1.1 Scope and Objectives

**Purpose:** The purpose of my engagement was to support technical assistance and competence building in the field of Fishing Technology at IDPPE, Maputo, Mozambique, and at the same time contribute to competence building at IMR, Bergen, within the field of artisanal fisheries. The contract was initiated after discussions between Norad, IDPPE, the Norwegian Embassy

and IMR in Maputo regarding combining needs for capacity building at IMR with needs of IDPPE in fishing technology.

The scope of the engagement was initially specified as follows:

*A Fisheries Technologist from IMR will work 5 man months at the Department of Fishery Technology at IDPPE, assisting IDPPE to plan and implement activities for improving and diversifying fishing techniques. The main tasks will be within some of the following subjects:*

- 1. Analyze and make practical improvements on the methodologies for the testing and dissemination of new and/or improved fishing technologies, to ensure the participation and adoption of the fishers;*
- 2. Elaborate simple database for processing the information of fishing trials and demonstrations;*
- 3. Make technical analyzes of data concerning trials and demonstrations of fishing techniques and evaluate outputs of the fishing programs;*
- 4. Design, if necessary, other programs for better exploitation of fishery resources;*
- 5. Assist and participate in the planning and monitoring of activities related to fishing and provide the required technical support to these activities;*
- 6. Compile both technical and periodical, action-oriented reports on fishing activities, describing progress achieved, results and impacts of the various programs and adjustments required to make them more effective, including the evaluation of the results of the activities in the various fishing programs.*
- 7. Transfer knowledge and skills for the counterpart to be indicated by the IDPPE.*

## **1.2 Delimitation of scope**

It was soon realized that the original scope of the work was too wide seen in relation to the limited duration of the contract. After consultations with the staff of dTP (Departemento de Tecnología Pesceira), IDPPE it was decided to concentrate the effort on tasks linked to improvement of quality insurance of data from fisheries technology experiments, i.e. the first 3 tasks of the original scope of work, and the objectives for the duties of the contract may be re-worded as follows.

The task of the contract would be, through visits to areas and delegations working with the PPABAS project, to

- Evaluate and suggest improvements of the methods used by IDPPE to collect, register and store data from tests of new fishing methods and new methods for fish processing.
- Evaluate and improve methods for storing of experimental data, preferably by standardization of methods.
- Evaluate and improve methods for data analyses,
- Evaluate and improve methods for presentation of data and report writing.
- Help analysing and reporting data collected from fishing gear experiments to be used as template for future work
- To make programs/manuals/templates for future handling, analyses and reporting of fishing technology data.
- Transmission of knowledge to technicians at IDPPE

## 2. Accomplishment of the work

### 2.1 Visit to the Nampula and the Zambézia provinces



**Figure 1.** Artesanal fisherman pulling a small beach seine in the Zambézia province.

In the period 16 to 25 of March 2007 I did a field trip to the IDPPE delegation in the Nampula province, and in the period 7. – 14 July to the delegation in the Zambezia province. The purpose of the visits was to get familiarized with the ways IDPPE work in the rural areas of Mozambique. The first days were allocated to the work in the field, in particular regarding the spreading of new technology for fishing and fish processing, to see how this technology development were being monitored, and how experimental data were being collected. The second phase was allocated the flow of information from the field to the delegations in Angoche (Nampula province) and



**Figure 2.** Inspecting trammel nets introduced by IDPPE in Angoche, Nampula province.

Quelimane (Zambezia province). I examined how the data were being stored, processed, analyzed and presented as reports. I also evaluated the working conditions for the technical staff of the two delegations. The following weak points were identified:

- Lack of standardization of methods to register data from experiments carried out in the field.
- Lack of standardization of databases and methods for manipulation of data
- Lack of standardization of methods to evaluate and to present the results
- Lack of education of technicians with respect to the use of computer programs and presentation of data in the reports.
- Lack of modern systems for communication (e.g. Inter net). This complicates the exchange of information and the cooperation between the provincial delegations, and between the delegations and the IDPPE Maputo Headquarters.

On the basis of these observations it was suggested that

1. IDPPE's methods for collection and processing of technological data should be developed and standardized.
2. Written presentations of the results of the field experiments should be improved and standardized.
3. The communication and the flow of information between the provincial delegations as well as Maputo headquarters should be improved, preferentially by means of introducing inter net in the provinces (where possible), and by a extensive upgrading of the net in Maputo.
4. The education of the technicians at the province delegations in the use of computer software and their practice in writing reports should be improved.
5. The availability of computer tools for handling and reporting of data for the technicians at the delegations should be improved.

Item 1, 2 and 3 were attempted improved by the actions described below, while item 3 and 5 were considered the responsibility of the direction of IDPPE.



**Figure 3.** Meeting with local fishermen in Zalala, Zambezia.



## 2.2 Construction of simple forms and data bases for handling fisheries technology data

As a result of the recommendation that IDPPE's methods for collection and processing of technological data should be developed and standardized, new forms for collection of data from fishery technology experiments were made, using Microsoft Excel. Simple data bases, based on copies of these formes gathered in Excel workbooks were also made in order to stadardize the storing and handling of fishery technology data. The new databases were introduced to the delegations on the Workshop in Beira in July (see below), where technicians were trained in the use of forms and databases.

## 2.3 Manual for handling of fisheries technology data

As a means of developing and standardizing IDPPE's methods for collection and processing of technological data, and to improve and standardize IDPPE's written reports of the results, a simple manual for handling of fisheries technology data was made. The manual is meant to be a practical guide for the fisheries technologist of IDPPE when it comes to handling and reporting of fisheries technology data.

The manual contains detailed information on how to collect fisheries technology experiment data in forms and how to store these data in the databases made for this purpose. Furthermore it contains some suggestions for how to synthesize and analyze experiment data. Finally it contains general rules for how to present the results in technical reports of different types.

A draft manual of the report was finalized at the termination of my contract. The final version will be made by the staff of dTP after my return to Norway. The main alterations will be linguistic improvements of the Portuguese language.

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## 2.4 Workshop on handling and analyses of fisheries technology data, Beira 19 – 21 July 2007

As a result of the recommendations from the trips to Nampula and Zambézia, it was decided to arrange a Workshop for technicians from all delegations of IDPPE as well as from the head quarter. The objective of the Workshop was to increase the knowledge and experience among the technicians in data handling, analyses and writing of reports.

The workshop was held in Beira (Delegation of Sofala) from 19 to 21 July 2007 with participation of 12 technicians working in the field of fisheries technology. The Workshop was chaired by me, but with requisite help in translating to proper Portuguese by colleagues from IDPPE, Maputo, João Gomez (Head of the Fisheries Technology department, Maputo) and Julio Zitha (Technician, Fisheries Technology department, Maputo).



**Figure 5.** Participants of the Workshop in Beira.

The workshop focused on the following subjects (see Annex).

- Collection of fisheries technology data in the field.
- Storing of the collected data in new databases made for this purpose at IDPPE.
- Synthesis and analyses of data from fisheries technology experiments.
- Reporting of fisheries technology data.

The workshop was carried out with alternating lectures and practical training in handling of data. The student group followed a set of experimental data from the field, through storing in databases to analyses and reporting. The participants were all extremely interested in the subjects dealt with in the Workshop and took actively part in discussions and in the practical training.



The most important results from the workshop were:

- Improved awareness among the technicians of the importance of using correct methods for handling of data from fisheries technology experiments.
- Exchange of information on methods for fishery technology experiments and data handling between delegations.
- Standardization of methods between the delegations
- A increased level of knowledge among the technicians with respect to information technology and data manipulation



As a result of the experiences during the workshop, the following recommendations were given to the directors of IDPPE:

- The working conditions for the technicians with respect to availability to computer technology equipment should be improved.
- The technicians should be given basic training in the use of common computer programs as Word, Excel etc.

## **Conclusion**

The possibility given to me by Norad to spend 5 months at IDPPE gave me an opportunity to study and obtain knowledge on the artisanal fisheries of Mozambique. Just as important, I gained experience in working in an institution holding an administrative regime and a culture very different from what I am used to. It also gave me the possibility to tie bonds to a sister institution and to proficient colleagues in Mozambique, which I hope may be of mutual benefit in the future.

On the other side, my hope is that I have been able to transfer some of my experience and knowledge in the field of fishing technology to the Department of Fishing Technology at IDPPE, and that this has been done in a practical manner that may be useful in their future work on developing new fishing methods in rural areas.

## Annex: Program of Workshop in Beira

### Programa do formação sobre:

### Manuseamento e análise de dados das experimentações em tecnologia de pesca, Beira 19 – 21 Julho 2007

<b>Data</b>	<b>Tema</b>	<b>Horas</b> (indicativas)	<b>Assuntos</b>	<b>Meio de trabalho</b>
19/07	Introdução	08:00	<ul style="list-style-type: none"> <li>▪ Bem vindo</li> <li>▪ Apresentação dos participantes</li> <li>▪ Objectivos e metodologia – regras para o work-shop</li> </ul>	Palestras e diálogos
	Fluxo de dados no IDPPE	08:30	<ul style="list-style-type: none"> <li>▪ Dados – definição</li> <li>▪ As etapas de fluxo de dados</li> <li>▪ Quais são as etapas de fluxo de dados de IDPPE, fazer cartas de fluxo</li> </ul>	Palestras e diálogos Exercícios
		10:00	Intervalo	
	Fichas das experimentações e demonstrações	10:30	<ul style="list-style-type: none"> <li>▪ Fichas usadas nas delegações do IDPPE</li> <li>▪ A importância de standardização</li> <li>▪ Sugestão para novas fichas obrigatórios</li> <li>▪ Fichas no terreno</li> </ul>	Palestras e diálogos
	Armazenagem de dados	11:30	<ul style="list-style-type: none"> <li>▪ Armazenagem no papel</li> <li>▪ Armazenagem digital</li> <li>▪ Incorporação de dados em Microsoft Excel bases</li> </ul>	Palestras e diálogos
		12:00	<ul style="list-style-type: none"> <li>▪ Exercício prático com bases de dados</li> </ul>	Exercícios
		13:00	Almoço	
		14:00	<ul style="list-style-type: none"> <li>▪ Exercício prático com bases de dados, - continuação</li> </ul>	Exercícios continuam
	Conclusão do dia	16:00		
20/07	Síntese e transmissão de dados	08:00	<ul style="list-style-type: none"> <li>▪ Os objectivos dos dados</li> <li>▪ Transmissão dos dados à sede.</li> <li>▪ Níveis diferentes do síntese</li> <li>▪ Sínteses diferentes</li> <li>▪ Produção de tabelas e gráficos</li> </ul>	Palestras e diálogos
		10:00	Intervalo	
		10:30	<ul style="list-style-type: none"> <li>▪ Exercícios com síntese dos dados próprios e apresentação em tabelas e gráficos</li> </ul>	Exercícios
		13:00	Almoço	
		14:00	<ul style="list-style-type: none"> <li>▪ Exercícios com síntese dos dados próprios - continuação</li> </ul>	Exercícios continuam
	Conclusão do dia	16:00		Dialogo

<b>Data</b>	<b>Tema</b>	<b>Horas</b> (indicativas)	<b>Assuntos</b>	<b>Meio de trabalho</b>
21/07	Como elaborar relatórios das experimentações e demonstrações	08:00	<ul style="list-style-type: none"> <li>▪ Tipos de relatórios</li> <li>▪ A estrutura dum relatório técnico</li> <li>▪ Regras gerais para elaborar relatórios</li> <li>▪ Aspectos importantes no relatório da tecnologia de pesca</li> </ul>	Palestras e diálogos
		10:00	Intervalo	
		10:30	<ul style="list-style-type: none"> <li>▪ Exercícios com relatórios: Elabore um relatório breve sobre as suas resultados próprios, e incorpore as suas tabelas e os seus gráficos</li> </ul>	Exercícios
		13:00	Almoço	
		14:00	<ul style="list-style-type: none"> <li>▪ Exercícios com relatórios - continuação</li> </ul>	Exercícios continuam
	Conclusão do workshop e despedida	15:30		Dialogo

### **Lista de Participantes do Curso**

<b>N/O</b>	<b>Nome</b>	<b>Proveniência</b>
01	João B. Gomes	IDPPE - Sede
02	Aud V. Soldal	IDPPE - Sede
03	Júlio A. Zitha	IDPPE - Sede
04	Cristina D. J. Cônsula	IDPPE - Sede
05	Xavier Mapanga	Delegação de Maputo
06	Sandra A. Dilária	Delegação de Inhambane
07	Lucas F. P. Baúte	Delegação de Sofala
08	Ibraimo M. Camacho	Delegação da Zambézia
09	Sebastião Rocha	Delegação de Nampula
10	Maurício	Delegação de Nampula
11	Custódio Guila	Delegação de Cabo Delgado
12	António Remédio Augusto	Delegação de Sofala
13	Cisínio J. Massas	Delegação de Sofala