MERCURY

Aquaculture Business & Food Security

17 – 21 January 2027
Muscat (Oman)



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Aquaculture Business & Food Security

Ref: 16423_1070867 **Date:** 17 – 21 January 2027 **Location:** Muscat (Oman) **Fees:** 5500 Euro

Introduction:

Aquaculture Business & Food Security seeks to equip participants with a deep theoretical foundation and strategic insight into how aquatic farming enterprises contribute to food systems. This course examines the interplay between aquaculture business models and national or regional food security outcomes. Learners will explore production systems, value chains, policies, and risk management in sustainable fish farming.

The Aquaculture Business and Food Security scope spans small-scale to commercial operations, and addresses market, environmental, and nutritional dimensions. The content will illustrate how aquaculture can help meet protein demand while preserving ecosystem integrity. Participants will be able to conceptualize and evaluate aquaculture ventures that bolster food security objectives.

Targeted Groups:

This Aquaculture Business and Food Security training targets professionals seeking specialized knowledge and skills:

- Fisheries/aquaculture extension officers.
- Agricultural policy planners and food security analysts.
- Entrepreneurs interested in a fish farm or an aquafeed business.
- NGO / development agency specialists in livelihood & nutrition.
- Researchers and postgraduate students in aquaculture economics.
- Rural cooperative managers considering aquaculture ventures.

Course Objectives:

Participants will achieve the following objectives by completing the Aquaculture Business and Food Security course:

- Understand the role of aquaculture in improving food security and nutrition.
- Analyze different aquaculture business model types and their market potential.
- Evaluate site selection, system design, and technical feasibility in fish farming.
- Assess value chain dynamics, cost structures, and revenue drivers.
- Examine environmental, social, and regulatory risks in aquaculture operations.
- Formulate basic business plans for sustainable aquaculture enterprises.
- Critically appraise policies and institutional frameworks that influence aquaculture growth.
- Integrate resilience and adaptation features in aquaculture for food systems stability.

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Targeted Competencies:

Participants will gain the following competencies during the Aquaculture Business and Food Security program:

- Ability to map aquaculture production systems and choose appropriate models for context.
- Skill in calculating cost-benefit and financial indicators in aquaculture business planning.
- Competence in applying water quality, feed management, and disease control principles.
- Capacity to analyze value chain, marketing, supply, and demand in aquaculture markets.
- Sensitivity to environmental, social, and governance ESG factors affecting fish farming.
- Facility to design risk mitigation strategies and contingency plans.
- Proficiency in interpreting policy, regulatory, and institutional settings in aquaculture.
- Talent in constructing integrative plans that align aquaculture with food security goals.

Studying Scenarios:

In this Aquaculture Business and Food Security training, participants will develop their skills through the analysis of the following scenarios:

- Case of a small-scale pond aquaculture venture in a rural region facing seasonal water constraints.
- Scenario of a mid-size recirculating aquaculture system RAS startup entering a competitive market.
- Policy scenario: government subsidy removal and its impact on aquaculture firms and food security.
- Value chain analysis: bottlenecks in transport, cold chain, and market access for small farmers.
- Risk event: disease outbreak or climate shock, and how business continuity is maintained.
- Institutional scenario: cooperative vs private enterprise models and stakeholder negotiation in aquaculture development.

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Course Content:

Unit 1: Foundations of Aquaculture, Food Security & Business Context:

- Definitions and interrelationships: aquaculture, fisheries, food systems, and food security.
- Global trends in aquaculture growth and demand for aquatic foods.
- Nutrition, protein supply, and the role of fish in dietary security.
- Aquaculture business model typologies pond, cage, RAS, integrated systems.
- Drivers and barriers to entry in aquaculture ventures.
- Case study: small-scale aquaculture and poverty alleviation in development settings.

Unit 2: Technical Design, Site Selection & System Planning:

- Water resource assessment, hydrology, and site suitability criteria.
- System designs include pond culture, cage systems, recirculating systems, and aquaponics.
- Infrastructure and layout planning: inlet/outlet, aeration, shading, waste flow.
- Species selection: tilapia, catfish, shrimp, native species, and diversification.
- Feed and nutrition basics: feed formulation, feeding strategies, cost control.
- Stocking density, growth prediction, and harvest scheduling.

Unit 3: Operational Management, Biosecurity & Risk Strategies:

- Water quality monitoring and management DO, pH, ammonia, nitrates.
- Disease management, health protocols, and biosecurity measures.
- Risk analysis: seasonal variation, climate, and input volatility.
- Mitigation methods: polyculture, system redundancy, and insurance models.
- Labor and operational scheduling, recordkeeping, and monitoring systems.
- Environmental compliance, permits, and sustainable practices.

Unit 4: Value Chain, Marketing & Financial Sustainability:

- Cost structure analysis: capital costs, operating costs, and break-even.
- Revenue streams: farm gate, processed products, niche markets.
- Value chain mapping: input suppliers, processors, distributors, retailers.
- Marketing strategies include branding, quality assurance, and certification.
- Logistics and Cold Chain Challenges in Aquaculture Products.
- Financial planning, cash flow forecasting, investment analysis.

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Unit 5: Policy, Institutional Frameworks & Strategic Integration:

- Regulatory frameworks, permits, and governance in aquaculture.
- Institutional models include public/private partnerships, cooperatives, and social enterprises.
- Subsidies, grants, incentives, taxation, and trade policies.
- Integration with food security programs and national nutrition strategies.
- Scaling and replication: scaling out small farms into regional networks.
- Strategic planning: resilience, innovation, and scenario planning.

Final Insights & Key Takeaways:

Aquaculture Business & Food Security bridges technical, economic, and policy dimensions to empower professionals to design sustainable aquatic food enterprises. Graduates will integrate aquaculture ventures into broader food security frameworks with strategic, risk-aware insight.