

The Shrimp Industry of Bangladesh: A Study of Business Regulation, Market Practices, and Human Rights in a Constitutional Framework

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Abstract- The shrimp industry occupies a distinctive place in Bangladesh's economic and legal landscape. Long celebrated as "white gold," the sector has historically been the country's second-largest export earner after ready-made garments, and it continues to sustain the livelihoods of hundreds of thousands of coastal households across Khulna, Satkhira, Bagerhat, and Cox's Bazar. This paper undertakes a comprehensive, business-law-oriented examination of the shrimp industry, tracing its historical evolution from subsistence gher farming to an internationally regulated export sector. It analyses the domestic legal architecture that governs the industry — including the National Fisheries Policy 1998, the Fish and Fish Products (Inspection and Quality Control) Ordinance 1983, the Bangladesh Food Safety Act 2013, the Environment Conservation Act 1995, and the Bangladesh Labour Act 2006 — alongside the international regulatory regime imposed by the European Union, the United States, and the World Trade Organization. The paper further evaluates market practices, supply-chain structures, and the persistent legal and human rights challenges that have constrained the sector's growth, including environmental degradation, child labour, and the exploitation of women in processing plants. Finally, it situates Bangladesh's experience within a comparative regional context and proposes a forward-looking legal and policy agenda for the period 2026–2033. The analysis demonstrates that while business law has played an indispensable role in enabling Bangladesh's shrimp export success, weak enforcement, institutional fragmentation, and unresolved labour and environmental concerns continue to threaten the industry's long-term sustainability and its compliance with constitutional guarantees of equality, dignity, and a healthy environment.

Keywords: Shrimp Industry, Bangladesh, Business Regulation, Aquaculture Law, Food Safety, Labour Rights, Environmental Law, Export Trade

I. INTRODUCTION

The shrimp industry is widely regarded as one of the most valuable and strategically important sectors of Bangladesh's economy. Often referred to as "white gold," shrimp has for decades been a major source of foreign exchange earnings and a key driver of rural employment (Shamsuzzaman et al., 2022). The industry plays a particularly significant role in the coastal regions of Khulna, Satkhira, Bagerhat, and Cox's Bazar, where several hundred thousand people depend on it, directly or indirectly, for their livelihoods (Seafood Watch, 2023).

From a business law perspective, the shrimp sector operates within a complex and multi-layered regulatory framework. It is governed simultaneously by trade law, environmental law, labour law, and food safety regulation, and it must comply not only with domestic legislation but also with the increasingly stringent sanitary, phytosanitary, and ethical-sourcing standards demanded by importing countries such as those of the European Union, the United States, and Japan (Yunus, 2009). The industry therefore serves as a useful case study for examining how a developing country's business regulatory regime interacts with international trade law, environmental protection, and constitutional guarantees of labour dignity and equality.

This paper explores the historical development, business structure, legal regulation, economic contribution, and future prospects of the shrimp industry in Bangladesh. It is organised as follows. Section 2 traces the historical development of the industry from informal subsistence farming to a commercial export sector. Section 3 examines the emergence of the export business and the

internationalisation of quality standards. Section 4 provides an overview of the industry's structure, species composition, and production and export trends over the past decade. Section 5 analyses the industry's contribution to gross domestic product (GDP) and rural livelihoods. Section 6 sets out the domestic and international legal framework governing the sector. Section 7 examines business regulation and compliance requirements. Section 8 discusses market practices and supply-chain structures. Section 9 addresses the seasonal character of shrimp production. Section 10 considers the role of non-governmental organisations (NGOs). Section 11 identifies the principal legal issues and challenges confronting the industry, with particular attention to environmental and labour concerns. Section 12 analyses the role of business law in regulating the sector. Section 13 sets out a proposed future development plan for 2026–2033. Section 14 situates Bangladesh's experience within a comparative regional perspective, and Section 15 concludes.

Methodologically, this paper adopts a doctrinal and policy-analytical approach, drawing on primary legal instruments — including national legislation, the National Fisheries Policy 1998, and relevant constitutional provisions — alongside secondary sources including peer-reviewed academic literature, government and industry reports, and contemporary trade press coverage of the sector's economic performance. Given that the shrimp industry sits at the intersection of trade, environmental, and labour law, the analysis necessarily draws on scholarship from each of these fields rather than treating them as separate silos. Where recent statistical data are cited, figures are drawn from the most current government and industry sources available at the time of writing, given the sector's demonstrated volatility over even short time horizons.

II. HISTORICAL DEVELOPMENT OF THE SHRIMP INDUSTRY

The shrimp industry in Bangladesh began as a small-scale, traditional activity in the coastal belt of the country. Before the 1970s, shrimp farming was practised mainly for local consumption, using simple and informal methods that relied on the natural tidal

ingress of post-larvae into low-lying paddy fields (Shamsuzzaman et al., 2022). There was, at this stage, no meaningful commercial orientation, and shrimp was treated as an incidental by-product of rice cultivation rather than a distinct economic activity.

The situation changed significantly during the 1970s and 1980s, when global demand for shrimp increased sharply, particularly in developed countries seeking inexpensive sources of protein-rich seafood. This created substantial new economic opportunities for Bangladesh. Farmers began converting rice fields into semi-permanent shrimp enclosures, locally known as gher farming, in which brackish water was deliberately introduced into low-lying coastal land to cultivate Bagda (black tiger shrimp) alongside rice (Seafood Watch, 2023). The rapid horizontal expansion of gher farming during this period was actively encouraged by the Bangladeshi government, which viewed the sector as a relatively low-cost means of capitalising on booming international demand for cheap shrimp products (Seafood Watch, 2023).

International development institutions played an important supporting role in this transition. With technical and financial assistance from organisations such as the Food and Agriculture Organization (FAO) and the World Bank, the sector gradually shifted from subsistence-oriented production to commercial aquaculture, supported by hatchery development, extension services, and rural credit programmes. By the 1990s, Bangladesh had firmly established itself as a major shrimp-exporting country, with export earnings from frozen shrimp approaching almost US\$1 billion at the sector's historical peak (Food Business Africa, 2026). This growth was accompanied by the development of modern processing facilities, particularly in Khulna and Chattogram, and by the adoption of export-oriented industrial policies designed to attract foreign exchange.

However, this rapid and largely unplanned expansion also generated significant social and environmental costs that would later become central to the industry's legal and regulatory challenges. The conversion of agricultural land into saline shrimp enclosures

displaced rice farmers, disrupted freshwater sources, and, in many documented cases, was accompanied by land-grabbing and intimidation of smallholders (World Rainforest Movement, 2013). These early tensions between commercial expansion and the rights of local communities foreshadowed many of the legal and human rights controversies that continue to affect the sector today, as discussed further in Section 11.

It is important to appreciate that the historical trajectory of the industry was not linear. Periods of rapid horizontal expansion in the 1980s were interspersed with episodes of crisis — including recurrent outbreaks of white spot and other viral shrimp diseases, cyclical price collapses in international markets, and, as discussed in Section 3, sudden external regulatory shocks such as the 1997 European Union import ban. Each of these episodes prompted a distinct policy response, ranging from ad hoc government subsidies and tax exemptions for exporters to the eventual, more systematic adoption of the National Fisheries Policy 1998. Understanding this historical pattern of crisis-driven, reactive policymaking is essential to understanding why, as discussed in Section 6, the sector's legal framework remains fragmented and often poorly coordinated across different regulatory agencies, including the Ministry of Fisheries and Livestock, the Department of Environment, and the Export Promotion Bureau. The historical development of the industry has also been shaped by shifting land tenure patterns. Whereas large-scale commercial farms, often financed by urban investors and absentee landowners, dominated the sector's early export-oriented phase, more recent decades have seen a gradual shift toward smaller, locally managed shrimp farms operated by resident landowners (Global March Against Child Labour, 2025). This shift has had ambiguous effects on both productivity and labour conditions: while it has, in some areas, reduced the scale of land-grabbing associated with large absentee-owned operations, it has also fragmented production into smaller units that are, in many cases, even less subject to formal regulatory oversight than their larger predecessors.

III. EMERGENCE OF THE SHRIMP EXPORT BUSINESS

The growth of shrimp exports in Bangladesh was driven by several converging factors, including rising global demand, the availability of extensive natural coastal resources exceeding 700 kilometres in length, and comparatively low production costs relative to competitor nations (Islam et al., 2024, as cited in MDPI Sustainability, 2024). Initially, shrimp exports were limited in volume and consisted largely of unprocessed or minimally processed product. Over time, however, the industry became considerably more sophisticated: modern processing plants were established in the major seaport clusters of Khulna, Satkhira, Jessore, Chattogram, and Cox's Bazar, quality control systems were introduced, and international certifications became a practical precondition for market access (Seafood Watch, 2023).

A pivotal moment in this process of internationalisation occurred in 1997, when the European Commission imposed a ban on seafood imports from Bangladesh owing to serious infrastructural deficiencies and non-compliance with European hygiene standards (Yunus, 2009). The ban was lifted for a small number of compliant companies in early 1998, following the European Commission's Decision 98/147/EC, which laid down special conditions governing imports of fishery and aquaculture products originating in Bangladesh (as cited in Yunus, 2009). During the same period, the United States Food and Drug Administration automatically detained a substantial number of frozen shrimp shipments pending inspection, reflecting parallel concerns among Western import markets (University of Massachusetts, n.d.).

Economic analysis of the 1997 EU ban suggests that it imposed a short-run cost on Bangladesh's shrimp export sector of approximately US\$25 million, alongside longer-run costs from lost market confidence (Yunus, 2009). However, the crisis also proved to be a catalyst for reform: Bangladesh's subsequent adoption of Hazard Analysis of Critical Control Point (HACCP) systems is estimated to have generated an additional US\$18 million in export

value in the short run and approximately US\$35 million annually in the long run (Yunus, 2009). This episode illustrates a recurring pattern in the sector's development — external regulatory shocks originating from importing countries have historically functioned as the primary driver of domestic quality-control reform, often outpacing purely domestic regulatory initiative.

As a result of these developments, shrimp became, for much of the 1990s and 2000s, the second-largest export sector in Bangladesh after the ready-made garments industry. Major export destinations have historically included the European Union, the United States, and Japan, with the European Union alone accounting for approximately half of total shrimp export value in recent years (LightCastle Partners, 2026, as cited in the original assignment data).

IV. OVERVIEW OF THE SHRIMP INDUSTRY

Today, the shrimp industry remains one of the largest agro-based industries in Bangladesh and continues to play a vital, if increasingly contested, role in both domestic food security and international trade.

4.1 Types of Shrimp Produced

Bangladesh mainly produces two commercially important types of shrimp. The first is Bagda, or black tiger shrimp (*Penaeus monodon*), a saltwater species with high export value that has traditionally dominated the country's shrimp farming landscape. The second is Galda, or giant freshwater prawn (*Macrobrachium rosenbergii*), which is popular in both local and international markets and is typically farmed in the freshwater ghers of the south-west (LightCastle Partners, 2025). In addition to these two dominant species, smaller indigenous varieties such as Harina shrimp are also produced, primarily for domestic consumption.

A significant structural shift is now under way in global and domestic shrimp farming, driven by the rise of *Litopenaeus vannamei* (Vannamei or whiteleg shrimp), a species that offers substantially higher yields than Bagda. Whereas traditional Bagda farming under semi-intensive systems in Bangladesh yields only around 400 kilograms per hectare,

Vannamei can produce between 7,000 and 8,000 kilograms per hectare under comparable conditions (Dhaka Tribune, 2025; Food Business Africa, 2026). By comparison, semi-intensive shrimp yields in Ecuador, India, and Vietnam average approximately 6,800, 5,500, and 4,500 kilograms per hectare respectively (Food Business Africa, 2026). Experimental Vannamei cultivation began in Bangladesh in 2021 at a research centre in Paikgacha, Khulna, with commercial-scale production commencing only in 2024–2025 after nearly a decade of regulatory and bureaucratic delay (Dhaka Tribune, 2025). This delay in approving a globally dominant, higher-yield species is itself illustrative of the institutional and regulatory bottlenecks discussed further in Sections 11 and 13.

The gradual introduction of Vannamei is expected to reshape the industry's legal and business landscape in the coming years, since it is generally cultivated under more intensive, capital-intensive systems requiring formal biosecurity protocols, licensed hatchery sourcing, and closer regulatory supervision than traditional extensive Bagda ghers. This shift may, over time, help formalise segments of the industry that have historically operated largely outside the reach of the Fish and Fish Products (Inspection and Quality Control) Ordinance 1983 and related quality-control legislation, although it also risks marginalising smallholder farmers who lack the capital required to transition to intensive systems, a distributional concern that any future legal reform, discussed in Section 13, should explicitly address.

4.2 Production and Export Trends (Last Decade)

Over the past decade, aquaculture production in Bangladesh generally has continued to expand, with the sector contributing an estimated 59.34 percent (2.978 million metric tons) of the country's total fish production of 5.02 million metric tons in the 2023–24 fiscal year (LightCastle Partners, 2025). Shrimp and prawn farming, however, present a more complex picture. While overall fish production has trended upward, shrimp-specific production and export earnings have followed a markedly different trajectory, characterised by a long-term decline from the sector's historic peak.

Export earnings from frozen shrimp reached nearly US\$1 billion during the 1990s and stood at US\$529 million in the 2015–16 fiscal year, before falling to US\$448.56 million in fiscal year 2016 (Dhaka Tribune, 2025; Food Business Africa, 2026). The decline has continued in subsequent years: by fiscal year 2021–22, total frozen food export earnings stood at US\$532.94 million, of which shrimp alone accounted for US\$407.25 million, still well short of the Export Promotion Bureau's US\$500 million target for shrimp exports alone (The Fish Site, 2023). By fiscal year 2024–25, shrimp export earnings had fallen further to approximately US\$296.29 million, although this figure represented a 19 percent year-on-year increase over the previous fiscal year, offering some evidence of a nascent recovery (Food Business Africa, 2026; Dhaka Tribune, 2025).

Regional data from the Khulna Division illustrate this partial recovery in concrete terms. The Fish Inspection and Quality Control (FIQC) office in Khulna recorded a rise in total shrimp and fish exports from 25,196.74 metric tons worth approximately Taka 2,146 crore (US\$177.4 million) in fiscal year 2023–24, to 34,876.37 metric tons worth approximately Taka 3,109 crore (US\$257 million) in fiscal year 2024–25 (Seafood Network Bangladesh, 2025). Of this total, shrimp exports alone rose from 15,450.97 metric tons earning Taka 1,744 crore (US\$144.1 million) to 19,512.79 metric tons earning Taka 2,499 crore (US\$206.5 million) over the same period (Seafood Network Bangladesh, 2025). Despite this improvement, industry stakeholders estimate that continuing production shortfalls — attributable to disease outbreaks, saline water scarcity, and adverse climatic conditions — have deprived the country of a further US\$25–41 million in potential export earnings (Seafood Network Bangladesh, 2025).

This divergence between rising aggregate fish production and volatile, generally declining shrimp export earnings indicates a key structural challenge for the industry: although broader aquaculture output is rising, the shrimp sub-sector's export competitiveness remains fragile, owing to a combination of ageing pond infrastructure, rising input costs, disease pressure, and intensifying

competition from countries that have transitioned more rapidly to high-yield Vannamei farming (Food Business Africa, 2026).

V. CONTRIBUTION TO GDP AND ECONOMY

The shrimp industry continues to play a meaningful, if diminished, role in Bangladesh's economy. The fisheries sector as a whole contributes approximately 3–4 percent to national GDP, with fish and fishery product exports — of which shrimp remains the single largest component — accounting for roughly 0.91 percent of Bangladesh's total national export earnings in recent years (LightCastle Partners, 2025). Within the frozen fish and shrimp export category specifically, shrimp continues to dominate, accounting for approximately 76 percent of total frozen fish and shrimp export revenue in fiscal year 2024–25 (Food Business Africa, 2026).

Beyond its direct contribution to GDP and export earnings, the sector's socio-economic footprint is considerable. Industry estimates suggest that the shrimp value chain supports more than 300,000 direct jobs across an estimated 262,000 hectares of shrimp cultivation area, positioning Bangladesh as the world's fifth-largest shrimp farming base by area under cultivation (Food Business Africa, 2026; The Business Standard, 2026). When indirect employment across the supply chain — including fry collectors, feed suppliers, transporters, and processing-plant workers — is taken into account, several hundred thousand additional livelihoods are estimated to depend on the sector, particularly in the coastal districts of Khulna, Satkhira, Bagerhat, and Cox's Bazar (Seafood Watch, 2023).

The industry also has a distinctive gendered dimension. Women constitute a substantial proportion of the workforce in fry collection and in processing-plant production lines, and the sector is frequently cited as a source of wage-earning opportunity for rural women who might otherwise have limited access to formal employment (World Rainforest Movement, 2013). However, as discussed in Section 11, this participation has also been associated with significant risks of exploitation, wage

discrimination, and precarious casual employment, complicating any straightforward narrative of the industry as an engine of women's economic empowerment.

The multiplier effects of shrimp production on ancillary sectors of the rural economy are also worth noting. Demand for shrimp feed, post-larvae, ice for cold storage, packaging materials, and inland transport services has, in the areas of Khulna, Satkhira, and Cox's Bazar where the industry is concentrated, supported the growth of a range of secondary businesses, from local feed mills to small transport operators. This diffuse, indirect economic contribution is difficult to quantify precisely but is generally regarded by economists as significant, particularly in districts where alternative sources of formal employment remain scarce (LightCastle Partners, 2025). At the same time, the industry's reliance on saline water for shrimp cultivation has, in some areas, reduced the viability of complementary agricultural activities such as rice and vegetable farming, illustrating the difficult trade-offs between different forms of rural livelihood that shrimp expansion has historically entailed.

Looking forward, industry bodies and policymakers have articulated ambitious growth targets. The Maheshkhali Integrated Development Authority has proposed a strategy aimed at achieving US\$3 billion in annual shrimp export earnings by 2030, primarily through the wider adoption of Vannamei farming, technology-driven aquaculture, and the establishment of dedicated Shrimp Economic Zones in Khulna, Satkhira, Bagerhat, Cox's Bazar, Maheshkhali, Chakaria, and Teknaf (The Business Standard, 2026; Food Business Africa, 2026). Some industry representatives have suggested that, once Vannamei exports are fully commercialised, export earnings from shrimp alone could reach as high as US\$5 billion by 2030 (Dhaka Tribune, 2025). Whether these targets are realistic depends significantly on the legal and institutional reforms discussed in Sections 6, 11, and 13 of this paper.

VI. LEGAL FRAMEWORK GOVERNING THE SHRIMP INDUSTRY

The shrimp industry operates under a comprehensive, if fragmented, legal framework designed to ensure sustainability, food safety, labour protection, and fair trade practices. This framework can usefully be divided into three layers: national policy, national legislation, and international regulatory obligations.

6.1 National Fisheries Policy 1998

The National Fisheries Policy 1998, formulated by the Ministry of Fisheries and Livestock, remains the principal policy instrument governing the sector. Its stated objectives include enhancing fisheries production, alleviating poverty, meeting domestic animal protein demand, earning foreign currency, and maintaining ecological balance (Shamsuzzaman et al., 2022). The policy is structured around four broad areas: the procurement, preservation, and management of fisheries resources in open water bodies; fish culture and management in closed freshwater bodies; the culture of shrimp in coastal regions; and the exploitation, conservation, and management of marine fisheries resources (Shamsuzzaman et al., 2022).

Notably, the National Fisheries Policy 1998 emphasises export promotion and private sector participation, including provisions for tax exemption on inputs required for export-oriented aquaculture activities and a registration system for fish and shrimp hatcheries to control quality (Ministry of Fisheries and Livestock, 1998). However, empirical assessment of the policy's implementation over more than two decades has identified significant weaknesses, including an overwhelmingly top-down approach to decision-making, a lack of clearly defined policy goals, inadequate enforcement mechanisms, and the absence of any dedicated zoning plan for coastal shrimp cultivation areas (Shamsuzzaman et al., 2022). Indeed, researchers have noted that no law or legal instrument exists specifically permitting or prohibiting brackish-water shrimp aquaculture in Bangladesh's coastal areas, leaving decisions about land conversion to be governed largely by informal arrangements between landowners and aquaculture operators

(Shamsuzzaman et al., 2022). This policy gap has been a persistent source of the land-use conflicts discussed in Section 11.

6.2 Key Domestic Legislation

Beyond the National Fisheries Policy, several pieces of domestic legislation directly regulate the shrimp industry:

- Fish and Fish Products (Inspection and Quality Control) Ordinance 1983 — establishes the basic legal foundation for export quality standards and inspection of fish and fishery products intended for export, and underpins the licensing regime administered by the Department of Fisheries.
- Bangladesh Food Safety Act 2013 — establishes the Bangladesh Food Safety Authority and creates a general regulatory regime for food hygiene, safety, and quality applicable across the food supply chain, including seafood processing.
- Environment Conservation Act 1995 (and its subsequent amendments) — provides the principal legal mechanism for environmental impact assessment and pollution control, and is directly relevant to concerns regarding mangrove destruction and salinisation of agricultural land associated with shrimp gher expansion.
- Bangladesh Labour Act 2006 — sets out minimum standards for wages, working hours, occupational safety, and the right to organise, and is intended to safeguard the rights of workers in fish and shrimp processing plants.

In practice, however, the effectiveness of this legislative framework has been undermined by significant enforcement gaps. A 2012 Solidarity Center report found that the predominantly female, low-income shrimp processing workforce in south-western Bangladesh faced inadequate safety and health protections, received minimal or no overtime wages, and had little effective recourse to the protections nominally guaranteed under the Bangladesh Labour Act 2006 (Solidarity Center, 2020). In response to sustained pressure from workers and international labour rights organisations, the Bangladesh Frozen Foods Exporters Association

(BFFEA), the Bangladesh Shrimp and Fish Foundation (BSFF), and the Solidarity Center signed a memorandum of agreement in 2012 committing to implement worker rights in accordance with domestic labour law and International Labour Organization (ILO) core labour standards (Solidarity Center, 2020). This episode illustrates a recurring theme in the sector's legal history: formal legislative protections have often been supplemented, or in practice substituted, by voluntary industry codes negotiated under the threat of reputational or trade sanctions rather than through robust state enforcement.

6.3 International Regulations

Because the shrimp industry is fundamentally export-oriented, its legal environment is shaped as much by the regulatory requirements of importing jurisdictions as by domestic law. Exporters must comply with World Trade Organization (WTO) rules, including the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), as well as the European Union's sanitary and phytosanitary requirements for fishery products, which are transposed into Bangladeshi practice through mechanisms such as the historic European Commission Decision 98/147/EC (Yunus, 2009). Failure to comply with these international standards can result in the outright rejection of export consignments, temporary suspension of a processing plant's export licence, or, in the most serious cases, a blanket import ban of the kind imposed by the European Union in 1997 (Yunus, 2009).

More recently, the growing importance of the Chinese market has introduced a further layer of international regulatory complexity. Chinese shrimp imports surged from US\$1.81 billion in 2018 to US\$6.29 billion in 2022, making China the world's second-largest shrimp importer after the United States (N'Souvi et al., 2024, as cited in Siddique et al., 2025). To access this market, Bangladeshi exporters must additionally comply with the requirements of the General Administration of Customs of China (GACC) and the Certification and Accreditation Administration of China (CNCA), alongside internationally recognised certifications such as HACCP, Good Manufacturing Practice

(GMP), the Global Standard for Food Safety (BRCS), and Aquaculture Stewardship Council (ASC) farm certification (Siddique et al., 2025). The multiplication of overlapping international compliance regimes — European, American, Japanese, and now Chinese — has significantly increased the regulatory burden on Bangladeshi processors and exporters, particularly smaller firms with limited compliance capacity.

The layering of national and international regulation in the shrimp sector also raises broader constitutional questions relevant to a business and human rights analysis of this kind. Article 15 of the Constitution of the People's Republic of Bangladesh imposes on the State a fundamental responsibility to secure the basic necessities of life, including food and an adequate standard of living, while Article 20 recognises work as a right, a duty, and a matter of honour for every citizen capable of work. Insofar as the informal, largely unregulated segments of the shrimp value chain — fry collection, farm labour, and intermediary trading — routinely expose workers, including children, to hazardous conditions, exploitative debt relationships, and wages below any meaningful subsistence threshold, a strong argument can be made that the State's failure to extend and enforce labour protections in these segments falls short of these constitutional directive principles, even though such principles are not, under Article 8(2) of the Constitution, directly enforceable in a court of law. This tension between formally comprehensive constitutional and statutory commitments, on the one hand, and practically deficient enforcement, on the other, recurs throughout the analysis in this paper and is addressed further in Section 12.

A related constitutional consideration concerns the right to equality before the law under Article 27 and the prohibition on discrimination on grounds of sex under Article 28. Given the heavily gendered composition of the shrimp processing and fry-collection workforce, and the documented pattern of wage disparity, casualisation, and vulnerability to abuse experienced disproportionately by women workers (World Rainforest Movement, 2013), the persistent under-enforcement of labour protections in this sector can plausibly be understood not merely as

a general regulatory failure but as one with a distinct gender-equality dimension. This reframes the shrimp industry's labour challenges, discussed further in Sections 11 and 12, as a matter not only of ordinary labour law compliance but of substantive constitutional equality.

From an international trade law perspective, it is also worth noting the legal architecture within which measures such as the 1997 European Union ban operate. Under the WTO SPS Agreement, member states retain the sovereign right to adopt sanitary and phytosanitary measures necessary to protect human, animal, or plant life or health, provided that such measures are based on scientific principles, are not maintained without sufficient scientific evidence, and do not arbitrarily or unjustifiably discriminate between members where identical or similar conditions prevail. Import bans of the kind imposed on Bangladeshi shrimp in 1997 are, in principle, permissible under this framework where genuine food safety deficiencies are identified, but they also illustrate the asymmetric bargaining position of exporting developing countries, which must generally adapt their domestic regulatory systems to the standards of importing markets rather than the reverse. This asymmetry helps to explain why, as discussed in Section 12, international trade law has often proved a more powerful driver of domestic regulatory reform in Bangladesh than purely internal legislative or administrative initiative.

VII. BUSINESS REGULATION AND COMPLIANCE

Shrimp businesses operating in Bangladesh must satisfy a range of regulatory requirements before they may lawfully produce, process, or export shrimp. At the most basic level, this includes obtaining a trade licence from the relevant local authority, registering with the Export Promotion Bureau for an export registration certificate, and securing sector-specific approvals from the Department of Fisheries, including hatchery and farm registration under the National Fisheries Policy's quality-control provisions (Ministry of Fisheries and Livestock, 1998).

Quality control compliance is particularly significant for exporters, given the central role that food safety certification plays in determining market access. Exported shrimp must meet HACCP standards, and increasingly must also secure supplementary certifications such as BRCGS, ASC, and GMP in order to satisfy the requirements of Western and East Asian buyers alike (Siddique et al., 2025). Compliance costs associated with these certifications can be substantial, particularly for small and medium-sized processing plants, and industry representatives have identified certification costs, alongside high feed and electricity prices, as a significant constraint on competitiveness (The Business Standard, 2026).

Environmental compliance forms a further, increasingly important dimension of business regulation. Processing plants and shrimp farms are, in principle, subject to environmental clearance requirements under the Environment Conservation Act 1995, administered by the Department of Environment. In practice, however, enforcement of these requirements in coastal shrimp-farming areas has historically been weak, contributing to the environmental degradation discussed in Section 11. A landmark judicial intervention occurred in August 2016, when the Supreme Court of Bangladesh, acting on a public interest litigation brought with the assistance of the Bangladesh Environmental Lawyers Association, declared the blocking of saltwater intended for agricultural and forest land for shrimp farming to be illegal, and directed the government to ensure minimal use of saltwater in shrimp cultivation in order to preserve soil fertility (Global March Against Child Labour, 2025). This judgment represents one of the few significant instances of judicial enforcement of environmental limits on shrimp farming expansion, and illustrates the potential role of public interest litigation in supplementing otherwise weak administrative enforcement.

Labour compliance obligations, discussed in greater detail in Section 6.2, similarly depend heavily on both administrative inspection by the Department of Inspection for Factories and Establishments and on external pressure exerted through international trade

mechanisms, such as petitions filed with the United States Trade Representative alleging restrictions on trade union activity and the use of child labour in the frozen food sector (SeafoodSource, n.d.). In response to such pressure, the Bangladeshi government has, at various points, considered placing the shrimp industry under direct International Labour Organization monitoring in order to pre-empt trade restrictions from Western importing countries (SeafoodSource, n.d.).

Taken together, the regulatory requirements described in this section illustrate a recurring feature of business regulation in the shrimp sector: compliance obligations tend to be most rigorously enforced, and most clearly specified, at the point of export, where a licensed processing plant's continued market access is directly at stake, and progressively less rigorously enforced further upstream in the value chain, at the level of individual farms, hatcheries, and informal trading points. This gradient of enforcement intensity is a central theme that recurs throughout the remainder of this paper, particularly in the discussion of labour and environmental challenges in Section 11 and the analysis of business law's uneven reach in Section 12.

VIII. MARKET PRACTICES

The shrimp supply chain in Bangladesh is long and fragmented, consisting of multiple, often informally organised, intermediary stages between the point of production and final export. A typical value chain runs from hatcheries, which supply post-larvae (locally known as fry), through individual farmers cultivating Bagda, Galda, or Vannamei in gher enclosures, to intermediary traders and collectors operating at wholesale markets known as arats, and finally to processing plants and licensed exporters (Seafood Watch, 2023).

Prices at each stage of this chain are influenced by a combination of global demand conditions, product quality and grading, prevailing exchange rates, and the intensity of international competition from rival exporting nations such as India, Ecuador, and Vietnam (The Business Standard, 2026). However, the sector faces several structural challenges that

limit the efficiency and fairness of these market practices. Chief among these is a persistent lack of price transparency at the farm-gate level, combined with farmers' heavy dependence on middlemen — known locally as *farias* and *aratdars* — who frequently extend informal credit to farmers in exchange for exclusive purchasing rights, a practice that significantly weakens farmers' bargaining power (Global March Against Child Labour, 2025).

This dependence on middlemen is particularly acute for the vulnerable workers engaged in fry collection, many of whom operate in a relationship of bonded labour with fry traders (referred to locally as *dhadon*) to whom they are frequently indebted, further entrenching their weak position within the value chain (World Rainforest Movement, 2013). Recent industry data indicate that the European Union continues to be the single largest destination for Bangladeshi shrimp exports, accounting for approximately half of total export value, followed by the United States, the United Kingdom, Japan, and other markets including China, whose importance is rapidly growing (Frontiers in Aquaculture, 2026). This concentration of export markets in jurisdictions with stringent food safety and, increasingly, labour and environmental standards means that market access continues to be closely tied to the regulatory compliance issues discussed throughout this paper.

Domestic transport and logistics infrastructure represent a further constraint on market efficiency. Stakeholders have reported that the loss of dedicated air-freight services for shrimp larvae between Cox's Bazar and Khulna has forced reliance on road transport journeys of up to twelve hours, materially increasing larval mortality rates and, by extension, production costs (The Business Standard, 2026). Similarly, the shallow depth of many traditional shrimp ponds — typically only one to one-and-a-half feet, compared with the four to five feet recommended for disease resistance and heat-stress management — continues to constrain both yields and product quality (Food Business Africa, 2026).

From a contract law perspective, the multi-tiered structure of the shrimp supply chain also raises important questions of risk allocation. Because

farmers typically sell to intermediary traders under informal, often oral, arrangements rather than written supply contracts, the risk of price volatility, disease-related crop failure, and post-harvest quality rejection tends to fall disproportionately on farmers and fry collectors at the bottom of the chain, rather than being distributed more evenly across processors and exporters who are better placed to absorb such risk through diversified sourcing and export contracts. The absence of standardised, legally enforceable supply agreements between farmers and traders is one of the less visible, but nonetheless significant, structural weaknesses of the sector's business law environment, and is closely connected to the informal-credit dynamics discussed in Section 12.

IX. SEASONAL PRODUCTION OF SHRIMP

Shrimp farming in Bangladesh is markedly seasonal in character, a fact with important implications for both business planning and labour demand across the value chain. The most productive period generally runs from March to July, with peak production typically occurring between April and September (original assignment data). This seasonality is primarily attributable to favourable environmental conditions during the warmer months, including elevated water temperatures and salinity levels that are conducive to the growth of *Bagda* shrimp in particular.

The seasonal nature of production has significant knock-on effects for the industry's labour market and for the legal protections afforded to workers. During peak harvest periods, processing plants typically rely heavily on temporary and casual labour, engaging large numbers of predominantly female workers on short-term contracts that frequently fall outside the full scope of the protections nominally available under the Bangladesh Labour Act 2006 (Solidarity Center, 2020). Conversely, during the off-season, many fry collectors and farm labourers face significant income insecurity, a vulnerability that was starkly illustrated during the COVID-19 pandemic, when nationwide mobility restrictions prevented fry catchers from working and forced many processing-plant temporary workers into unemployment (Global March Against Child Labour, 2025). Seasonal

variability of this kind underscores the importance of extending robust labour protections — including minimum wage guarantees and social security coverage — to temporary and informal workers, who constitute a substantial proportion of the sector's overall workforce.

X. ROLE OF NGOS AND SUPPORTING ORGANIZATIONS

Various governmental and non-governmental organisations play a crucial supporting role in the shrimp sector, particularly in areas where formal state regulation has proved insufficient. International organisations, including the FAO and WorldFish, have historically provided technical assistance in areas ranging from HACCP-based quality assurance programme design to hatchery management and disease control (Yunus, 2009; WorldFish, 2021). WorldFish, for example, has been closely involved in efforts to revise the National Fisheries Policy 1998, co-hosting stakeholder consultation workshops with the Department of Fisheries aimed at transforming the sector into a more dynamic and sustainable venture (WorldFish, 2021).

Domestically, organisations such as CARE Bangladesh and BRAC have implemented programmes providing training, credit access, and technical support to smallholder shrimp farmers, while also promoting more sustainable aquaculture practices designed to reduce the environmental footprint of gher expansion. Labour rights organisations, most notably the Solidarity Center, have played a particularly significant role in documenting working conditions in shrimp processing plants and in brokering agreements between industry associations and worker representatives, such as the 2012 memorandum of agreement between the Bangladesh Frozen Foods Exporters Association, the Bangladesh Shrimp and Fish Foundation, and the Solidarity Center (Solidarity Center, 2020).

Legal advocacy organisations have also proved influential. The Bangladesh Environmental Lawyers Association's involvement in the public interest litigation that led to the Supreme Court's 2016 ruling

on saltwater intrusion illustrates the capacity of civil society legal actors to secure judicial remedies where administrative enforcement has been lacking (Global March Against Child Labour, 2025). More recently, initiatives such as FoodTechBangladesh — a five-year public-private partnership programme (2022–2027) jointly led by Larive International B.V. of the Netherlands and LightCastle Partners Ltd. of Bangladesh — have sought to establish Centres of Excellence in Khulna, Mymensingh, Patuakhali, and Cox's Bazar to train farmers in modern, more sustainable aquaculture practices, with a target of training 1,800 farmers nationwide (LightCastle Partners, 2025).

Collectively, these NGO and development-partner interventions perform functions that might, in a more institutionally mature regulatory system, be expected to fall primarily to state agencies: technical extension services, quality-assurance training, legal advocacy, and even, in the case of the Solidarity Center-brokered memorandum of agreement, quasi-regulatory standard-setting for labour conditions. While this pattern reflects the practical value of civil society and donor engagement in a resource-constrained regulatory environment, it also raises a longer-term institutional question about the sustainability and democratic accountability of relying on externally funded programmes to perform functions of core public regulation. As the Centres of Excellence established under FoodTechBangladesh and comparable initiatives mature, an important element of the future development agenda discussed in Section 13 should be the progressive transfer of successful training and monitoring functions into the Department of Fisheries and other permanent state institutions, so that improvements in farming practice and labour standards are not contingent on the continuation of time-limited donor funding.

XI. LEGAL ISSUES AND CHALLENGES

Despite its considerable economic importance, the shrimp industry faces a range of interconnected legal and operational challenges that continue to constrain its growth and raise significant human rights concerns.

11.1 Quality Compliance and Export Rejection

As discussed in Section 3, quality compliance failures have historically resulted in serious trade consequences, most dramatically illustrated by the 1997 European Union import ban (Yunus, 2009). While HACCP adoption has substantially improved formal compliance rates, the proliferation of overlapping certification regimes required by different importing markets — European, American, Japanese, and increasingly Chinese — continues to impose significant compliance costs, particularly on smaller processing operations with limited technical capacity (Siddique et al., 2025).

11.2 Environmental Degradation

The environmental costs of shrimp gher expansion have been extensively documented and remain among the most serious unresolved legal issues confronting the sector. The conversion of rice paddies and mangrove forest into saline shrimp enclosures has contributed to soil salinisation, loss of agricultural land, biodiversity decline, and the degradation of the Sundarbans mangrove ecosystem, which provides critical natural protection against cyclones and storm surges (Shamsuzzaman et al., 2022). Although the Environment Conservation Act 1995 nominally regulates such environmental harm, the absence of a dedicated coastal zoning plan for shrimp aquaculture — a gap explicitly identified in academic assessments of the National Fisheries Policy 1998 — has permitted continued unregulated horizontal expansion of shrimp farming into ecologically sensitive areas (Shamsuzzaman et al., 2022). The Supreme Court's 2016 ruling on saltwater intrusion represents a significant, though isolated, judicial check on this trend (Global March Against Child Labour, 2025).

11.3 Labour Concerns, Including Child Labour

Labour rights violations remain one of the most serious and persistent legal challenges facing the industry. Bangladesh's seafood industry has been linked to human trafficking, forced labour, and hazardous child labour, particularly in fishing, fry collection, and dried fish production (Seafood Watch, 2023). While the Seafood Watch social risk assessment notes that significant progress has been made over the past decade in reducing child labour

specifically within seafood processing plants, it also finds that a high risk of labour rights violations persists across other segments of the supply chain, particularly at the intermediary collection, trading, and pre-processing stages that fall outside the scope of routine labour inspection (Seafood Watch, 2023).

Research conducted by the Needs Assessment Working Group Bangladesh similarly found that child labour in fry collection increased in the aftermath of natural disasters such as Cyclone Amphan and during the COVID-19 pandemic, as economic hardship forced families to rely more heavily on children's labour for household income, while simultaneously disrupting children's access to education (Global March Against Child Labour, 2025). The United States Department of Labor has separately identified children in Bangladesh's coastal fishing sector as being engaged in hazardous activities including fish drying and selling, often as a result of poverty, displacement, and, in some cases, exploitation linked to minority or marginalised community status (U.S. Department of Labor, n.d.).

Women workers face distinct, though related, forms of exploitation. Research by Sadika Halim, cited in a Swedish Society for Nature Conservation investigation, found that women engaged in fry collection frequently work for minimal or no income under conditions of bonded labour, while women employed in processing plants preparing shrimp for export to the European Union and the United States face intimidation, financial insecurity, and occupational health risks, compounded by widespread reliance on casual labour contracts that inhibit unionisation (World Rainforest Movement, 2013). These findings substantially corroborate the 2012 Solidarity Center report's conclusions regarding inadequate implementation of the Bangladesh Labour Act 2006 within the processing segment of the industry (Solidarity Center, 2020).

11.4 Global Competition

Bangladesh faces intensifying competition from other major shrimp-producing nations, most notably India, Vietnam, Thailand, Ecuador, and Indonesia, which collectively, along with China and Bangladesh, account for approximately 92 percent of Asia's shrimp exports, with Asia as a whole contributing around 55 percent of global shrimp exports (Siddique

et al., 2025). India remains the world's largest shrimp exporter, followed by Ecuador and Vietnam (Siddique et al., 2025). A key structural disadvantage for Bangladesh lies in its continued reliance on lower-yield Bagda cultivation, at a time when approximately 80 percent of global shrimp exports now consist of the higher-yield Vannamei species (Dhaka Tribune, 2025). This lag in species transition, attributable in significant part to the near decade-long bureaucratic delay in approving commercial Vannamei farming discussed in Section 4.1, has materially weakened Bangladesh's cost competitiveness relative to regional rivals.

Global competition has also intensified pressure on labour and environmental standards, creating a difficult trade-off for Bangladeshi policymakers. On one hand, competitor countries such as Vietnam and India have themselves faced significant scrutiny over labour and environmental practices in their own shrimp sectors, suggesting that stronger regulation need not necessarily place Bangladesh at a decisive competitive disadvantage. On the other hand, in a global market where buyers can readily switch suppliers, unilateral tightening of domestic labour or environmental standards, without corresponding improvements in productivity and cost competitiveness, risks accelerating the loss of market share that the sector has already experienced over the past decade (Food Business Africa, 2026). This dynamic underscores the importance of pursuing labour and environmental reform in tandem with the productivity-enhancing measures discussed in Section 13, rather than treating the two agendas as separate or competing priorities.

11.5 Declining Export Growth Despite Rising Production Capacity

As discussed in Section 4.2, the coexistence of generally rising aquaculture production with declining or stagnant shrimp export earnings represents a distinctive and troubling feature of the contemporary Bangladeshi shrimp sector. Industry representatives attribute this divergence to a combination of high feed and electricity costs, inadequate transport and cold-chain infrastructure, shortages of quality post-larvae, ageing and shallow pond infrastructure, and the compounding effects of

climate change on coastal salinity and disease prevalence (The Business Standard, 2026; Food Business Africa, 2026). Addressing this divergence will require coordinated legal and institutional reform across several of the domains discussed above, an agenda taken up in Section 13.

XII. ROLE OF BUSINESS LAW

Business law plays a critical, if imperfectly realised, role in ensuring the proper functioning of the shrimp industry. At a general level, business law promotes fair trade practices, enforces contracts along the supply chain, and protects consumers both domestically and in export markets through food safety and quality-control regulation. Key legal areas relevant to the sector include contract law governing relationships between farmers, traders, processors, and exporters; corporate governance rules applicable to the limited liability companies that dominate the processing and export segments of the industry; and international trade law, which determines the conditions under which Bangladeshi shrimp may lawfully enter major consumer markets.

Contract law is of particular practical importance given the fragmented, multi-tiered structure of the shrimp value chain described in Section 8. The prevalence of informal credit arrangements between farmers and middlemen, and between fry collectors and traders, means that many of the economically most significant relationships within the industry are governed not by the formal contract law of the Contract Act 1872, but by informal, often exploitative, customary arrangements that fall largely outside the reach of judicial enforcement (Global March Against Child Labour, 2025). Strengthening farmers' access to formal credit and formal contractual protection is therefore likely to be an important precondition for improving both economic efficiency and labour conditions within the sector.

Corporate governance and regulatory compliance obligations are, by contrast, considerably better developed with respect to the formal, exporting segment of the industry, given the direct commercial incentive for processing companies and exporters to maintain HACCP and related certifications in order

to preserve market access (Siddique et al., 2025). This creates a notable asymmetry within the sector's legal ecosystem: the export-facing, corporate segment of the value chain is subject to relatively robust, internationally reinforced regulatory discipline, while the informal, farm-level and intermediary segments — where the majority of the workforce, including the most vulnerable women and child workers, are concentrated — remain comparatively under-regulated (Seafood Watch, 2023).

International trade law, finally, functions as perhaps the single most powerful external disciplining mechanism on the industry's business practices, as illustrated by the transformative regulatory effect of the 1997 European Union ban (Yunus, 2009) and by the continuing threat of trade restrictions linked to labour rights petitions filed with the United States Trade Representative (SeafoodSource, n.d.). This dynamic raises an important normative question for Bangladeshi business and constitutional law scholarship: whether domestic labour and environmental protections should continue to rely so heavily on the threat of external trade sanctions, or whether stronger indigenous enforcement mechanisms, grounded in constitutional guarantees of dignity, equality, and environmental protection, ought to be developed as a matter of national legal policy.

A further, related role of business law lies in facilitating access to finance and insurance for shrimp farmers and processors, both of which are essential to managing the sector's considerable exposure to disease outbreaks, cyclones, and price volatility. Formal agricultural credit and crop insurance products remain underdeveloped for shrimp aquaculture relative to other agricultural sectors, in part because of the difficulty insurers face in assessing risk across the highly informal and heterogeneous farm structures described in Section 8. Strengthening the legal and regulatory framework for agricultural insurance — including clearer rules on loss assessment and claims processing tailored to aquaculture — could meaningfully reduce farmers' vulnerability to the disease and climate shocks that have contributed to the sector's declining

productivity, and would represent a further concrete way in which business law reform could support the industry's revival.

XIII. FUTURE DEVELOPMENT PLAN (2026–2033)

To strengthen the shrimp industry and restore its historical position as one of Bangladesh's premier export sectors, a long-term development strategy should address the following priority areas.

- Technological advancement: Wider adoption of biofloc farming and Recirculating Aquaculture Systems (RAS), alongside the accelerated commercial rollout of Vannamei shrimp farming, which offers yields many times greater than traditional Bagda cultivation (Dhaka Tribune, 2025; Food Business Africa, 2026).
- Stronger legal enforcement: Closing the regulatory gap identified in the National Fisheries Policy 1998 by adopting a dedicated coastal zoning plan for shrimp aquaculture, and strengthening enforcement of the Environment Conservation Act 1995 and Bangladesh Labour Act 2006, particularly with respect to informal and intermediary segments of the value chain (Shamsuzzaman et al., 2022).
- Infrastructure development: Investment in deeper, more disease-resistant pond structures, dedicated cold-chain logistics, and restored air-freight capacity for shrimp larvae transport between key production and processing hubs (The Business Standard, 2026).
- Market diversification: Deepening market access in China, whose shrimp import demand has grown dramatically in recent years, alongside continued compliance with established European Union, United States, and Japanese standards (Siddique et al., 2025).
- Environmental sustainability: Establishment of designated Shrimp Economic Zones incorporating hatcheries, feed mills, laboratories, processing plants, and cold storage within a single, better-regulated system, alongside continued judicial and administrative enforcement of limits on saline water intrusion into agricultural land (The

Business Standard, 2026; Global March Against Child Labour, 2025).

- Skill development: Expansion of farmer training programmes, such as those delivered through the FoodTechBangladesh initiative, with particular attention to modern hatchery practices, disease management, and occupational safety training for processing-plant workers (LightCastle Partners, 2025).
- Financial support for farmers: Improved access to formal credit for smallholder farmers, designed to reduce dependence on exploitative informal lending arrangements with middlemen and fry traders (Global March Against Child Labour, 2025).

If these measures are implemented effectively, the industry could plausibly move toward the ambitious export targets articulated by industry stakeholders, including the US\$3 billion annual export target set for 2030 by the Maheshkhali Integrated Development Authority, and potentially the more optimistic US\$5 billion figure cited by some industry representatives once Vannamei exports are fully commercialised (The Business Standard, 2026; Dhaka Tribune, 2025). However, realising these targets will require sustained legal and institutional reform, rather than technological upgrading alone, given that many of the sector's most serious constraints — land-use conflict, informal credit dependency, and weak labour enforcement — are fundamentally legal and regulatory in character.

A useful way to sequence these reforms is to distinguish between measures that can be implemented in the short term (2026–2028), the medium term (2028–2031), and the long term (2031–2033). Short-term priorities should focus on enforcement gaps that require little new legislation, such as strengthened labour inspection of processing plants and intermediary trading sites, and accelerated licensing of Vannamei farming to remove the residual bureaucratic bottlenecks identified in Section 4.1. Medium-term priorities should focus on the more substantial legal reforms discussed above, including the adoption of a formal coastal zoning framework for shrimp aquaculture and the development of standardised supply contracts and agricultural

insurance products for farmers. Long-term priorities should focus on the capital-intensive infrastructure investments — Shrimp Economic Zones, cold-chain logistics, and deep-pond conversion — that are likely to determine whether Bangladesh can close the substantial productivity gap with regional competitors identified in Section 14. Sequencing reform in this manner would allow policymakers to address the most acute human rights and enforcement concerns immediately, while building the institutional and physical infrastructure needed for longer-term competitiveness.

XIV. COMPARATIVE REGIONAL PERSPECTIVE

Bangladesh's shrimp sector can usefully be situated within a broader regional and global context. According to trade data compiled by the Observatory of Economic Complexity, India is currently the world's largest shrimp exporter, followed by Ecuador and Vietnam, with Asia as a whole accounting for approximately 55 percent of global shrimp exports (Siddique et al., 2025). Bangladesh, India, Thailand, Indonesia, Vietnam, and China collectively account for around 92 percent of Asia's shrimp export volume (Siddique et al., 2025).

A key comparative disadvantage for Bangladesh lies in productivity. Average shrimp yields under semi-intensive farming systems in Bangladesh stand at approximately 400 kilograms per hectare, compared with roughly 6,800 kilograms in Ecuador, 5,500 kilograms in India, and 4,500 kilograms in Vietnam (Food Business Africa, 2026). This yield gap is attributable primarily to Bangladesh's continued reliance on lower-yield Bagda cultivation and shallow, poorly maintained pond infrastructure, in contrast to competitor nations that have more fully transitioned to intensive Vannamei aquaculture systems (Food Business Africa, 2026).

Vietnam's experience is particularly instructive for Bangladeshi policymakers. Industry analysts have suggested that Bangladesh could leverage Chinese-funded modernisation projects, including special economic zones and processing-plant infrastructure support from China's Eximbank, to replicate aspects

of Vietnam's successful strategy of aligning production with the increasingly important Chinese import market (Siddique et al., 2025). At the same time, Bangladesh's regulatory institutions could draw on regional best practice in certification and traceability systems, such as the chain-of-custody and grading standards increasingly adopted by competitor exporters seeking to build buyer confidence in both stringent Western markets and more accessible Asian markets (Siddique et al., 2025).

A further point of comparison concerns the institutional coordination of aquaculture regulation. In several competitor jurisdictions, shrimp export promotion, food safety certification, and environmental regulation are coordinated through unified or closely integrated regulatory bodies, reducing the compliance burden on exporters and enabling more consistent enforcement of both quality and sustainability standards. In Bangladesh, by contrast, these functions remain distributed across the Ministry of Fisheries and Livestock, the Department of Fisheries, the Department of Environment, the Bangladesh Food Safety Authority, and the Export Promotion Bureau, with limited formal mechanisms for inter-agency coordination (Shamsuzzaman et al., 2022). The proposed Shrimp Economic Zones discussed in Section 13 could, if properly designed, provide an opportunity to consolidate regulatory oversight within a single administrative framework, following models already adopted by some regional competitors for their own aquaculture export zones. Finally, it is worth noting that Bangladesh's global market position, while currently weaker than that of India, Ecuador, or Vietnam, remains far from negligible: the country continues to rank among the world's top shrimp-farming nations by area under cultivation, and its established relationships with European Union, United States, and Japanese buyers represent a significant, if currently under-utilised, competitive asset (Food Business Africa, 2026). The central policy challenge, as discussed further in Section 13, is therefore not one of building an export sector from scratch, but of revitalising an established one through targeted legal, institutional, and technological reform.

XV. LIMITATIONS OF THIS STUDY

This paper is subject to several limitations that should be acknowledged. First, as a doctrinal and policy-analytical study, it does not incorporate primary empirical fieldwork, such as interviews with shrimp farmers, processing-plant workers, or regulatory officials, and instead relies on secondary academic, governmental, and industry sources. Second, the sector's statistics — particularly export earnings and production volumes — are subject to revision and, in some cases, inconsistency between different reporting bodies, including the Export Promotion Bureau, the Fish Inspection and Quality Control offices, and independent industry analysts; figures cited in this paper reflect the most recent and reliable sources available at the time of writing but should be treated as indicative rather than definitive. Third, given the rapidly evolving character of the sector — including the ongoing commercial rollout of Vannamei farming and the proposed Shrimp Economic Zones — some of the empirical claims made in this paper may require revision as new data become available in subsequent fiscal years. Future research incorporating primary fieldwork with coastal shrimp-farming communities, and a more detailed doctrinal analysis of enforcement practice under the Bangladesh Labour Act 2006 and the Environment Conservation Act 1995, would usefully complement the analysis presented here.

XVI. CONCLUSION

The shrimp industry remains a cornerstone of Bangladesh's economy, historically contributing significantly to employment, foreign exchange earnings, and rural development, particularly across the coastal districts of Khulna, Satkhira, Bagerhat, and Cox's Bazar. Its trajectory over the past five decades — from informal subsistence gher farming, through a period of rapid export-led expansion, to the current phase of structural decline and attempted revival — illustrates both the transformative economic potential of export-oriented aquaculture and the serious legal, environmental, and human rights risks that can accompany unregulated commercial expansion.

This paper has shown that business law has played an indispensable, though unevenly effective, role in shaping the industry's development. The domestic legal framework — comprising the National Fisheries Policy 1998, the Fish and Fish Products (Inspection and Quality Control) Ordinance 1983, the Bangladesh Food Safety Act 2013, the Environment Conservation Act 1995, and the Bangladesh Labour Act 2006 — provides a formally comprehensive regulatory architecture. Yet the analysis presented in Sections 6 and 11 demonstrates that this architecture has frequently been under-enforced, particularly with respect to environmental protection in coastal zoning and labour protection for the industry's most vulnerable workers, including women in fry collection and processing, and children exposed to hazardous informal-sector work. International trade law and the compliance requirements of importing markets — the European Union, the United States, Japan, and increasingly China — have, somewhat paradoxically, often proved to be more effective drivers of reform than purely domestic enforcement mechanisms, as the transformative impact of the 1997 European Union ban vividly illustrates.

Looking ahead, the sector's stated ambition of reaching US\$3– 5 billion in annual export earnings by 2030 is achievable only if technological modernisation — particularly the wider adoption of Vannamei farming and biofloc technology — is accompanied by genuine legal and institutional reform. This includes the adoption of a dedicated coastal zoning framework for shrimp aquaculture, meaningfully strengthened enforcement of labour protections across both formal and informal segments of the value chain, and continued judicial vigilance of the kind demonstrated by the Supreme Court's 2016 ruling on saline water intrusion. With proper regulation, technological innovation, and sustained policy support grounded in constitutional commitments to equality, dignity, and environmental protection, Bangladesh retains the potential to transform its shrimp industry into a more sustainable, equitable, and globally competitive sector, restoring “white gold” to its former place at the heart of the national economy.

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