



# A Report of the Hands-on Training On “Fish Nutrition & Feed Management” (December 13 - 15, 2023)



**Jointly organized by:**

**DESKU EIACP PC- RP on Environmental Biotechnology, University of Kalyani, Nadia, West Bengal**

**Sponsored by: Ministry of Environment, Forest & Climate Change, GoI, New Delhi**

**&**

**Binoy Krishna Choudhury Rural Technology Centre**

**&**

**Centre for Innovation Entrepreneurship and Skill Development  
The University of Burdwan, Burdwan 713104, West Bengal, India**

## **Importance of the Training**

The aquaculture industry is the fastest growing food production industry in the world and approximately 50% of all fish consumed by humans is from aquaculture. As aquaculture technology has evolved, the push toward higher yields and faster growth has involved the replacement of natural live foods with prepared diets or supplemental feeding. The main cost factor in aquaculture is the cost of feed. Furthermore, high amounts of feed ingredients from marine sources have been of concern both environmentally and economically. Thus, it is of importance for the aquaculture industry to aim for the development of new locally-produced, cost-effective, beneficent and eco-friendly ingredients for innovative practical feed production.

Access to safe, available and economical feed ingredients is becoming one of the most important challenges for strengthening the aquaculture industry and developing a more sustainable production. The major challenges for the industry are to reduce feed cost and environmental footprints without reducing product quality and value. Feed contaminants, anti-nutrients and toxins can dramatically affect the health, growth, and reproduction of fish is being given closer scrutiny in feedstuffs. There are a number of local materials that can be used efficiently in aqua-feed production. Rice bran, wheat bran, soyabean meal, mustard oil cake, sesame oil cake are widely used. But all these are plant origin materials and in compare to this animal origin materials are in scarce. Locally produced fish meal and dry fish are not of good quality and not available in required amount by the growing number of feed mills.

Feed formulation is the process of combining different feed ingredients in proportions necessary to provide the fish with proper amounts of nutrients needed at a particular stage of production at a reasonable cost. It requires knowledge about nutrients and feedstuffs, nutrient requirements, palatability, acceptability, digestibility, toxicity, as well as costs. Proper and correct feed formulation as well as good aquaculture practices and feeding management will ensure sustainable aquaculture. Ingredients should be included to satisfy the nutrient requirements of the animal, promote optimal fish growth, and boost the income of small-scale farmers and commercial producers with minimal impacts to the surrounding environment.

### **Objectives of the training:**

- ✓ Entrepreneurship development and generation of self-employment and improvement of economic and livelihood conditions through fish feed formulation technology and establishment of fish feed mill.
- ✓ It can provide gainful employment opportunities and income and also develop skill among the young peoples.
- ✓ Improvement of demand of fish feed technology without wastage of fish feeds.
- ✓ Fish feed can easily and economically available to small and large scale fish farmers.



- ✓ Feed formulation for sustainable aquaculture should increase aquaculture system performance and profitability, enhancing the animals' disease resistance, increasing attractability, palatability, and digestibility of practical diets, and maintaining environmental quality through sound feeding management and good aquaculture practices.

### Outcome of the training

- ✓ Improved production and profit.
- ✓ Easily and economically available of fish feed to small and large scale fish farmers
- ✓ Improved feed composition and better feed conversion efficiency increase fish production.
- ✓ Lower feed cost, and minimize the production of wastes from fish farms.
- ✓ Higher disease resistance
- ✓ Better attractability and palatability
- ✓ Stronger environmental protection

A three-day (December 13-15, 2023) Hands-on training on "Fish Nutrition & Feed Management" was organized by DESKU Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP), Programme Centre –Resource Partner (PC-RP) on Environmental Biotechnology, University of Kalyani, West Bengal, Supported by MoEF & CC, Govt. of India jointly with Binoy Krishna Choudhury Rural Technology Centre (BKCRTC) and the Centre for Innovation Entrepreneurship and Skill Development (CIESD), The University of Burdwan at the Alumni Hall, The University of Burdwan, Golapbag, Burdwan. This training program has been intended for the progressive fish farmers from the state of West Bengal.



Brochure of the training programme

## **Inauguration**

On 13<sup>th</sup> December, 2023, the programme was started with registration and followed by inauguration. The program was inaugurated by Prof. A. K. Panigrahi, Hon'ble Pro- Vice Chancellor, The University of Burdwan (UoB) and other distinguished dignitaries Prof. Sunil Karforma, Dean (Sc), UoB; Prof. Kausik Mondal, Coordinator, EIACP-RP, University of Kalyani; Dr. Arijit Chatterjee, Coordinator, CIESD, UoB; Dr. Shubhajit Saha, Course Coordinator, UoB. At the outset, Prof. Kausik Ghosh, Dept. of Zoology, Director, BKCRTC, UoB welcomed the dignitaries and the participants.

### **On the day one (13<sup>th</sup> December, 2023)**

The first technical session was conducted by Dr. B.N Paul, Principal Scientist, of ICAR, CIFA delivered a lecture on how to prepare fish feed from crop and in the second session DESKU EIACP coordinator Prof. Kausik Mondal gave a lecture on Importance of commercial fish feed for sustainable aquaculture. Then the practical session on fish feed ingredients and their analysis was conducted by Prof. Kausik Ghosh, Dept. of Zoology, Director additional charge, BKCRTC, BoU. In the practical session participants were learned and prepare the fish feed. Altogether 64 participants took part in the training that included 42 fish farmers from 14 districts of West Bengal, 14 PG students and 8 Research Scholars. All the sessions were very much important for the fish farmers/ participants.



**Inaguration of the training programme by Prof. Ashis Kumar Panigrahi, Hon'ble Pro-Vice Chancellor, The University of Burdwan**





**Inagural speech by Chief guest, Dr.B.N Paul, Principal Scientist, of ICAR, CIFA**



**Pror. Kausik Mondal, Coordinator, DESKU EIACP delivering a talk on Importance of commercial fish feed for sustainable aquaculture**



**Group photographs of the participants with experts**



## **On the day two (14<sup>th</sup> December, 2023)**

As part of Mission LiFE and in connection with National Energy Conservation Day- 14<sup>th</sup> December, 2023, DESKU EIACP PC RP organized an awareness activity on **Tips for energy saving** to the participants of “Fish Nutrition & Feed Management”, which is organized by DESKU EIACP and Binoy Krishna Choudhury Rural Technology Centre, The University of Burdwan from 13-15 December, 2023. DESKU EIACP prepared a leaflet on good deed for energy saving. Leaflet on energy saving was distributed among the participants.

The session was started by Prof. Kausik Ghosh, Dept. of Zoology, Director additional charge, BKCRTC, BU. He gave a talk on Probiotics for fish culture in pond and biofloc system. Then Dr. Tapas Kumar Ghoshal, Senior Scientist, ICAR, CIFE gave a talk on Feed and management of brackishwater finfishes and shellfish. Then Dr. G.H Philan, Senior Scientist, ICAR, CIFE gave a talk on feed and feeding management of freshwater aquarium fish for colour enhancement. Then the practical session on preparation of farm made feed was conducted.



**Awareness programme for National Energy Conservation Day on 14<sup>th</sup> December, 2023, at Burdwan University to the participants of “Fish Nutrition & Feed Management”,**



**Awareness programme for National Energy Conservation Day- 14<sup>th</sup> December, 2023, at Burdwan University to the participants of “Fish Nutrition & Feed Management”, by Tamnoy Acharjee, ITO, DESKU EIACP RP, KU**



Awareness programme for National Energy Conservation Day- 14<sup>th</sup> December, 2023, at Burdwan University to the participants of “Fish Nutrition & Feed Management”, by Sourov Banerjee, IO, DESKU EIACP RP, KU

**'Good Deeds'**

**National Energy Conservation Day-14th December 2023**  
**DESKU Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP) PC-RP on Environmental Biotechnology, University of Kalyani**  
**Sponsored by: Ministry of Environment, Forests & Climate Change**

It is celebrated among people to send messages of the importance of energy conservation in every area of life. Encourage people to use less energy rather than excessive and extravagant energy. Encourage people to reduce energy consumption and use it efficiently.

**Energy Conservation**

- Use LED bulbs tube-lights
- Use public transport wherever possible
- Take the stairs instead of an elevator wherever possible
- Switch off vehicle engines at red lights and railway crossings
- Use bicycles for local or short commute
- Switch off irrigation pumps after use
- Prefer CNG/ EV vehicle over petrol/ diesel vehicles
- Use carpooling with friends and colleagues
- Drive in the correct gear.
- Keep your foot off the clutch when not changing gears.
- Install a solar water or solar cooker heater on rooftop
- Switch off appliances from plug points when not in use
- Use biogas for cooking and electricity needs
- Keep temperature of air conditioners to 24 degrees
- Keep your electronic devices in energy-saving mode
- Install community earthen pots for cooling water
- Defrost fridge or freezer regularly
- Run outdoors instead of on a treadmill
- Saving fuel now is clever, because oil can't last forever
- No excuse for energy misuse!
- Today conserve light so tomorrow will be bright
- Conserve energy everyday so we are not left in the dark tomorrow
- Today's wastage is tomorrow's shortage
- Keep the future bright, Turn off the light
- Give the earth a hug, pull the plug.

**12 Tips To Save Energy At Home**

1  Turn off lights when leaving a room	2  Switch to energy efficient appliances	3  Use LED lights
4  Unplug devices when not in use	5  Keep thermostat at low temperature	6  Reduce water consumption
7  Use smart automated devices	8  Switch to double glazing	9  Cook with the lid on
10  Use a smart meter to track usage	11  Wash at a cold temperature	12  Use solar powered devices








Leaflet on good deeds for energy saving was distributed among the trainee





### Fish Nutrition & Feed Management Trainee at Burwan University



The session was started by Prof. Kausik Ghosh, Dept. of Zoology, Director additional charge, BKCRTC, BU

### **On the day three (15<sup>th</sup> December, 2023)**

The session was started by Mr. Milon Sihna, Nature Environment and Wild life society. He gave a talk on Farm made feed for Singi and Magur, and the Dr. Archana K. Das, Scientist, ICAR, CIFRI, Barrockpore gave a talk on Feed and fish for doubling farmer's income.

Apart from theoretical classes and practical sessions, a Farmers' Meet was arranged to address the practical problems faced by the farmers in their fields. Dr. A. K. Das, CIFRI; M. Sinha, NEWS; Dr. S. Das, AFO, Purba Bardhaman; C. M. Haque, Ex-ADF (Brakishwater) and S. Ghosh, FEO, South 24 PGS joined as expert members in the Farmers Meet.

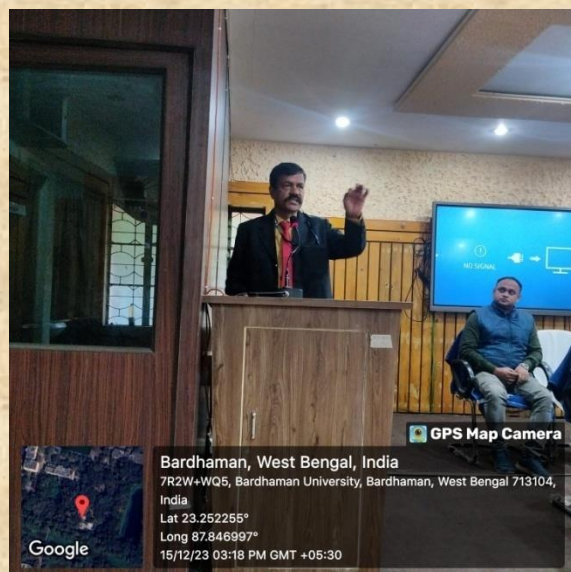
The three days programme was ended by valedictory session. In this session Dr. B.K Das, Hon'ble Director, ICAR-CIFRI delivered the Valedictory Address. Dr. Sujit Kumar Chaudhury, Registrar, UoB and Prof. S. Karforma, Dean (Sc), UoB were also present in the valedictory session, Prof. Kausik Mondal, Coordinator DESKU EIACP RP, KU, Pro. Kausik Ghosh, Dept. of Zoology, BU were also present in the valedictory session. Certificates were distributed among the participant.

This news was published in Ananda Bazar Patrika.





**Valedictory session of the programme**



**Dr. B.K Das, Director, ICAR, CIFRI, Barrockpore, West Bengal in the Valedictory session**



**Trainee in the valedictory session**





Trainee in the valedictory session

আনন্দবাজার পত্রিকা

২৭ অগ্রহায়ণ ১৪৩০ বৃহস্পতিবার ১৪ ডিসেম্বর ২০২৩

## মাছ নিয়ে কর্মশালা

**বর্ধমান:** মাছের পুষ্টি ও খাদ্য ব্যবস্থাপনা নিয়ে তিন দিনের রাজ্য স্তরের কর্মশালা শুরু হয়েছে বর্ধমান বিশ্ববিদ্যালয়ে। বিনয়কৃষ্ণ চৌধুরী গ্রামীণ প্রযুক্তি কেন্দ্রে এই কর্মশালাটির আয়োজন করেছে বিশ্ববিদ্যালয়ের উদ্ভাবন, উদ্যোক্তা এবং দক্ষতা উন্নয়ন কেন্দ্র এবং কল্যাণী বিশ্ববিদ্যালয়ের পরিবেশবিদ্যা বিভাগের সহায়তায়। বুধবার অনুষ্ঠানে ছিলেন বিশ্ববিদ্যালয়ের সহ-উপাচার্য আশিসকুমার পানিগ্রাহী, বিজ্ঞান অনুষদের অধ্যক্ষ সুনীলকুমার কারফর্মা, কেন্দ্রীয় মিঠাজল মৎস্য চাষ গবেষণা প্রতিষ্ঠানের বিজ্ঞানী বৈদ্যনাথ পাল, কল্যাণী বিশ্ববিদ্যালয়ের শিক্ষক কৌশিক মণ্ডল। গ্রামীণ প্রযুক্তি কেন্দ্রের অধিকর্তা অধ্যাপক কৌশিক ঘোষ জানান, ১৪টি জেলা থেকে ৪২ জন প্রগতিশীল মৎস্য চাষি এই কর্মশালায় যোগ দিয়েছেন। রয়েছেন ১৪ জন মৎস্য বিজ্ঞানের ছাত্রছাত্রীও। কম খরচে মাছের প্রয়োজনীয় পুষ্টিগুণ সম্পন্ন খাদ্য নিজেসাই কী ভাবে তৈরি করা যাবে তা এই কর্মশালায় হাতে-কলমে শেখানো হবে। জোর দেওয়া হবে মাছের উৎপাদন বাড়ানোতেও। জিওল মাছ, চিংড়ি, নোনা জলের মাছ এবং রঙিন মাছের খাদ্য প্রস্তুতির ব্যাপারেও আলোচনা করা হবে।

Published in Ananda Bazar Patrika