

# 39 FISH FARMING



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## 1. INTRODUCTION

The Fish Farming project in Uttarakhand, India, is a micro and small-scale investment initiative aimed at promoting sustainable aquaculture practices in the region. This project seeks to contribute to the local economy, provide livelihood opportunities, and meet the increasing demand for fresh and high-quality fish products. Fish farming is an environmentally friendly and economically viable business that aligns with the region's agricultural and economic diversification goals.

## 2. PRODUCT & ITS APPLICATION

The primary product of this venture is freshwater fish, including species like carp (such as Rohu, Catla, and Mrigal) and other local varieties. These fish are cultivated through aquaculture techniques, ensuring high-quality and nutritious seafood for both local consumption and commercial sale. The fish produced can be sold to local markets, restaurants, hotels, and individual customers.

Key applications of the fish products include:

- Local consumption for protein-rich diets.
- Supplying fish to local markets and vendors.
- Meeting the demand for fresh and healthy seafood.
- Supporting the local economy by creating employment opportunities.

## 3. DESIRED QUALIFICATION FOR PROMOTER

To manage a successful fish farming business in Uttarakhand, the promoter needs knowledge of aquaculture, basic business management skills, technical proficiency in fish farming operations, awareness of regulatory compliance, and financial acumen. They should understand aquaculture techniques, manage finances, operate fish farming equipment, and comply with local regulations. Additionally, conducting market research to identify demand and potential customers for fish products is crucial.

## 4. INDUSTRY OUTLOOK AND TRENDS

The fish farming industry in Uttarakhand is experiencing growth fueled by increasing demand for freshwater fish and sustainable practices. Key trends include a shift towards environmentally friendly farming methods, adoption of modern aquaculture technologies, expanding market for fresh fish products, government initiatives supporting small-scale aquaculture projects, and entrepreneurs exploring value addition through products like smoked fish and fish-based snacks. These trends reflect evolving consumer preferences and present opportunities for sustainable and innovative approaches in the fish farming sector.

Some trends in the fish farming industry include:

- Technological advancements: The fish farming industry is adopting new technologies to improve efficiency and sustainability. These include:
  - Advanced water filtration systems
  - Automated feeding systems
  - AI to control fish health and welfare
  - Micro-bubble aeration technology
  - Sensors, automation, AI, and data analytics
- Precision aquaculture: Startups are developing solutions such as sea robots that can automate routine tasks like feeding, water quality management, and waste removal.
- Upgrading to higher culture categories: This allows for more efficient use of water, land, and labor.



The global fish farming market was valued at USD 320.67 billion in 2022 and is expected to reach USD 517.38 billion by 2032. In 2023, the Indian fish market was 20.7 million tons, and IMARC Group expects it to reach 41.4 million tons by 2032. The Indian aquaculture market was 12.4 million tons in 2022, and analysts expect it to reach 19.9 million tons by 2028.

## 5. MARKET POTENTIAL AND MARKETING ISSUES; IF ANY

The fish farming market in Uttarakhand shows promise due to increasing demand for freshwater fish, diverse consumer preferences, tourism industry demand, health-conscious trends, and local consumption preferences. However, some marketing challenges include establishing an efficient distribution network, maintaining quality assurance standards, managing seasonal variations affecting production, competition from local fishermen and aquaculture ventures, and ensuring competitive pricing without compromising profitability. Addressing these challenges while capitalizing on the growing demand and consumer trends can lead to success in the Uttarakhand fish farming market.

Here are some companies in India's fish farming business:

- **Avanti Feeds Ltd:** A leading aquaculture company that produces shrimp feed.
- **Waterbase Ltd:** A leading animal feed company that produces feed products for the aquaculture industry.
- **Coastal Corporation Limited:** A company that produces and exports aquaculture seafood products.
- **Uniroyal Marine Exports:** An aquaculture company that operates in the Malabar coastal region.
- **BKV Industries:** A shrimp farming operation that is considered one of the world's most successful and innovative.
- **Growel Feeds Private Limited:** India's largest fisheries products company.
- **Leroy Seafood Group:** A company that produces seafood in an environmentally sustainable manner.
- **Zeal Aqua:** A shrimp farmer with a production capacity of 1500 tonnes.
- **Jude Foods India Private Limited:** A leading fresh fish processor that produces high quality seafood.

Tilapia is considered one of the most profitable fish to raise in fish farms. They require minimal input and produce plenty of output. They are also tolerant of poor water conditions and reproduce quickly.

## 6. RAW MATERIAL REQUIREMENTS

**Fish Fingerlings:** High-quality fingerlings of desired fish species, such as Rohu, Catla, and Mrigal, are required for stocking the ponds. These fingerlings can be obtained from local hatcheries or fish breeding centers.

**Fish Feed:** Nutritionally balanced fish feed suitable for the specific growth stages of the fish is essential. The feed may include pellets or mash formulated to meet the dietary requirements of the fish species.

**Water Resources:** A consistent and clean water source, such as a pond, tank, or controlled flow of freshwater, is necessary for fish farming.

**Fish Pond Infrastructure:** Constructed fish ponds with proper design and size to accommodate the chosen fish species.

**Aeration and Water Quality Equipment:** Equipment like aerators and water quality monitoring tools are necessary for maintaining optimal water conditions.

**Fencing and Security:** Measures to protect fish ponds from predators, poaching, and unauthorized access are essential.

### Some of suppliers of raw materials:

- **All India Fish and Seeds Suppliers:** Packing Centre, Mohan Bhari Boss Road H I T Fish Market, Morba, Raigad-Maharashtra - 402117 (Near Hotel Moon Palace)
- **Rati Fish Hatchery:** Aghapur Road Jwala Nagar Rampur Near Prem Patwari Street 2, Aghapur Road Jwala Nagar Rampur, Aghapur, Rampur - 244901 (Near The Coffee Shop & Prem Patwari Street 2)

## 7. MANUFACTURING PROCESS

Fish farming involves several steps: selecting a suitable pond location, constructing ponds, managing water quality, stocking healthy fingerlings, providing proper feed, monitoring fish health, harvesting at the right time, processing fish for market, and maintaining infrastructure. Pond preparation includes location selection, construction, and water management with inlet and outlet systems. Stocking involves acquiring fingerlings and stocking ponds appropriately. Feeding requires providing suitable feed and monitoring schedules. Health management involves regular inspections and disease prevention. Harvesting is timed based on market demand and fish growth, using appropriate methods. Processing and marketing involve cleaning fish and developing marketing strategies. Maintenance and record-keeping ensure infrastructure upkeep and financial management.

The Bureau of Indian Standards (BIS) is responsible for formulating Indian standards for fresh and processed fish. The BIS has established 50 standards for various fish and fishery products, including fresh and frozen fish. The BIS also operates product certification schemes, granting licenses to manufacturers in many industrial disciplines. The BIS is developing quality standards for aqua feed. These standards can be used to regulate the quality of fish feed being imported into the country.

## 8. MANPOWER REQUIREMENT

Sr. No	Particulars	No.	No of month in year	Wages/Salaries per month (Rs. In Lakhs)	Annual Expense (Rs. In Lakhs)
1	Self-employed	1	-	-	-
2	Skilled Person	2	12	0.25	6
3	Semi-skilled Person	1	12	0.2	2.4
4	Unskilled	1	12	0.12	1.44
	<b>Total</b>				<b>9.84</b>

## 9. IMPLEMENTATION SCHEDULE

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	1
2	Construction (if applicable)	1.5
3	Procurement & installation of Plant & Machinery	2.5
4	Arrangement of Finance	1
5	Recruitment of required manpower	1
6	Total time required (some activities shall run concurrently)	3

## 10. COST OF PROJECT

Sr. No	Particulars	Annual Expenses (Rs. in lakhs)
1	Land	-
2	Building (Rented)	-
3	Plant & Machinery	3.54
4	Equipment and Furniture Exp.	0.90
5	Misc. Fixed Asset	0.02
6	Preoperative & Preliminary Exp.	0.15
7	Working Capital	4.20
	<b>Total Project Cost</b>	<b>8.81</b>

## 11. MEANS OF FINANCE

Bank-term loans are assumed @ 60%

Sr. No.	Particulars	Annual Expenses (Rs. in lakhs)
1	Promoter's contribution	3.52
2	Bank Finance	5.28
	<b>Total</b>	<b>8.81</b>

## 12. LIST OF MACHINERY REQUIRED

### A. Machinery

Sr. No	Particulars	Unit	Price per Unit (Rs. in lakhs)	Total Amount (Rs. in lakhs)
1	Fish Pond Construction (per acre)	0.15 Acre	0.90	0.90
2	Aeration Equipment (e.g., aerators)	Set	0.18	0.18
3	Water Quality Monitoring Equipment	Set	0.08	0.08
4	Fish Feeding Equipment	Set	0.10	0.10
5	Harvesting and Processing Tools	Set	0.15	0.15
6	Storage Tanks for Fish	Unit	0.12	0.12
7	Water Pump and Filtration System	Set	0.18	0.18
8	Fish Transportation Containers	10	0.03	0.03
9	Fencing and Security Measures	Set	0.18	0.18
10	Miscellaneous Tools and Equipment	-	0.13	0.13
<b>Total Amount</b>				<b>2.04</b>
Tax, Transportation, Insurance etc.				1.00
Electrification Exp.				0.50
<b>Grand Total Amount</b>				<b>3.54</b>

## B. Furniture & Equipment

Sr. No	Particulars	Unit	Price per Unit (Rs. in lakhs)	Total Amount (Rs. in lakhs)
1	Office Furniture and Workstations	set	0.40	0.40
2	Computer and Printer	1	0.50	0.50
	<b>Total Rs.</b>			<b>0.90</b>

1. RTS Fabcons  
B-73/A2, Sahibabad Salimar Garden EXT-2,  
Ghaziabad-201005, Uttar Pradesh, India
2. AS Engicon Pvt Ltd  
Basement, T-101 C Old No-2568, Bharat Nagar,  
Gali Number 18, New Friends Colony,  
New Delhi - 110025, Delhi, India
3. Century Aquaculture Products Private Limited  
Mavdi Plot, Plot No 14 Revenue Survey No 402,  
Chandreshnagar, Rajkot-360005,  
Gujarat, India
4. P. P. Aquatech  
HR 29-B-1, Near Om Shanti,  
60 Feet Road, Badarpur,  
Delhi - 110044, India

## 12. LIST OF MACHINERY REQUIRED

### A. Machinery

Sr. No	Particulars	Annual Expenses (Rs. in lakhs)
A.	Sales realisation	50.40
B.	Cost of production	
i)	Raw materials	15.12
ii)	Utilities	0.50
iii)	Manpower Cost (Salaries/wages)	9.84
iv)	Administrative expenses	0.70
v)	Packaging Cost	0.08
vi)	Material Lost Cost	0.08
vii)	Selling & distribution expenses	1.44
viii)	Repairs & maintenance	0.00
ix)	Rent	0.40
x)	Interest	0.60
xi)	Misc. expenses	0.00
	<b>Total (B)</b>	<b>28.75</b>

	Gross profit/loss (A – B)	21.65
	Less: Depreciation	0.34
C.	PBIT	21.31
D.	Income-tax	3.50
E.	Net profit/loss	18.12
F.	Repayment (Annual)	0.50
G.	Retained surplus (E-F )	17.61

#### 14. BREAKEVEN ANALYSIS

Fixed cost	
Land & Building Rent	0.40
Depriciation	0.34
Interest	0.60
Manpower	2.95
<b>Total Fixed cost</b>	<b>4.29</b>
Variable cost	
Raw materials	15.12
Utilities	0.50
ManPower	6.89
Administrative expenses	0.70
Selling & distribution expenses	1.44
<b>Total Variable cost</b>	<b>24.65</b>
<b>Contribution margin</b>	<b>20%</b>
Break-Even Point in Value	21.43

#### 15. STATUTORY/GOVERNMENT APPROVALS

Before starting a fish farming project in Uttarakhand, it is essential to comply with various statutory and government regulations. This includes obtaining the necessary permits and approvals from relevant authorities. Here are some of the key statutory and government approvals that may be required:

**A. Land Acquisition and Land Use Approval:** If you plan to construct fish ponds, you may need to acquire land or obtain approvals for land use changes from the local land authority.

**B. Water Rights and Permits:** If you are using natural water bodies or borewells for your fish farming, you may need permits related to water use and abstraction.

**C. Environmental Clearances:** Depending on the scale of your fish farming operation, you might need environmental clearances and approvals from the State Pollution Control Board.

**D. Fish Farming License:** You may need a license or permit specifically for fish farming, which is usually issued by the Fisheries Department of Uttarakhand.

**E. Business Registration:** Registering your fish farming business, such as a proprietorship, partnership, or private limited company, with the relevant government authorities.

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**F. Tax Registrations:** Obtaining tax-related registrations, such as Goods and Services Tax (GST) registration and any other state-level taxes.

It's crucial to consult with local government offices and relevant agencies to understand the specific requirements and obtain the necessary approvals and permits for your fish farming project.

## 16. BACKWARD AND FORWARD INTEGRATIONS

### A. Backward Integration

Backward integration involves activities related to sourcing inputs or raw materials required for fish farming. In the context of a fish farming project in Uttarakhand, here are some aspects of backward integration to consider:

**1. Fish Seed Production:** If you plan to breed your fish seeds, you can set up a hatchery or collaborate with local hatcheries for a continuous supply of quality fish seeds.

**2. Fish Feed Production:** Backward integration can include producing your fish feed or sourcing it from local feed manufacturers. Developing customized feed formulations can also be part of this process.

**3. Feed Ingredients:** Sourcing raw materials like fish meal, soybean meal, and other ingredients for feed production.

### B. Forward Integration

Forward integration involves activities related to marketing and selling your fish products. For a fish farming project in Uttarakhand, here are some aspects of forward integration to consider:

**1. Fish Processing Unit:** Setting up a processing unit for cleaning, filleting, and packaging fish products, if you plan to sell processed fish.

**2. Distribution and Sales Channels:** Establishing distribution networks and sales channels, which may include local markets, retailers, or direct-to-consumer sales.

**3. Branding and Marketing:** Creating a brand for your fish products and implementing marketing strategies to reach a wider consumer base.

**4. Value-Added Products:** Exploring opportunities to create value-added products like smoked fish, fish pickles, or fish-based snacks.



## 17. TRAINING CENTERS AND COURSES

For individuals interested in pursuing fish farming in Uttarakhand, there are various training centers and courses available to acquire the necessary knowledge and skills. These centers offer practical training, guidance, and technical know-how related to fish farming. Here are some notable training centers and courses in Uttarakhand:

**1. State Fisheries Training Institute, Haldwani:** This government institute located in Haldwani, Uttarakhand, offers training programs and workshops on various aspects of fish farming. Courses cover topics like fish hatchery management, pond management, feed formulation, and disease management.

**2. Krishi Vigyan Kendras (KVKs):** KVKs are agricultural extension centers established by the Indian Council of Agricultural Research (ICAR). In Uttarakhand, KVKs conduct training programs and provide guidance on fisheries and aquaculture. Farmers and entrepreneurs can attend these programs to enhance their skills.

**3. National Fisheries Development Board (NFDB):** NFDB, a central government agency, occasionally conducts training programs and workshops related to fisheries and aquaculture. These programs are aimed at promoting sustainable and profitable fish farming practices.

**4. Private Aquaculture Training Centers:** In addition to government institutions, there are private training centers and consultants offering courses and hands-on training in fish farming. These centers often provide practical insights into fish breeding, pond management, and disease control.

**5. Online Courses:** Various online platforms offer courses and webinars on aquaculture and fisheries management. These courses can be a convenient option for those looking to gain knowledge from the comfort of their homes.

Courses typically cover a range of topics, including:

- Fish species suitable for Uttarakhand's climate and water resources.
- Pond preparation and management techniques.
- Fish feed formulation and nutrition.
- Disease identification and management.
- Harvesting and post-harvest handling practices.
- Marketing and value addition in fish products.

Prospective fish farmers and entrepreneurs are encouraged to contact these training centers and institutions for information on upcoming courses, eligibility criteria, and enrollment procedures. Attending these training programs can greatly benefit individuals looking to start or expand their fish farming ventures in Uttarakhand.

### Disclaimer

Only few machine manufacturers/institutes are mentioned in the profile, although many machine manufacturers/institutes are available in the market. The addresses given for machinery manufacturers/institutes have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.