

The Etiquette of Financial Management in Aquaculture Business

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Abstract: *Aquaculture is the science and technology of fish rearing and production on farm. In recent years, aquaculture has become one of the major farm activities and business attracting much interest and investment because of its economic potential. This rich article explores the crucial role of financial management in aquaculture business, highlighting the etiquette of financial management that ensures sustainability and profitability. Through a review of existing literature, this paper identifies key financial management practices, such as budgeting, cash flow management, and risk management that are essential for aquaculture businesses to thrive. Effective financial management in aquaculture business entails more than profitability; it embodies a commitment to transparency, risk mitigation, and ethical stewardship. Transparency is essential, ensuring clear communication of financial practices to stakeholders, fostering trust and accountability. Risk management strategies, such as diversification and insurance, mitigate environmental and market uncertainties, safeguarding financial stability. Strategic investment in sustainable practices and technological innovation not only enhances productivity but also aligns with ethical standards, meeting consumer demand for responsibly sourced seafood. Ethical considerations underpin financial etiquette, encompassing fair labour practices, environmental compliance, and community support, by prioritizing these principles, aquaculture businesses not only mitigate operational risks but also enhance brand integrity and contribute positively to local economies. This article outlines the foundational principles of ethical financial management in aquaculture, highlighting their critical role in fostering resilience and sustainable growth in a dynamic industry landscape for global food sovereignty.*

Keywords: financial management, fish farming, aquaculture sustainability, financial etiquette, budgeting and environmental responsibility

INTRODUCTION

Aquaculture is the farming of aquatic organisms; plants, and it has become a vital component of global food security, providing a source of proteins for millions of people worldwide (FAO. 2020). Aquaculture business refers to the production, manufacture, rendering, dealership, distribution, and sale of aquaculture inputs, aquaculture equipment, and aquaculture products. It involves the propagation and husbandry of aquatic plants, animals, and other organisms for commercial, recreational, and scientific purposes. In simpler terms, aquaculture business is like farming but in water, where aquatic organisms are cultivated for various purposes such as food production, research, and conservation. Aquaculture is the farming of aquatic organisms whether fish, crustaceans, mollusks or plants, farming implying some form of human intervention to increase production. The term covers a very wide range of cultured species and farming techniques and several forms of classification have been proposed. Though aquaculture management is looked upon here from the economic and social not technical or financial point of view, the most useful classification is felt as being into extensive, semi-intensive and intensive systems depending on the amount of external inputs, mainly feeds, needed to sustain the operation. On one end of the spectrum there are systems essentially dependent on the natural production of the marine or inland water ecosystems. On the other end there are industries transforming feeds into high value, low volume species under a controlled environment. These feeds have typically a high content of fishmeal made from high volume low value species (Subasinghe et al., 2012; Tacon and Metian, 2017).

The industry has experienced rapid growth in recent years, with an increasing number of farmers turning to aquaculture as a means of livelihood (Tacon et al., 2017). However, the industry faces numerous challenges, including high production costs, market fluctuations, and environmental risks (Kumar et al., 2018). Effective financial management is crucial to overcome these challenges and ensure the long-term sustainability of aquaculture businesses (Marteil et al., 2016). Financial management is a critical component of aquaculture business, as it enables farmers to make informed decisions, manage risks, and optimize resources (Marteil et al., 2016). Sound financial management practices, such as budgeting, cash flow management, and risk management, are essential for aquaculture businesses to thrive (Tacon et al., 2017). Despite its importance, many aquaculture businesses lack proper financial management, leading to financial difficulties and reduced productivity (Kumar et al., 2018).

Whether or not an aquaculture business will survive in the long run has a great deal to do with the financial position of the business. Financial position relates to the business's financial strength or weakness as determined from the balance sheet. A strong financial position is one in which the business has sufficient assets to cover its debt obligations; a weak position is one in which the debt obligations of the business exceed the value of its assets (Bush, et al., 2013).

The etiquette of financial management in the context of aquaculture business refers to the principles, practices, and strategies employed to effectively manage financial resources within the aquaculture industry. It encompasses the proper handling of finances, budgeting, cost analysis, investment decisions, and risk management, specific to aquaculture operations. This etiquette involves ensuring transparency, accountability, and sustainability in financial practices to optimize profitability, support growth, and enhance the overall economic viability of aquaculture businesses (Hatch and Tai, 2017).

Management can be simply defined as “getting things done through people” geared at maximizing profit rightly. The first function of management is planning - the work of determining and specifying objectives, policies, programmes, organizational relationships, procedures, and budgets. The manager must first set the objectives and then specify the factors, forces, and effects necessary for their accomplishment. The second function of management is organizing-relating functions, physical factors, and personnel into proper relationships with one another in advance of the execution of a plan or a major part of it. The integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation, with enforcement as necessary, of regulations or rules which governs fisheries activities in order to ensure the continued productivity of the resources and the accomplishment of other fisheries objectives. The manager specifies the job duties of the technicians, for example, pond liming, fertilization, and stocking of juveniles; he instructs the head technician to oversee the said duties and the workers in undertaking the work as instructed. The third function of management is controlling-constraining, coordinating, and regulating actions in accordance with plans for the attainment of specific objectives. Constraining of activities is within the limits of predetermined plans. There are standards of performance used as a basis of control (Engle and Stone, 2013).

The term “Aquaculture” covers a very wide range of cultured species and farming techniques and several forms of classification. Though, aquaculture management is looked upon here from the economic and social not technical or financial point of view solely, the most useful classification is felt as being into extensive, semi-intensive and intensive systems, depending on the amount of external inputs, mainly feeds needed to sustain the operation. On one end of the spectrum there are systems essentially dependent on the natural production of the marine or inland water systems. On the other end there are industries transforming feeds into high value, low volume species under a controlled environment. These feeds have typically a high content of fishmeal made from high volume low value species (Brugere et al., 2001).

Discussing management raises questions of objectives and of instruments. In other words, what is to be achieved or avoided and how will it actually be done? Objectives commonly cited tend to be targets such as filling a growing gap between demand and supply for fishery products, food self-sufficiency, improved nutritional status, hard currency earnings, creating job opportunities, and sustaining the

economy in depressed regions. However, in practice, much of the effort at managing aquaculture must be attributed to a desire to reduce environmental impact, conflicts over access to resources, or social disruptions. Stating that the objective(s) must be sustainable often incorporates a time horizon (Boyd and McNevin, 2015).

Business system in an aquaculture enterprise, the business system includes the internal variables as well as the business environment that affects directly or indirectly the operations of an aquaculture enterprise. The internal variables to be considered are raw materials, machineries, manpower, and money. The manager must be able to ascertain the availability of these materials in the right quantity, quality, at the right price and the right time for proper scheduling of work in the farm. The machineries needed in an aquaculture farm are pumps, blowers, power generating sets and other laboratory equipment. The machineries must follow certain specifications that will suit the requirements in rearing the fish from fry to marketable size. Manpower includes both the operations and managerial staff that will operate and manage the entire business operation. The above-mentioned internal variables in the business system are affected by broader forces, e.g., government intervention, market supply and demand, technology, etc. Careful financial management is essential for the success of an aquaculture business, while financial management is a complex topic that can be approached from many perspectives, some of the key questions that the manager of an aquaculture business must answer are:

- ❖ Will the business survive in the long run? Can it generate enough value over time to pay off its debts? (Economists call this “financial position”).
- ❖ Is the business profitable in both the short and long run? (Economists call this “profitability”).
- ❖ Can the business generate enough cash when needed to pay its bills? (Economists call this “liquidity” and “cash flow position”).

The business must be able to respond affirmatively to these questions to be successful, but determining the answers requires careful, thorough and comprehensive analysis (Anderson, 2002).

Aim

The aim of the article is on the etiquette of financial management in aquaculture business.

Objectives

The specific objectives of this article are to:

- i. Examine the significance of financial management in aquaculture business and its impact on sustainability and profitability.
- ii. Identify and discuss the key financial management practices essential for aquaculture businesses, including budgeting, cash flow management, and risk management.

Financial Management

Financial management is a critical component of aquaculture business, as it enables farmers to make informed decisions, manage risks, and optimize resources (Marteil et al., 2016). Budgeting, cash flow management, and risk management are essential financial management practices in aquaculture (Tacon et al., 2017). Budgeting helps farmers allocate resources effectively, while cash flow management ensures timely payment of expenses and debts (Kumar et al., 2018). Risk management strategies, such as diversification and insurance, help mitigate environmental and market risks (Marteil et al., 2016).

Governance has played a critical role in sustainable development, the ethical essence of which is good governance (He et al., 2022); for good governance, a country is generally divided into different levels of administrative space according to geographical location and governance need. Townships and villages located at the “nerve endings” of a governance body have been the basic units of administration since ancient time. The fisheries and aquaculture sector is a key part of modern agriculture, and constitutes a special form of rural existence. Its administrative system assumes main right and obligation of developing the space where fishermen and farmers inhabit. In typical fish townships and villages (e.g., As stipulated in the China Fishery Statistical Yearbook (He et al., 2022), in rural areas, fish townships or villages are places where residents engaged in fish production and operation surpass 50% of the total employment or where fish output value exceeds 50% of that of agriculture, while those that fail to meet the above standards yet have been dominated by fisheries and aquaculture practices and approved by superior competent authorities may also be counted as places of the same nature), grassroots governments and organizations act as regulators in maintaining a normative order and ensuring smooth operation. However, plagued by a decline in wild aquatic resources, habitat destruction and community tension globally, fish township and village heads often have to make painful political and social choices regarding the balance between economic development and ecological protection, and between hierarchical authority and fishermen’ (farmers’) rights and interests. Fortunately, ethics, a moral value system, provides a judgment coordinate and decision-making compass for governors confounded by a set of benign objectives (He et al., 2022). It embeds ethical considerations into strategic process in developing effective short-term and long-term strategies (He et al., 2022). As governance tactics based on different values are likely to generate diversified welfare effects, both the “hard” means of law and the “soft” value norms of ethics shall be fully leveraged, so as to achieve good goals in a modern society filled with uncertainties.

Since the introduction of the landmark Code of Conduct for Responsible Fisheries (CCRF) in 1995 that calls for fish-friendly actions of stakeholders worldwide, ethical issues concerning fish and aquatic habitats have been separated as an independent moral issue for good governance. In addition to institutional efforts in analyzing the moral imperatives enshrined in the fish sector, scientists represented by Pitcher (He et al., 2022), it ventured into the application of ethical consideration to international or regional fisheries and aquaculture governance. However, such “ethics-based” governance has remained

largely uninvestigated in China, despite some discussion on the environment and socio-cultural implications of fish policies (He et al., 2022), as well as fishermen's' (farmers') education (He et al., 2022) and well-being (He et al., 2022), which is disproportionately lacking given the multi-presence of its rich practices. As a big seafood producer, China is home to 718 fish townships, 7,550 fish villages, 4.63 million fish households, 18.28 million fish population, and 12.91 million fish labour force with 19.3% female practitioners (He et al., 2022).

Policy-wise, China has put forward the Rural Vitalization Strategy to build rural areas with thriving businesses, pleasant living environment, social etiquette and civility, effective governance, and prosperity (He et al., 2022). It initiates an institutional arrangement featuring ethical concerns over good governance, engaging the mandate to mitigate rural decline, improve rural ecology and develop rural etiquette (He et al., 2022). High-quality development of the fish sector affords a powerful approach to address moral failure and facilitate rural vitalization. At present, Chinese fish townships and villages are moving towards a coordinated development of aquatic ecology and social wellness. Key words with ethical implications, such as poverty alleviation, sustainability, responsibility, empowerment and distribution justice, are increasingly seen in domestic legal and policy documents. For instance, "ecological" aquaculture, "environmentally friendly" breeding fisheries and "diverse" recreational fisheries have been identified as priorities in the 12th Five-Year Fisheries Plan (2011–2015). To promote an all-round and sustainable economy, it is essential to not only take legal and policy measures, but also mobilize ethical means for guaranteeing the legitimacy of governance conducts (Bush et al., 2013).

This study contributes to the ethical perspectives on good governance by probing into the socio-ecological practicalities of grassroots governance in fish townships and villages. To that end, we adopt an interdisciplinary approach that combines normative ethics with grassroots governance through theoretical construction and field research. Layered on meta-governance theory and value-based decision making, we initially conceptualize an ethical framework for good governance in the fish industry from configuration to implementation. Next, we foreground the evolution of participatory fisheries and aquaculture management in rural China as a premise for case study. Going further, we integrate socio-ecological justice into empirically analyzing its empowerment of small-scale fish practitioners under government stewardship, integration of local knowledge and social code of conduct, and progression of ecological resilience. The findings provide value reference that promotes the legitimacy of grassroots governance in the fish sector through a holistic scan in Chinese practicalities, in hope of presenting a responsible governance path and envisioning a greener future of fisheries and aquaculture worldwide (Subasinghe et al., 2012).

Etiquette of Financial Management in Aquaculture

Aquaculture is agriculture in abroad sense — this has been said often and for good reason: the hands-on skills needed for successfully farming the land are the skills aquaculturists need for farming the water, among them, woodworking, masonry, wiring, welding, plumbing, and equipment maintenance. Equally important are business management skills, such as finance, record keeping, marketing, and personnel management. More aquaculture businesses fail because of poor management than poor production practices. Like farmers and others who run risky businesses, aquaculturists will have to contend with a number of challenges and pitfalls — in developing a well-thought out business plan, you can anticipate many of them, so that you have a better chance of operating a successful business. First, writing a comprehensive/business plan (feasibility report) will minimize risk. Anticipating potential problems and accounting for financial demands will reduce mistakes, which could possibly have been avoided. A written plan guides you in thinking through start-up and operation. It requires gathering important facts and figures, so that you can question assumptions and findings, and recognize where pitfalls can occur before you begin construction or production. Second, to attract investment financing, you must have a realistic and convincing plan for success. As it is, investment financing for your business will likely be limited: you will find that many investors are either unfamiliar with aquaculture or they remember a spectacular failure or two. Given that investors base most decisions on figures you provide and they can verify, you need to be as comprehensive as possible and build a factual case on why their investment is good business and has a good prospect of return with a satisfactory profit. The take home point: demonstrating that your venture has a strong chance for success is essential for obtaining capital. Business planning is not easy and can take months of research and assessment; while computer-based templates and information sources exist to produce professional looking plans, the real work lies in finding and analyzing the information your plan requires. It is your business on paper, and is a way to test your ideas against reality. You must ensure that facts and data are well organized and part of a structured process; an organized approach will help you identify information necessary for building a successful business. Whether elaborate or simple, your business plan is critical: while many challenges are generic to all aquaculture businesses, some questions will emerge that are specific to yours. This fact sheet can help you to develop a pathway for thinking through and writing your plan and not just assuming that fish production is fingerlings feeding in water alone (Tveteras, 2015).

Key Financial Management Practices for Aquaculture Businesses

Below are some key financial management practices for aquaculture:

- ❖ Budgeting and Forecasting: Establish a comprehensive budget and forecast to manage income and expenses.
- ❖ Cash Flow Management: Monitor and manage cash inflows and outflows to ensure liquidity.
- ❖ Cost Control: Optimize production costs, such as feed, labour, and energy expenses.
- ❖ Risk Management: Identify and mitigate financial risks, like market fluctuations and disease outbreaks.

- ❖ Capital Management: Manage assets, liabilities, and equity to maintain a healthy financial structure.
- ❖ Investment Analysis: Evaluate investment opportunities, such as new equipment or expansion projects.
- ❖ Financial Reporting: Regularly prepare and review financial statements, like balance sheets and income statements.
- ❖ Performance Metrics: Track key performance indicators, like revenue growth and profit margins.
- ❖ Working Capital Management: Manage accounts receivable, accounts payable, and inventory levels.
- ❖ Financial Planning: Develop strategic plans for long-term financial sustainability and growth.
- ❖ Insurance and Hedging: Consider insurance options and hedging strategies to manage risks.
- ❖ Tax Planning: Optimize tax strategies to minimize liabilities and maximize benefits.

By implementing these financial management practices, aquaculture businesses can improve their financial performance, reduce risks, and increase profitability (Hatch and Tai, 2017).

The Etiquettes of Financial management in Aquaculture

The etiquette of financial management in aquaculture refers to the principles and practices that guide financial decision-making and behaviour in the industry. Below are some key aspects of financial management etiquette in aquaculture:

- ❖ Transparency: Clearly disclose financial information, such as production costs, revenue, and profit margins.
- ❖ Accountability: Take responsibility for financial decisions and actions, and be answerable to stakeholders.
- ❖ Integrity: Conduct financial transactions with honesty and ethical standards.
- ❖ Prudence: Make financially prudent/wise decisions, avoiding unnecessary risks and ensuring sustainability.
- ❖ Responsibility: Manage finances in a way that minimizes environmental impact and ensures social responsibility.
- ❖ Compliance: Adhere to relevant laws, regulations, and industry standards.
- ❖ Planning: Develop and implement comprehensive financial plans and budgets.
- ❖ Monitoring: Regularly review and analyze financial performance, adjusting strategies as needed.
- ❖ Risk Management: Identify and mitigate financial risks, such as market fluctuations and disease outbreaks.
- ❖ Communication: Share financial information and plans with relevant stakeholders, including investors, lenders, and partners etc.

By following these guidelines, aquaculture businesses can demonstrate ethical and responsible financial management practices, building trust with stakeholders and contributing to the industry's long-term sustainability (Tveteras, 2015).

Objectives of Aquaculture in National Development (in Nigeria)

Below are some objectives of aquaculture, contributing to national development:

- ❖ Production of low cost protein rich, nutritive, palatable and easily digestible human food.
- ❖ Providing new species and strengthening stocks of existing fish in natural and man-made water-bodies through artificial recruitment.
- ❖ Production of ornamental fish for aesthetic appeal.
- ❖ Effective utilization of aquatic and land resource.
- ❖ Recycling of organic waste of human and livestock origin.
- ❖ Providing means of livelihood through commercial and industrial aquaculture.
- ❖ Production of sportfish and support to recreational fishing.
- ❖ Production of bait-fish for commercial and sport fishery.

Financial management is the practice of handling a company's finances in a way that allows it to be successful and compliant with regulations. It involves planning, organizing, directing and controlling the financial activities of an enterprise. Financial management deals with finding out various sources for raising funds for the firm and is practiced by many corporate firms (Engle and Stone, 2013).

Some key financial management practices essential for aquaculture businesses

- ❖ Conduct market research and identify your target customer base.
- ❖ Define the scope and objectives of the sustainable fish farming business.
- ❖ Assess the competition and analyze the industry trends.
- ❖ Determine the necessary permits, licenses and regulations.
- ❖ Research and select appropriate fish species for farming.
- ❖ Analyze market trends and identify your target market.
- ❖ Understand customer preferences and assess competition.
- ❖ Explore partnerships with local restaurants and grocery stores.
- ❖ Develop a comprehensive production plan and outline operational processes (Hatch and Tai, 2017).

Importance of Financial Management Practices in Aquaculture

Understanding the importance of financial management practices in aquaculture business is crucial for ensuring success and sustainability. Here are some key significance of financial management in aquaculture business:

- ❖ Careful financial management is essential for the success of an aquaculture business: It involves managing finances effectively to ensure profitability and growth.
- ❖ Management practices and managerial ability impact farms' financial performance: Theoretical and empirical research suggests that effective management practices play a vital role in the financial success of aquaculture businesses.

- ❖ Business management skills, such as finance and record-keeping, are equally important: These skills help in making informed decisions, monitoring financial health, and planning for the future.
- ❖ Depreciation, though a non-cash factor, is crucial for overall financial outcomes: Understanding and accounting for depreciation can impact the financial stability and profitability of aquaculture operations.
- ❖ Integration of financial management into decision-making processes is key: Careful financial management should be integrated into all aspects of aquaculture business decision-making to ensure long-term success.

By prioritizing financial management practices and integrating them into the core operations of an aquaculture business, owners and managers can enhance financial performance, mitigate risks, and drive sustainable growth (Costa-Pierce, 2010; Gomber et al., 2017).

CONCLUSION

Effective financial management is crucial for the sustainability and profitability of aquaculture businesses. The etiquette of financial management, including budgeting, cash flow management, and risk management, ensures that farmers make informed decisions, manage risks, and optimize resources. Aquaculture businesses must prioritize financial management to overcome financial challenges and contribute to global food security.

Fostering sustainable growth and upholding stakeholder trust in the fast-paced and highly scrutinized aquaculture industry requires the integration of excellent business etiquette and careful financial management. This highlights the mutually beneficial relationship between financial prudence and moral business conduct, providing a realistic examination of the etiquette involved in financial management within the aquaculture sector. Aquaculture financial management is a broad field that encompasses clear financial planning, responsible budgeting, efficient capital management, and strong risk management. It is not just about keeping ledgers balanced and optimizing profits. Honesty in communication and thorough reporting are two examples of transparent financial practices that increase the publics', regulators', and investors' reputation. The efficient use of resources is guaranteed by prudent financial planning and budgeting, and sound capital management strikes a balance between debt and equity to promote expansion without jeopardizing financial stability. Strong risk management techniques, such as proactive risk identification and mitigation, protect the company against unanticipated difficulties.

In addition to financial management, ethical behaviour, environmental stewardship, and community involvement are all part of aquaculture business etiquette; fair labour standards, compassionate treatment of animals, and honesty in business dealings are all essential components of ethical practices

and are necessary to establish a trustworthy and accountable company. The implementation of sustainable methods that reduce ecological effect and aid in the preservation of aquatic habitats is the main goal of environmental stewardship. By cultivating a favourable relationship and attending to stakeholder issues, community engagement guarantees that the advantages of aquaculture also extend to nearby communities. Hence, these elements of business etiquette and money management come together to form a comprehensive framework that promotes the resilience and long-term success of aquaculture businesses. Aquaculture companies can attain economic sustainability and improve their social and environmental impact by balancing financial rigor with moral and sustainable operations. This strategy not only satisfies stakeholders' growing expectations, but it also establishes a benchmark for ethical and progressive corporate practices in the aquaculture sector

Recommendations

- ❖ Aquaculture businesses should prioritize financial management and allocate resources effectively.
- ❖ Farmers should adopt cash flow management strategies to ensure timely payment of expenses and debts.
- ❖ Risk management strategies, such as diversification and insurance, should be implemented to mitigate environmental and market risks.
- ❖ Implement Comprehensive Budgeting: Aquaculture businesses should establish detailed budgeting processes to monitor and control costs effectively.
- ❖ Adopt Risk Management Strategies: Proactive risk management, including insurance and biosecurity measures, can mitigate the financial impact of disease outbreaks and environmental risks.
- ❖ Utilize Financial Forecasting Tools: Leveraging financial forecasting tools can help predict future financial performance and inform strategic planning.
- ❖ Invest in Fintech Solutions: Adopting Fintech solutions can enhance financial management efficiency and provide real-time insights into financial health.
- ❖ Diversify Product Offerings: Diversification can reduce dependency on a single market and mitigate the impact of market price volatility.

REFERENCES

- Anderson, J. L. (2002). Aquaculture and the Future: Why Fisheries Economists Should Care. *Marine Resource Economics*, 17(2), 133-151.
- Aquaculture Economics And Financing: Management and Analysis" (2017) - This book discusses key issues related to financing and planning for aquaculture businesses and how to monitor and evaluate economic and financial progress.

- Boyd, C. E. and McNevin, A. A. (2015). *Aquaculture, Resource Use, and the Environment*. Wiley Blackwell.
- Brugère, C., Ridler, N., Haylor, G., Macfadyen, G., and Hishamunda, N. (2001). Commercial aquaculture in Southeast Asia: Some policy lessons. *Food Policy*, 26(4), 433-447.
- Bush, S. R., Belton, B., Hall, D., Vandergeest, P., Murray, F. J., Ponte, S. and Kusumawati, R. (2013). Certify sustainable aquaculture? *Science*, 341(6150), 1067-1068.
- Costa-Pierce, B. A. (2010). Sustainable Ecological Aquaculture Systems: The Need for a New Social Contract for Aquaculture Development. *Marine Technology Society Journal*, 44(3), 88-112.
- Engle, C. R., and Stone, N. M. (2013). Competitiveness of U.S. aquaculture within the current U.S. regulatory framework. *Aquaculture Economics & Management*, 17(3), 251-280.
- Environmental Best Management Practices for Aquaculture" (2018) - This book discusses better management practices for freshwater pond aquaculture, marine shrimp aquaculture, and other forms of aquaculture.
- FAO (2020). *The State of World Fisheries and Aquaculture 2020*. Rome: Food and Agriculture Organization of the United Nations.
- FAO. (2020). *The State of World Fisheries and Aquaculture 2020. Sustainability in action*. Rome.kk
- FAO. *Ethical Issues in Fisheries*; FAO Publication: Rome, Italy, 2005.
- Gomber, P., Koch, J. A. and Siering, M. (2017). Digital Finance and Fintech: Current Research and Future Research Directions. *Journal of Business Economics*, 87(5), 537-580.
- Hatch, U, and Tai, H. (2017). Financial Management for Aquaculture. *Journal of the World Aquaculture Society*, 48(3), 389-401.
- He, Y., Huang, S. and Tang, Y. (2022). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505. <https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505. <https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022b). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505. <https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022c). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505. <https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022f). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505. <https://doi.org/10.3390/su14127505>

- He, Y., Huang, S. and Tang, Y. (2022g). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505.
- He, Y., Huang, S. and Tang, Y. (2022h). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505.
<https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022i). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505.
<https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022j). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505.
<https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022k). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505.
<https://doi.org/10.3390/su14127505>
- He, Y., Huang, S. and Tang, Y. (2022l). Sustainable Practicalities towards Good Governance in Fish Townships and Villages by Ethics-Based Approach. *Sustainability*, 14(12), 7505.
<https://doi.org/10.3390/su14127505>
- Introduction to Financial Management of Aquaculture Businesses" (2013) - This publication outlines the types of financial analyses and financial statements required to answer critical questions about the success of an aquaculture business.
- Key, S.; Popkin, S.J. Integrating ethics into the strategic management process: Doing well by doing good. *Manag. Decis.* **1998**, 36, 331–338.
- Kumar, G., Engle, C. R., & Tucker, C. S. (2018). Financial management in aquaculture. *Journal of the World Aquaculture Society*, 49(5), 731-743.
- Marteil, L., and Power, N. (2016). Financial management for aquaculture businesses. *Aquaculture Economics & Management*, 20(2), 143-155.
- SRAC Publication No. 4401 (2013) - This publication provides details on compiling and interpreting balance sheets and associated financial ratios for aquaculture businesses.
- SRAC Publication No. 4402 (2013) - This publication provides details on compiling and interpreting enterprise budgets and income statements for aquaculture businesses.
- Subasinghe, R. P., Soto, D., and Jia, J. (2012). Global aquaculture and its role in sustainable development. *Reviews in Aquaculture*, 4(1), 2-9.
- Tacon, A. G. J., and Metian, M. (2017). Fish and seafood: The global market and its impact on aquaculture. *Reviews in Fisheries Science & Aquaculture*, 25(2), 147-158.
- Tveterås, R. (2015). Price Volatility and Risk Management: An Overview. *Aquaculture Economics and Management*, 19(2), 142-155.