REPUBLIC OF NAMIBIA

MINISTRY OF FISHERIES AND MARINE RESOURCES

TOWARDS RESPONSIBLE DEVELOPMENT OF AQUACULTURE

NAMIBIA'S AQUACULTURE POLICY

Presented to the National Assembly by the Minister of Fisheries and Marine Resources

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1 INTRODUCTION

Aquaculture is the farming of aquatic organisms, including the farming of fish, molluscs, crustaceans and aquatic plants in freshwater bodies and in the sea.

At a global level, aquaculture is one of the fastest growing food production systems, and it can also produce a wide range of valuable non-food products. The U.N. Food and Agriculture Organization (FAO) estimates that global aquaculture production volumes have been growing at nearly ten per cent annually over the last 15 years, and in 1995 aquaculture production of 27,8 million tonnes contributed nearly 20 per cent of fish produced globally. Most of the growth in aquaculture is in developing countries, where aquaculture serves both as an increasingly important contributor of low cost protein supply for the purpose of food security and as a source of job and income generation for economic development purposes.

Aquaculture has a very early history in Namibia, starting in the 1800's with the introduction of carp and subsequently a number of other exotic species, primarily for stocking of cattle dams and state water dams. Up to the mid-1980s aquaculture production was very small, but from 1985 the private sector became more involved in commercial farming, especially of marine species. By 1996, the range of aquaculture activities included the culture of oysters, mussels and seaweed in Lüderitz harbour and in the salt ponds around Walvis Bay and Swakopmund; the culture of freshwater species, dominantly tilapia and clarias for stocking of around 100 farms and state water dams; and the operation of one crocodile farm. For 1996, the volume of aquaculture production in Namibia is estimated to have been 422 tonnes.

The reasons for the limited growth have included limits in the availability of fresh water across most of Namibia's land area; competition for the use of the available freshwater supplies, and the high cost of developing aquaculture facilities in the relatively unsheltered waters along most of Namibia's coastline. Aquaculture has also received a low priority in government policies and programmes because of the higher priority attached in the early years after Independence to developing Namibia's rich wild fish resources.

However, Namibia has some major advantages for aquaculture including:

- the richness of the inshore marine waters;
- a growing domestic market for fish,
- the potential availability of low cost fish feed from the fishing industry;
- well developed infrastructure
- good transport services to many of the world's major seafood markets, and;

- the positive environment for investors.

Several current international trends are also advantageous for aquaculture growth in Namibia. These trends include:

- strong growth in demand for fish products generally and for aquaculture products in particular;
- limits to the growth in supply from many of the current major producers because of issues associated with sustainability including saturation of potential sites, deteriorating water quality, adverse environmental impacts from intensive aquaculture operations and increasing cost of aquafeeds;
- technology gains which can be expected to improve the productivity and economic viability of aquaculture activities in Namibia.

With these advantages, there is a wide range of potentially important forms of aquaculture which could benefit Namibians. These include the possibility of very large scale further development of the existing operations in farming marine shellfish, and further development of the existing extensive farming of freshwater fish in ponds and dams, both for subsistence and commercial purposes. But in future, they might also include:

- more intensive freshwater farming for subsistence and commercial purposes;
- farming of marine and freshwater plants, especially seaweeds, which has the potential to support very large scale operations;
- the farming of micro-algae for products such as beta carotene which can be used as a source of vitamin A and for industrial products such as natural food colouring agents; and
- the release of marine organisms such as abalone into the sea for subsequent harvesting.

This range of aquaculture activities can bring important benefits in food security and income gains at the level of individual households, especially in rural and coastal areas; and can support larger industrial scale ventures.

However, the development of aquaculture can also cause problems. These problems include impacts that can result from the release of introduced species and genetically modified organisms into aquatic ecosystems, and the mixing of farmed and wild stocks with the risks of disease transfer and other adverse effects. In addition, there is the very special problem for aquaculture that arises from farming marine organisms in areas in the sea that might be affected by harmful algal blooms. These problems can affect other aquaculturists and water users, and the public in general, including people in neighbouring states. Responsible aquaculture development calls for measures to minimise these impacts.

The policy set out in this paper aims to facilitate aquaculture development for the social and economic benefit of all Namibians; but it also aims to ensure that aquaculture development in Namibia is responsible and sustainable.

The preparation of the policy involved substantial consultation with stakeholders in aquaculture. The technical background to the Policy is set out in the National Review for Aquaculture development in Namibia.

2 GENERAL PRINCIPLES

~~1.1~~2.1 Principles

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Namibia is committed to observing the principle of optimum sustainable yield in the exploitation of living natural resources and ecosystems. The Government therefore has an obligation to promote and regulate responsible and sustainable development and management of aquaculture within national water bodies of all types, both natural and artificial

1. Both marine and fresh water aquaculture are to be governed by the same basic management principles.

2. The Government is to ensure the protection of the living resources of national and international waters, both marine and freshwater, from possible adverse effects resulting from aquaculture activities, introductions and effluents.

3. Preference is to be given to Namibian citizens and to ventures beneficially controlled by Namibian citizens to benefit from the utilization of Namibia's natural resources for aquaculture development.

4. Women, being the majority in Namibia, should be fully involved in the aquaculture development process.

5. Aquatic farming communities, voluntary aquaculture producer organizations and individual aquaculturists are to be encouraged to develop responsible aquaculture at the farm level.

6. There should be broad and balanced participation by Namibians in aquaculture, and access to resources available for aquaculture will be equitable.

7. Aquaculture ventures should be self-sustainable.

8. As SADC Marine Fish Co-ordinator, Namibia should strive to serve as a model for the development of strategies for coastal aquaculture.

~~1.2~~2.2 Objective

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The main objective of Namibia's aquaculture policy is the responsible and sustainable development of aquaculture to achieve socio-economic benefits for all Namibians and to secure environmental sustainability.

~~1.3~~2.3 Strategies

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This objective will be addressed by four main strategies :

Putting in place an appropriate legislative and administrative framework for aquaculture, including establishing systems of tenure and rights for commercial aquaculture;

Establishing appropriate institutional arrangements for aquaculture;

Maintaining genetic diversity and the integrity of aquatic ecosystems; and

Ensuring responsible aquaculture production practices.

~~1.4~~2.4 International Framework

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Namibia has endorsed the Code of Conduct on Responsible Fisheries and has committed itself to manage its fisheries in accordance with the guidelines laid down in the Code of Conduct.

The Code of Conduct has specific provisions for aquaculture and the implementation of this policy will therefore be guided by the relevant provisions of the Code.

In the interest of maintaining the highest standards and best ethical practices, the implementation of this policy and the further development of aquaculture in Namibia will also take into consideration such other codes and guidelines as may be or may become applicable to the field of aquaculture such as the FAO Technical Guidelines for Aquaculture Development and the Holmenkollen Guidelines .

3 AQUACULTURE POLICY STRATEGIES

~~1.1~~3.1 Legislative and Administrative Framework

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Presently, there is no legal framework in place for aquaculture in Namibia. The immediate central priority of the Government is to put in a place an aquaculture law and regulations. At this early point in the development of aquaculture in Namibia, the legal and administrative framework will be simple with the intention that it should facilitate and not burden, the present small volume of aquaculture activities. In time, as aquaculture develops, more sophisticated arrangements such as the introduction of Aquaculture Zones reflecting modern approaches to the management of aquaculture elsewhere, may become appropriate, and such approaches are introduced in the policy.

~~1.1.1~~3.1.1 Legal Instrument

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The legislation necessary to facilitate and give effect to the principles of this policy in respect to commercial aquaculture will be embodied in a single legal instrument, the Aquaculture Act, in which provisions specific to aquaculture contained in existing legislation, modified where appropriate, will be incorporated or referred to. Other legal instruments will be amended or repealed as and when necessary.

Responsibilities and Rights

Aquaculture legislation shall establish both the duties and powers of the State on the one side and the responsibilities and the rights of aquaculturists on the other.

Enforcement

Aquaculture legislation shall determine the authority(ies) responsible for the issuance of rights, and for inspection and enforcement thereof, and will provide for conflict resolution procedures.

~~1.1.2~~3.1.2 Aquaculture Rights

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Aquaculture legislation shall confer rights on the commercial or communal aquaculture operator so as to secure the operator's long term tenure for farming specified aquatic organisms, harvesting and selling the products of a declared aquaculture unit. Aquaculture rights can be transferred, sold, traded, or otherwise disposed of, subject to the approval of the competent authority, and can be recognized as collateral. Aquaculture rights shall specify the owner and the location of the aquaculture unit, the aquatic organism(s) to be farmed, and the

period of validity. Rights will detail operating rules and regulations, which will depend on the operator is private, public, or communal.

Tenure

In order to enhance the ability of aquaculture operators to recover investments, rights will be granted on a long term basis to secure tenure for the culture of aquatic organisms on land, sea bed and coastal water areas, and in inland waters (e.g. State dams, rivers, floodplains and oshanas). This will also serve to promote the utilization of freshwater resources for aquaculture, subject to safeguards and annual reviews linked with performance. Aquaculture rights will be withdrawn if developments do not conform with approved management plans. Security of tenure is expected to facilitate the provision of finance (loan facilities) for private ventures.

Criteria for aquaculture rights

The criteria for granting aquaculture rights will include an assessment of the competition for resources, both within the sector and with other sectors, the potential environmental impact, the technical ability of the applicant (to preserve the image of the industry and to avoid damage to the environment and future investment opportunities), and the opportunities which the activity affords for the employment of Namibian labour and capital.

Application for rights

Legislation will spell out the application procedures for aquaculture rights.

Exploratory rights

In some cases, temporary rights may be granted within a strict time-scale for research purposes, e.g., to test the economic feasibility of a project.

Responsibility

The granting of an aquaculture right does not imply that the Namibian Government accepts any financial responsibility for the success or failure of any developments, which remain the responsibility of the proponents.

~~1.1.3~~3.1.3 Rights and Types of Aquaculture

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Two distinct types of potential aquaculture developments are currently recognized, namely communal subsistence production (e.g. farming in wetlands) and commercial ventures. To facilitate these activities, a number of actions are proposed:

Commercial ventures

Legislation will introduce distinct rights for commercial aquaculture activities. Such rights will be accompanied by conditions/requirements concerned with the establishment and operation of aquaculture farms, including transport of live aquatic organisms determined by the competent authority. The competent authority will also establish clear guidelines outlining procedures to be adhered to by aquaculture operators. Such procedures will encompass all requirements and controls delineated in Namibia's Aquaculture Policy. Reasonable fees for aquaculture rights to operate will be imposed under certain circumstances (particularly where State land and water resources are to be utilized and where wild-caught stock is used). The collection of fees will generate a sense of responsibility and security; however, fee rates will not be such that development initiatives are stifled. Fees for rights will be based on criteria such as production values, land and/or water area, estimated aquaculture productivity, water utilization, nature and scarcity of wild-caught stock, etc. The funds generated through licensing might be used to stimulate aquaculture development.

Communal aquaculture

Increased production of aquatic organisms through small-scale aquaculture will be encouraged. Where such operations utilize common resources (e.g. fisheries in floodplains, oshanas and cattle dams) regional councils and traditional authorities will have a strong role to play in creating a climate of ownership over the stock to ensure responsible management. A reasonable tenure structure will be phased in, to secure aquaculture rights to the resource for the community concerned. This policy will reinforce customary law concerning the traditional rights of the community over the resource, which will be strengthened through the legislation.

~~1.1.4~~3.1.4 Planning for Aquaculture

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At present, Government does not have the capacity to actively intervene in the planning of aquaculture and the active promotion of an aquaculture sector in Namibia. At the same time, the commercial sector as it exists does not yet have the capacity to serve as a partner for planning and development. This will change and the both the present policy and the legislation envisaged by it will contribute to the development of both the commercial and the communal aquaculture sectors.

Once the development of aquaculture is sufficiently advanced, a dynamic (5-year) rolling National Development Master Plan for Namibian Aquaculture is envisaged. Such a plan would be drafted and up-dated and should be included in or linked to the respective National Development Plan.

~~1.1.5~~3.1.5 Aquaculture Zones

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Aquaculture Zones (AZs) are an instrument of pro-active intervention by the Government in order to facilitate and regulate aquaculture development in specific areas, and to ensure that development conforms to appropriate standards. Within AZs, aquaculture developments are afforded protection from the effects of potentially harmful activities, such as the discharge of sewage and industrial effluents, mining, dredging, etc.

Designation

AZs will be designated as and when the need arises in any area. Such AZs may initially include certain locations in the communal areas (common property), certain watersheds, and specified coastal areas.

Establishment and management

If designated, AZs shall be established on the basis of environmental assessments (EAs)within the context of integrated area management plans.

Procedures within AZs

Ideally, detailed EAs should precede the establishment of AZs. However, at present neither operators nor the Government have the capacity and the financial resources to undertake EAs for possible AZs. Operators will therefore need to carry out such detailed EAs as might be required by future legislation on environmental management.

~~1.1.6~~3.1.6 Integrated Coastal Zone Management Plans

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Integrated Coastal Zone and other zonal Management Plans shall take into consideration potential aquaculture development while maintaining the contribution of the present aquaculture industry, and regulate that all development in the given Zone conforms to acceptable environmental and performance standards. Zone management will follow laid down standards and procedures and aquaculture operations will apply the customized aquaculture EA procedure.

~~1.1.7~~3.1.7 Emergency Preparedness Plans

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If designated, AZs will be provided with Emergency Preparedness Plans for the temporary shutdown or relocation of aquaculture activities in specific serious

situations, such as sudden unnatural deterioration in water quality (e.g. oil spills), unpredictable algal blooms, and severe weather conditions.

~~1.1.8~~3.1.8 Exclusion Zones

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Certain sensitive aquatic environments may be excluded from aquaculture development.

~~1.1.9~~3.1.9 Protocol for EA

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The authority acting as the focal point for all aquaculture EAs will consult with Ministry of Environment and Tourism (MET) and other relevant authorities. Customized draft guidelines for aquaculture EAs are provided in Appendix F. In general the cost of EAs shall be borne by the proponent.

~~1.1.10~~3.1.10 International Responsibilities

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International laws and guidelines (e.g., the Convention on International Trade in Endangered Species - CITES, the Convention on Wetlands of International Importance - RAMSAR, the International Council for the Exploration of the Seas - ICES, the Code of Conduct for Responsible Fisheries) governing shared aquatic environments (lakes, rivers, wetlands, and seas) shall be respected as an integral part of the EA process.

~~1.1.11~~3.1.11 Fiscal Measures and Tenure

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Government may, from time to time, recommend fiscal measures and incentives to promote certain priority activities for fixed timeframes, such as:

(a) private sector financing of public sector research or the establishment of joint public/private sector research projects (with reasonable exclusive rights of access to results for a specified time period before knowledge becomes public);

(b) the more efficient utilization of marine capture fish processing wastes and by-catch in aquafeeds;

(c) the development of culture techniques for indigenous species which are either endangered or which are not currently the subject of aquaculture but which have potential high-value markets;

(d) the establishment of hatcheries, to reduce reliance on wild-caught juvenile indigenous fish and repeated introductions of exotics (to protect genetic resources);

(e) the funding of scholarships or research assistantships in aquaculture;

(f) the establishment of ventures designed to add value to aquaculture products; and

(g) the hire of extension staff recruited from within communities on a gratuity basis.

~~1.1.12~~3.1.12 Culture-based Fisheries Enhancement

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It is recognized that certain forms of enhancement, including culture-based fisheries are regarded as forms of aquaculture when ownership of the specified stock can be established within specified areas. The granting of sole rights over harvestable stocks resulting from such schemes outside AZs shall be regulated through the granting of aquaculture rights allowing access to demarcated areas.

~~1.2~~3.2 Institutional Arrangements

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The MFMR (MFMR) will be the lead agency for aquaculture, co-ordinating with other agencies as appropriate, recognising in particular the potential role of aquaculture in rural development, and the consequent importance of co-ordination with agencies involved in rural development. No specific institutional structures for aquaculture will be put in place at this point, but once the level of development of the sector warrants it, a National Advisory Committee for Aquaculture with a secretariat, may be established.

~~1.1.1~~3.2.1 Institutional Capacity

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Institutional capacity building for aquaculture will be promoted within concerned line Ministries, including linkages where appropriate. Particular attention will be paid to strengthening the University of Namibia's capacity to provide higher level education for the sector, in which the private sector will be encouraged to participate

Research and training

Capacity for aquaculture research, health management, and training should be appropriately developed. The MFMR will advise on the capacity building required to match the demand for trained manpower in the public sector and the aquaculture industry.

Extension

Responsibility for aquaculture extension and training will lie with the MFMR, which will have the sole responsibility for extension activities in coastal aquaculture.

~~1.1.2~~3.2.2 Information and Statistics

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Statistics

A system for collecting, collating and publishing statistics on aquaculture development, practices, and output shall be established.

Technical information

Information, including research results, on coastal and freshwater aquaculture technology shall be centralized and contained in a dedicated library open to public access. This initiative will also assist and guide the private sector towards international sources of information and shall network with other aquaculture organizations and associations (e.g. FAO, Aquaculture for Local Community Development Programme - ALCOM, Network of Aquaculture Centres in Asia-Pacific, International Centre for Living Resource Management - ICLARM, World Aquaculture Society, Aquaculture Association of Southern Africa, etc.).

Public awareness

Public awareness about aquaculture will be increased through workshops, encouraging the formation of voluntary producer organizations, and media exposure. These actions will be taken not only for educational purposes, but also to promote knowledge about the potential of aquaculture as well as its sustainable and responsible image.

~~1.1.3~~3.2.3 Producer Organizations

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The Government recognizes that aquaculture producer organizations may in future play an important role in presenting the aspirations and concerns of the industry. Such organizations, whose establishment will be encouraged, will comprise a vital component of the interface between Government and the commercial and communal sectors of aquaculture.

~~1.1.4~~3.2.4 Technical Co-operation

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General

Technical assistance to promote the development of sustainable, responsible, and economically feasible aquaculture which provides socio-economic benefits to Namibia shall be actively sought through:

- Co-operation with other countries;
- technical co-operation between developing countries (TCDC); and
- donor assistance.

4 MAINTAINING GENETIC DIVERSITY AND THE INTEGRITY OF AQUATIC ECOSYSTEMS

The potential benefits to aquaculture production in Namibia through the further introduction of exotic species of aquatic organisms need to be balanced with possible impacts on the environment, indigenous species and genetic diversity. A precautionary approach to introductions is therefore essential.

~~1.1~~4.1 Introductions and Transfers

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~~1.1.1~~4.1.1 Code of Practice

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Future proposed introductions of exotics, whether they be for commercial aquaculture or for the aquarium trade will be carefully examined. Proposals for further introductions and translocations of freshwater aquatic organisms will receive particular attention. In all cases the introduction and transfer of aquatic organisms shall be governed by an officially sanctioned code of practice (see model for such a code in Appendix G). Special attention will be paid to the potential transfer of disease organisms during introduction and transfer operations. Quarantine will be required and/or health certificates issued by competent authorities (as specified by relevant legislation) must accompany all imports of live aquatic organisms. Notifiable diseases will be listed in the regulations to be made under the Aquaculture Act and will be regularly updated, following Office International des Epizooties - OIE guidelines.

~~1.1.2~~4.1.2 Allowable and Prohibited Species

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Under the Aquaculture legislation a list of prohibited species known to have had harmful environmental consequences when introduced or translocated will be published from time to time and will be maintained in the framework of the regulations to be made under the future Act. In some circumstances it may be desirable to establish watershed zonation beyond which indigenous or exotic aquatic organisms shall not be translocated.

~~1.1.3~~4.1.3 Genetic Diversity

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The development of genetic resources in aquaculture and the preservation of genetic diversity will be promoted. A set of preliminary guidelines for this purpose are presented in Appendix J and will be updated as a policy document from time to time by the Minister responsible for aquaculture.

~~1.1.4~~4.1.4 Quarantine

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It is recognized that capacity must be built up in Namibia to enable introductions and aquatic organisms in quarantine to be inspected, tested and monitored effectively (see Appendix G).

~~1.2~~4.2 Special Stocking Requirements

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~~1.1.1~~4.2.1 Wild-caught Stock

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The use of wild-caught indigenous broodstock, eggs, fry or juveniles (e.g. of finfish or crustacea) for on-growing in aquaculture establishments will be permitted under conditions designed to protect the natural resource. To this end, quantities will be controlled by the MFMR for marine species. Those proposing to utilize such sources for stocking will be required to make a commitment to progress towards the development of hatchery technology for the species concerned. Adequate precautions to protect spawning, breeding and juvenile habitats and to prevent damage to juveniles of other species must also be taken. Any establishment which can demonstrate that it is producing F2 generations of farm-raised aquatic organisms may be allowed to trade in marketable products reared from wild-caught stock.

~~1.1.2~~4.2.2 Endangered Species

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The culture of endangered species shall be encouraged, provided the activity is consistent with the recommendations of CITES and that trade in such species shall be confined to farm-raised aquatic organisms. Government authority may stipulate that a certain proportion of the production shall be released into the wild.

~~1.1.3~~4.2.3 Natural Spat Collection

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Specialized activities for spat catching and holding should be allowed in designated areas subject to EA approval.

~~1.3~~4.3 International Shared Waters

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Aquaculture activities which take place in waters on or adjacent to international boundaries should be carried out in a way that ensures to the greatest possible

extent that potentially negative effects are limited. This policy should include consultation with the neighbouring country regarding the siting of activities and choice of species as well as general co-operation in monitoring and research.

With specific reference to freshwater aquaculture, Namibia, as a signatory to the SADC Shared Watercourse protocol, must take into account the effects of the use of a shared watercourse system by one watercourse state on another.

5 ENSURING RESPONSIBLE AQUACULTURE PRODUCTION PRACTICES.

~~1.1~~5.1 Responsibilities of Aquaculturists

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Responsible management

Individual aquaculturists, aquaculture communities and producer organizations are to be encouraged to promote responsible aquaculture technology, management and community development projects.

On-farm records

The keeping of on-farm records on inputs, operational procedures, occurrence of disease and water quality problems, productivity, sales and farm economics shall be promoted, for the benefit of the individual farming entity and the sector in general. The timely submission of annual production statistics shall be made a condition of permits granting aquaculture rights.

Predation Control

Farming entities will be encouraged to accept responsibility for shielding their stock against predators in a non destructive way, except as authorized under relevant/appropriate and the necessary permits, if required by law.

Fingerling Production

While fingerling production for stocking inland communal and public areas and as an initial stimulant for the development of the private sector may be a function of the State, the private sector (both coastal and inland) will be expected to develop its own technologies and local fingerling supplies on a commercial basis. (see also Appendix J).

~~1.2~~5.2 Safe and Efficient Farm Management

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Aquafeeds

Quality control standards for aquafeeds, to ensure maximum performance, the maintenance of public health, and minimum pollution, shall be formulated and incorporated in national feedstuff regulations.

Use of chemicals

Special care shall be taken in the use of drugs, hormones, growth promoters, antibiotics and pesticides in aquaculture production generally and shall be subject to veterinary control.

Aquaculture effluents

The use of aquafeeds, chemical fertilizers and organic manures in aquaculture production shall be consonant with the discharge requirements stipulated by relevant legislation and Municipal Authorities, and the health requirements of MHSS. Farm effluents entering inland aquatic environments shall be monitored and controlled through regulations within water legislation.

Disposal of wastes

Guidelines for the safe use (including, where appropriate, adequate withdrawal periods) and disposal of expired or unused drugs, antibiotics, growth promoters, hormones and other chemicals will be prepared by the Directorate of Veterinary Services - DVS. The disposal of contaminated offal, sludge, and dead or diseased fish shall also comply with normal health and veterinary procedures.

~~1.3~~5.3 Quality Assurance

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Farmed aquatic organisms destined for export shall comply with the regulations of the importing country. The importer shall establish the competent authority for export certification. Such certification shall constitute authority for exit through customs. Export quality will be monitored by the competent authority in order to promote a generic quality image for Namibian exports of farmed aquatic organisms.

~~1.4~~5.4 Harmful Algal Blooms

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MFMR shall be responsible for monitoring coastal areas for the presence of harmful algal blooms and for providing immediate formal notification to producers if harmful algal blooms are confirmed. Mollusc aquaculturists will be expected to be vigilant in observing the areas in which they operate for the possible presence of harmful algal blooms and shall supply the MFMR with regular samples for analysis.

~~1.5~~5.5 Ethical Concerns

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To satisfy ethical concerns and to pre-empt potential damage to the industry, acceptable methods of handling, harvesting and ("humane") slaughter for aquaculture stock will be promoted.

~~1.6~~5.6 Marketing a Quality Image

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The specific marketing of live, fresh and value-added products from aquaculture will remain the responsibility of the private sector within a free market system.

~~1.7~~5.7 Policy Review

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Finally, the MFMR will ensure that the Government's Aquaculture Policy regularly reviewed and updated as a component of the National Development Master Plan for Namibian Aquaculture.