

EXECUTIVE SUMMARY

E1. INTRODUCTION

The Proponent, **Ferme Marine de Mahebourg Ltd (FMM)**, is involved in the Fish Farming sector in Mauritius since 2000. To date, FMM manages two declared Fish Farm Zones in the lagoon of Anse Jonchée, and owns the associated land-based activities at Pointe aux Feuilles and consisting of a hatchery and a processing plant. The processed fish - Red Drum (ombrine) and European Seabass (bar européen) - is mostly for export and the balance is sold on the local market.



Ferme Marine de Mahabeourg adheres to the most relevant codes of practices, such as FAO Code of Conduct for Responsible Fisheries – Aquaculture, and has obtained certifications such as Friends of the Sea – Sustainable Seafood, and the necessary permits to operate such as registration certificates from the competent authority.

FMM now proposes to expand its fish farming activity with three additional fish farm zones, namely

1. East Bamabous Point 1,
2. Proposed New Site and
3. North East Jonchee Bank.

The Ministry of Fisheries has in principle no objection to the expansion in the three above-listed zones subject to the First Schedule of the Marine and Resources Act 2007 be amended to include sites 2 and 3; not currently listed therein. Necessary actions are being undertaken at the level of the Ministry of Fisheries.

Fish Farming is a listed undertaking warranting an Environmental Impact Assessment (EIA) licence from the Ministry of Environment and Sustainable Development under section 18 of the Environmental Protection Act 2002.

The proponent has enlisted the services of a team of consultants to undertake the necessary consultancy services and surveys for the proposed project.

The justification of the expansion project holds in the economical viability of the fish farming activity: the current production – 450 MT per annum - does not allow FMM to be profitable. A production of twice the breakeven point, i.e. 3,000MT per annum is required to render the activity economically viable.

The expansion project shall be progressive, with the installation of the first additional fish farm in May 2014 and the operation of the third additional fish farm in July 2015.

The current activity and expansion project had been disclosed to the competent authority and the Board of Investment some time back; same has been disclosed to the stakeholders of the area in a public presentation held on 23rd December 2013.

E2. LEGAL, POLICY, PLANNING AND INSTITUTIONAL FRAMEWORK

The three main Acts governing the proposed project are:

1. **The Environment Protection Act (EPA) 2002 and Regulations.** The Fifth Schedule (section 15(2)) of the EPA2002, lists in part B “*Undertakings Requiring an Environmental Impact Assessment*”, and

includes *inter alia*:- “14A. Fish farm in the fish farming zones under section 8A of the Fisheries and Marine Resources Act 2007.

2. **The Fisheries and Marine Resources Act 2007. Fish Farming** is regulated by Part III – section 8 to 10 - of the Act.
3. **The Planning and Development Act 2004** and National Development Strategy 2003. In accordance with the Second Schedule (Section 24) of the Act, “**Aquaculture** being the commercial breeding, hatching, rearing or cultivation of marine, estuarine or fresh water organisms, including aquatic plants or animals such as fin fish, crustaceans, molluscs or other aquatic invertebrates” **are classified as State Significant Developments, i.e. major/strategic projects having national or cross-boundary significance should be processed at central Government level.**

Other main applicable legislation and policies are

1. Developpement de L'Aquaculture à L'île Maurice, Etude du Potentiel Aquacole” (Aquaculture Master Plan 2007), Board of Investment & IDEE, November 2007
2. Potential for Sustainable Aquaculture Development in Mauritius, Board of Investment & Ministry of Agro-Industries and Fisheries (Fisheries Division), December 2007

E3. HIGHLIGHTS OF THE FISHING SECTOR IN MAURITIUS

Artisanal Fisheries in Mauritius. From the Annual Report 2010 - Ministry of Fisheries and Rodrigues - Fisheries Division, to date about 50 to 60% of fish harvested by the artisanal fisheries is still from the lagoon. Most artisanal fishers operate in the areas inside the fringing reef, using hook and line, basket traps and beach seines. Reef fish particularly groupers, mullet, parrotfish and goatfish are targeted.

The total production of lagoon fisheries has decreased from 579 tonnes in 2006 to 354 tonnes in 2007 and back to 515 tonnes in 2010; still 9% less than in 2006. In the same period the off lagoon fisheries yielded around 300 tonnes per annum. The total fish landings of artisanal fishers have decreased from 2006 to 2010 by 13%.

Artisanal Fisheries in the South East of Mauritius. The number of registered fishermen in 2012 in the Mahebourg lagoon is, according to figures supplied by the Ministry of Fisheries, of 208. Most of the fishermen (54%) operate out of Mahebourg, 43% from Bambous Virieux and 3% from G.R.S.E. Most of the fish caught in the lagoon is landed in Mahebourg (85%). In 2012 the fishermen in the Mahebourg lagoon landed a total of 54 tonnes of fish at the official fish landing stations. No fish landings are reported from G.R.S.E. fishermen. The fishermen operating from Bambous Virieux landed 89 kg of fish each in 2012 and the fishermen from Mahebourg 412 kg each. If these figures are correct, then the majority of the fishermen in Bambous Virieux only work as fishermen on part time basis

Aquaculture. Growing fish in cages is becoming an important alternative for the artisanal fishermen. Recently small fish cages have been placed all around the island, which are managed by local groups of fishermen. The only larger scale marine cage farm at present operating in the lagoon is Ferme Marine de Mahebourg. The production of aquaculture in Mauritius (which consists of ponds, barachois and cages in the lagoon) is now 566 tonnes. Of the aquaculture production 500 tonnes is produced in the lagoon, the balance on land. The total fish yield from the lagoon, consisting of artisanal fisheries and aquaculture combined, was in 2010 some 1.015 tonnes. **At present 49% of that amount of fish is already originating from aquaculture.**

E4. SITE AND PROJECT DESCRIPTION

Concession of Area in Fish Farming Zones. Per section 8A. of the Fisheries and Marine Resources Act 2007, a “fish farming zone” is a radius of up to 300m around the GPS points of the 8 zones defined in the First Schedule of the Act.

FMM is already the lessee of two fish farming zones and has applied for three new ones in the context of its necessary expansion. Two of the new proposed fish farming zones are not listed and the first schedule of the act needs to be amended following the issue of the no objection received from the competent authority.

Similar activities in the area. There are currently no other fish farms of comparable size in the area.

There are however cages of artisanal fishermen anchored at several other points and in front of the hatchery of FMM in Pointe aux Feuilles.

The Fishermen Investment Trust (FIT) had expressed interest for the scheduled zone 3 (by letter dated 24 October 2008) and has agreed by letter dated 22 March 2013 to leave zone 3 to be leased by FMM and has requested the competent authorities the lease of zone 2.

The clustering of similar undertakings in the area – namely the lagoon of Mahebourg - emanated from the Aquaculture Master Plan and was approved through the First Schedule of the Fisheries and Marine Resource Act.

For security and bio-security reasons it is however imperative that a necessary buffer be respected between two fish farms.

Project description. The proposed existing and expansion project of FMM are detailed as follows:

1. Design, size and scale of the project
2. Capacity of the farm, ecological approach, low density adopted
3. Quality of the fish Certifications
4. Source and volumes of fingerlings
5. Fish feed
6. Chemical-free fish farming
7. Contingency plans

E5. SOCIAL AND ECONOMICAL ENGAGEMENT OF FMM

As the only medium scale industry in the whole south east coastal area of Mauritius, FMM plays an important role both economically and socially.

The key socio-economical aspects are:

1. the employment growth, with focus on youth employment
2. training in several aquaculture related sectors are provided to aquaculture workers such as diving, literacy, first aid, HACCP courses
3. organisation of educational site visits of the farm for school children
4. recycling of treated effluent from the fish process for irrigation of small planters' fields
5. sponsoring of local sports and other activities
6. encouraging the local production of aquaculture related equipment and fish feed

E6. BASELINE EXISTING ENVIRONMENT

The study area includes the area at sea in and around the three proposed new fish farming zones and the existing two fish farms.

The scope of the marine surveys in the study area includes

1. A geomorphology and biodiversity survey
2. A bathymetry
3. A current monitoring at neap tide, receding tide and rising spring tide
4. A water sampling at various locations and various depths
5. A sediment sampling at various locations

In addition to the above, a desk review of available data was also carried out.

Based on past experience and monitoring carried out over the years on the existing activity - the condition of the bottom under the cages is checked every 4 to 6 months and a report is drawn as part of the external audit - some valuable information has been gathered and return from experience obtained to assess the likely effects of fish feed on the marine ecosystem.

A substantial marine life develops around the existing fish farms with the result that it attracts visitors

1. From boat operators who bring tourists for dolphins watching and other diving/snorkelling activities
2. To fishermen who fish in the fish farm zones.

The fish farm zones are in principle no-go areas as activities carried out by unauthorised persons could damaged the cages and anchoring.

E7. PREDICTED ENVIRONMENTAL IMPACTS AND POTENTIAL MITIGATING MEASURES

The impact identification carried out for the proposed project:-

1. is based on the “Matrices of aquaculture activities, impacts and mitigation measures” No3 for “Coastal cage or pen culture” appended to the “Composite Guidelines for the Environmental Assessment of Coastal Aquaculture Development”, i.e. fish farms at sea and land-based infrastructure;
2. has been amended in the light of the present project
 - a. which refers to the sea-based activities only, i.e. new fish farms.
 - b. the land-based activities already exist and are excluded from the project
 - c. the present project refers to low density aquaculture (i.e. is NOT intensive aquaculture).

The following actions potentially affecting environmental resources and values have been assessed:

- A. *Site selection*
 1. Conflicts with other site users and interference in livelihoods of local communities
 2. Selection of ecologically sensitive site
 3. Hazards to aquaculture from nearby pollution sources (e.g. agriculture, industry)
 4. Typhoons, flooding, hurricanes
 5. Water quality
 6. Fish fingerlings (seed)
 7. Disease problems
- B. *Farm design*
 1. Attention to problems A (1) to A(7) above
 2. Socio-economic impacts
 3. Interference with navigation, traditional users
 4. Aesthetics
- C. *Farm construction*
 1. Siting
- D. *Farm operation and management*
 1. Solid waste disposal
 2. Waste water/effluent discharge
 3. Use of chemicals
 4. Seed collection/supply
 5. Disease outbreaks and disposal of mortalities
 6. Operational failures caused by storms
 7. Boats, infrastructure support
 8. Predators and wildlife

The impact assessment carried out for each of the above-listed potential impacts has been evaluated based on the significance of the impact on the environment.

The Mitigation Measures are mainly in the form of

1. Implementation of legal provisions
2. Engineering design, and
3. Good site management practices

These Mitigation Measures are currently implemented on the two existing farms and shall be extended to the three new ones.

E8. ENVIRONMENTAL MONITORING PLAN

An Environmental Monitoring Plan (EMP) is currently in place for the two existing farms and shall be extended to the three new ones.

The EMP ranges from twice daily visual inspections carried out internally to external audits carried out several times a year.

E9. CONCLUSION

With the implementation of the mitigation measures, the long-term impact on the physical environment is negligible while in socio-economic terms, the development would be rather positive.

Hence, the environmental impact assessment concludes that the proposed expansion of Ferme Marine de Mahebourg with three new fish farms zones should be granted the required EIA licence.