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# Guidelines for Regulating Establishment and Operation of SPF Shrimp Broodstock Multiplication Centres



**Department of Animal Husbandry, Dairying & Fisheries**  
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## 1. Broodstock Multiplication Centre

Shrimp Broodstock Multiplication Centre (BMC) means a facility which receives the Specific Pathogen Free (SPF) post larvae (PL) from a Nucleus Breeding Centre (NBC) and rears post larvae upto adult broodstock for supply to hatcheries. BMC is a facility for developing broodstock from the post larvae to adult, under strict biosecurity and close disease surveillance.

## 2. Objective

In order to encourage and promote establishment of Shrimp Broodstock Multiplication Centers (BMCs) for increasing production and productivity of the shrimp aquaculture sector, the Department of Animal Husbandry, Dairying & Fisheries in the Ministry of Agriculture, Government of India issues the following guidelines for regulating the establishment and operation of Specific Pathogen Free (SPF) Shrimp Broodstock Multiplication Centres in the coastal areas.

These guidelines lay down certain norms and procedure to govern the establishment and operation of BMCs for the production of SPF broodstock of the two species of shrimp, namely the Pacific White Shrimp - *Litopenaeus vannamei* and Black Tiger Shrimp - *Penaeus monodon* in coastal areas as defined under the Coastal Aquaculture Authority Act, 2005.

The BMCs for more species of shrimp would be considered as and when required.

The following guidelines are also aimed at ensuring that BMCs perform their functions in an effective way by addressing all biosecurity and sustainability issues and also by instituting environmental safeguards.

## 3. Method of selection and approval for BMCs

### 3.1 Site Selection

BMC shall be located in an area where any Shrimp Hatchery, Aquaculture Activities or Fish Landing Centers (FLCs) do not already exist within a radius of 1000 meters (1.0 km) and the promoters put in place adequate biosecurity measures and follow the standards as prescribed in the OIE Aquatic Animal Health Code.

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### 3.2 Permission for Establishing BMC

Permission for establishing BMC shall be granted by the Department of Animal Husbandry, Dairying & Fisheries (DADF), Ministry of Agriculture, Government of India based on the recommendations of a Project Screening Committee consisting of the following:

1. Joint Secretary (Fisheries), DADF - Chairman
2. Member Secretary, Coastal Aquaculture Authority (CAA) - Member
3. Director, Central Institute of Brackish-water Aquaculture (CIBA) - Member
4. Fisheries Development Commissioner/ Assistant Commissioner (Fisheries), DADF - Member Secretary

It will be assisted by a Technical and Inspection Committee to be constituted separately by the Department of Animal Husbandry, Dairying & Fisheries (DADF), Ministry of Agriculture, Government of India.

### 4. Infrastructure Requirement

The grant of permission for establishing and operating BMCs shall be subject to the creation of infrastructure and fulfillment of the other conditions as enumerated below and the planned annual broodstock production of the BMC shall be according to the capacity so created:

- 1) Proper designs and drawings of the BMC buildings ensuring prescribed bio-security arrangements and standards, an illustrative list of which is give as hereunder:
  - a) Totally bio-secure area with fencing, shower room, disinfection for men and materials.
  - b) Water treatment protocol with required reservoirs, filters and mandatory ozonization.
  - c) An Effluent Treatment System (ETS) to ensure that no water is discharged without disinfecting the same.
  - d) A fully equipped disease diagnostic laboratory with stock of all required primers as well as qualified and trained technicians.
  - e) Full- fledged facility for incineration of dead/ diseased animals.
  - f) At least two independent units of rearing space if the operator plans to import the second batch while the first batch is still in the rearing.
  - g) Import of post larvae will be permitted only once in a quarter. Since about 5-6 months of rearing is required, the third batch of stock will be permitted only when the first batch of broodstock are totally removed from the facility.

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## **5. Source material: SPF Shrimp Post larvae**

### **5.1 Source of SPF Shrimp Post Larvae**

The BMC must have a reliable supply of SPF post larvae from an established Nucleus Breeding Centre (NBC) Facility located in India or overseas. The NBC facility should have its own selective breeding programme.

### **5.2 Nucleus Breeding Centre**

Nucleus Breeding Centre (NBC) means a facility where Specific Pathogen Free (SPF) shrimp broodstock are raised over a number of generations in a highly bio-secure environment, excluding a number of pathogens of concern from the facility. A strict surveillance protocol is followed to ensure that the pathogens are excluded. A highly bio-secure NBC is used for producing multiple generations of the SPF stock.

### **5.3 Import Permit and Quarantine**

The permission for importing source material for the BMC shall be granted by the Government (Ministry of Agriculture, Department of Animal Husbandry, Dairying & Fisheries) under the provisions of the Livestock Importation Act, 1898 as amended in 2001. The imported source material shall be subject to quarantine for a minimum period of one month or as may be prescribed in the sanitary health certificate for import of source material. The Aquatic Quarantine Facility shall be set up within the Broodstock Multiplication Centre.

### **5.4 Pathogens to be Excluded in the BMC**

All OIE listed shrimp pathogens should be excluded from the BMC facility through strict bio-security and constant disease surveillance. In addition, other pathogens which are not listed in OIE but are of concern in India (see **Appendix**) should be included in the surveillance and testing protocols.

Further, the Government may by an order include or delete, such disease(s) from the given list (**Appendix**).

## **6. Monitoring and Regulation of BMC**

1. The Technical Committee constituted as per Para 3.2 for the purpose shall develop a detailed Standard Operating Procedure (SOP) and periodically monitor the operation of the BMC.
2. The BMC Operator shall strictly comply with the SOP and any change required shall be placed before the Technical Committee.

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3. The Technical Committee may be deputed to visit the BMC periodically for the purpose of inspection or as and when required.
  4. Post larvae for BMC should always be obtained only from the same approved SPF facility. In case of any change of source, the matter shall be referred to the Department of Animal Husbandry, Dairying and Fisheries for consideration.
  5. The broodstock shall be sold by the BMC only to the hatcheries registered with CAA or States, in a fair and transparent manner and the BMC shall maintain a record of such sales.
  6. The BMC operator shall maintain a detailed record of the growth, survival, disease occurrence of the shrimp population during rearing.
  7. In the event of any disease occurrence in the facility, it shall be reported immediately to the Chairman or Member Secretary of the Project Screening Committee, and based on the report of the Technical Inspection Committee sent for inspection as per requirement, the entire stock shall be destroyed by the BMC operator within the facility if it is an exotic pathogen/or from the unit from which it is reported if it is an endemic pathogen.

#### **7. Penalty for Violation/ Non-compliance**

Penalty of withdrawing permission and closure of the BMC may be imposed in case of any act of violation/non-compliance of the stipulated guidelines.

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**List of Pathogens to be Excluded in the Broodstock Multiplication Centres (BMC)**

<b>I</b>	<b>OIE Listed Diseases</b>	<i>P. monodon</i>	<i>L. vannamei</i>
1.	Infectious Hypodermal and Haematopoietic Necrosis (IHHNV)	✓	✓
2.	Infectious Myonecrosis (IMNV)	✓	✓
3.	Taura Syndrome (TSV)	✓	✓
4.	White Spot Disease (WSSV)	✓	✓
5.	Yellow Head Disease (YHV)	✓	✓
6.	Acute Hepatopancreatic Necrosis Disease (AHPND)	✓	✓
<b>II</b>	<b>Non-OIE Listed Diseases but of Concern to India</b>	<i>P. monodon</i>	<i>L. vannamei</i>
1.	Spherical Baculovirosis ( <i>Penaeus monodon</i> -type Baculovirus) (MBV)	✓	✓
2.	Necrotizing Hepatopancreatitis (NHP)	✓	✓
3.	Laem-Singh Virus	✓	-

## Proforma for submitting Proposal for Establishment of Shrimp Broodstock Multiplication Centre (BMC)

<b>I.</b>	<b>Details of the proposing firm:</b>	
1.	Name of the Applicant/ Firm	
2.	Address	
3.	Date of incorporation and registration details	
4.	Field of operation	
5.	Experience in broodstock Years of operation	
6.	Details of Board of Directors and Managing Director with copy of Memorandum of Association. Memorandum of Article	
7.	Certified Audited financial statement of the firm for the last 3 years	
<b>II.</b>	<b>Source of SPF shrimp post larvae:</b>	
1.	Name of the overseas SPF Facility	
2.	Address (including email ID)	
3.	Details of the firm:	
4.	Country of registration	
5.	Location of the facility	
6.	Terms and conditions of agreement with the Indian firms	
7.	Details of extent of commercial supply of SPF broodstock	
8.	Details of any other Multiplication Centre operated in any other country	
9.	Reproductive performance of SPF Broodstock of the firm in terms of Size at maturity, Latency period for maturation, Fecundity, No. of spawnings per female, Hatching rate and Survival rate from nauplii to PL	
10.	Performance of PL derived from SPF broodstock of the firm in commercial culture for growth and disease	
11.	Copy of the MoU/agreement indicating a firm commitment for the supply of SPF Shrimp PL as per the requirement is to be enclosed.	



<b>III. Detailed infrastructure and personnel of overseas SPF facility</b>	
1. Lay-out plan of the SPF facility	(attach diagram with explanation)
2. Water treatment and supply	
3. Rearing facilities	
4. Laboratory facilities	
5. Biosecurity (disinfection protocol, shower room, fencing, etc.)	
6. No. of technical staff and details of their expertise (Pl. attach biodata)	
7. Financial status for last 3 years alongwith audited statement	
<b>IV. Disease surveillance at the SPF facility</b>	
1. List of pathogens excluded in the facility	
2. Methodology followed for the diagnosis (or diagnostic protocols followed)	
3. Certificate(issued by Government) of disease free nature of the facility for the last two years to be enclosed	
4. Frequency of surveillance	
5. Details of the diagnostic reports during the recent surveillance from a Government authorized / OIE referral laboratory	
<b>V. Details of Selective Breeding Programme</b>	
1. Source of Founder population (No. of geographic location/no. of SPF facilities sourced)	
2. Genetic divergence of the population (No. of families from each location/each SPF facility).	
3. Frequency of introduction of further families into founder population	
4. Type of selection programme followed	
5. No. of lines and No. of families maintained	
6. No. of generations raised	
7. Minimum effective population size over the generations.	
8. Traits considered for selection	

9.	Genetic gain over the generations	
10.	Name and brief bio-data of the geneticist involved in drafting the breeding plan.	
11.	Breeding plan indicating the specific details to avoid inbreeding	
<b>VI.</b>	<b>Details of Indian BMC facility</b>	
1.	Annual capacity proposed (No. of Broodstock/year)	
2.	Requirements of SPF PL and the frequency of import	
3.	No. of months of rearing proposed	
4.	Survival anticipated during rearing from PL to Broodstock	
<b>VII.</b>	<b>Infrastructure facilities proposed</b>	
1.	Land area	
2.	Location	
3.	Whether any existing facility is being remodeled as BMC? If so, indicate its prior use and the present condition	
4.	Distance between the nearest hatchery/farm	
5.	Lay-out plan of the posed facility indicating the quarantine, water intake and treatment; rearing tanks under closed conditions, biosecurity features, ETS, etc., indicate the capacity and number of tanks (attach diagram with explanation)	
6.	Details of the diagnostic laboratory facility	
7.	Brief cost estimates and source of funding	
8.	Technical staff proposed to be involved in the operation of BMC and their brief bio-data indicating their area of expertise	
9.	List of pathogens proposed to be tested in the BMC and the surveillance protocol to be followed	
10.	Sampling details	
11.	Frequency of sampling and testing	
<b>VIII.</b>	<b>Any other particulars/details</b>	

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