USE OF WATER FOR AQUACULTURE PURPOSES

OPERATIONAL POLICY

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DIRECTORATE WATER ABSTRACTION AND IN-STREAM USE

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(v) The aquaculture sector at large represented on the National and Regional Aquaculture Working Groups.

FOREWORD

The South African aquaculture sector is poised to contribute in a sustainable manner to rural development and poverty relief, and to large-scale economic development, diversification and export opportunities. The non-consumptive and integrated use of water for aquaculture can be economically beneficial, can create Black Economic Empowerment (BEE), small and medium enterprise (SMME) opportunities, Public Private Partnerships (PPP), Community Public Private Partnerships (CPPPs) and skills development without expensive land reform and capitalisation. This development, however, depends on an accessible regulatory and facilitative framework to guide the sustainable utilisation of resources, to which the water resource is central. In this, the equitable intensification of aquaculture must take place without undue impact on water resources, the fitness-for-use of water by other activities and the greater environment.

The Department of Water Affairs and Forestry (DWAF) is obliged to consider the unique regulatory and facilitative nature of water usage for aquaculture. It is also in a position to use the opportunity, provided by aquaculture, to contribute towards achieving the objectives of the National Water Act, 1998 (Act No. 36 of 1998) through integrated and sustainable utilisation of water resources to address socio-economic development, food-security, human resource development and equitable access to water and the water-based economy. To ensure that DWAF is prepared and equipped to deal with these obligations and opportunities, this policy will be used as the core point of departure in the approach that DWAF will adopt to the use of water by the aquaculture sector. This policy aims to be:

(i) Forward Looking: Considerate of the future growth of the aquaculture sector and the need for renewal of policies, strategies and approach.
(ii) Outward Looking: Taking cognisance of the effects of the policy on the sector and thus being service orientated as opposed to restrictive.
(iii) Innovative and Flexible: Leading the design and implementation of more efficient means to ensure the sustainable use of water for aquaculture.
(iv) Joined Up: Linked to all government and private sectors that deal with, or have an interest in the aquaculture sector, and take cognisance of other aquaculture related policies and protocols.
(v) Inclusive: Effective at all levels of the sector from subsistence to large enterprise, across technologies, markets and scale.
(vi) Evidence Based: Geared to the nature of the aquaculture sector and the harmonised, sustainable use of water resources.
(vii) Evaluated: Adequately reviewed and updated through internal (DWAF) and external (aquaculture sector) inputs.

Ms B Schreiner
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EXECUTIVE SUMMARY

This Operational Policy sets out to define the Department of Water Affairs and Forestry's (DWAF) responsibility in regulating and facilitating the use of water for aquaculture. The policy defines aquaculture and the need for a policy of this nature against the background of the growing world aquaculture sector and the poor participation in this sector by African countries, including South Africa.

The approach of the policy is defined in terms of a problem statement, scope of application, policy principles, the objectives of the document and the implementation responsibilities. Matters ranging from empowerment and redress to interdepartmental cooperation, communication and others are dealt with through the guidelines provided by the policy.

Through active review and implementation this policy will set the manner in which DWAF will deal with aquaculture and it will set the basis for the development of relevant protocols as tools for the realisation of the policy's goals and objectives.

ACRONYMS

AASA	Aquaculture Association of Southern Africa
AISA	Aquaculture Institute of South Africa
BEE	Black Economic Empowerment
CMA	Catchment Management Agency
CPPP	Community Public Private Partnerships
DEAT	Department of Environmental Affairs and Tourism
DTI	Department of Trade and Industry
DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organisation of the United Nations
KPA	Key Performance Area
M&CM	Marine and Coastal Management
MT	Metric Ton
NAP	National Aquaculture Policy
NASW	National Aquaculture Sector Workgroup
NDA	National Department of Agriculture
NEMA	National Environmental Management Act, No. 107 of 1998
NEPAD	New Partnership for Africa's Development
NWA	National Water Act, No. 36 of 1998
PPP	Public Private Partnerships
RMP	Resource Management Plan
SADC	Southern African Development Community
SMME	Small, Medium and Micro Enterprise
UN	United Nations
WA&IU	Water Abstraction and Instream Use
WMI	Water Management Institution
WRC	Water Research Commission

GLOSSARY OF TERMS

In this document, unless the context indicates otherwise, any word or expression to which a meaning has been assigned in the National Water Act (NWA), 1998 (Act No. 36 of 1998), shall have that meaning, and-

(a) "**Aquaculture**" means the propagation, improvement, trade or rearing of aquatic organisms (plant and animal) in controlled or selected aquatic environments (fresh, sea or brackish waters) for any commercial, subsistence, recreational or other public or private purpose.

(b) "**Aquaculturists**" means a person who practises aquaculture.

(c) "**Basic human needs**" means that component of the Reserve required to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act, No. 108 of 1997, for people who are now or who will, in the reasonably near future, be requiring water.

(d) "**Best Management Practice**" means the application of measures and aspects of management to achieve the best possible outcome in all instances.

(e) "**Biodiversity**" means the variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and also includes diversity within species, between species, and of ecosystems;

(f) "**Black Economic Empowerment**" is defined as an integrated and coherent socio-economic process that directly contributes to the economic transformation of South Africa and brings about significant increases in the number of black people who manage, own and control the country's economy, as well as significant decreases in income inequalities.

(g) "**Cage culture**" means the practice of aquaculture within a defined pen or net cage or structure that is contained within a larger water body.

(h) "**Candidate species**" means a species that has been identified as having potential for the use in aquaculture.

(i) "**Capture fisheries**" means the harvesting of aquatic organisms from an environment in which no attempt has been made to manage or otherwise influence the organisms by containment, feeding or application of any husbandry techniques.

(j) "**Catchment Management Agency**" means a body corporate that will fulfil the functions as contemplated in Part 2 of Chapter 2 of the NWA.

(k) "**Community Public Private Partnership**" means a program by the Department of Trade and Industry to link resource-rich communities with private investors interested in utilising natural resources. Its core role is in stimulating rural enterprise through facilitating mutually beneficial, sustainable partnerships that result in ownership by the community.

(l) "**Controlled activity**" means an activity having a detrimental impact on water resources as contemplated in Sections 37 and 38 of the NWA.

(m) "**Co-operative governance**" means the process of governance (including regulation, facilitation etc.) between two or more governing bodies (e.g. Government Departments).

(n) "**Crustacean**" means any of various predominantly aquatic arthropods of the class Crustacea, characteristically having a segmented body, a chitinous exoskeleton, and paired, jointed limbs.

(o) "**Cumulative impact**" means the net resultant impact of two or more elements or activities exerting respective individual impacts. This is used in the context of an

impact that in itself may not be significant but is significant when added to the impact of other activities.

(p) "**Demographic**" means the adjective of or relating to demography, which is the study of the characteristics of human populations, such as size, growth, density, distribution, and vital statistics.

(q) "**Dissemination**" means effective and equal distribution.

(r) "**Environmental Impact Assessment**" means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to a decision contemplated in Regulation 17 of the National Environmental Management Act, No. 107 of 1998 in respect of the potential impacts of a proposed activity.

(s) "**Equitable"** means marked by or having equity; just and impartial.

(t) "**Equity**" means the state, quality, or ideal of being just, impartial, and fair.

(u) "**Exotic species**" means a species that is not an indigenous species; or an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.

(v) "**Finfish**" means an aquatic vertebrate of the super-class Pisces.

(w) "**Fitness-for-use**" means the characteristics that are conducive to normal use (i.e. in terms of this policy it refers to the characteristics of water resources that allow for normal use).

(x) "**Food security**" means the attainment of the minimum quantity of sustenance for maintenance of bodily functions and health.

(y) "**Genetically modified**" means the resultant genome from the application of techniques of genetic engineering so that the genome contains one or more modified or alien genes.

(z) "**Guideline**" means a document containing rules and instructions that direct the implementation of a functional business area.

(aa) "**Historical backlog**" means the state of certain demographic groups in South Africa caused by the previous political dispensation prior to democratisation in 1994.

(bb) "**Human resource**" means the collective worth (intellectual, spiritual and physical) of a person or people.

(cc) "**Hybridisation**" means to produce hybrids through crossbreeding of species to form DNA base pairs between complementary genetic regions of two strands of DNA that were not originally paired.

(dd) "**Industrial Aquaculture**" means aquaculture that is practised at large scale, with large production volumes and continues and predictable outputs.

(ee) "**Mariculture**" means the practise of aquaculture in the marine environment or an environment that replicates the marine environment.

(ff) "**Mollusc**" means any of numerous invertebrates of the phylum Mollusca, typically having a soft un-segmented body, a mantle, and a protective calcareous shell and including the edible shellfish and the snails.

(gg) "**Natural fisheries resources**" means the aquatic organisms in an environment in which no attempt has been made to manage or otherwise influence the organisms by containment, feeding or application of any husbandry techniques.

(hh) "**New Partnership for Africa's Development**" means a vision and strategic framework for Africa's renewal.

(ii) "**Non-consumptive**" means to use in a manner which does not decrease the matter quantitatively or qualitatively.

(jj) "**Operational Policy**" means a document outlining the set of principles and ideals on which decision-making and implementation are based and clarifies intent with regards to a particular business area in relation to the National Water Act or other empowering legislative requirements;

(kk) "**Ornamental Aquaculture**" means the practise of aquaculture for the provision of products that are used in an aesthetic manner only.

(ll) "**Past imbalances**" means the socio-economic disparity of certain demographic groups in South Africa caused by the previous political dispensation prior to democratisation in 1994.

(mm) "**Previously disadvantaged**" means the socio-political disadvantage of certain demographic groups in South Africa caused by the previous political dispensation prior to democratisation in 1994.

(nn) "**Public Private Partnership**" means a program by the National Business Initiative for the enhancement of private sector participation in the provision, financing and management of public services.

(oo) "**Redress**" means the process of rectifying past socio-economic imbalances in certain demographic groups in South Africa (caused by the previous political dispensation prior to democratisation in 1994).

(pp) "**Resource Management Plan**" means a written plan, for the management of and control over the water surface and water body of a water resource including a water surface and water body of a government waterworks and the surrounding state-owned land, approved by the Minister of Water Affairs and Forestry.

(qq) "**Shellfish**" means an aquatic animal, such as a mollusc or crustacean that has a shell or shell-like exoskeleton.

(rr) "**Socio-economic**" means of or involving both social and economic factors.

(ss) "**State managed water or impoundments**" means water impoundments (dams, weirs etc.) that fall under direct jurisdiction of the South African Government.

(tt) "**State Parties**' is any unit, department or administrative structure bought about by the South African Government and as further contemplated in Section 239 of the South African Constitution.

(uu) "**Structural elements of impoundments**" means all elements that ensure the continued existence and functionality of impoundments and include, pipes, valves, pumps, weirs, dam walls and other infrastructure.

(vv) "**Subsistence**" means just sufficient to maintain life.

(ww) "**Sustainable**" means the capability of continuation with minimal long-term effect on the environment.

(xx) "**Water related infrastructure**" means any building or infrastructure that is necessary for the functioning of the facility or that is used for an ancillary service from the facility.

(yy) "**Water-based economy**" means any economic sector or element, which depends on or is linked to water resources.

SUPPORTING DOCUMENTS

This policy is supported by the following documents:

Department of Water Affairs and Forestry (2006). *Guidelines for Authorising the Use of Water for Aquaculture Purposes*. Directorate Water Abstraction and Instream Use, Sub-directorate Environment and Recreation.

1. INTRODUCTION

1.1 The Definition of Aquaculture

Aquaculture is defined as the propagation, improvement, trade or rearing of aquatic organisms (plant and animal) in controlled or selected aquatic environments (fresh, sea or brackish waters) for any commercial, subsistence, recreational or other public or private purpose.

Aquaculture does not include capture fisheries (or fisheries), which entails the harvesting of aquatic organisms from an environment in which no attempt has been made to manage or otherwise influence the organisms by containment, feeding or application of any husbandry techniques.

1.2 The Need for a Policy

The use of water for aquaculture has the potential to impact water resources, and the social, economic and biophysical environments. In order to ensure the sustainability of a sector that is so reliant and closely linked to water resources it is imperative that these water resources are protected, and that their utilisation is based on sound management, while ensuring equitable benefits to all. Increased pressure for Government intervention will occur in order to ensure water resource sustainability through clarification by policy regarding equity, resource management, protocols and guidelines for aquaculture regulation and facilitation.

With reference to Section 21 of the National Water Act (NWA), 1998 (Act No. 36 of 1998) the use of water for aquaculture can incorporate none, one or several of the following identified water uses:

(a) taking water from a water resource;
(b) storing water;
(c) impeding or diverting the flow of water in a watercourse;
(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
(g) disposing of waste in a manner which may detrimentally impact on a water resource;
(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process; and/or
(i) altering the bed, banks, course or characteristics of a watercourse.

This potential multiple water usage (as classified by Section 21 of the NWA) underpins the need for a comprehensive and effective operational policy to support the regulation and facilitation of the use of water for aquaculture purposes.

Through the Department of Water Affairs and Forestry (DWAF) as custodian authority over water resources, this policy will ensure that Government can provide explicit direction and guidance regarding water utilised by aquaculture, thereby creating an environment that is conducive to unlocking the potential of this activity, and the associated sector, in a sustainable manner. When integrated with the relevant legislation, other policies and strategies, it will ensure that aquaculture becomes an important catalyst in the redress of past imbalances, whilst providing an effective guideline for managing, conserving and using water resources sustainably and equitably.

1.3 The Purpose of this Policy

The core purpose of this policy is to lay the foundation and clarify the approach for DWAF to regulate and facilitate the use of water and associated water related infrastructure for aquaculture within its mandate as custodian authority over water resources and the NWA. In this, the policy will set the principles to be applied in DWAF's authorisation procedures for the use of water in aquaculture, resource allocations and pricing, access to water related infrastructure, the establishment of institutional arrangements, internal and external coordination mechanisms, implementation responsibilities, and the development of best practice around this use.

The aforementioned core purpose of this policy is embedded in the greater purpose of the NWA (Section 2), which states that the Act must ensure that the Nation's water resources are protected, used, developed, conserved and managed in a sustainable and equitable manner. This policy thus defines DWAF's obligations in regulating and facilitating the use of water for aquaculture and establishes the basic principles and aims for this.

2. AQUACULTURE BACKGROUND

In order for this policy to be effective it is important to provide background information on aquaculture so that a clear understanding can be developed of the scope, importance, potential impacts and nature of this sector. As this nature is continuously evolving, and the scale of production increasing, it is important that this section be regularly updated to reflect the position of the sector.

2.1 Aquaculture Globally

The importance of aquaculture is growing, both as a world food resource and in economic terms. The global population is expanding and the demand for high-quality protein, especially from aquatic sources, is rising steadily. Production from capture fisheries is, however, at capacity and showing further declines due to over fishing, habitat destruction and pollution. Aquaculture production has the potential to meet projected demands of fish, shellfish and other water related product supplies.

Currently, aquaculture contributes 29.1% (37.5 million MT) of total world fisheries (128.8 million MT) compared to a steadily decreasing contribution of 70.9% (91.3 million MT) from conventional capture fisheries (FAO, 2002). Aquaculture has realised a cumulative annual growth rate of 14.5% over the period 1992 to 2000, compared to 3.5% for terrestrial animal production and 1.8% for capture fisheries yields.

The development of aquaculture is driven by market forces (supply and demand) the diversification of the economic base, the sustainable utilisation of resources and a quest for food security. In this, aquaculture has developed into a diverse industry, with over 64 countries participating in the production of more than 300 species of fish, shellfish, crustaceans and aquatic plants. The commercialisation of aquaculture and the development of technologies were initiated mainly by first-world countries in Europe, Asia and North America, but have since spread to a number of developing countries in south-east Asia and South America, with Africa due to follow suite.

The establishment of commercial aquaculture in developing countries relies on the utilisation of natural, human and energy resources. In developing countries these resources can be harnessed by first-world intervention, causing local aquaculture to become directed towards lucrative first-world markets. This leads to limited benefit sharing in domestic aquaculture. Developing countries should strive to acquire the technologies, skills and finance that will enable them to take the initiative and responsibility for local aquaculture development, thereby ensuring a more equitable share in the sustainable utilisation of local natural, human and energy resources.

2.2 Aquaculture in Africa

In spite of its vast natural and human resources, the participation of Africa in the global aquaculture sector is lacking. Aquatic species indigenous to Africa (prawn, tilapia, catfish, eel and abalone) have developed into aquaculture species of international importance. Developing countries from south-east Asia and South America have secured significant participation in these sectors, but African countries, including South Africa, have been unable to secure any meaningful economic benefits from these indigenous aquatic resources. The primary problems causing the lack of participation in the aquaculture sector by the African continent is investigated in detail by a series of work done by Hecht in 2000 and 2001 (as referenced).

2.3 South African Aquaculture

Aquaculture in South Africa produces freshwater species such as trout, crocodiles, ornamental fish, marron, catfish and tilapia and marine species such as abalone, prawns, oysters and mussels. Candidate species such as eel, crayfish, cob, yellowtail, grunter, tuna, turbot and seaweed are being developed and/or considered. Aquaculture technology and services are well establish for species such as trout, crocodiles, catfish, tilapia, abalone, prawns, oysters and mussels whilst still lacking for species such as eel, cob, tuna and seaweed. Various factors are currently stimulating the development of aquaculture in South Africa, including:

- The availability of resources such as water, land, labour, energy, etc.;
- The non-consumptive and integrated manner in which aquaculture can use water;
- The diminishing natural fisheries resources;
- Good national and international market interest;
- Good agricultural and other essential infrastructure;
- The need for diversification and optimisation of resources;
- The good access to national and international technologies;
- International partnerships and collaboration within the sector;
- The socio-economic need for redress and food security; and
- The ability of aquaculture to act as a vehicle for participation, skills enhancement, empowerment, food security and socio-economic upliftment.

Factors that are currently inhibiting the development of the aquaculture sector in South Africa include:

- Fragmented policies and protocols from various Government Departments[1];

[1] The Departments of Agriculture and Environmental Affairs and Tourism have initiated a policy co-ordination process that will involve all relevant Government departments as well as stakeholders from the sector.

- Lack of marketing structures to access the market interest;
- Limited access to finance and developmental capital; and
- Limited human resources in capacity, skills and aquaculture expertise.

The further growth of aquaculture in South Africa depends on the successful integration, use and development of natural resources (water, land, climate, energy and biodiversity), human resources (labour, skills and technology) and economic resources (capital, infrastructure and market access).

Freshwater and marine species that are currently produced in South Africa are listed in Table 1, together with the production volumes and values. Species that are produced in smaller quantities in South African aquaculture have not been included here as these sub-sectors are fragmented and poor statistical data is available. The collection, reporting and dissemination of reliable aquaculture statistics are poor in general.

Considering global trends in aquaculture, the historical backlog in South Africa and the potential of local resources, the aquaculture sector in South Africa is likely to expand rapidly.

Table 1: South African aquaculture production for 1998, 2000 and 2003 (Hoffman, et.al., 2000 and expanded by Brink, 2003)

Species: Freshwater	**Common name**	**1998 (M. tons)**	**2000 (M. tons)**	**2003 (M. tons)**	**2003 Value (R. mil.)**
Aponegeton distachyos	Hawthorne	120	150	170	0.280
Carrasius auratus	Goldfish	465 000*	805 000*	930 000*	3.319
Cherax tenuimanus	Crawfish	4	8	13	0.699
Clarias gariepinus	Catfish	40	65	240	3.202
Crocodylus niloticus	Crocodile	-	-	8550*	11.500
Cyprynis carpio	Carp	45	55	80	1.106
Koi carp (C. carpio)	Koi carp	128 000*	375 000*	110 000*	1.563
Micropterus salmoides	Bass	5	8	8	0.072
Mugulidae	Mullet	12	15	17	0.231
Onchorhynchus mykiss	Trout	1 650	1830	1750	44.011
Oreochromis mossambicus	Tilapia	45	130	210	3.098
Oreochromis spp.	Tilapia spp.	25	45	52	0.739
Ornamental fish spp.	Ornamental	5	7	7	0.520
Penaes indicus	Shrimp	85	120	130	11.830
Subtotal		**2 036**	**2 433**	**2677**	**82.170**
					Species: Marine
Grassostria gigas	Oysters	175	170	250	1.600
Gracilaria spp	Sea weed	16	40	48	0.265
Haliotis midae	Abalone	22	180	515	134.000
Mytilus galoprovincialis	Mussels	650	790	900	5.135
Subtotal		**863**	**1 180**	**1713**	**141.000**
Total		**2 899**	**3 613**	**4 390**	**223.170**

** Unit = number of fish*

2.4 Classification of Aquaculture Types

The aquaculture sector employs a range of production techniques that can be classified according to the environment in which the activity is practised, the scale and intensity, the

nature of water use, the degree of "openness" to the environment, the species, housing facilities for production organisms and more.

Firstly, aquaculture is carried out as either freshwater aquaculture or marine aquaculture (i.e. mariculture), which is practised in fresh and marine waters respectively. Estuarine and brackish water aquaculture straddles the divide between fresh and marine water aquaculture.

Aquaculture can further be defined in terms of the intensity of production. The typical classification in this regard refers to extensive production as opposed to semi-intensive and intensive production where the level of technology, capital expenditure, running costs, control, risk and volume of production per unit area typically increases from the less to more intensive practises. Associated, but not necessarily linked to this, is the magnitude of production that can be broadly divided into small-scale operations (often subsistence ventures), medium scale enterprise and large-scale enterprise (often referred to as industrial aquaculture).

Further classification is possible according to the nature of water use. In this regard differentiation can be made between closed systems where no (or very little) water is replaced, semi-open systems where water is supplemented or replaced from time to time and flow through or open systems where new water is continuously replacing water in the production system. In most cases the water entering into open or semi-open systems allows for the replenishment of oxygen and the removal of production wastes. In closed systems, oxygen (if required) must be added by other means, while production wastes are generally removed by water filtration.

In terms of water usage aquaculture can also be defined according to its position in relation to the water resource. In this regard aquaculture activities can be situated in open waters, in stream or in channel, off channel or in effluent waters.

A range of production facilities are used in aquaculture. These can be classed into tank culture, pond culture and cage culture systems. Within each of these various subcategories derivatives can be identified. Tank culture can range from typical glass tanks to tanks of various sizes constructed of fibreglass, plastics, concrete or other materials. Pond culture typically refers to earthen ponds, but various plastic, concrete and other pond linings are common. Cage culture systems range from basic penned enclosures to basic floating cages and technologically advanced submerged cages.

Categorisation by species not only refers to marine or freshwater species, but also to the typical species groups such as reptiles, finfish, crustaceans, molluscs, aquatic plants or algae.

2.5 Negative Impacts of Aquaculture

Aquaculture uses water volumetrically and is generally regarded as a non-consumptive use as the water remains available for other uses after the aquaculture activities. With regard to water chemistry, aquaculture has the potential of adding metabolic wastes to the water and the environment at large (mainly phosphorous and nitrogenous organic compounds). This can lead to an overabundance of algae that can affect the suitability of water for other uses.

Although limited, aquaculture poses potential physical impacts. These include the potential to increase turbidity or destabilization by organisms that disturb the substrates or structural elements of impoundments. From a safety perspective, aquaculture structures could pose a threat to functional elements (valves, cause ways etc.) and to recreational water users.

The potential impacts of aquaculture on biodiversity relate to the escape of exotic or genetically different organisms and the indirect impacts on biodiversity through aquaculture related environmental degradation. Furthermore, the introduction of disease and aquaculture medications and chemicals could also impact on biodiversity. Aquatic biodiversity can further be affected negatively by hybridization, predation, habitat destruction and elimination or competitive advantage (displacement) in an ecosystem.

Other effects such as aesthetic disturbance and the cumulative impact of aquaculture together with other water uses also need to be considered. These potentially negative impacts can, however, be mitigated through adequate planning and control, and should be considered in conjunction with the social and economic benefits that may derive from aquaculture.

3. POLICY APPROACH

3.1 Problem Statement

As aquaculture is closely linked with the state and availability of water, a function of this policy is to address the problems faced by the aquaculture sector and the problems faced within DWAF in dealing with this expanding sector.

Problems faced by the South African aquaculture sector include:

- Complex, non-existent, ill informed, non-compatible and unrelated statutory frameworks and procedures that are sometimes costly, and hinder the progress of sustainable and equitable aquaculture development;
- Poor and lacking sector planning at national and regional levels;
- Access to aquaculture resources, skills and technologies is poor and not well structured and supported by Government and the private sector. This includes the lack of mechanisms to access State managed water and infrastructure resources for the development of PPP and CPPP ventures;
- Investment confidence in aquaculture is low due to poor feasibility analysis, poor fund distribution and historic unscrupulous use of funding opportunities;
- Factors such as effective market penetration, product acceptance, product quality, aquaculture feeds, aquaculture stock improvement, training and innovation need to be addressed in the sector; and
- Poor penetration of the sector into rural areas.

Problems faced by DWAF in its regulation and facilitation of the use of water for aquaculture include:

- A lack of internal capacity, at national and regional levels, in understanding the intricacies related to the use of water for aquaculture and the nature of this use;
- The multiple water use methods and classifications used in the aquaculture sector, complicates authorisation procedures in terms of the NWA;
- The lack of a comprehensive decision support system (i.e. protocol), backed up by internal expertise in the field of water usage for aquaculture; and
- The lack of awareness of the aquaculture sector within DWAF, which has created a poor image of DWAF by the aquaculture sector.

3.2 Scope of the Policy

This policy is for use by all South Africans. This can be further refined in terms of:

(i) the geographical area of its application;
(ii) the sector for which it is intended;
(iii) the identification of its users; and
(iv) its application in guiding sustainable and equitable practices in the sector and its role in providing information on the approach of DWAF to the regulation and facilitation of the use of water for aquaculture.

In the first instance, this policy is intended for use in all the aquatic environments under South African jurisdiction and over which the Minister through DWAF has jurisdiction in terms of the NWA. This includes all freshwater resources and is limited to marine environments only in instances where aquaculture water use influences estuarine environments and where aquaculture effluents are discharged into the marine environment.

Secondly, this policy is intended for use by the South African Government and in all facets of the aquaculture sector, albeit marine or freshwater aquaculture, ranging from subsistence ventures to the production of high value export products and the ornamental aquaculture trade.

Thirdly, it is intended for use by all parties involved and participating in aquaculture in South Africa. Participants include producers, suppliers, processors, marketers, consultants, tertiary and other educatory bodies, environmental custodians, consumers, the general public and all regulatory and Government sectors.

Fourthly, it must be applied in achieving sustainable and equitable practices in the aquaculture sector.

3.3 Principles

The core principle of this policy is to provide an enabling regulatory environment for the use of water for aquaculture under DWAF's mandate as custodian authority over South African water resources and the NWA. This enabling regulatory environment will aim to create accessibility to water resources and the associated infrastructure for the growth of an equitable and sustainable aquaculture sector.

Secondary principles shall include facilitative, socio-economic, commercial and environmental principles, and shall support the aforementioned core principle.

The facilitative principle relates to the manner in which DWAF must equip itself with the necessary tools (i.e. protocols) to deal with the regulation of water use for aquaculture in an effective manner. The socio-economic principle relates to the objectives of the NWA in addressing socio-economic development, food-security, human resource development and equitable access to water and the water-based economy. The commercial principle relates to the creation of an environment that enables the sustainable exploitation of commercial opportunities to the benefit of the South African economy. The environmental principle relates to the responsibilities of DWAF to ensure the protection of the water resources used by aquaculture, as well as the protection of the associated water ecology and all other users, which depend on these resources.

Although not all directly related to the use of water, these principles are echoed in Article 13 of the Protocol on Fisheries (2001) issued by the Southern African Development Community (SADC), which reads as follows:

- State Parties shall take the necessary steps to optimise the economic contribution of aquaculture to the Region;
- State Parties shall review policies, legislation, plans and institutions to address the characteristics and needs of aquaculture in recognition of the fact that aquaculture is a distinct enterprise;
- State Parties shall promote on-site research, demonstrations and increased practitioner-to-practitioner extension as ways to increase economic and social benefits from aquaculture;
- State Parties shall promote private sector participation in aquaculture through access arrangements to designated areas and provide or facilitate the necessary support services and access to finance;
- State Parties shall co-operate, where necessary, in the promotion of inland and marine ranching and stock enhancement;
- State Parties shall undertake research and technological development, particularly in identifying new sources of locally available raw materials for fish feed;
- A State Party shall not introduce exotic species or genetically modified species to shared aquatic ecosystems including the full extent of the river basin unless the affected State Parties agree to the introduction;
- State Parties shall establish standard guidelines and regulations for the application of environmental impact assessments; and
- State Parties shall monitor and exchange information on diseases and the spread of diseases of relevance to cultured aquatic species.

3.4 Policy Aims and Objectives

As a holistic policy with the capacity to unify and simplify the regulation and facilitation of water use for sustainable and equitable aquaculture development, the objectives of the policy are to:

(i) Attain this policy's core and secondary principles through the establishment of an enabling regulatory environment for the use of water for aquaculture under DWAF's mandate as custodian authority over South African water resources and the NWA. This includes guiding the creation of a standard, conducive and procedurally just administrative and institutional environment, aligned with other laws, for the consideration, assessment, licensing and authorisation of the use of water for aquaculture;

(ii) Give rise to internal mechanisms, the necessary capacities, and decision making criteria in technical, legal, environmental and social aspects to regulate accessibility and entitlements to water resources and the associated infrastructure required by the aquaculture sector;

(iii) Give rise to the establishment of equity, the participation of all demographic groups, social-economic development, human resource development, and poverty alleviation in all instances where the use of water for aquaculture is regulated and facilitated;

(iv) Give rise to the protection and conservation of water resources and associated ecologies used by aquaculture in an environmentally responsible manner based on best management practices, monitoring, auditing and accountability;

(v) Give rise to the sustainable exploitation of commercial opportunities that rely on the use of water for aquaculture. These opportunities must be equitably proportioned and

benefit communities so that the aquaculture sector contributes to the diversity, vitality and long-term viability of local and regional economies;

(vi) Attain compatible integration of the use of water for aquaculture with other water uses and to ensure that the effects of aquaculture on the fitness of water resources do not impact detrimentally on other rightful users of these common resources;

(vii) Give rise to the establishment of linkages, communication networks and co-operative governance arrangements around the regulation and facilitation of water use for aquaculture. These linkages must straddle the public and private sectors and should clarify the roles of Water Management Institutions (WMIs) and Catchment Management Agencies (CMA's) in order to create a harmonious balance between resource managers, users and affected communities;

(viii) Give rise to the alignment of DWAF's policies and protocols on aquaculture with the National Aquaculture Policy (NAP) of the National Department of Agriculture (NDA), and to cooperate with and participate in the interdepartmental National and Regional Aquaculture Workgroups, the Aquaculture Association of Southern Africa (AASA) and the Aquaculture Institute of South Africa (AISA);

(ix) Guide the water resource tariff measures and arrangements as these relate to the use of water for aquaculture;

(x) Give rise to internal mechanisms for dealing with information that relates to the use of water for aquaculture and thus ensure that internally DWAF becomes aware of this unique water use;

(xi) Continuously determine the potential impacts of aquaculture on water resources in relation to the notion of having aquaculture declared a controlled activity in terms of Section 38 of the NWA; and

(xii) Give rise to the deployment and regular review of this policy to ensure that it remains relevant and in use.

3.5 Wider Legislative Context

Although sector specific legislation for aquaculture does not exist, all the laws within the legislative framework of South Africa apply. Apart from the overriding South African Constitution, human rights, right to tenure, labour and commercial laws, many facets of aquaculture are governed by environmental and resource related legislation such as the NWA. These include *inter alia*:

- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
- Environment Conservation Act, 1989 (Act No. 73 of 1989);
- National Environmental Management Act, 1998 (Act No. 107 of 1998);
- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004);
- Marine Living Resources Act, 1998 (Act No. 18 of 1998);
- Agricultural Pests Act, 1983 (Act No. 36 of 1983);
- Animal Diseases Act, 1984 (Act No. 35 of 1984);
- Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997);
- Fertilisers, Farm Feeds, Agricultural Remedies and Shock Remedies Act, 1947 (Act 36 of 1947);
- Animal Health Act, 2002 (Act No. 7 of 2002);
- Various Land Use Planning Ordinances; and
- Various Nature -, Environmental - and Conservation Ordinances.

This basket of applicable legislation means that the use of water for aquaculture, as entitled under the NWA, cannot stand separately from other legislative requirements.

South Africa has endorsed and is a signatory to many codes of conduct and protocols that exist in the international community. Many of these have bearing on the manner in which aquaculture is developed and conducted and therefore this policy (through the NWA) recognises the existence of these international arrangements and their influence on South African aquaculture. Additionally, aquaculture activities may affect internationally shared resources, where mutually applicable legislative systems may apply.

One of the key regional (Southern African) protocols, which is recognised in this policy, is the SADC Protocol on Fisheries (2001). Apart from its grounding in the NWA and the legislative framework of South Africa this policy recognises the direction given by the New Partnership for Africa's Development (NEPAD) and the international applicability of the guidelines for aquaculture under the Food and Agriculture Organisation (FAO) of the United Nations (UN).

Clear differentiation is required in terms of the legislative implications for the entitlement and authorisation of water resources for aquaculture and the authorisation for the use of the infrastructure associated with such waters (i.e. dams, channels, reservoirs and infrastructure employed in the management of water resources). This differentiation can be approached by means of defining the use of privately owned infrastructure as opposed to Government Waterworks (publicly owned assets) controlled by DWAF. For this reason the legislative implications for the use and access to such State owned assets for aquaculture, requires careful consideration and interdepartmental coordination.

The approval for the use of water resources for aquaculture under the NWA will conform to the existing application procedures for authorisations, licences and approvals as contemplated in the NWA (Parts 6 to 10 of the NWA).

The governing legislative frameworks must be applied to aquaculture in a manner that leads to:

- Equitable access into aquaculture for all sectors of the South African community;
- The responsible allocation and use of national resources;
- The conservation of resources, ecosystems and biodiversity;
- Accountability for natural resource degradation; and
- Development and diversification of the South African economy.

3.6 Roles and Responsibilities

In terms of Section 3 of the NWA, National Government, through the Minister of DWAF, is the public trustee of the Nation's water resources with additional powers in terms of Section 26 of the NWA to regulate the manner, purpose and extent of water use and, in this instance, the use of water for aquaculture.

DWAF is thus mandated as the lead organisation concerning the regulation and facilitation of the use of water resources for aquaculture. The Directorate Water Abstraction and Instream Use is the lead directorate within DWAF responsible for this policy. Due to the diverse nature of aquaculture and the importance of a common purpose within DWAF, the other directorates, branches and business units will take equal responsibility in addressing matters that relate to their respective fields:

- The Sub-directorate Environment and Recreation will co-ordinate policy and regulation development in support of authorisation of the use of water for aquaculture purposes and provide inputs with regards to Section 21(c) and (i) water uses;
- The Sub-directorate Abstraction and Storage will provide guidance in respect of Section 21(a) and (b) uses;
- The Sub-directorates Agriculture and Industries of the Directorate Resource Protection and Waste provide inputs with regards to waste related impacts from these activities; and
- The Water Resource Infrastructure Branch will provide inputs with regards to access and use of government waterworks - in particular commercial aquaculture ventures (PPPs).

It is the responsibility of DWAF to ensure that this policy is implemented at national and regional level so that the policy's aims and objectives can be achieved. Furthermore, DWAF must convey this policy to the other key Government Departments that are involved in the aquaculture sector, to WMIs, the existing and upcoming CMA's, to the National and Regional Aquaculture Workgroups, to the AASA, the AISA and its affiliated associations and to the aquaculture sector as a whole. In terms of this policy the recommended roles of these public and private recipients are as follows:

(i) The National Department of Agriculture (NDA):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility as lead department for aquaculture and its development;
- to ensure that this policy is conveyed to the respective provincial departments and to use it in areas of common responsibility;
- to provide recognition of this policy in its role as custodian over the National Aquaculture Sector Workgroup;

(ii) The Department of Environmental Affairs and Tourism (DEAT):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility in protecting and conserving environmental resources;
- to ensure that this policy is conveyed to the respective provincial departments and to the Marine and Coastal Management (M&CM) section to use it in areas of common responsibility;

(iii) The Department of Health:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility in ensuring public health related to the utilization of these water resources and the products produced by the aquaculture sector;

(iv) The Department of Land Affairs:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility in land reform, equitable allocation of land, resettlement and rights to land tenure;

(v) The Department of Provincial and Local Government:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to ensure that this policy is recognised by provincial and local governments in their involvement with water resources and the development of aquaculture;

(vi) The Department of Public Works:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with mechanisms for the equitable access and use of publicly owned assets associated with these water resources;

(vii) The Department of Science and Technology (DST):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility in the development and funding of aquaculture initiatives in the dissemination of scientific and technological information;

(viii) The Department of Trade and Industry (DTI):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility in promoting equitable aquaculture business development and export opportunities;

(ix) Provincial Governments:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their respective provincial mandates that implicate water resources;

(x) Local Government:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their respective local mandates that implicate water resources;

(xi) Water Management Institutions (WMI):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their responsibility over water resources within their respective Institutions;
- to ensure that the policy is communicated to any person or party contemplating or involved in aquaculture and associated with the institution;

(xii) Catchment Management Agencies (CMA):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their responsibility as a catchment based management authority over water resources and the NWA;
- to ensure that the policy is communicated to any person or party contemplating or involved in aquaculture in the catchment;

(xiii) The National Aquaculture Sector Workgroup (NASW):
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with its responsibility as national-, interdepartmental-, sector- and technical-forum for Aquaculture;
- to actively align this policy with similar policies from other Government Departments;

(xiv) Regional Aquaculture Workgroups:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their responsibility as regional-, interdepartmental-, sector- and technical-forums for aquaculture;
- to ensure that the policy is communicated to all persons and parties associated with the workgroups.

(xv) The Aquaculture Association of Southern Africa (AASA) and affiliated sector associations:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their responsibility to steer the aquaculture sector towards regulatory compliance;
- to ensure that the policy is communicated to any person, party or organisation affiliated to the associations;

(xvi) The Aquaculture Institute of South Africa (AISA) and affiliated sector associations:
- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to align this with their responsibility to steer the aquaculture sector towards regulatory compliance;

- to ensure that the policy is communicated to any person, party or organisation affiliated to the institute;

(xvii) The aquaculture sector:

- to recognise the regulatory and facilitative mandates of DWAF over the water resources used for aquaculture and to use the policy in aquaculture development and planning, and to steer compliance with the NWA.

It remains the responsibility of each of the abovementioned Government departments and organisations to clarify their own mandates towards aquaculture given their respective positions and the legislation over which they have jurisdiction.

4. POLICY GUIDELINES

4.1 Equitable Industry Access and Redress

Aquaculture in South Africa can contribute to the local, regional, and national economy by providing employment, rural food security, socio-economic development, participation opportunities, business opportunities, skills development and empowerment in a new and diverse sector that uses water in a mostly non-consumptive, often integrated manner, without land reform capitalisation. Aquaculture development must, however, take particular account of the needs of socially and economically disadvantaged communities and the previously disadvantaged sectors in the South African demography.

The Black Economic Empowerment (BEE) mechanisms and associated BEE scoring systems and goals introduced by the National Government will by default apply to the aquaculture sector. In furthering this, DWAF, in mutual partnership with the aquaculture sector, must endeavour to:

- Ensure that this policy is made known to all South Africans and cooperate with other public and private sectors that are involved in the aquaculture sector;
- Promote the reflection of equity, empowerment and socio-economic upliftment in licence and authorisation applications for the use of water resources for aquaculture;
- Set up a system to evaluate the potential use of public water resources and the associated water related infrastructure and assets for aquaculture by ventures that embrace BEE, rural community upliftment, food security, CPPPs and PPPs. This should be done in partnership with the Departments of Public Works and Land Affairs;
- Assist other Government Departments and non-government organisations in their efforts to achieve equity and redress through aquaculture by assisting with applications and authorisations for the sustainable use of water, other natural resources and the associated infrastructure for aquaculture;
- Give outright priority to South African nationals in the allocation of entitlements, licences and authorisations for the use of South African water resources for aquaculture;
- Give consideration to subsistence fisheries supported by aquaculture in publicly managed water resources;
- Include the sustainable use of water and the associated infrastructure for aquaculture into all Resource Management Plans (RMPs), while encouraging integrated use of the resources within such RMPs for aquaculture; and
- Participate in the extension services provided other Government Departments when these services reach into rural communities for the development of aquaculture.

4.2 Responsible Aquaculture Practices

It is not within DWAF's mandate to develop Best Management Practices (BMP) for the aquaculture sector, but such management practices have a direct influence on the protection and conservation of the water resources to which aquaculture is inextricably linked. In this regard DWAF must insist on the implementation of a BMP system when issuing entitlements, general authorisations or licences for water resources used in aquaculture.

The mechanisms for cooperative governance around *inter alia* the Environmental Impact Assessment (EIA) process under the NEMA (administered by DEAT), development facilitation in terms of the Development Facilitation Act, 1995 (Act No. 67 of 1995) and administered by the Department of Provincial and Local Government), establishment of Land Use Management Systems and Integrated Development Plans in terms of the Municipal Systems Act, 2000 (Act No. 32 of 2000) administered by Municipalities, and the powers of DWAF, under the NWA, affords it the opportunity to insists on BMP systems as a condition of approving new aquaculture facilities.

Many aspects contribute to BMP in aquaculture. Of primary concern to the protection of water resources are the following:

- Aquaculture should be correctly positioned and practiced according to the suitability of the water resource, any zoning implications, and the integration of the aquaculture activities with other uses of the same water resource;
- Quantitative control measures should be put in place to limit production to levels that can be sustained by the water resource;
- Effluent discharge and waste control, as these relate to the water resource, should be controlled and monitored;
- Consideration should be given to infrastructure safety and the impact of aquaculture infrastructure on other users of common water resources;
- Systems should be in place for the detection of water resource degradation and negative impacts on other water resource users;
- A clear understanding should be developed regarding accountability associated with the entitlement and authorisation of the sustainable use of water for aquaculture; and
- Attention should be given to the potential impact of aquaculture chemicals, feeds, diseases and exotic organisms on water resources.

4.3 Integrated Water Resource Utilisation

The sustainable use of water and the associated infrastructure for aquaculture must recognise that water resources typically serve multiple users, some of which take precedence over activities such as aquaculture. These include primarily the Reserve and water to serve basic human needs, but could also include other water uses according to the specific catchments and uses. Once these needs have been served the sustainable use of water for aquaculture must be compatible both in space and time with other water uses and users; and must comply with public health and safety norms, standards and regulations.

4.4 Interdepartmental and Other Co-operation

Due to the diversity of aquaculture and the fact that it is influenced and controlled by legislation and mandates from various Government Departments, it is important that these Departments

interact in a co-operative manner. Developing an approach to incorporate and align legislation, regulation, production, marketing, and sustainable resource use should therefore be a combined effort using interdepartmental expertise.

This policy promotes and emphasizes the legislative obligation on DWAF and all other Government Departments to cooperate on matters in the development, regulation and facilitation of a sustainable aquaculture sector. Government Departments must take the necessary steps for the harmonisation of laws, policies, plans and programs on aquaculture to prevent intergovernmental and industry fragmentation.

The National Aquaculture Sector Workgroup has been established under custodianship of the NDA. DWAF must ensure that it provides continuous inputs into this workgroup and ensure that the DWAF policies and protocols on aquaculture are clearly carried over to other Government Departments so that individual policies, legislation and regulations can be geared to operate in unison.

4.5 Aquaculture Workgroups, Associations and Institutes

The National Aquaculture Sector Workgroup (NASW) comprises representatives from the Regional (Northern and Southern) Workgroups, the AASA, the AISA, emergent farmers, marine and freshwater aquaculturists, financial institutions, research institutions and service providers. In this regard the NASW is the most important vehicle outside of DWAF to carry forward the deployment of the DWAF policies and protocols on the sustainable use of water for aquaculture. The continued representation and participation of DWAF on the NASW is thus of great importance.

The NASW under custodianship of the NDA is the guardian of the NAP. This policy recognises and requests that each of the individual Departments (including DWAF) ensures that its own affairs, in relation to the regulation and facilitation of aquaculture, are in order and that this is governed internally by policies and protocols as required.

It is important that regional DWAF officials represent the Department and DWAF's aquaculture related policies and protocols at the Regional (Northern and Southern) Workgroups to ensure the regulation and facilitation of the sustainable use of water for aquaculture at a regional level. These workgroups are also of great importance in carrying forward the deployment of the DWAF policies and protocols.

Producer organisations play an important role in representing the aspirations and concerns of the industry. Such organisations are a vital component of the interface between Government and the commercial and communal sectors of aquaculture. The AASA is recognized in this policy as the umbrella producer organisation for aquaculture in South and southern Africa. As the sub-associations in the aquaculture sector are affiliated to AASA, Government Departments should use AASA as its link to the sector at large and visa versa.

The AISA has been established with the support of various Government Departments and serves as a platform for the consolidation of efforts by these various Government Departments in the promotion and development of the aquaculture sector. Furthermore it serves to represent a common front to industry specific matters such as addressing disease certification for the export of South African aquaculture products. For this reason it is important that the DWAF policies and protocols on the sustainable use of water for aquaculture also be channelled through this common platform created by AISA.

4.6 Fiscal Matters

4.6.1 Resource Related Fiscal Matters

Water is a valuable environmental (social, economic and ecological) commodity and charges will be levied for the use of water and the associated infrastructure for aquaculture as per the relevant pricing strategies for the Section 21 (a), (b), (c), (f), (g), (h), and (i) water uses.

These charges will be related to that of the greater agricultural sector, but due to the communality of largely non-consumptive and integrated use of water sources in aquaculture, the charge component will rest heavily on the waste discharge component and the effects on the quality of the water resource. This is akin to the concept of “the polluter pays”.

The structure and methodologies for the application of tariffs to the use of water for aquaculture will be resolved internally by DWAF (Sections 56 to 60 of the NWA). Where the use of water related State assets for aquaculture is concerned these tariff systems will be addressed jointly with the Departments of Public Works and Land Affairs. Furthermore these tariff structures will be decentralised to the level of CMA’s as these become established over time.

Where the use of State managed water resources or the associated infrastructure for aquaculture (i.e. State impoundments and the related water resources and infrastructure) is concerned, tariffs for such use will be based on market related concessionary charges related to the value of these resources or infrastructure, the nature of the use, other dependants on these water resource or infrastructure and the administration or management costs related to these resources or infrastructure.

4.6.2 Policy Related Fiscal Matters

DWAF will allocate the necessary funds for the effective communication, implementation, review and update of this policy.

4.7 Communications

The premise of communication around this policy is that informed stakeholders will actively participate in improving the regulation and facilitation of the sustainable use of water for aquaculture. To achieve this and awareness among stakeholders, communication must be simple, clear, easy to understand and educative.

Communication of this policy aims to achieve greater internal capacity and better external understanding of the role that DWAF plays in the regulation and facilitation of the sustainable use of water for aquaculture.

The Directorate Water Abstraction and Instream Use will be tasked with the required communication of this policy within DWAF, to other Government Departments and to the aquaculture sector. Apart from the policy itself, the message that will be conveyed to all stakeholders is that the sustainable use of water for aquaculture will be governed and facilitated in accordance with NEPAD, the directives of SADC, the South African Constitution and statutory systems, the South African Water Policy, related Acts and the National Water Resource Strategy.

It is intended that this policy be published for general public scrutiny.

4.8 Information Management

The timely collection, reporting and dissemination of reliable information about the aquaculture sector are not the responsibilities of DWAF. Nevertheless, the background information provided on the aquaculture sector in Chapter 2 of this policy requires regular updating. This information could be obtained through the Water Research Commission (WRC) and from the NASW, AASA and AISA and incorporated into this policy.

Internally DWAF will, via its regions and later the CMA's, collect a standardised suite of information from any person or party whishing to attain an authorisation or entitlement for the sustainable use of water for aquaculture. This information will stipulate the nature of the resource, the nature of the aquaculture activity and the conditions under which authorisations or entitlements are allocated (according to the administrative stipulations of the NWA).

Information with regard to the sustainable use of water resources for aquaculture will remain public domain and must be kept in an orderly manner according to the legal obligations set for public administration and the duties to make information available to the public (Section 145 of the NWA).

4.9 Operationalisation and Implementation

The potential that water resources have to sustain aquaculture must be unlocked and an environment that is conducive for the development of the sector should be created through regulation, facilitation and the use of these resources and the associated infrastructure for aquaculture.

This policy will be operationalised by means of presenting it to the central and regional offices of DWAF that have a vested interest in the regulation and facilitation of the sustainable use of water for aquaculture, other Government Departments, the Regional (Northern and Southern) Aquaculture Workgroups, the AASA, the AISA, emergent farmers, marine and freshwater aquaculturists, financial institutions and research institutions as represented at the NASW. This deployment must be extended to the CMA's and relevant WMI's as these are established over time.

DWAF, as the lead organisation in the regulation and facilitation of the sustainable use of water resources for aquaculture, has a pivotal role to play in unlocking the potential of these water resources for aquaculture. In order to focus the Department's activities on explicit outcomes, six Key Performance Areas (KPAs) have been identified. These KPAs will form the basis and framework for implementation of this policy:

(i) Controlling the sustainable use of water for aquaculture through authorisations, registrations, regulations and other appropriate measures which could include the declaration of aquaculture as a controlled activity in terms of Section 38 of the NWA;
(ii) Establishing effective cooperative linkages with the NASW;
(iii) Ensuring internal capacitation to deal with the regulation and facilitation of the sustainable use of water for aquaculture in an administratively just manner associated with good communication, financial methodologies and information management;

(iv) Facilitating access to water resource related infrastructure that can be used in aquaculture;
(v) Facilitating, through this policy, the attainment of equity, empowerment, rural and community benefits, food security, socio-economic upliftment and general business development as a core result from regulating and facilitating the sustainable use of water for aquaculture; and
(vi) Ensuring that responsible best practices are implemented around the sustainable use of water for aquaculture and to associate this with auditing, monitoring and accountability for compliance and performance.

4.10 Monitoring, Auditing and Accountabilities

Any authorisation, registration, PPP or entitlement pertaining to the use of water for aquaculture must be accompanied with the necessary conditions to ensure that the effects of the use of a water resource for aquaculture (including ecological impacts, fitness for use for other water users, and socio-economic impacts) is monitored and reported back to DWAF or relevant authority. Furthermore this monitoring and the effects must remain auditable by DWAF or an applicable third party to conform to the stipulations of Section 143 of the NWA.

The users of water resources for aquaculture will be held liable for impacts caused by aquaculture activities that exceed the approved thresholds for such impacts. Such impacts will be regarded as an offence and will be dealt with according to the stipulations in Sections 151 to 155 of the NWA.

4.11 Research and Development

Aquaculture related research and development is not the direct responsibility of DWAF. Nevertheless, where specific water resource related research would make the implementation of this policy and the related protocol more effective, such research themes must be presented to and investigated with the WRC and the research institutions represented on the NASW.

5. POLICY REVIEW AND UPDATE

As initiators of this policy on the sustainable use of water for aquaculture it is the responsibility of the DWAF Directorate Water Abstraction and Instream Use to undertake the review of this policy on annual basis.

This policy must be reviewed by means of updating the aquaculture sector background information in Chapter 2. The remainder of the policy must be review against its conformity to the NWA and the greater legal framework in which it operates, while taking cognisance of the policy's performance at national (NASW) and regional (DWAF offices and CMAs) levels and in the aquaculture sector.

The review criteria must include the policy's answerability to being understandable, aligned with the NWA and other laws and policies, implementable and its ability to effectively regulate and facilitate the sustainable use of water for aquaculture towards achieving the aims and objectives set in 3.4 above.

6. CONCLUSION

By regulating and facilitating the sustainable use of water for aquaculture through a policy that encompasses responsible resource use, equity and sustainability, DWAF will be ensured of meeting its obligation to contribute to attaining the objectives of the NWA.

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