

TECHNICAL PAPER 6.

FOCUS ON MCS FOR FISHERY COMPLIANCE: EXPERIENCES FROM NAMIBIA

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INTRODUCTION

This paper has three sections:

- The first is a simple overview of Namibian Fisheries with some facts, figures and recent updates that may be of interest.
- The second is about the MCS organization in Namibia.
- The third is some comments on lessons that we have found valuable in developing our organization and that may assist other countries.

BACKGROUND ON NAMIBIA

General description of Namibia and its fisheries

Namibia is situated on the west coast of Africa, north of South Africa and south of Angola. The country is six times the area of the United Kingdom, but with a population of only 1.7 million, with a coastline of 1 700 n.mi.

Since Independence in 1989, and the establishment of the EEZ in 1990, Namibia has developed a fisheries administration and a thriving commercial capture fisheries industry that has grown rapidly, while becoming increasingly more Namibian.

- The fishing industry is based on the high productivity resulting from the Benguela Current system, one of four eastern boundary upwelling current systems in the world.
- Fisheries currently contribute over 10% to the countries gross domestic product (GDP), and was worth N\$ 2 200 million in 1998.
- The fishing industry employs an estimated 12 800 people.
- In 1998, over 300 vessels were licensed to fish in the Namibian EEZ, with 76% of these carrying the Namibian flag.
- All catch is landed in Namibia through two ports.
- The export value of the catch was estimated in 1997 to be US\$ 400 million.

The main fisheries

- **Demersal fisheries** Here, catches of demersal species especially hake, monk, kingklip and sole make up the most valuable fishery in Namibia. Currently, hake is the only quota-restricted species in this fishery. Freezer and wet-fish bottom trawlers and longliners fish hake.

- **Midwater fishery** The primary target is horse mackerel. This is caught by both the midwater trawlers and the purse seine vessels of the pelagic fishery.
- **Purse seine fishery** This fishery targets pilchard and juvenile horse mackerel, using purse seine nets. All vessels are wet boats that hold the unsorted fish in large holding tanks, which are pumped ashore.
- **Deep-water fishery** This fishery targets orange roughy and alfonsino. The fishery began in 1994 and has now expanded to four fishing grounds.
- **Tuna fishery** The main prey are albacore, bigeye, yellowfin and skipjack, using longlining and pole-and-line methods.
- **Rock lobster fishery** This is based in Lüderitz, with small vessels using carrier vessels to bring the live lobster ashore every day. The season is short, running from around November to March.
- **Crab fishery** This is a small fishery that uses traps to catch deep-sea crab, this fishery operates over the whole year.

Fisheries management

Management controls fall into two categories. Firstly there are input controls that relate to fishing effort and gear, and to the permissible time and place that fishing may take place, mainly by limitation of total fishing effort and seasons. Secondly, output controls that set limits and regulations on the amount of fish that may be caught, and on the size and other characteristics of the fish that may be landed. The main output control is by the establishment of TACs and quota allocations. The species controlled in this manner are given in Table 1.

Table 1. Total Allowable Catches 1993 - 1999 (t)

SPECIES	1993	1994	1995	1996	1997	1998	1999
Pilchard	115 000	125 000	40 000	20 000	25 000	65 000	55 000
Hake	120 000	150 000	150 000	170 000	110 000	165 000	195 000
Horse mackerel	450 000	500 000	400 000	400 000	350 000	375 000	375 000
Crab	4 900	4 900	3 000	2 500	2 000	2 000	2 000
Rock Lobster	300	130	230	250	250	260	300
Orange Roughy						12 000	9 000
TOTAL	692 193	782 024	595 225	594 746	489 247	621 258	638 299

Access policy

Official policy is to encourage and support participation in the fishing industry by Namibian companies with a real interest and investment in the country. A three-pronged system turns this into practice, through:

- (i) First, allocation of Fishing Rights of Exploitation;
- (ii) then quotas being allocated to rights holders; and
- (iii) finally, licences to vessels.

This facilitates control over the companies and the vessels and crews to ensure that the agreed aims are really being met.

Legislation

The Sea Fisheries Act and implementing Regulations – currently under review – cover policy for both access and management. Government Gazette Notices are issued to make smaller changes in the management methods. It is these policies, backed by solid legislation and the enforcing of them, that provide the basis for the compliance operations.

1998 Update

1998 saw a general growth across most of the Namibian fisheries sector. The volume of fish landed increased to 606 000 t, 19% higher than in 1997. This was a welcome increase after three years at a low level. The increase was in part a reflection of higher TACs for the major species, as strong stocks of juvenile fish of most of the major commercial species matured and became available for fishing.

At the same time, there were generally higher prices on world markets due to shortages of fish, accentuated by foreign exchange movements that boosted export earnings in Namibian dollar terms. The demersal fishery in particular benefited from these trends. The hake TAC increased from 120 000 t in 1997 to 165 000 t in 1998, and with higher prices and increased value adding, the earnings of the demersal sector increased from around N\$ 730 million in 1997 to N\$ 1 100 million in 1998.

Looking ahead, the Namibian fisheries sector seems set for a further period of expansion in 1999 and into 2000, although there serious concerns have emerged about the economic future of the pilchard canning sector.

Regional and international cooperation

The Ministry is increasingly taking part in the regional and international community activities. The aim of active membership in such arenas is to meet regional and international obligations to ensure a sustainable future when it comes to resource management, both regionally as well as worldwide. Some of the key organizations in which the Republic of Namibia is a member or in the process of becoming a member, are:

- South East Atlantic Fisheries Organization (SEAFO)
- Southern African Development Community (SADC)
- The Benguela Current Environment Fisheries Interaction and Training Programme (BENEFIT)
- The Benguela Large Marine Ecosystem (BCLME)
- International Commission for The Conservation Of Atlantic Tunas (ICCAT)
- The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

Future prospects

With the birth of a new millennium and the coming celebration of Namibia's 10 years of independence, attention is being given to our vision for the fishery sector and the Ministry. Significant issues are:

- There is a wish to see continued growth in Namibian ownership and participation in the industry, with Namibians benefiting from plentiful employment and participatory ownership. There is a wish to see a commitment to developing human resources through schools, courses and vocational training to further strengthen national professionals.
- It is hoped to see an industry developing markets for a range of high-value end-products, further expanding the expertise and activity connected with the fishery industry. It is hoped that the wealth generated by the fisheries sector will be redistributed back to the

public through fair and reasonable payments, as well as social engagement to strengthen local communities.

- It is believed that we will see a Namibian fishing industry that is actively operating in other nations' fishing zones as well as in international waters to the benefit of the nation.
- The aim is to make Namibia synonymous with good and responsible fisheries management, with marine resources utilized optimally and at a sustainable level, and where the whole of SADC can gain from Namibian expertise and experience.

MCS IN NAMIBIA

The Directorate of Operations is responsible for MCS in the EEZ. The MCS system is an integrated system that has stations in the three Inspectorates in Walvis Bay, Lüderitz and Swakopmund. Each of these stations has a role in the MCS system, such as deploying fishery officers to air, sea or land operations, deploying fisheries observers on board fishing vessels, analysing past operations and outputs, or planning future operations.

Key objectives of MCS

The principle objective of MCS can be summed up as the regulation of fisheries-sector activities within the 200 n.mi. EEZ. However, for operational purposes, this has been defined more specifically, with the following main objectives:

- Restrict fishing activity to those entitled to do so.
- Ensure that fishing activity is conducted within legal and administrative guidelines.
- Ensure that revenue from landings is correctly calculated.

Key activities of MCS

In working towards achieving the key objectives, the MCS activities of the Ministry can be broadly defined as:

- surveillance of the EEZ by deploying Inspectors on patrol vessels and fixed-wing planes for surveillance and control;
- deployment of Inspectors to monitor and control off-loadings, coastal and inland activities; and
- deployment of Observers onto fishing vessels to monitor fishing activities.

MCS resources

In conducting MCS work, various human and hardware resources are available to the Directorate of Operations. These resources are continuously changing and being enhanced to conform to higher standards and to cope with more complex tasks.

Below, the resources have been divided into five groups – sea, land, air, remote and support – that define the key management groups used in planning and executing MCS activities.

Sea MCS

Two patrol vessels – PV *Tobias Hainyeko* and PV *Oryx* – operate within the EEZ. These vessels are required for patrolling closed areas, boundary areas, and conducting inspections at sea to ensure compliance with the Sea Fisheries Act and Regulations. Random inspections of fishing vessels are undertaken at sea from the patrol vessels.

The Ministry deploys contracted observers on all vessels fishing in Namibian waters. These observers gather scientific information on the catches, and provide on-site monitoring of compliance with fisheries regulations. They are able to report infractions such as dumping or

discarding, fishing in closed areas, allowing offshore pollution, mis-reporting of catch, retention of prohibited catch, or use of illegal gear.

Captains must complete logsheets daily and the observers check these. This provides important information on catch and effort, which complements the observers' scientific data.

Air MCS

An aircraft is used to monitor, locate and track fishing fleets and to detect violations such as fishing in closed areas. The aerial presence has been serving as a visible deterrent to illegal fishing for the past years, and it facilitates more effective deployment of the patrol vessels.

Land MCS

Fisheries Inspectors provide an important means of verifying the amount and type of fish landed. Inspectors monitor the offloading of fishing vessels as they land their catch ashore or for transshipment at one of the two ports. This provides the accurate landing information required for calculation of levies and quota controls, scientific evaluation of fish stocks and fisheries management. This effort is complemented by the random vessel inspections carried out by Fisheries Inspectors from the patrol vessels. Inspectors collect logsheets and trip management sheets from vessels and register their returns before passing them on to researchers in Resource Management for further processing.

Coastal and inland patrol operations are carried out throughout the year by the Fisheries Inspectors from all three Inspectorates. These are an attempt to control the catching and trade in sea food from coastal fishing.

Remote MCS

Remote electronic monitoring of fishing vessels, using satellite tracking, can be used as a baseline tool for managing the EEZ and for planning the deployment of other MCS platforms. This programme is under development within the Ministry and is currently only available for the deep-sea fishing fleet. A separate paper will cover this in more detail.

Support to MCS

MCS activities related to air and sea operations are coordinated from the Inspectorate at Swakopmund through an Operations Centre at Walvis Bay, the air base at Arandis, and the two patrol vessels based at Walvis Bay.

Activities related to land monitoring and operations are coordinated from the Inspectorates in Walvis Bay, Lüderitz and Swakopmund. In the Walvis Bay and Lüderitz Inspectorates, the majority of data on landings is collected and processed by the Inspectorate's clerical and inspection staff.

Training

The government, early in its development of an MCS capacity, identified training as the key factor in building up local knowledge and experience. The short-term MCS goals – namely reduced illegal fishing – were reached early on, but the largest challenge was left in terms of human resources development.

The three patrol vessels (now two) were from the beginning manned with Norwegian and Danish officers and crew, to solve the immediate lack of human resources. Successful training programmes provided a basic Namibian crew within the first year. However, as officers require a more long-term perspective, a cadet programme was established, aiming for internationally recognized maritime certificates as well as specialized training for the patrol vessels. The Ministry approved the first intake of Cadets in February 1992. The most recent intake of Cadets

was in February 1997. Currently there are 48 cadets in training, with 14 officers having completed their education to date.

The inspectors and the observers that were employed in the early 1990s were confused by the expectations they met from the industry, due to low levels of education and little or no practical experience. Therefore it was clear that an education programme was needed to reach the goals of the Ministry. The documentation for such education was finalized in May 1995 and first implemented in July 1995. To date, four courses have been run, comprising six months of theoretical and three months of in-service training for the inspectors and observers. The course contains legal subjects as well as biological and maritime subjects.

The observers, numbering around 230, have traditionally worked as the eyes and ears of the Ministry at sea. Their duties have revolved around monitoring the compliance of fishing vessels with fisheries law; including tasks such as checking gear specifications; monitoring the by-catch; ensuring that no dumping occurs; and compiling data on catches and operations. However, in 1996, the Ministry expanded the brief of observers to meet the information needs of stock assessment by training and equipping them to monitor and collect biological information on the fish catches. The programme that evolved is known as the Commercial Sampling Programme.

MCS LESSONS LEARNT IN NAMIBIA

Hardware and equipment

Hardware – in the sense of vessels, planes and equipment – is often a crucial factor for the cost-effectiveness of an operation. The level of control needed, knowledge, experience and running costs should be given serious considerations in the planning phase, before project initiation.

Lessons that are often learnt the hard way are that:

- Actual needs must be identified
- The desire for advanced technology can be an obstacle later in a project due to underestimated training needs and capability of human resources.
- High investment costs and underestimated running costs can result in low MCS efficiency because of having to make sure that costs do not exceed allocated budgets.
- Second-hand objects purchased without good enough terms of reference and analyses of actual needs can result in unsuitable equipment for the task and low MCS efficiency.

Human resources

Good documentation or manuals, although a major asset, will never be able to replace the qualities needed in the personnel allocated to perform a task. It should also be considered whether a well-trained, better-paid and smaller work force might result in higher productivity compared with a less competent, large workforce. This should be considered in the light of:

- knowledge levels;
- recruitment procedures;
- potential for corruption;
- training capacity;
- professionalism in the attitude of the organization; and
- political and social requirements of the country.

These factors are often underestimated, and getting a balanced evaluation can be difficult. Again, it cannot be stressed enough how important a well-conducted needs analysis – with an integrated approach to hardware and human resources – is when developing an MCS project.

Training

Knowledge is one of the main keys to success in any MCS operation. Basic knowledge will be needed immediately if the organization wants to gain respect from stakeholders and to initiate a professional and functioning operation. Training must be planned for and started as one of the first actions in developing an operation or organization.

- In order to plan for training, an analysis of needs and current levels of knowledge within the recruited staff is required.
- The programme should include a well designed training plan for all levels of staff, which runs throughout their career structure.
- It is recommended that modular vocational training be used for the lower-level jobs in the organization.
- It is also important that quality criteria are demanded from instructors to ensure that a certain level of quality is maintained in the teaching. The instructors must also be suitably rewarded and trained for their work.
- Education should be officially acknowledged, such as through permanent employment, higher rank, bonuses or higher salary. This is important for motivation and recruitment.

Information management

Large amounts of varied information are generated in MCS activities. Some of this is required almost immediately for surveillance activities, while other information is needed less urgently but over a long period for a time series. These different requirements for information make good information management vital. The definition of 'good' is not an easy one: striving for accurate and timely information is important, but also the concerns of what information and in what format is a vital question. It is far too easy to collect too much information, which is then a burden on administration and database systems to compile, check and store.

However, information systems easily become overambitious. This is especially relevant when previous systems have been manual. Implementation and the training of personnel to maintain the system will often take longer than envisaged. In these cases, a sensible approach would be to design and implement a phased approach, with one or two aspects of the system being implemented at a time, with full integration occurring later.

A good working-practices analysis is also needed to improve working routines before the database is designed, so as to avoid unnecessary and expensive changes at a later stage. It is important to remember that the justification for an information technology project is to enhance effectiveness and efficiency, not to duplicate work that is done manually.

The following should be considered:

- Identify information needs through analyses of working practices and management requirements.
- Avoid unnecessary information.
- Do not be overambitious in the design and implementation phases – keep it simple.
- Do not underestimate the need for training, both initial and ongoing.

Other MCS platforms

Governmental duplication of MCS tasks is common and often creates some discussion on where responsibilities should be allocated to maximize effects or to reduce costs. This can easily result in compromises where the fisheries surveillance element loses. It is quite obvious that a diverse task requires a broad knowledge of the operations, with priority on the main purpose.

The Navy is normally neither designed, educated nor particularly trained for fisheries MCS operations. The organization can be a valuable asset in the sense of border violations by unlicensed vessels, but seldom efficient with catch or gear controls.

A Coastguard is far more appropriate for the fisheries protection task, and less advanced than a navy in terms of training and equipment needs. A Coastguard is normally designed round the United Nations Convention on the Law of the Sea (UNCLOS), with basic police tasks to perform, with emphasis on border violations, fisheries, search-and-rescue operations, customs and immigration tasks.

CONCLUSION

- It is of vital importance to invest time and resources in analysing the actual needs of the organization when it comes to hardware as well as human resources and training. A lot of money has been wasted on poor decisions based on weak planning. A clear definition of purposes and needs will therefore be a valuable investment for the future.
- Training facilitates the efficient use of resources, whereas a lack of training results in unprofessional behaviour, costly maintenance, poor decision making and lack of respect from the industry. Training is therefore a natural and key part of the development of any MCS organization.
- It is sensible to initially create a basic and simple organization if local experience is limited. A good practice is to begin with only one segment of the industry to gain the necessary experience before expanding the programme in a phased approach. More can then be implemented when the organization is confident and ready to meet greater challenges.