

This strategic alignment will also ensure that aquaculture can be better catered for in the Medium Term Expenditure Framework (MTEF).

Current involvement and future plans

Aquaculture and fisheries in Mpumalanga Province is mainly on freshwater fish species. Although aquaculture and fisheries in the Province is mainly concentrated on trout farming in the cold areas of the highveld region, indigenous tilapia (***Oreochromis mossambicus*** and ***Tilapia rendalii***) fish production is an alternative in warm areas of the Province. The Aquaculture Division of Department of Agriculture, Rural Development and Land Administration is primarily involved in freshwater tilapia but not limited to trout. However, challenges with trout are that it is an exotic species, high environmental restrictions on farming with it, requires high water volume and management. Hence tilapia is an alternative due to its adaptable behaviour to wide range of water quality variables. Aquaculture Division is available to assist district municipalities to establish new and rehabilitate existing potential aquaculture projects for sustainable livelihood, food security, poverty alleviation and rural development. The Division will also assist already existing farmers in the Province on technical expertise. Integration of fish-agriculture production is also an alternative to ensure full utilization of available water and linkage to other agricultural commodities in the agricultural sector.



Figure 3.

Floating cages at Lowveld Agricultural College Dam stocked with 10g tilapia fingerling (2010) grown upto 600g in April 2011

Aquaculture Scientists and Technicians (based at Lowveld Research Unit) of DARDLA are available to assist interested parties and emerging/existing farmers with technical advice/expertise throughout the Mpumalanga Province.

For more information and further assistance contact:

Ms. K.P. Ledwaba/
Email: LedwabaKP@mpg.gov.za
Tel no.: (013) 752 7769/6643
Cell no.: 076 503 2688

OR

Mr. S.J. Goetze
Email: GoetzeSJ@mpg.gov.za
Tel no.: (013) 752 7769/6643
Cell no.: 079 897 9249



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Department:
Agriculture, Rural Development
and Land Administration
MPUMALANGA PROVINCIAL GOVERNMENT



AQUACULTURE AND FISHERIES IN MPUMALANGA PROVINCE

Introduction

Aquaculture is the controlled cultivation (farming/production) of a variety of fish, crustaceans, molluscs, and aquatic plants in marine and freshwater mainly for human consumption, industrial use and recreational purposes. In South Africa it consists mainly of freshwater species such as crocodiles, trout, catfish, tilapia and ornamental fish as well as marine species such as abalone, prawns, oysters and mussels (Technology for Sustainable Livelihoods, Department of Science and Technology; FAO, 2002).

Fisheries are the Activities aimed at supplementing or sustaining the recruitment of one or more aquatic species and raising the total production or the production of selected elements of a fishery beyond a level which is sustainable through natural processes. In this sense culture-based fisheries include enhancement measures which may take the form of: introduction of new species; stocking natural and artificial water bodies; fertilization; environmental engineering including habitat improvements and modification of water bodies; altering species composition. The altering of species composition include elimination of undesirable species, or constituting an artificial fauna of selected species; genetic modification of introduced species (FAO, 1997).

Fish farming is regarded as the form of aquaculture. It involves raising of fish commercially in tanks, ponds and ocean enclosure. A facility that releases juvenile fish into the wild for recreational fishing or supplement a species' natural numbers is generally referred to as a fish hatchery.

Aquaculture in South Africa

Aquaculture is currently one of the fastest growing food production systems in the world. Most of global aquaculture output is produced in developing countries, and, significantly, in low-income food-deficit countries (FAO, 1997). Aquaculture industry in South Africa was established in the 1980's focusing on trout, oyster, mussel, ornamental fish and catfish farming (Hecht and Britz, 1990). In 1988, the sectors produced a total of 3094 tons, valued at R45.8 million (Hecht and Britz, 1990) was later had increased to 5208 tons (FAO, 1998). The average increase per annum between 1988 and 1998 was 6.8% and therefore a number of state led projects were initiated to stimulate the growth of rural aquaculture, largely with the objective of enhancing food security and income in rural households. However, aquaculture growth 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 development) and economic resources (capital, infrastructure and market access). The potential and success for freshwater aquaculture in South Africa is constrained by the natural environment, scarcity of water, extreme seasonal temperature fluctuations (Britz and Hecht, 1990) and the choice of farmed species with the exception of trout and ornamental fish, which have a high market value.

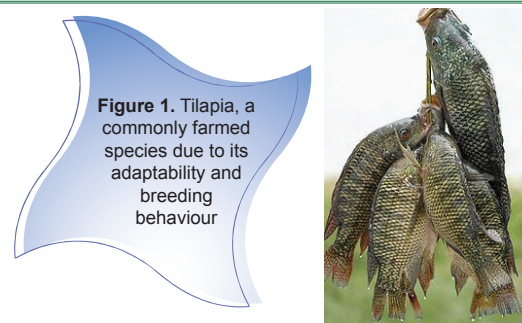


Figure 1. Tilapia, a commonly farmed species due to its adaptability and breeding behaviour

Department of Agriculture Rural Development and Land Administration core objective in relation to aquaculture

The objective of the Aquaculture Technology and Development of DARDLA is to introduce and demonstrate innovative technology solutions for the local farmers to support the creation of sustainable jobs, economic empowerment, food security, poverty alleviation, promote and manage the sustainable use of bio-diversity and natural resources. Its focus is on sustainability of community projects and the development of downstream beneficiation Small Medium and Micro Enterprises (SMME's).

Core function of the Aquaculture Division of DARDLA

The Aquaculture Division focuses on technology solutions and fish production systems that are sustainable, but have the potential to achieve DARDLA's broad objectives by developing new technologies that will be transferred to communities and community groups with a view to establishing aquaculture farms in the Mpumalanga Province. Therefore, the job opportunities will be created in fish farming whereby the technology and skills will be transferred. Aquaculture Division of DARDLA does not only focuses on the Research and Development but also on the adaptation of technology solutions (based on farmers needs) on the ground to contribute to the establishment of fish farming by communities and already existing farmers in the Mpumalanga Province.

Tilapia market

In South Africa, the formal market has been slow to accept tilapia as fine cuisine, preferring marine fin-fish above freshwater fish. In contrast, the formal sector in other Southern African countries relishes this species as food fish. The informal market is the large opportunity that is very undersupplied at present, and already several tilapia farmers and fishermen sell tilapia into the informal market. These farmers are enjoying numerous advantages to this sector, including selling the fish whole, unprocessed; obtaining higher prices than in the formal market, and most of all the informal market pays cash for the product. Alternatively, farmers producing tilapia can form cooperative to ensure constant supply of tilapia to the formal market.



Figure 2. Informal sale of gutted unprocessed freshwater fish (tilapia and catfish) caught from local river systems from R20.00 each.

Fish is regarded significantly nutritional, social, economic and environmental benefits, which generally can be associated with most existing aquaculture practices, and the good prospects for further development and expansion of the sector, it is important for efforts aiming at the sustainable development of aquaculture that potential social conflicts and environmental problems are minimized.

Aquaculture linkage to CRDP and ME

DARDLA prioritises the provision of **Comprehensive Rural Development Program** (CRDP), food security, farmer support (especially to emerging farmers and land reform beneficiaries) and **Masibuyele Emasimini** (ME), while noting the requirements for research, capacity building and skills development in achieving this. The Aquaculture Division echo these priorities in the development of aquaculture, as the achievement of success in the mobilisation of the aquaculture sector is underpinned by strategic alignment within DARDLA. The Aquaculture Division is developed on the foundation of the strategic objectives of DARDLA.