CONTROL OF FOREIGN FISHING

ADAPTIVE RESEARCH IN NAMIBIA

RESULTS OF AN INITIAL VISIT

TRIP REPORT - Namibia, January 1993

CONTENTS

■ ANNEXES

- A - Persons consulted
- B - MRAG Proposal to Namibian Government

■APPENDICES

- A - LIST OF VESSELS
- B - 1993 QUOTAS
- C - QUOTA AND RESEARCH LEVIES AND THEIR CALCULATION
- D - DEMERSAL FISHERY LANDINGS STATISTICS - 1992

INTRODUCTION

■ Objectives of the Project and Adaptive Research

The objectives of the general *'Control of Foreign Fishing'* Project (CFF) are to develop a suitable system, based on modern mathematical bioeconomics, for developing countries to help them make critical decisions concerning the level of licence fees, surveillance costs, and illegal fishing penalties. Such decisions are needed to assist in maximising the revenue from their fisheries whilst maintaining the resource.

Preliminary work has been done to develop the modelling techniques (and graphic presentation) of the problem - the interaction of the three principle parameters of revenues, management costs and penalties.

The problem of management of foreign fishing is particularly acute in those developing countries where they are now taking serious steps:

* to control the activities of vessels from Distant Water Fishing Nations (DWFNs) and neighbouring state fleets (NSFs); and

* to restructure their fishing industries to meet national policy requirements such as private sector participation through joint ventures and direct ownership; creating employment, ancillary industries and commerce; and the development of the means to ensuring for sustainable exploitation and fisheries management.

Following ODA decisions under the RNRRS to include 'Adaptive Research' within the scope of research programmes, including the Fisheries Management Science Programme, it was decided by the Programme Manager (Professor John Beddington) to extend the CFF project into an adaptive phase; to take the results of the general CFF project and adapt this to particular countries or fisheries.

Efforts are thus being made to undertake the research in a wide variety of developing country fisheries circumstances. These include the South Pacific Tuna Fisheries (through the Forum Fisheries Agency), the South West Indian Ocean Tuna Fisheries (through the Seychelles Fishing Authority), the British Virgin Islands (where foreign sports and tuna fishing is a problem) and in Namibia where considerable changes have taken place in recent years and a policy of complete control and industry restructuring is developing.

■ Government Management and Private Sector Restructuring

In the three years since independence and the declaration of the 200 mile EEZ, Namibia has made significant moves in taking control of their rich and diverse fisheries by:

* effectively prohibiting the activites of foreign fleets except under strict exploitation rights and licensing conditions, including a requirement to land fish in country, surveillance and inspection; and

* a policy of Affirmative Action which is now providing 'newcomers' with quotas in order to force the pace of restructuring and limiting foreign involvement in 'local' companies.

■ Suitability of Namibia for the project

Namibia is suitable for the adaptive phase of the Control of Foreign Fishing Project for a number of reasons:

* The highly-centralised management of the fishery and the emphasis on local participation means that the data required for adaptive research will be available directly from the Ministry of Fisheries and Marine Resources.

* The structured nature of revenue generation from research and quota levies presents a relatively simple way of modelling this aspect of the adaptive research.

* The Government has also taken steps to introduce significant surveillance enforcement capabilities, including the purchase of a helicopter, three patrol boats and a number of aircraft. An Operations Communications Centre has also been set up together with an extensive programme to train surveillance officers (NORAD funded).

DATA AVAILABILITY

■ Fleet Characteristics

All vessels fishing inside the Namibian EEZ are licensed by the Government and must submit full vessel characteristics as part of the licence application process. A full list of vessels that have been licenced for the 1993 season is at appendix Annex A. This contains a subset of the most important fleet charcteristics that are required for the modelling work.

■ Total Allowable Catches

TACs are set annually for all of the main species except Anchovy and are published in the Government Gazette. The TACs for 1992 and 1993 are as follows:

Species	TAC metric tonnes	
	1992	1993
HAKE	90,000	120,000
HORSE MACKEREL	450,000	450,000
PILCHARD	80,000	115,000
LOBSTER	100	200
CRAB	6,000	4,900

■ Quotas and Quota Management

Access to the fishery is granted to individual companies by means of a 'Right of Exploitation', which will generally last for one, five, or ten years, depending on the extent to which companies fulfill a number of eligibility criteria, including shareholding, citizenship of shareholders, employment, vessel ownership etc. All companies holding a current right of exploitation are then able to apply for quotas on an annual basis. Quotas are allocated according to both historical participation, the eligibility criteria and the policy of Affirmative Action. See Annex B for a full list of 1993 quotas.

■ Licence Fees, Quota Levies and Fund Levies

All Government revenue from the fishery is generated via licence fees, quota levies and research levies. The licence fee is minimal and intended only to cover administrative costs. The main sources of income are the two types of levies. Quota levies are payable per tonne of quota allocated, with different rates set per species. Quota levies are payable in quarterly installments, irrespective of how much fish is actually landed. Research levies, on the other hand, are raised per tonne of fish actually landed. Each fishing company sends in a monthly payment to the Ministry. See Annex C for levy amounts and methods of calculation.

■ Catches and Catch Rates

Comprehensive catch data is available as all landings of fish are documented by the Ministry Inspectorate and are processed centrally for the calculation of research levies. All vessel captains are required to fill in a daily log of fishing activities which are then submitted on landing. These logs contain effort data. Some catch data has been processed onto a database and a printout is available. An example of data available for the demersal fishery is at Apendix D. This can be updated at any time.

■ **Fleet Costs**

Fleet costs are difficult to ascertain, but given the detailed knowledge of fleet characteristics that we have, some sort of estimate could now be made. However, this will be difficult for the Russian fleet that still remains in the horse mackerel fishery and which it will take a very long time to replace. However, some estimates can be developed.

■ **Surveillance Capabilities and Costs**

These are available and will be supplied by the Ministry, both at the general overall budget level and by individual surveillance platform. They will be made available as soon as we have official confirmation of the project.

■ **Legal Aspects**

The surveillance operations have met with considerable success since independence, confiscating ten Spanish vessels that were fishing illegally during this time. The penalty for unlicensed fishing is confiscation of both the vessel and catch, but we have not yet ascertained the penalty for lesser infractions such as dumping or over-catching. The Sea Fisheries Act and regulations 1993 are now available and the maximum penalties can be extracted.

DISCUSSIONS HELD

■ Presentation of the project

During the three week period of this preliminary phase of the project, the ideas and their likely applications were discussed with many key members of staff in the Ministry, including the Minister, the Permanent Secretary and the Director of Operations Control. The main introductory task was to ascertain whether the type of management tool intended to be developed would be suitable for those managing the fishery. A full list of persons with whom discussions were held is in annex A.

This task was considerably aided by the enthusiasm of Mr Ishitile, Director of Operations, for the project. At a time when the Government is constantly looking at ways to maximise both economic return from the fishery and the development of Namibian interest in that fishery, he feels that such research is particularly appropriate for their needs.

In a separate meeting with the Minister, who had already been partially briefed by Mr Ishitile, it became clearer that the Nambian Government is keen on British cooperation, primarily because it sees partiality and conflict of interests when considering either EC or other european country funding (most likely French/Spanish). The Minister wants the project and issued instructions to his Special Adviser to follow up.

A further meeting was held with the Permanent Secretary, Dr Kankondi, who also welcomed the concept, proposed arrangements and endorsed the next steps that would be taken - see below.

■ Government reservations and requirements

As with any request for data of this sensitivity, the Government was keen to have assurances that it would be treated with the utmost confidentiality. These were given. A list of RRAG/MRAG projects was provided and the number of confidential projects was indicated.

Other than the sensitivity issue, the Government has some reservations that it will not be able to provide its information contribution to the project in a timely manner (or at all). They were assured that the gross levels of information that the project needs are already available, and that as and when refinements/new data come along these can be provide and used in the modelling. The aim to progressively develop the methodology and adaptation to Nambia's particular circumstances.

■ Follow-up required

A draft project proposal was submitted to the Minister (see Annex B), giving details both of the Fisheries Management Science Programme in general and of the Control of Foreign Fishing Project itself.

The next steps are that a briefing will be prepared for him and a formal enquiry on the nature of the project and the extent of the information requirements will come to MRAG. Our response will be to provide a tabular design for the data we require (within the limitations that we now know exist in Namibia). Following this, the Nambian Government will formally accept the proposal.

In the meantime we have considerable information with which to work.

ANNEX A. PERSONS CONSULTED

- Mr H Angula- Minister
- Dr Kankondi- Permant Secretary
- Dr J D Jurgens- Director, Resource Management
- Mr A Z Ishitile- Director, Operations
- Mr L Clark- Special Advisor to the Minister
- Mr W Scharm- Special Advisor to the Permanent Secretary
- Mr N Embumbulu- Deputy Director, Planning and General Surveillance
- Mr S E Ndjaba- Deputy Director, Administration and Craft
- Dr G Cloete- Deputy Director, Resource Management
- Mr P Shivute- Chief Inspector
- Mrs E Scheepers- Senior Control Officer
- Mrs E Cline- Financial Administration
- Mrs J Scheepers- Control Officer
- Mr M Kavetu- Computer Systems Manager
- Cdr R Stolpestadt- Surveillance Advisor
- Mr M O'Toole- Demersal Research
- Mr N Poole- Electronics Engineer
- Mr D Boyer- Pelagic Research
- Dr V Helgason- ICEIDA Consultant
- Mr E Klingelhoefer- Horse Mackerel Research
- Mr F Botes- Line Fishing Research

ANNEX B:

■ **MRAG Proposal to Namibian Government**

PROJECT PROPOSAL

THE CONTROL OF FOREIGN FISHING

a research programme in operations control

and economic optimisation in the management of fishing fleets

MARINE RESOURCES ASSESSMENT GROUP, JANUARY 1992

PROJECT PROPOSAL

THE CONTROL OF FISHING VESSELS:

A research programme in operations control and economic optimisation in the management of fishing fleets.

BACKGROUND

- ODA Fisheries Research
- Fisheries Management Science Programme
- Fisheries Management
- Adaptive Research

PROJECT DESCRIPTION

- Information Required
- Analytical Techniques
- Use of Results
- Sensitivity and other Policy Issues

PROJECT TIMINGS

- Inception and duration
- Analysis
- Results

INPUTS

- MRAG
- Namibian Government

OUTPUTS

- Research Results
- Fisheries Management Advice

Annex

A. Fisheries Management Science Programme Projects
B. MRAG Projects
C. Background to the Project, 'Control of Foreign Fishing in Developing Countries'
D. Draft Project Memorandum

Control of Foreign Fishing - Project Proposal

BACKGROUND:

ODA FISHERIES RESEARCH

The UK Overseas Development Administration (ODA) has adopted a Renewable Natural Resources Research Strategy (RNRRS) that defines objectives for research to be conducted by UK institutions in cooperation with, and to the benefit of, developing countries.

Fisheries forms a major component of the RNRRS and is currently divided into four major programmes, each with a number of projects. These are:

- Fisheries Management Science Programme (FMSP).
- Aquaculture Programme.
- Post-Harvest Technology Programme.
- Fish Genetics Programme.

In an effort to ensure directed and cost-effective research, ODA have contracted British institutions and companies to undertake research under these programmes.

FISHERIES MANAGEMENT SCIENCE PROGRAMME

The Fisheries Management Science Programme is implemented by Marine Resources Assessment Group Ltd (MRAG). This company operates in association with the Renewable Resources Assessment Group (RRAG), an academic department of the Centre for Environmental Technology at Imperial College, University of London. A list of current projects under the FMSP is attached.

FISHERIES MANAGEMENT

Changes to the ways in which fisheries resources are managed and exploited have accelerated since the adoption of 200-mile Exclusive Economic Zones (EEZs) throughout the world. As a result of need for countries to make rational decisions about:

- Resource allocations to fishing fleets, and the beneficial rents therefrom;
- the provision of finance and manpower to ensure surveillance and enforcement are adequate to protect resources; and
- the appropriate level of penalties to deter non-compliance with resource allocations and other essential management requirements,

they are faced with economic optimisation problem which requires both general and specific solutions.

MRAG has undertaken general research under a project entitled, 'Control of Foreign Fishing', in which the three components above - licence fees, surveillance costs, and penalties - are analysed to arrive at general optimal solutions using operations research and game theory. (See also a general description in attachment A).

ADAPTIVE RESEARCH

In addition to the requirement of the RNRRS to conduct research of global relevance, there is also a requirement to test the results of those programmes and projects in specific circumstances, ie Adaptive Research. To this end, MRAG has proposed or is proposing adaptive research projects under the Control of Foreign Fishing project in the following places:

SOUTH PACIFIC- where tuna fisheries are almost exclusively foreign and the extent of surveillance requirements very large.

SEYCHELLES- similar to the South Pacific, but not as extensive.

BRITISH VIRGIN IS.- where the majority of fishing is undertaken by foreign sports fishing vessels and where other surveillance tasks compound the issue.

NAMIBIA- where fleet restructuring is taking place but where for some time to come, foreign involvement will remain through capital participation in the fleets.

PROJECT DESCRIPTION

Information Required

The information required for the entry of data to the analytical modelling programmes that are being developed consist of a number of types, as follows:

- Characteristics of the fleet and their operations
- General economic returns, licence fees and levies
- Catch rates and fishing effort
- Surveillance costs - general
- Surveillance deployment characteristics - general
- Surveillance results - general measures of effectiveness

Analytical Techniques

Using mathematical modelling techniques developed by staff at MRAG the above parameters - which will be particular to the Namibian fisheries sector - will be used to determine a range of management solutions that might be used in the establishment of rates of return from the fisheries and in the justification for provision of capital and recurrent expenditure in management, including surveillance.

Use of Results

It is anticipated that the results would be used only as a guide in the implementation of government policies and actions. The detailed results will remain confidential to the Government of Namibia, although it is anticipated that the scientific results and techniques would eventually be published in a form that might be useful to all developing country fisheries, particularly in the maritime SADC nations where similar issues exist.

Sensitivity and other Policy Issues

It is recognised that the issue of surveillance is a sensitive one that requires careful attention beyond the normal needs of general fisheries research. MRAG has a history of work in fisheries management that meets those requirements, working directly for the British Foreign and Commonwealth Office in the Falkland Islands, South Georgia and the Antarctic, the British Indian Ocean Territory and other fisheries. It is thus well placed to offer assurances of strict confidentiality and sensitivity.

Other policy issues in this project will also come into play and revolve around questions that will determine the limits of some of the parameters that the modelling techniques will use, such as what levels of non-compliance can be tolerated - on illegal fishing, on exceeding quotas/allocations etc?

PROJECT TIMINGS

Inception and Duration

The research project will begin as soon as agreed between the Government of Namibia and MRAG, and will run for a period of approximately 2 years.

Analysis

The information supplied in confidence by the Government will be used in a full range of analyses during the period of the project. It is anticipated that there will be a need to confer regularly with officials in the Ministry of Fisheries and Marine Resources to seek information and opinion on the progress of the research and the forms of the analysis.

Results

Interim results will be reported regularly and as required by the Government. These may consist of the mandatory quarterly and annual reports that are required by the ODA, or in such a form or at intervals as required.

A final report will be prepared for delivery at the end of the project, probably in mid-1995.

INPUTS

MRAG

All funding for the project, including for any visits to Namibia, analysis, personnel, computer needs and other materials or services, will be supplied by MRAG through the FMSP funded by ODA.

Namibian Government

The information that is needed to provide for country specific analysis will be supplied by the Government as far as it is able and within appropriate time frames.

OUTPUTS

Research Results

All research results will remain confidential to the Government, and it is anticipated that this will consist of specific operations control and economic optimisation solutions to the changing character of the Namibian fisheries sector.

Fisheries Management Advice

It is hoped that the management solutions generated will be used either directly through application to the fisheries sector or through the provision of a fisheries management game (the general aspects of which are currently being developed) that will provide senior level management guidance and training in the choices and decision options that are open to them in fisheries management.

Annex D - Draft Project Memorandum:

PROJECT MEMORANDUM

In pursuit of the development of techniques for the management of the fisheries to meet rational demands for sustainability, maximisation of benefits and the control of fisheries sector participation, the Namibian Government and MRAG Ltd agree to cooperate on a research project to investigate methods for, and the application of, operations control and economic optimisation in the sector.

MRAG Ltd agree to undertake the research with full recognition of the sensitivity of the issue, the data and all results that may be generated.

MRAG Ltd further agree neither to publish nor to disseminate in any form, any data, information, articles or any material pertaining to this project except with the express written permission of the Namibian Government.

The Namibian Government agrees to provide data and information required to undertake the research, as described in the draft project document, within the bounds of its requirements for confidentiality and information security.

.....

Minister Projects Director